Detailed Site Investigation

Australian Rail Track Corporation Ltd

Goulburn Roundhouse
12 Braidwood Road,
Goulburn, NSW 2580

January 2021

Ref. 20025.76 R01

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consulting

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Report Details

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for

Australian Rail Track Corporation Limited

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Executive Summary

Cavvanba Consulting Pty Ltd was commissioned by Australian Track Rail Corporation Limited (ARTC) to undertake a detailed site investigation at the Goulburn Roundhouse, located at 12 Braidwood Road, Goulburn, New South Wales 2580 (herein known as the site). The site is currently used as a railway museum and actively operated as a Roundhouse by the Goulburn Locomotive Roundhouse Preservation Society Incorporated (GLRPS) for storage, restoration and maintenance of locomotives and rolling stock.

The objective of the detailed site investigation was to further understand, and assess the nature and extent of potential contamination at the site, provide an assessment on whether the contamination presents an unacceptable risk to human health and/or the environment under the current commercial/industrial land use scenario, and provide an assessment as to whether the site requires notification to the NSW EPA under Section 60 of the Contaminated Land Management Act 1997 (CLM Act).

To meet the project objectives, the scope of work completed included a desktop review of background information, site inspection and intrusive investigation which comprised of the advancement of fifteen test pitting locations and twelve boreholes, with eight converted to groundwater monitoring wells for sampling purposes.

The site has a long history of industrial activities, with railway operations commencing in the late 1800's. The NSW Government Railways opened the Goulburn Roundhouse in 1918, which replaced an earlier locomotive depot. Both new and old locomotive depots operated simultaneously until 1935. The old depot was demolished in 1941. The Roundhouse was closed in 1981, and later leased to the Goulburn City Council for use by a historical society to restore and maintain heritage locomotives, railway vehicles and railway orientated machinery and equipment.

The primary contaminating activity at the site was considered to be the current and historical use of the site as a Roundhouse, including locomotive maintenance and repair activities, historical land filling and poor waste disposal practices.

The soil profile beneath the site was observed to generally consist of fill material which was reported to extend to depths of up to 2.5 m on-site, comprising spent coal ash and/or coal fragments, ACM and other buried waste material. Natural sandy clays and clays were reported to underlay fill material at the site to the maximum depth of investigation, being 10.0 m.

Groundwater beneath the site was observed to be present within an unconfined water bearing zone in natural sandy clays and clays at depths of between 4.1 m and 8.7 m.

Soil analytical data collected as part of this investigation indicated the following commercial/industrial screening criteria exceedances:

- *widespread lead contamination within fill material with a reported maximum concentration of 9,440 mg/kg; and*
- *TRH in fill material within the former refuelling gantry and adjacent to the Roundhouse building maintenance pits.*

Non-friable asbestos containing material was identified to be widespread, both in and on soils across the site. A significant quantity of buried and layered ACM was identified in the southern portion of the site to a maximum depth of 2.2 m.

The nature and extent of groundwater contamination at the site can be summarised as follows:

- *evidence of LNAPL was not observed;*
- *groundwater analytical concentrations were reported below the applicable CRC CARE HSLs for vapour intrusion;*

- *the reported TRH concentrations within monitoring well MW02, located adjacent to the former refuelling gantry exceed the solubility limits for TRH, and therefore may be indicative of a potential source of LNAPL within this location.*

Through the development of the conceptual site model, potentially complete source-pathway-receptor linkages resulting in a potential risk to human health receptors under a commercial/industrial land use scenario have been identified which require further assessment. These have been summarised as data gaps, and associated recommendations to reconcile these gaps has been provided within the table, below.

Data Gap	*Recommendation*
1) TRH in groundwater	*Further assess the presence and significance of TRH in groundwater and commencement of a program of routine groundwater monitoring. This should also incorporate the confirmation of the integrity of the subterranean waste oil network and drainage system.*
2) Site infilling and waste disposal areas	*Implement interim management measures. Determine the nature and extent of waste material, including the presence of lead in fill material across the site.*
3) Asbestos in and on soil	*Implement interim management measures, develop and implement an asbestos management plan to manage asbestos in and on soil. Determine the nature and extent of asbestos in soil to enable appropriate management / remediation.*
4) Site history	*Where practicable, further understand historical site features and operations to determine whether further investigation within these areas is considered warranted.*

Duty to report

Section 60 of the Contaminated Land Management Act 1997 outlines the responsibilities and triggers for people whose activities have contaminated land, or owners of land that has been contaminated.

The Guidelines on the Duty to Report Contamination under the CLM Act (NSW EPA, 2015) provide information to land owners or occupiers in determining whether there is sufficient information to report contamination to the NSW EPA.

The presence of lead within fill material at concentrations equal to, and more than 250% of the health investigation level (ASC NEPM, 2013) and a person has been or foreseeably will be exposed to lead, is considered to meet the notification trigger as defined within the guidelines (NSW EPA, 2015). It is therefore considered that a duty to report exists for the site.

It is recommended that the contamination status of the site is communicated to the site owner, and legal advice be sought to support the formal notification process and discuss implications for notifying the site under Section 60 of the Contaminated Land Management Act 1997.

1.0 Introduction

Cavvanba Consulting Pty Ltd (Cavvanba) was commissioned by Australian Track Rail Corporation Limited (ARTC) to undertake a detailed site investigation at the Goulburn Roundhouse, located at 12 Braidwood Road, Goulburn, New South Wales (NSW) 2580 (herein known as the site). A site locality plan is provided as Figure 1, and site features plan provided as Figure 2.

The scope of work and methodology was consistent with that detailed within Cavvanba's proposal titled *Remediation of Contaminated Land – Package 1* (RFQ: NSW-TC-06198-00) submitted to ARTC in April 2020 (Cavvanba Ref: P20025). This report should be read in conjunction with Cavvanba's *General Limitations* included as Section 1.4.

1.1 Background

The site is currently used as a railway museum and actively operated as a Roundhouse by the Goulburn Locomotive Roundhouse Preservation Society Incorporated (GLRPS) for storage, restoration and maintenance of locomotives and rolling stock.

The site has over 100 years of industrial activity having officially opened as an operational railway Roundhouse by the NSW Government Railways in 1918, with railway maintenance activities commencing at the site in approximately 1869. The site has been used to maintain a large portion of the railways fleet of steam locomotives, followed by diesel locomotives being maintained at the site from the 1950's until its closure in 1981. The GLRPS opened the Goulburn Rail Heritage Centre at the site in approximately 1989. According to *Contamination Summary Report – Goulburn Roundhouse* (Cavvanba, 2019), soil and groundwater contamination was identified at the site in 1997 which had not been adequately characterised based on the investigations completed to date.

1.1.1 Interim management plan

An *Interim Management Plan – Goulburn Roundhouse* (Cavvanba, 2020) was prepared by Cavvanba in September 2020 to ensure that all practicable steps were taken to minimise the potential risk of exposure to potential asbestos containing material and lead contamination at the site prior to the outcome of the detailed site investigation.

The interim management plan was based on the information provided within *Contamination Summary Report* (Cavvanba, 2019) and a site inspection completed by Cavvanba on 10 August 2020, and was limited to ensuring an appropriate level of awareness of site contamination.

1.2 Objectives

The objective of the DSI were to:
- further understand, and assess the nature and extent of potential contamination at the site;
- provide an assessment on whether the contamination presents an unacceptable risk to human health and/or the environment under the current commercial/industrial land use scenario; and
- provide an assessment as to whether the site requires notification to the NSW EPA under Section 60 of the Contaminated Land Management Act 1997 (CLM Act).

1.3 Scope of work

To achieve the objectives outlined above, the following scope of work was prepared based on the requirements outlined in the following guidelines:
- NSW EPA (2020) *Consultants Reporting on Contaminated Land*;
- NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd edition)*; and

- *National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM (2013)) – Schedule B2: Guideline on Site Characterisation* (2013).

Preliminaries

Prior to undertaking the intrusive investigation component, Cavvanba undertook a review of all background information available for the site, including any publicly available and recently acquired information through the following:

- regulatory databases, incorporating contaminated land registers, heritage registers, etc;
- relevant information contained within the Goulburn Mulwaree Local Environmental Plan (LEP) 2009 and associated mapping;
- planning certificates issued under Section 10.7 of the *Environment Planning and Assessment Act 1979*;
- a Schedule 11 Hazardous Chemicals on Premises (formerly known as a Dangerous Goods) search;
- historical aerial photographs;
- Dial Before You Dig (DBYD) service plans;
- site and environmental setting including geology, topography, hydrogeology and hydrology; and
- any hard copy records and publicly available information for the site and immediate surrounding area.

Site visit and intrusive investigation component

The scope of the investigation component included the following activities:

- Completion of a comprehensive site walkover and visual inspection for key features to identify potential areas of environmental concern on and off-site, and to provide for any necessary improvements in the investigation design.

- Implementation of a targeted sampling program of soil and groundwater.

- Advancement of twelve boreholes to a maximum depth of 10 metres (m) using a combination of hand augering and mechanical drilling techniques.

- Conversion of eight boreholes to groundwater monitoring wells.

- Advancement of 15 test pits using an excavator to natural soils, where achievable, being a maximum depth of 2.3 m.

- Logging of the lithology at each soil bore / test pit by an experienced Cavvanba environmental scientist with soil samples collected for laboratory analysis at various depth intervals until termination.

- Development and purging of newly installed groundwater monitoring wells to enable the collection of groundwater samples considered representative of the surrounding aquifer.

- Gauging and sampling of newly installed and existing groundwater monitoring wells.

- Submission of soil and groundwater samples to a National Association of Testing Authorities (NATA) accredited laboratory for analysis of potential contaminants of concern (PCOCs).

- Survey of newly installed groundwater monitoring wells to metres Australian Height Datum (AHD) and eastings and northings by a registered surveyor.

- Preparation of this DSI report detailing the results of the investigation and a statement regarding site suitability and any recommendation for further work (if necessary).

1.4 Limitations

The findings of this report are based on the objectives and scope of work outlined above. Cavvanba performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties or guarantees, express or implied, are made. Subject to the scope of work, Cavvanba's assessment is limited strictly to identifying typical environmental conditions associated with the subject property, and does not include evaluation of any other issues. This report does not comment on any regulatory obligations based on the findings, for which a legal opinion should be sought. This report relates only to the objectives and scope of work stated, and does not relate to any other works undertaken for the Client.

The report and conclusions are based on the information obtained at the time of the assessment. Changes to the subsurface conditions may occur subsequent to the investigation described herein, through natural processes or through the intentional or accidental addition of contaminants, and these conditions may change with space and time.

The site history, and associated uses, areas of use, and potential contaminants, were determined based on the activities described in the scope of work. Additional site history information held by the Client, regulatory authorities, or in the public domain, which was not provided to Cavvanba or was not sourced by Cavvanba under the scope of work, may identify additional uses, areas of use and/or potential contaminants. The information sources referenced have been used to determine site history and desktop information regarding local subsurface conditions. While Cavvanba has used reasonable care to avoid reliance on data and information that is inaccurate or unsuitable, Cavvanba is not able to verify the accuracy or completeness of all information and data made available.

Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history, and which may not be expected at the site. The absence of any identified hazardous or toxic materials on the subject property, should not be interpreted as a warranty or guarantee that such materials do not exist on the site. If additional certainty is required, additional site history or desktop studies, or environmental sampling and analysis, should be commissioned.

The results of this assessment are based upon site inspection and fieldwork conducted by Cavvanba personnel and information provided by the Client. All conclusions regarding the property area are the professional opinions of the Cavvanba personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, Cavvanba assumes no responsibility or liability for errors in any data obtained from regulatory agencies, information from sources outside of Cavvanba, or developments resulting from situations outside the scope of this project.

2.0 Site setting

2.1 Site location and description

The site is located at 12 Braidwood Road, Goulburn NSW 2580 and consists of a single allotment, identified as Lot 2 in Deposited Plan 1002813. The total site area is 46,390 m2 and is located to the south of the Goulburn central business district, and immediately adjacent to the east of the Main South Railway line.

The site is accessed from Braidwood Road via a sealed asphalt access road in the central portion of the site. The remainder of the site is otherwise unsealed gravel access roads, railway lines or fill material comprising coal and ash. Grass cover is present within the southern and eastern portion with sporadic vegetation and larger trees within isolated areas of the site. A site features plan is provided as Figure 2.

The site identification and land use details are provided below.

Site Owner:	Transport for New South Wales (TfNSW)
Site Manager:	ARTC
Lessee	GLRPS
Site Address:	12 Braidwood Road, Goulburn NSW 2580
Legal Property Description:	Lot 2 in DP 1002813
Property area:	Approximately 46,390 m^2
Co-ordinates:	Latitude: -34.773891 Longitude: 149.710899
Local Government Authority:	Goulburn – Mulwaree Council.
Elevation:	Approximately 638 metres (m) Australian Height Datum (AHD).
Landuse – Proposed:	Commercial / Industrial
Zoning:	IN1 – General Industrial

2.2 Key site features

The Goulburn Roundhouse was also referred to as a refuelling facility and former locomotive maintenance depot (Jeffery and Katauskas Pty Ltd (J&K), 1997).

A list of key site features relevant to this investigation is summarised below and provided graphically on Figure 2. The relevance of these features in regard to the site history and potential for contamination is discussed in the following sections.

- Roundhouse / Engine Shed – The engine shed currently forms part of the western portion of the Roundhouse building and was used to maintain and repair locomotives. Cavvanba understands that this area continues to be used for maintenance and repair operations by GLPRS and is also sub-leased for this purpose. The eastern portion is currently used as a storage area for heritage rolling stock, as presented on Photographs 1 and 2 of Appendix A.

- Locomotive maintenance pits / subterranean waste oils line – This infrastructure is located within the Roundhouse and is understood to historically collect waste oils from locomotive maintenance operations as presented on Photographs 8 and 9 of Appendix A. The waste oil network and associated stormwater drainage network, and how this potentially interacts remains unclear however is further discussed in Section 3.1.2.

- Former workshop / machine shop – This building is located to the south of the Roundhouse and was historically used as a heavy industrial workshop and machine shop. An unsealed former blacksmiths area is located in the southern portion of the building (Photograph 10 of Appendix A), and an abrasive blasting area (Photograph 19 of Appendix A) immediately adjacent to the northwest. A concrete lined maintenance pit was also present to the south of this area as presented on Photograph 10 of Appendix A. It is understood that current operations within this building are limited to the storage of materials and heritage items.

- Lube Oil and Waste Oil Storage Area – This is located at the entrance to the Roundhouse in the northern portion. These are steel storage tanks, one being located above ground in a concrete bunded area and the other being partially buried within a below ground holding pit. It is noted that a drum platform is also present within this area used for the storage of waste oils in 205 L drums. A former, fenced oil drum compound (Photograph 7 of Appendix A) is located in the northern portion of the site.

- Diesel refuelling gantry – This infrastructure is located to the north of the Roundhouse and was formally used to provide refuelling to locomotives as presented on Photograph 6 of Appendix A. This refuelling point was fed via an aboveground pipeline from the 190,000 Litre (L) capacity diesel aboveground storage tanks adjacent to the eastern site boundary. This pipeline has been capped at the junction to the refuelling gantry.

- Diesel aboveground storage tanks – A total of four decommissioned diesel aboveground storage tanks are present at the site. Two tanks are located within a small concrete bunded area approximately 30 m to the northeast of the former refuelling gantry (Photograph 5 of Appendix A), and two newer tanks (Photograph 3 of Appendix A) located adjacent to the eastern site boundary in the northern portion of the site. The newer aboveground storage tanks have a licensed maximum capacity of 190,000 L. Based on SafeWork NSW records, the use of the site for the storage of diesel ceased in 1998.

- Effluent Treatment Plant and API Separator – These are located adjacent to the eastern site boundary in the northern portion of the site. Cavvanba understands that these systems are no longer maintained, with the Effluent Treatment Plant (Photograph 4 of Appendix A) being partially decommissioned. Cavvanba understands that the Effluent Treatment Plant was used for the treatment of trade waste prior to discharge from the site. Cavvanba understanding of the stormwater drainage network and how this historically connected to the treatment plant and separator is discussed in Section 3.1.2.

- Former Oil Filter Cleaning Shed – According to J&K (1997), the shed on the northern side of the Roundhouse was formerly used for oil filter cleaning which included the use of chlorinated solvents.

- Former 'Pay Bus' Maintenance Pit – According to anecdotal evidence provided by GLRPS personnel, a small maintenance pit in the south-western portion of the site was historically used to service and maintain railway pay buses.

- Chemical / Oil Storage Areas – A small oil drum storage area is located immediately adjacent to the south of the Roundhouse building, as presented in Photograph 15 of Appendix A. A number of areas of small quantity fuel / chemical storage were also evident across the site, including within the Roundhouse building.

- Locomotive Sand Hopper – This infrastructure includes two aboveground hoppers and an underground storage tank historically used to store and distribute sand for use as traction control in locomotives. This area is not considered to represent a source of contamination for the site.

- Administration and heritage buildings – The administration building is located immediately to the east of the Roundhouse building and is used for general administration purposes. The former meal room, shower room, Chargeman's office, office building and 'Loco Store' are either no longer in use or their historical use could not be determined. The former office located to the south of the former workshop / machine shop is understood to be currently used as an area for storage and operation of model trains.

It is noted that there are a number of current and historical features at the site where the historical use could not be determined. These have been presented on Figure 2.

Cavvanba has reviewed the historical uses of the site, including information collected from the site inspection and interview process, against the list of activities which are considered to be associated with per- and poly-fluoroalkyl substances (PFAS) contamination, as presented within Tables B1 and B2 of the *PFAS National Environmental Management Plan*, Version 2.0 (National Chemicals Working Group of the Heads of EPAs Australia and New Zealand, January 2020). *Fuel exploration, assessment, production, transport and storage including petrochemicals, other fossil fuels and renewable liquid fuels* is included on the list associated with on-site firefighting. While the previous activities at the site indicate the potential for PFAS contamination, there was no indication of the current or historical presence of firefighting foam storage or use, or water storage tanks for firefighting purposes at the site. Therefore, the potential risk of PFAS contamination at the site is considered to be low.

2.3 Surrounding Land Use

Land use features surrounding the site is summarised below:

North:	The railway corridor extends to the north of the site. Immediately north is the CFCL Australia Rail Services maintenance facility, located within the railway corridor. It is understood that this facility is used for the overhaul, maintenance, modification and painting of locomotives and rolling stock. A number of commercial properties, including an automotive wreckers and engineering depot are located beyond the CFCL site, followed by residential properties.
East:	Braidwood Road borders the site to the east followed by a rural residential property and agricultural land. The Mulwaree River is located approximately 570 metres from the site boundary.
South:	The Hume Highway is located immediately south of the site followed by rural residential properties and agricultural land.

West:	The Main South Railway line borders the site to the east. A vacant parcel of land within the railway corridor is located directly west of the site followed by a nursery, a livestock sale yard and agricultural land. A Caltex Petroleum Truck Stop and former fuel depot are located to the south west of the site on Sloane Street.

3.0 Environmental setting

3.1.1 Topography and hydrology

The site is situated at approximately 638 m AHD within the Southern Tablelands region of NSW. The site area is relatively flat with the broader area surrounding the site sloping the east and north towards the Mulwaree River. An escarpment is located to the west of the site beyond Sloane Street which is present at an elevation approximately 40 higher than the site.

Surface water on-site is understood to be predominantly uncontrolled and would generally pool on-site and permeate the unsealed ground surface that covers the site, however in moderate – heavy rainfall surface water would follow the local topography and drain towards Braidwood Road away from the rail corridor and eventually into the municipal stormwater system. More broadly, surface water is expected to flow east eventually discharging to the Mulwaree River approximately 570 m from the site boundary. The Wollondilly River is located approximately 3.8 kilometres (km) north of the site.

It is noted that an open drainage line is located immediately adjacent to the south of the site. However, based on the orientation and layout of the site, surface water is not anticipated to drain to this area.

3.1.2 Site drainage, effluent and sewer

J&K was commissioned by the NSW Department of Public Works and Services in 1997 to undertake an Environmental Investigation at the site which included an assessment of the effluent, sewerage and stormwater system at the site. A J&K (1997) drainage figure has been provided as Appendix B.

The following key findings were noted by J&K in 1997:

- The site drainage system was likely installed during the construction of the site, which appeared to have been designed to accommodate effluent and stormwater drainage. The system as a whole has been continuously modified since installation.

- The system was based on the passage of effluent through arrestor pits, which acted as a separator for floating oily contaminants and sediment. Various oil collection devices were installed within the separators, with floating contaminants subsequently collected and drummed for disposal.

- The effluent system was reported to have been modified to accept oily water related to diesel refuelling operations which formed part of three main sections, being the East, Central and West Drainage lines as presented in Appendix B.

- In 1981, the site was closed and new workshops were constructed. During this time, the Effluent Treatment Plant and a sewage pumping station were installed to accommodate effluent from the new workshops. The Effluent Treatment Plant consisted of a dosing and sedimentation facility together with oil separation equipment and a sludge drying bed. This plant was no longer in operation at the time of the inspection, with a significant portion of the pipework either removed or disconnected.

- A number of arrestor facilities have been installed at the site, and it was reported that only one on-site remained intact ('C' on drainage figure) and apparent working order. This was referred to as the main operational arrestor pit which was fitted with pumps and a differential separator facility which appeared to be operation at the time of the inspection. It was reported that Freight Rail Corporation held a licence from the EPA to discharge from the separator into the nearby waterway.

- It was reported that the entire drainage system appeared to be in poor condition and of questionable operation. Significant modification of the system was reported which resulted in partial blockage and potential leaks. Due to the decommissioning of the Effluent Treatment Plant, the remaining system was reported to be of a relatively small capacity for the size of the site, resulting in significant overloading during periods of heavy rainfall.

3.1.3 Soils and geology

Soils

Based on a review of the *Atlas of Australian Soils*, provided by Lotsearch Pty Ltd and included as Appendix C, soils beneath the site are characterised as Sodosol described as the following:

> *Sodosol: Undulating to hilly country: chief soils are hard neutral and acid yellow mottled soils (Dy3.42 and Dy3.41) in a general pattern as follows: (i) undulating to hilly slopes of various (Dy) and (Dr) soils, including (Dy3.41), (Dy3.42), (Dy3.2), (Dr2.2), (Dr2.4); (ii) (Dy3.42) and sometimes (Dr3.42) soils in basins which merge with unit Va21 and lower-lying sites generally; and (iii) less frequently (Gn2. 15) and (Gn2.25) soils on gently undulating areas, usually situated between (i) and (ii).*

Geology

According to the *Goulburn 1:250,000 Geological Series Sheet 55-12* (Second Edition, 2013), the site is located underlain by Cainozoic Aged alluvium consisting of gravels and sands overlying Palaeozoic Aged Gundary beds consisting of sandstone, siltstone volcanic mudstone and lithic-quartz sandstone.

Acid sulfate soils

Based on a review of the *Atlas of Australian Acid Sulfate Soils*, provided by Lotsearch Pty Ltd and included as Appendix C, the site is located within a Class B area, meaning a low probability of occurrence (6 – 70%).

Naturally occurring asbestos

Asbestos occurs in some rocks and soils as a natural mineral. Less than one per cent of the land surface of NSW is estimated to have the potential for naturally occurring asbestos within 10 metres of the land surface (NSW EPA, 2016). Based on a review of Geographic Information System (GIS) maps developed by NSW Trade and Investment, the site is not located within an area of naturally occurring asbestos potential.

3.1.4 Hydrogeology

Based on the surface topography, elevation and the adjacent surface water course, it is anticipated that regional groundwater generally flows to the east and north, consistent with the local topography towards Mulwarree River. It is important to note that groundwater flow direction can be influenced locally and regionally by not only surface topography, but recharge and discharge areas, horizontal and vertical inconsistencies in the types, location and orientation of subsurface soils or bedrock, and proximity to water extraction / pumping bores.

According to J&K (1997), groundwater was encountered within monitoring wells W1 – W3, at depths between 5.56 m and 7.57 m, however no estimation of groundwater flow direction was reported.

Groundwater Bore Search

A review of the groundwater bore information has been provided by Lotsearch Pty Ltd and included as Appendix C. A total of five registered groundwater bores were located within a 1,000 m radius of the site. Groundwater bore information from these bores has been provided within Table 3.1, below.

Table 3.1: Licensed bore summary

Bore ID	Registered use	Distance from site (m)	Geology	Depth (m)	Standing water level (m)
GW105739	Stock / Domestic Purposes	~195m (South)	Sand / Gravel / Clay	78.00	2.00
GW110381	Recreation (groundwater)	~689m (Northeast)	Gravel / Clay / Siltstone	54.00	5.00
GW064585	Stock / Domestic Purposes	~765m (North)	Clay / Gravel / Shale	15.80	-
GW071524	Monitoring	~887m (North)	Silty Sand / Silty Clay	6.50	5.30
GW102093	Domestic	~907m (Northeast)	Sandy Clay / Gravel / Shale	27.40	0.60

4.0 Site history and regulatory information

4.1 Site history summary

The railway line from Marulan to Goulburn opened on 27 May 1869 and a railway depot was constructed by the NSW Government Railways on the southern outskirts of town at this time. It is understood that this included the construction of the engine shed at the site. The NSW Government Railways opened the Goulburn Roundhouse in 1918, which replaced an earlier locomotive depot and consisted of a 42-road Roundhouse. Both new and old locomotive depots operated simultaneously until 1935. The old depot was demolished in 1941.

According to the State Government heritage listing, major additions and modifications to the site since 1918 included the following:

- 1920 – Boiler washout plant established;
- 1935 – New turntable established, 45-foot radius with all machinery moved from the old depot to the new Roundhouse;
- 1943 – New sand bin constructed;
- 1944 and 1954 – water service and supply upgraded within the site;
- 1946 – erection of more accommodation;
- 1953 – Roundhouse roof repaired at the eastern section;
- 1960 – Shed erected to house 60 class locomotives (in 1956, sheds converted for diesel-electric servicing area), provision of appropriate power and erection of water treatment plant (radiator);
- 1965 – Refuelling facilities established and steam facilities removed over several years from 1965, including washout boilers and watering facilities; and
- 1980s – Roundhouse encompassing roads 1 – 17 removed, however GLRPS indicated that this occurred in the mid-1970s.

The Roundhouse was closed in 1981, and leased to the Goulburn City Council for use by a historical society to restore and maintain heritage locomotives, railway vehicles and railway orientated machinery and equipment.

4.1.1 Historical title deed search

The historical title deeds are used to identify previous owners of the site, their inferred land use and the potential for contamination as a result of these land use activities. Based on information provided by ARTC, the site and immediate surrounding area has been occupied by government railway authorities since development, therefore a title deed search was considered unlikely to provide additional information regarding historical land use activities.

4.1.2 Historical aerial photographs

Historical aerial images dated between 1944 and 2020 were provided by Lotsearch Pty Ltd and reviewed by Cavvanba as part of this investigation, with images included as Appendix C.

According to the earliest available aerial photograph, dated 1944, the orientation of the site appears to be consistent with the current orientation with the following changes noted:

- The Roundhouse building is completely enclosed in the eastern and western portions, until part of the eastern portion was removed between 1967 and 1975. This is consistent with the current orientation of the Roundhouse building.

- The roof of the Roundhouse building appears to have been replaced in two separate events. The roof of the eastern portion of the Roundhouse was replaced between 1944

and 1953, and the western portion between 1967 and 1975 which coincides with the complete removal of the eastern portion of the Roundhouse.

- The refuelling gantry and two diesel aboveground storage tanks closest to the gantry appear to be present in the 1967 aerial photograph. It is unclear as to whether these are present in the 1953 photograph due to the poor resolution.

- The two 190,000L diesel ASTs located adjacent to the eastern site boundary and the Effluent Treatment Plant appear to have been constructed between the 1979 and 1987 aerial photographs.

- The roof of the southern-most building appears to have been removed between the 1997 and 2002 aerial photograph.

- A smaller building adjoins the workshop / machine to the south in the earliest available aerial photograph which was demolished between 1991 and 1997. A number of other smaller buildings / structures appear sporadically which are progressively removed. These are predominantly located to the south and south-western portion of the Roundhouse building.

- The Goulburn Railway Workshops, now CFCL Australia Rail Services maintenance facility located to the north of the site appears to have been constructed between the 1979 and 1987 aerial photographs.

- The fuel depots located beyond the railway line to the southwest of the site appear to have been constructed between 1953 and 1967, with the southern-most depot being decommissioned between 2002 and 2013.

4.2 Desktop regulatory records search

A regulatory agency public records search was conducted by Cavvanba for the purposes of providing a summary of key information relating to the site and informing the conceptual site model.

4.2.1 Chemical handling and storage

Site occupiers are required to notify SafeWork NSW if they store, handle or process hazardous chemicals that exceed quantities specified in the relevant legislation. A search of the records held by SafeWork NSW on 31 July 2020 identified the current and historical storage of hazardous chemicals as previously discussed in Section 2.2. Based on SafeWork NSW records, the use of the site for the storage of diesel ceased in 1998.

Hazardous chemical information including figures presenting the current and historical location are presented within Appendix D. It is noted that some records provided by SafeWork NSW which have been included within Appendix D do not form part of the site.

4.2.2 Goulburn Mulwaree Council records

A Planning Certificate issued under Section 10.7 of the Environment Planning and Assessment Act 1979 was obtained for the site, as presented in Appendix E. A summary of key aspects considered relevant to the contamination status of the site, including additional information obtained through a review of the Goulburn Mulwaree Local Environmental Plan (LEP) 2009 are summarised below:

- The site is partly located within an IN1 – General Industrial zoning. The objectives of this zoning is to:
  - provide for a wide range of industrial and warehouse land uses;
  - encourage employment opportunities;

  - minimise any adverse effect of industry on other land uses; and
  - support and protect industrial land for industrial uses.

- The site is listed as a general heritage item, referred to as 'Railway Roundhouse, Part of (former) Railway Infrastructure, Turntable'.

4.2.3 Heritage significance

The assessment process for assigning significance, is outlined in the NSW Heritage Division guidelines *Assessing Heritage Significance* and the *NSW Heritage Manual*. These guidelines identify seven evaluation criteria that reflect significance categories and representativeness by which a place can be evaluated in the context of State or Local significance.

A search of the State Heritage Inventory has indicated that the Goulburn Roundhouse / Locomotive Depot is listed on the State Heritage Register. The following extract from the Statement of Significance comes from SHR listing:

> *The Goulburn Roundhouse is significant as an excellent example of a mostly intact, standard railway Roundhouse building from the early 20th century. The locomotive depot (including the Roundhouse) is one of few relatively intact locomotive depots in NSW, with the Roundhouse one of only seven remaining Roundhouse buildings in NSW. The Roundhouse is also one of the most intact Roundhouse buildings in NSW. The Roundhouse and Wellington Shed are prominent industrial buildings in Goulburn, which, along with other structures from the former locomotive depot, are closely associated with the evelopment of the wider Goulburn railway precinct, one of the earliest major railway centres in country NSW.*

4.2.4 NSW EPA environmental licence register

The NSW EPA Environmental Licence Register lists land that has been or is being used for a scheduled activity under section 308 of the Protection of the Environment Operations Act 1997, and for which the EPA is notified. There is provision for a public register to be kept by all regulatory authorities, which must include a range of specified information on licences, review of licences, prosecutions, notices and the conclusions of any mandatory audit report. The register must be available for public inspection and copies provided on request.

The CFCL Australia Rail Services maintenance facility located immediate adjacent to the north of the site currently holds an active licence for the scheduled activity of wood preservation. It is noted that ARTC hold a licence for the adjacent railway line for the scheduled activity of railway systems activities, however this is not considered to represent a potential contamination source / issue for the site.

4.2.5 NSW EPA contaminated land records

The NSW EPA Contaminated Land Record is a searchable database of sites that present a significant risk of harm to human health and/or the environment under the CLM Act 1997. The register shows all current and former remediation orders issued on sites in NSW. At the time of this investigation, the site was not identified on the register, and there were no properties within the immediate vicinity of the site listed on the register.

The NSW EPA also maintains a list of contaminated sites in NSW that have been notified to the EPA under the duty to report obligations (Contaminated Land Management Act (as amended in 2008)). Sites appearing on this list indicate the contamination may or may not be significant enough to warrant further investigation, remediation or regulatory intervention by EPA. At the time of this investigation the site was not identified on the register.

The Caltex Depot located at 13 Sloane Street, immediately adjacent to the west of the site was listed on the register. This site was listed under management class, 'Regulation under the CLM Act not required'.

4.2.6 Location of former gasworks sites

The NSW EPA *Location of former gasworks sites* lists the location of former gas manufacturing plants, known as gasworks, used to produce town gas for heating, lighting and cooking. The operation of gasworks throughout NSW has left a legacy of soil and groundwater contamination, in some cases extending to adjoining sites, with the major contaminants including tars, oils, hydrocarbon sludges, spent oxide wastes, ash and ammoniacal recovery wastes. Based on a review of this register, the site, or properties within the immediate vicinity were not listed on the register.

4.2.7 Unexploded ordnance register

The Department of Defence (DOD) maintain a register for ammunition which has been fired, but has not functioned as designed. This ammunition is known as Unexploded Ordnance (UXO). At the time of the investigation, the site, or properties within the immediate vicinity were not listed on the register.

4.3 Integrity assessment

The site history searches, anecdotal information, and site observations are generally consistent in their depiction of the activities and developments at the site. This includes multiple lines of evidence to support Cavvanba's understanding of current and historical site activities. It is acknowledged that there are inherent uncertainties given the industrial history of the site spans a period of more than 100 years, with a change in site operations and management from approximately 1989.

5.0 Previous environmental investigations

Previously completed environmental investigations were reviewed to assess and understand the degree of environmental characterisation that current exists for the site and surrounding areas. The following investigations were made available to Cavvanba for review.

5.1 Phase 1 Environmental Contamination Assessment (CMPS&F, 1996)

CMPS&F Pty Ltd was commissioned by the State Rail Authority (SRA) to undertake a *Phase 1 Environmental Contamination Assessment* at the site. The works were undertaken to identify the issues associated with site contamination or other environmental matters, and provide a basis for determining the requirements for a Phase 2 Environmental Assessment.

The following key findings were identified:

- The site at the time of the assessment was used for the storage, restoration and maintenance of locomotives, rolling stock and associated equipment.
- The site consisted of predominantly unsealed gravel and grass. The access roads were sealed with bitumen with concrete present beneath the Roundhouse, turntable and a number of sheds on-site.
- A number of interceptor pits were identified which were reported to be no longer in use and would have served the maintenance workshops and refuelling gantry. Waste oil collection pits were identified in the Roundhouse.
- Asbestos containing material was observed to be present on many of the buildings on-site.
- Paint was observed to have been discharged to stormwater drains on-site and significant surface staining from an oil leak was identified on the rail line adjacent to the northern entrance to the Roundhouse, on the floor around the oil bath and on the western side of the maintenance workshop.
- Three shallow soil samples were collected at depths of approximately <0.1 m and analysed for heavy metals only. Lead was reported to exceed the current Health Investigation Levels (ASC NEPM (2013)) for commercial/industrial land use within one sample at a concentration of 4,600 mg/kg. This sample was collected to the north of the Roundhouse building.
- It was reported by CMPS&F that based on the findings of the investigation, there was a high potential for contamination at the site and further investigation should be completed as a high priority.

5.2 Environmental Investigation (J&K, 1997)

Jeffrey and Katauskas Pty Ltd (J&K) was commissioned by the Minister for Public Works and Services to undertake an Environmental Investigation at the site. The objectives of the assessment were to assess the likely extent of subsurface contamination resulting from former activities undertaken at the site, to identify the requirement for site remediation and to aid in the development of interim operational procedures.

The assessment included a desktop review, survey of the effluent and stormwater systems, an intrusive investigation which included the advancement of twenty- five boreholes and the installation and sampling of three groundwater monitoring wells.

The following key findings were identified:

- A number of potential sources of contamination were identified, which are discussed in Section 2.2.

- The effluent and stormwater systems were reported to be in poor condition and of questionable operational condition, as discussed in Section 3.1.2.

- Fill material was identified to an average depth of 1 m, and reported to generally consist of black, powdered coal, gravel and sand. Ash was encountered within the upper layers of the fill profile within select locations.

- Lead was reported at a maximum concentration of 43,000 mg/kg within surface soils at BH5, located at the entrance to the Roundhouse in the northern portion. Lead was also reported to exceed the current Health Investigation Levels (ASC NEPM (2013)) for commercial/industrial land use at three locations on-site.

- Elevated total petroleum hydrocarbons (TPH) concentrations were reported in soil at a number of locations, within the vicinity of fuel / oil storage areas and the refuelling gantry.

- Groundwater was encountered at depths ranging from 5.56 m to 7.57 m within the three monitoring wells installed as part of the investigation.

- TPH and benzene, toluene, ethylbenzene and xylenes (BTEX) in groundwater monitoring wells W1 – W3, were reported below the laboratory limit of reporting.

- A groundwater sample was collected from borehole location BH10, located adjacent to the refuelling gantry, with reported respective TPH (C_{10}-C_{14}) and TPH (C_{15}-C_{27}) concentrations of 870 mg/L a 4,400 mg/L.

Due to the preliminary nature of the investigation, a significant risk of the presence of contamination between investigation locations was reported. Further investigation was recommended by J&K, which included a summary of potential remediation options.

5.3 Preliminary Contamination Investigation (DM McMahon, 2014)

DM McMahon Pty Ltd was commissioned by NGH Environmental to undertake a Preliminary Contamination Investigation following a derailment within the Roundhouse at the site. Cavvanba understands that the works were completed to provide ARTC with recommendations following the derailment. Three wagons containing canola seed were reported to have derailed during shunting operations resulting in the damage of approximately 100 m of track.

The works included the advancement of test pit locations across a 240 m length of railway track which was separated into five sections for the purposes of the investigation. Up to six locations were advanced to a maximum depth of 1 m within each section, with samples collected from each location for composite sampling.

Lead was reported to exceed the adjusted assessment criteria within one section of railway track with a concentration of 298 mg/kg (criteria of 50 mg/kg, adjusted from 1,500 mg /kg due to a total of six composited samples). Further investigation within this section of railway track was recommended.

6.0 Data Quality Objectives

Prior to commencement of the intrusive investigation program, Data Quality Objectives (DQOs) were established for the project in line with the requirements and process outlined in NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd edition)*.

These DQOs were developed to define the type and quality of data required from the site investigation program to achieve the project objectives outlined in Section 1.2. The DQOs were selected with reference to relevant guidelines published by the NSW EPA, Australian and New Zealand Environment and Conservation Council (ANZECC) and National Environment Protection Council (NEPC), which define minimum data requirements and quality control procedures. These decision rules were developed to refine the objectives of the data collection investigation, to ensure the data collected was representative and provided the necessary data to allow the evaluation of the sites land use suitability.

The seven-step DQO approach, as identified in NSW EPA (2017) document, as applied to this assessment, is included as Appendix F.

7.0 Site investigation

The fieldwork program was undertaken in accordance with the DQOs, included as Appendix F, by Mr Michael Wright and Mr Drew Wood of Cavvanba in August 2020. The fieldwork program comprised of the following components:

- site inspection and interviews by Mr Drew Wood on 10 August;
- drilling, soil sampling and monitoring well installation on 18 and 19 August;
- test pitting and soil sampling on 20 August; and
- groundwater monitoring event on 24 -26 August.

7.1 Rationale for sampling design

The sampling approach was designed based on the findings of the previous environmental investigations and maximising the use of existing groundwater monitoring wells. Soil and groundwater data were used to assist in delineation of dissolved phase hydrocarbon contamination in groundwater and where practicable, to address any data gaps previously identified, noting that the previous environmental investigations were undertaken more than 20 years ago. The selection of sampling locations was also based on professional judgement at the time of the investigation, where access could be safely and physically achieved.

Soil – Boreholes / groundwater monitoring well installation

A total of twelve boreholes were advanced to target and delineate areas where potential and actual sources of contamination were identified. Justification for each sampling location is further detailed in Table 7.1, below.

Table 7.1: Rationale for sampling design

Location ID	Target Feature(s)
BH01	Within the immediate vicinity of the former effluent treatment plant, noting that access to this area was restricted.
BH02/MW01	Targeting the former diesel aboveground storage tanks and evidence of historical hydrocarbon contamination at 2.5 – 3 m.
BH03	Targeting former oil drum compound and evidence of historical hydrocarbon contamination at 2.2 – 2.5 m.
BH04/MW02	Targeting the former refueling gantry and evidence of historical hydrocarbon contamination.
BH05/MW03	Targeting the former oil filter cleaning shed.
BH06/MW04	Targeting the area of previously identified lead contamination (43,000 mg/kg) and area of a significant oil leak (CMPS&F, 1996).
BH07/MW05	Targeting the Roundhouse Building maintenance pits, engine shed and subterranean waste oil line.
BH08	Within the vicinity of the elevated and known fill area of the Roundhouse.
BH09/MW06	Targeting the Roundhouse Building maintenance pits, engine shed and subterranean waste oil line, including within an area where active maintenance is occurring.
BH10/MW07	Targeting the Roundhouse Building maintenance pits, engine shed and subterranean waste oil line.
BH11/MW08	Down inferred hydraulic gradient of the former workshop / machine shop.

Location ID	Target Feature(s)
HA01	Hand auger within an unsealed, former blacksmiths area of the former workshop / machine shop.

Soil – Test pitting

A total of 15 test pits were advanced based on review of previous environmental investigations and newly obtained information from the site inspection and interview. An excavator was used to advance test pits due to excavation providing the exposure of a large surface area for visual assessment of soil profiles and potential contamination. Test pits also enable a comprehensive visual appraisal of potential fill material, buried wastes, soil heterogeneity, etc. Justification for each sampling location is further detailed in Table 7.2, below.

Table 7.2: Rationale for sampling design

Location ID	Target Feature(s)
TP01 – TP04, TP06 – TP08 and TP10	Broad spatial coverage within southern portion of the site.
TP05	Targeting a fill embankment located to the south of the former workshop / machine shop.
TP09	Targeting the former maintenance pit located immediately to the south of the former workshop / machine shop.
TP11	Targeting the former 'pay bus' servicing pit.
TP12	Targeting and immediately adjacent to the Roundhouse building and area of former buildings /structures.
TP13	Targeting small fill stockpile used as a rail abutment.
TP14	Targeting and immediately adjacent to a former separator pit, referred to as 'A' within the drainage diagram included as Appendix B.
TP15	Targeting oil staining observed on ballast material from leaks / spills from the standing of locomotives.

Groundwater monitoring well sampling

A total of eight newly installed and three existing groundwater monitoring wells were sampled as part of the groundwater monitoring event completed.

It is acknowledged that groundwater monitoring well W1, is located outside of the site boundary, as presented on Figure 3. However, this monitoring well remains within the footprint of the operational railway corridor, being TfNSW owned and ARTC managed land.

7.2 Soil investigation method

Soil investigation and sampling activities were undertaken in accordance with Cavvanba's fieldwork procedures. Sampling locations are presented on Figure 3.

All boreholes were advanced to a depth of 1.0 m using a hand auger, followed by mechanical drilling using solid flight augers to a maximum depth of 10 m. All test pitting locations were advanced using an excavator into natural soils, where practicable at a maximum depth of 2.3 m.

Soil properties were logged by an appropriately trained and experienced environmental scientist in general accordance with *Australian Standard AS 1726-1993*. Representative soil samples were collected for laboratory analysis at selected locations, based on visual and/or olfactory evidence of the following:

- multiple layers of fill material;
- changes in the soil profile; and
- potential contamination.

Representative soil samples were collected, to the extent practicable, in accordance with techniques described in *Australian Standard AS4482-2005* (Parts 1 and 2) to maintain the representativeness and integrity of the samples.

Field screening was conducted in accordance with Cavvanba's fieldwork procedures using a calibrated photo-ionisation detector (PID) fitted with a 10.6 eV lamp. Calibration certificates are included as Appendix G. Where practicable, soil samples were generally collected at the surface, and at 0.5 m intervals or where significant geological changes, or evidence of potential impact was observed, until termination. Soil samples were placed in a "zip-lock" bag, sealed and screened for the presence of ionisable volatile compounds. Where the presence of volatiles or other impact was suspected, additional samples were collected.

Soil sampling techniques which minimised the potential for loss of volatiles were utilised. Where the collection of undisturbed samples was not possible, the potential for loss of volatiles was minimised by sampling from larger clods of soil and minimising the duration between sample extraction and placement into the sample container. Soil samples during test pitting were collected from the centre of the excavator bucket to reduce the potential for cross contamination between sampling locations. Representative soil samples were placed directly into the sample containers. Sample jars were sealed and immediately placed in an insulated cooler, on ice, and stored to minimise the potential loss or degradation of volatile compounds. Samples were shipped under chain of custody documentation to the NATA accredited analytical laboratory.

Test pit reinstatement

Upon completion, all test pits were backfilled in reverse order, to the extent practicable, to prevent excessive vertical mixing of potentially contaminated subsurface material.

Decontamination procedure

Down-hole drilling and sampling equipment were decontaminated by initially removing any residual soil with a stiff brush, followed by washing the equipment with a Decon 90 / potable water solution, where applicable.

7.3 Groundwater investigation method

Eight soil bores were converted to groundwater monitoring wells in accordance with Cavvanba's fieldwork procedures. Groundwater monitoring well locations are presented on Figure 2.

The following methodology was implemented to install groundwater monitoring wells, with well construction details presented within the borehole logs, included as Appendix H:

- Monitoring wells were constructed of heavy duty 50 mm diameter class 18uPVC with factory slotted screen (0.4mm slots) and well casing. Where practicable, the wells were screened within groundwater bearing strata in accordance with Cavvanba's fieldwork procedures and constructed to allow the potential ingress of non-aqueous phase liquids (NAPLs), if present.

- The well casing and screen were inserted into the borehole. Washed and graded filter sand was poured into the annulus between the well screen and borehole wall, to a level such that sand covered the screened level and extended above the top of the screen.

- Bentonite was then poured on top of the sand and hydrated to effectively seal off the well from surface water or perched / shallow groundwater inflows, and finished with a flush mounted / raised gatic well cover.

Monitoring well development

Following monitoring well installation, each monitoring well was developed using a bailer dedicated to each location to remove any fine materials potentially introduced during drilling, and to optimise hydraulic conductivity with the surrounding aquifer. Wells were considered developed when either a minimum of 10 well volumes had been removed or when water quality parameters had stabilised.

Monitoring well construction details are presented within the borehole logs in Appendix H.

Groundwater purging and sampling protocol

Groundwater purging and sampling was conducted on 24 - 26 August 2020, by Mr Michael Wright of Cavvanba. Prior to purging, wells were gauged with an interface probe to assess the depth of groundwater across the site. Samples were collected directly from single use disposable tubing using low flow sampling techniques in accordance with *Cavvanba Fieldwork Procedures for Groundwater sampling*.

Field parameters, including pH, redox potential (Eh), dissolved oxygen (DO), electrical conductivity (EC) and temperature were measured using a water quality meter, which was calibrated prior to use.

During sample collection and equipment decontamination, disposable nitrile gloves were used to prevent dermal contact with groundwater. Samples were collected directly from dedicated tubing and placed into appropriately preserved, laboratory prepared sample containers. The containers were filled to minimise headspace, before being sealed and appropriately labelled. Labels included the following information:
- sample identification number;
- sampler;
- job number; and
- date of collection.

Samples were sealed and immediately placed on ice in a cooler to minimise potential for degradation of the sample. Samples were shipped under chain of custody documentation to the NATA accredited analytical laboratory.

Groundwater field forms, including calibration records are included as Appendix G. Groundwater monitoring well installation details are included within the borehole logs, included as Appendix H.

Survey

The location and relative level (AHD) of each newly installed groundwater monitoring well was surveyed by a registered surveyor from Southern Cross Consulting Surveyors Pty Ltd on 26 August 2020. The elevation of the highest point of the top of the uPVC well casing was surveyed to facilitate appropriate groundwater elevation calculations and groundwater flow direction interpretations. Groundwater monitoring well elevations and location details are presented in Tables 9 and 10. Survey data is presented as Appendix I.

7.4 Assessment criteria

The adopted Tier 1 assessment criteria have been sourced from guidelines made or approved under the *Contaminated Land Management Act (1997),* and were based on a review of the following reference documents:

- National Environment Protection Council (NEPC) *National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM (2013)) – Schedule B1: Investigation Levels For Soil and Groundwater* (2013).
- CRC Care Technical Report no. 10 – Health screening level for petroleum hydrocarbon in soil and groundwater – Part 2: Application Document (CRC Care, 2011).
- National Health and Medical Research Council (NHMRC) (2011) *Australian Drinking Water Guidelines* (Updated August 2018) *(*NHMRC (2011) ADWG).

In September 2011, CRC CARE published technical report No. 10, *Health Screening Levels for petroleum hydrocarbons in soil and groundwater*. This document provides HSLs for human exposure to volatile organic compounds based upon the site-specific soil compositions of the potential vapour pathway in conjunction with classifications of receptor land-uses (residential, commercial/industrial or ecological) to more accurately assess risk to potential receptors. These HSLs have been applied to the data collected during these investigations with the following considerations:

- The general land use in the immediate vicinity of the area where contamination has been identified is commercial/industrial (on-site).
- The natural lithology encountered throughout the investigation was primarily clay.
- Depth to groundwater within monitoring wells sampled was measured to range between be 4.238 m and 8.284 m.

Soil

In accordance with the ASC NEPM (2013), health investigation levels are scientifically based, generic assessment criteria designed to be used in the first stage of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario. For soil, the appropriate and adopted criteria are based on the ASC NEPM (2013), in particular the health investigation levels (HILs), environmental investigation levels (EILs), environmental screening levels (ESLs) and health screening levels (HSLs) applicable for commercial/industrial land use scenarios.

These land use scenarios make generic estimates of potential human exposure to soil contaminants, scientifically based assumptions are made about the environment, human behaviour, the physicochemical characteristics of contaminants, and the fate and transport of contaminants in soil, within each of the land use categories. The HILs are derived by integrating these exposure estimates with toxicity reference values, that is, tolerable daily intakes, acceptable daily intakes and reference doses, to estimate the soil concentration of a substance that will prevent exceedance of the toxicity reference value under the defined scenario. The toxicity reference values are generally based on the known most sensitive significant toxicological effect. It is acknowledged that the dominant users of commercial/industrial sites are adult employees, who are largely involved in office-based activities or light indoor industrial activities, and the outdoor areas are largely covered by hardstand with some limited areas of landscaping or lawns and facilities. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest or come into dermal contact with dust particulates derived from soil on-site.

Heath screening levels (HSLs) for commercial/industrial space (HSL-D) and Intrusive Maintenance Workers were adopted. This screening criterion is designed to assess the potential risk to human health via inhalation of petroleum compounds. Direct contact criteria for petroleum hydrocarbons available through CRC CARE (2011) was applied to the upper two metres of the soil profile where a pathway may be present. Petroleum hydrocarbon data collected during this investigation was also screened against petroleum hydrocarbon management limits (management limits) according to ASC NEPM (2013). The management limits are designed to protect against fire and/or explosion hazards, effects of hydrocarbons on buried infrastructure and the formation of NAPL. These criteria are not used for risk assessment purposes, however, are taken into consideration when determining if issues exist on site which may require management.

The ASC NEPM (2013) EILs and ESLs for commercial/industrial sites are appropriate for the assessment of risks to ecological receptors. The EILs are numerical limits that are designed to protect soil and terrestrial flora and fauna (including pets and wildlife) and soil microbial processes from experiencing substantial deleterious effects caused by contamination. The ASC NEPM (2013) provides EILs for aged and fresh contamination for metal constituents including nickel, chromium, copper, zinc and lead. For the purposes of EIL derivation, a constituent incorporated in soil for at least two years was considered to be aged which is considered to be applicable for the site. Additionally, the ASC NEPM (2013) prescribes derivation of EILs for a number of contaminants through consideration of site-specific physical parameters. This criterion was determined for physical parameters using laboratory derived values which have been provided within *Soil Analytical Summary Table Notes*.

Groundwater

The assessment criteria adopted for groundwater have been classified according to the CRC CARE criteria and compared to the appropriate HSLs. The CRC CARE (2011) P*art 2: Application document* states that the selection of the appropriate soil category is significant for volatile chemicals, as it can affect the rate of vapour transport and hence the value of the HSLs for vapour inhalation. Determining which soil classification applies at a site may be established by grain size analysis, or by visual observation. In order to screen groundwater results against relevant criteria, Cavvanba adopted a visual observation approach to determine the appropriate soil category. In general, the dominant category of the soil overlying the source of contamination is clay. Given this, the adopted HSLs were based on a clay geology, and an arbitrary depth to groundwater of between 4 m to 8m for comparative purposes only.

The NHMRC (2011) ADWG and *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (http://www.waterquality.gov.au/anz-guidelines as accessed 22 September 2020) (ANZG 2018) provides assessment criteria for the protection of drinking water and freshwater environments, respectively. This criterion has been adopted as Tier 1 criteria with their applicability further discussed in Section 9.0.

In accordance with ANZG (2018), a level of protection is defined as the degree of protection afforded to a water body based on its ecosystem condition (current or desired health status of an ecosystem relative to the degree of human disturbance. The level of protection informs the acceptable water / sediment quality for a waterway. There are three recognised categories of current or desired ecosystem condition in the water quality guidelines, the level of protection corresponds to the following ecosystem condition categories:

- high conservation or ecological value systems;
- slightly to moderately disturbed systems; and
- highly disturbed systems.

The general policy nationally is that the level of protection applied to most waterways is the protection of 95% of freshwater species. A lower level of 80% protection may apply to

'highly disturbed' systems, however, the 80% protection level may only be considered as a short-term measure (e.g. a maximum of five years in many cases), with the aim of eventually restoring it to the 95% status. It is not acceptable to allow poor environmental management to continue beyond the short term. A 95% species protection levels is to be applied for slightly to moderately-disturbed ecosystems (most urban catchments), and the 99% species protection levels for pristine or vulnerable ecosystems, or where the contaminants are intractable (e.g. bioaccumulative).

7.5 Laboratory analysis

All soil and groundwater samples collected were analysed for a range of the following PCOCs:

- total recoverable hydrocarbons (TRH);
- benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN);
- polycyclic aromatic hydrocarbons (PAHs);
- phenols;
- heavy metals including arsenic (As), mercury (Hg), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), nickel (Ni) and zinc (Zn);
- organochlorine and organophosphate pesticides (OCPs and OPPs);
- phenoxyacetic acid herbicides;
- volatile organic compounds (VOCs);
- asbestos – presence / absence; and
- soil physicochemical properties including iron (Fe), cation exchange capacity (CEC), pH, total organic carbon (TOC) and/or clay content.

7.6 Data usability

A background to data usability is provided in Appendix J. All site work was completed in accordance with Cavvanba's fieldwork procedures, including a QA/QC program.

A data usability assessment has been performed for the sampling undertaken during this investigation, as summarised in Appendix J and includes the following:

- summary of field quality assurance/quality control;
- field quality control soil samples summary; and
- summary of laboratory quality assurance/quality control.

Overall, the data usability assessment shows that the data is of suitable quality to support the conclusions made in this report.

8.0 Field observations

8.1 Site geology observations

Detailed descriptions of the site geology are presented in Table 1 and within the borehole logs, included as Appendix H. A photographic log is provided as Appendix A.

8.1.1 Soil – Boreholes / groundwater monitoring wells

The key field observations made during borehole advancement are outlined below:

- The soil profile within boreholes advanced was generally observed to consist of a fill material with varying thickness to a maximum depth of 1.7 m underlain by natural sandy clay and clay to the maximum depth of investigation, being 10.0 m. In most cases, fill material was identified to consist of a black sandy gravel with evidence of spent coal ash.

- Groundwater was observed during drilling at monitoring well location MW07, at a depth of 7 m. Groundwater strike was not observed during drilling at any of the other locations advanced during the investigation.

- PID field screening provides a semi-quantitative indication of the potential presence of hydrocarbons in soil. PID field screening results were reported above 10 parts per million (ppm) (isobutylene equivalent) at the following locations:
  - 22.8 ppm at a depth of 2 m in borehole location BH04 / MW02; and
  - 45 ppm from a depth of 0.4 m to 1.0 m in borehole location BH09 / MW06.

  These locations were reported to be associated with a strong hydrocarbon odour.

- With the exception of the above and ash fill material, field indicators of contamination were not observed within any of the boreholes advanced during the investigation.

8.1.2 Soil – Test pitting

- The soil profile observed in test pits consisted of a fill material with varying thickness, underlain by gravelly sandy clay / gravel fill material and natural sandy clays. Evidence of buried waste material was identified at the following locations:
  - layered ACM, concrete, bricks and metal from 0.4 m to 1.4 m at TP06 as presented in Photograph 25 of Appendix A;
  - ACM fragments, concrete, metal and glass from 0.5 m to 1.5 m at TP07;
  - ACM fragments, concrete, metal fragments, glass and brick from 0.5 m to 2.2 m at TP08; and
  - widespread spent coal ash and/or coal fragments, being 21 of the 27 investigation locations advanced.

- PID field screening within test pit locations were reported were reported at a maximum concentration of 0.2 parts per million (ppm) (isobutylene equivalent) indicating negligible levels of ionisable volatile compounds. No hydrocarbon odours or staining were observed during the test pitting program. PID field screening results, as well as visual and olfactory observations made during the collection of soil samples are presented within the borehole and test pit logs, included as Appendix G.

8.2 Groundwater field observations

All newly installed groundwater monitoring wells were developed following installation on 20 and 24 August 2020. To enable sub-surface conditions to stabilise and groundwater levels to equilibrate, all newly installed and existing groundwater monitoring wells were

sampled 24 - 26 August 2020, more than 24 hours following well installation and development.

Groundwater gauging results and field quality parameters are presented in Table 9 and 10, respectively.

The key observations made during the groundwater investigation are outlined below:

- Groundwater standing water levels (SWLs) ranged from 4.148 metres below ground level within MW08, in the south-eastern portion of the site to 8.77 metres below ground level within W1, to the north-west of the site.

- Groundwater purged during sampling at all monitoring wells was generally observed to be clear to cloudy. Groundwater monitoring well MW02, was reported to be turbid during sampling.

- Slight hydrocarbon odours and sheens were reported during sampling of monitoring wells MW01 and MW06. A strong hydrocarbon odour was reported within monitoring well MW02, which corresponded to a monitoring well headspace PID reading of 53.9 ppm.

- Groundwater electrical conductivity ranged from 515 µScm-¹ at MW08 to 2,710 µScm-¹ at W1. Corresponding total dissolved solids were calculated at 345 mg/L at MW08 to 1,816 mg/L at W1, indicating a good to unacceptable palatability for drinking water purposes.

- Groundwater pH measured across the area of investigation ranged from 6.77 at W1 to 7.82 at MW06, indicating neutral to slightly alkaline conditions.

- Indications of LNAPL was not observed within any monitoring wells during the gauging and sampling event undertaken.

9.0 Analytical results discussion

The following sub-sections provide a discussion of the results of the soil and groundwater investigation.

9.1 Soil

Soil analytical results were screened against the relevant screening criteria as described in Section 7.4 and summarised in Table 9.1, below. A comprehensive dataset, is presented in Tables 2 to 7. Laboratory certificates are presented in Appendix K.

Table 9.1: Soil analytical summary

Analyte	Health criteria	Ecological criteria	Analytical data			
	HIL / HSL (mg/kg)	EILs/ESLs (mg/kg)	No. samples analysed	Number of detects	Max' (mg/kg)	Meets screening criteria?
Metals						
Arsenic	3,000	160	37	25	46	Yes
Cadmium	900	-		5	28	Yes
Chromium	3,600	1,000		37	193	Yes
Copper	240,000	300		37	3,530	No
Lead	**1,500**	1,800		37	**9,440**	**No**
Nickel	6,000	310		37	102	Yes
Zinc	400,000	740		37	26,200	No
Mercury	730/180	-		9	0.4	Yes
TRH and BTEXN						
Benzene	4[1]	75	37	0	-	Yes
Toluene	99,000	135		1	0.6	Yes
Ethylbenzene	27,000	165		1	0.6	Yes
Xylenes	81,000	180		1	2.3	Yes
Naphthalene	29,000	370		1	4	Yes
F1 TRH C_6-C_{10}	310[1]	215		2	28	Yes
F2 TRH >C_{10}-C_{16}	**1,000[2]**	*170*		4	**5,990**	**No**
F3 TRH >C_{16} – C_{34}	**3,500[2]**	*1,700*		20	**6,960**	**No**
F4 TRH >C_{34} – C_{40}	10,000[2]	*3,300*		9	880	Yes
PAHs and Phenols						
B(a)P TEQ	40	-	37	0	-	Yes
B(a)P	-	-		0	-	Yes
Total (PAHs)	4,000	-		12	15.2	Yes
Phenol	240,000	-		0	-	Yes
OCPs / OPPs						
Sum of DDD + DDE + DDT	3,600	360	27	0	-	Yes
Chloropyrifos	2,000	-		0	-	Yes

Analyte	Health criteria	Ecological criteria	Analytical data			
	HIL / HSL (mg/kg)	EILs/ESLs (mg/kg)	No. samples analysed	Number of detects	Max' (mg/kg)	Meets screening criteria?
Asbestos						
Asbestos	Detect	-	3	3	-	No

Table notes:
- = not detected above the LOR / no applicable assessment criteria.
Refer to Tables 2 – 7 for a complete list of screening criteria.
[1] - Health screening levels for commercial/industrial landuse, 0m to >1m depth, TRH and BTEXN.
[2] – Management Limits – Commercial and industrial.

Concentrations of petroleum hydrocarbons, lead and other select metals in soil were detected above the laboratory limit of reporting and in excess of the assessment criteria. The significance of these exceedances are discussed below, and where individual constituents are not discussed, no exceedances were reported.

Petroleum hydrocarbons

Total recoverable hydrocarbons were reported in soil at concentrations above the laboratory limit of reporting in a number of samples collected and analysed across the site. However, exceedances of the adopted assessment criteria were limited to the petroleum hydrocarbon management limits and ESLs at the following locations:

- Borehole location BH03, at a depth of 0.4 m – 0.5 m with a reported concentration of 2,060 mg/kg (F3 TRH >C_{16} – C_{34}), exceeding the adopted ESL of 1,700 mg/kg. This location was targeted to the former oil drum compound, with no evidence of hydrocarbon odours or staining observed at this location.

- Borehole location BH04, at a depth of 1.9 – 2.0 m with a reported concentration of 2,540 mg/kg (F2 TRH >C_{10} – C_{16}), exceeding both the management limits and ESLs. This location was targeted to the former refueling gantry, with evidence of strong hydrocarbon odours identified from 1.9 m to 6.9 m. The vertical extent of impact at this location was delineated by the sample collected from 6.9 m to 7.0 m, however the lateral extent remains uncertain.

- Borehole location BH09, at a depth of 0.2 – 0.3 m with reported concentrations of 5,990 mg/kg (F2 TRH >C_{10} – C_{16}) and 6,960 mg/kg (F3 TRH > C_{16} - C_{34}), exceeding both the management limits and ESLs. This location was targeted towards the Roundhouse Building maintenance pits, engine shed and subterranean waste oil line and is within an area where active maintenance is occurring. Hydrocarbon odours were identified from 0.2 m to 6.0 m, with a reduction in petroleum hydrocarbon concentrations at depth (5.2 m – 5.3 m). The vertical and lateral extent at this location has not been defined.

Lead

Lead was reported to exceed the adopted human health assessment criteria at ten locations on-site, with a reported maximum concentration of 9,440 mg/kg. The reported exceedances were identified to be widespread across the current and historical operational areas and directly associated with the fill material present on-site. In most cases, the elevated lead concentrations corresponded to fill material comprising spent coal ash and/or coal fragments.

Ecological

Copper, lead, zinc and / or TRH were reported to exceed the adopted ecological assessment criteria within isolated locations across the site. In all cases, the exceedances were associated with fill material and/or buried waste material present on-site.

Asbestos in and on soil

Asbestos containing material was identified to be widespread across the site, both in and on soils with the following key information noted:

- ACM was identified on the ground surface over a large portion of the site, being generally concentrated to areas within the immediate vicinity of the Roundhouse building and within the southern portion of the site, presented as `Areas of Known ACM on Figure 5.
- A significant quantity of buried and layered ACM sheeting was identified from a depth of approximately 0.4 m to 1.4 m at test pitting location TP06, as presented in Photograph 25 of Appendix A.
- Buried ACM fragments were identified within fill material from a depth of approximately 0.5 m to 1.5 m at test pitting location TP07.
- Buried ACM fragments were identified within fill material from a depth of approximately 1.4 m to 2.2 m at test pitting location TP08.
- Friable ACM was not identified.

The source of ACM is likely associated the inappropriate removal of ACM from the roof of the Roundhouse, demolition of the eastern portion of the Roundhouse and progressive removal of ACM from on-site structures. A graphical representation of the areas of known ACM is presented on Figure 5. However, the areas presented are not exhaustive and are based on both a visual observation of the site surface and observations made during the intrusive investigation. It is acknowledged that some areas on site were covered by a competent grass cover which limited a visual appraisal of the site surface.

9.2 Groundwater

Groundwater analytical results were compared with the relevant screening criteria as described in Section 7.4, and summarised in Table 9.2, below. A complete dataset is presented in Tables 12 and 16. Laboratory certificates are presented in Appendix K.

Table 9.2: Groundwater analytical summary

Analyte	Health criteria	Ecological criteria	Analytical data			
	ADWG / HSL D (µg/L)	ANZECC (µg/L)	Samples analysed	Number of detects	Max' (µg/L)	Meets criteria?
Metals						
Arsenic	10	13	11	1	5	Yes
Cadmium	2	0.2		0	-	Yes
Chromium	50	1		6	41	No
Copper	2,000	1.4		2	1	Yes
Lead	**10**	3.4		2	**13**	**No**

Analyte	Health criteria	Ecological criteria	Analytical data			
	ADWG / HSL D (µg/L)	ANZECC (µg/L)	Samples analysed	Number of detects	Max' (µg/L)	Meets criteria?
Nickel	20	11		3	3	Yes
Zinc	-	8		9	46	No
Mercury	1	0.06		0	-	Yes
TRH and BTEXN						
Benzene	1 / 30,000	950	11	0	-	Yes
Toluene	800 / NL	180		0	-	Yes
Ethylbenzene	300 / NL	80		0	-	Yes
Xylenes	600 / NL	75		0	-	Yes
Naphthalene	-	16		0	-	Yes
TRH C_6-C_9	-	-		1	40	Yes
F1 TRH C_6-C_{10}	NL	-		1	130	Yes
F2 TRH >C_{10}-C_{16}	NL	-		3	40,700	Yes
F3 TRH >C_{16} – C_{34}	NL	-		3	31,500	Yes
F4 TRH >C_{34} – C_{40}	NL	-		1	350	Yes
PAHs						
B(a)P	0.1[1]	-	11	0	-	Yes
Phenanthrene	-	0.6		1	28.9	No
Total (PAHs)	-	-		1	28.9	Yes
SVOCs and VOCs						
cis-1.2-Dichloroethene	60	-	6	0	-	Yes
Trichloroethene	-	-		0	-	Yes
Vinyl chloride	-	-		0	-	Yes
Chlorobenzene	300	55		0	-	Yes

Table notes:
- = not detected above the LOR / no applicable assessment criteria.
Refer to Tables 12 – 16 for a complete list of screening criteria.

A total of eight groundwater monitoring wells were installed by Cavvanba to target potential sources of groundwater contamination and further assess the potential for groundwater contamination reported during previous environmental investigations. These monitoring well locations were positioned to target and within close proximity to, former bulk fuel storage and refuelling areas, workshops and the Roundhouse building operational areas.

The reported groundwater elevations indicate that groundwater flow is predominantly in a northerly direction, generally aligning with the general topographic slope of the site and towards the Wollondilly River. Groundwater flow direction and contouring has been graphically presented on Figure 4.

Based on the findings of this investigation, all groundwater samples collected on and off-site were reported below the adopted CRC CARE HSLs for vapour intrusion. A limited number of exceedances of the adopted NHMRC (2011) ADWG and/or ANZG (2018) protection of freshwater guidelines were detected in monitoring wells sampled during this investigation.

Petroleum hydrocarbon plume

Dissolved phase petroleum hydrocarbon contamination within groundwater was reported at a maximum concentration of 40,700 µg/L (F2 TRH >C_{10} – C_{16}) at monitoring well location MW02, located immediately adjacent to the former diesel refuelling gantry. The elevated groundwater concentrations within this area correspond to those previously reported by J&K (1997) (870,000 µg/L (TRH >C_{10} – C_{14})) within groundwater that had accumulated within a borehole during advancement. These concentrations exceed the solubility limits for TRH, and therefore may be indicative of a potential source of Light Non-Aqueous Phase Liquid (LNAPL) within this location however, this was not observed.

These locations are generally delineated downgradient by a reduction in dissolved phase petroleum hydrocarbon concentrations in groundwater monitoring wells MW01 to the north, and below the laboratory limit of reporting in monitoring well W2, to the east. It is noted that the nearest registered groundwater extraction well downgradient from the site is for recreational purposes and is located approximately 689 m to the northeast.

TRH was also reported above the laboratory limit of reporting within monitoring wells MW01 and MW06, positioned adjacent to the former diesel aboveground storage tanks and adjacent to the Roundhouse where active maintenance is occurring.

Lead

Lead was reported to exceed the adopted NHMRC (2011) ADWG value at monitoring well location MW02 with a concentration of 13 µg/L. However, given the delineation achieved by downgradient monitoring well locations MW01, to the north, and W2, to the east and distance to the nearest groundwater extraction well, this is not considered to result in an unacceptable risk to human health.

Protection of freshwater ecosystems

Chromium, lead, zinc and/or and phenanthrene were reported to exceed the protection of freshwater guidelines as presented in Table 13 and Table 14. However, given the absence of sensitive ecological receptors within the immediate vicinity and proximity of the site to the Mulwaree River (570 m), the presence of these contaminants in groundwater on-site is unlikely to represent an unacceptable risk to ecological receptors off-site.

10.0 Conceptual site model

A conceptual site model is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. An understanding of potential exposure scenarios is necessary to evaluate the suitability of a site for a particular land use. Potential exposure pathways are evaluated for completeness based on the existence of:

- a source of contamination/impact;
- a mechanism for release of contaminants from identified sources;
- a contaminant retention or transport medium (e.g., soil, air, groundwater, etc.);
- potential receptors of contamination; and
- a mechanism for chemical intake by the receptors at the point of exposure (ingestion, dermal contact or inhalation or a combination of).

For exposure to be considered possible, a mechanism, i.e. pathway must exist by which contamination from a given source can reach a given receptor. Such complete source-pathway-receptor (SPR) exposure mechanisms are commonly termed SPR linkages. Pollutant sources, exposure mechanisms and receptors at the site are discussed in the following sections, with a thorough understanding of the relationships between each considered fundamental in assessing potential risk.

10.1 Sources of contamination

The potential and known sources of soil and groundwater contamination for the site as discussed in this report, and those which are considered to represent a potential environmental liability on-site are summarised below:

- **Current and historical operation of the Roundhouse building:** The site and Roundhouse building have a long history of industrial activities, with railway operations commencing in the late 1800's. The potential for soil and groundwater contamination results from the following:
  - the current and historical application, use and storage of fuels, oils, solvents and degreasers;
  - the integrity of the locomotive maintenance pits / subterranean waste oil network and also stormwater drainage network, and how this potentially interacts remains unclear; and
  - current and historical general locomotive maintenance and machining activities.

- **Former diesel ASTs and refuelling gantry:** Current and historical dissolved phased petroleum hydrocarbon groundwater impacts have been reported within these areas, with the potential for historical leaks and spills as a result of historical operations.

- **Effluent treatment plant and oil/water separator(s):** The subterranean waste oil network historically connected the repair bays within the Roundhouse building to the effluent treatment plant and/or oil/water separator(s) via underground infrastructure. According to the J&K (1997), the entire drainage system was reported to be in poor condition and of questionable operation. As such, the integrity of all underground infrastructure is uncertain given the age of the facility and the presence of contaminants identified in soil and groundwater. These remain a potential source of contamination for the site.

- **Site infilling and waste disposal areas:** Fill material was reported to extend to depths of up to 2.5 m on-site, comprising spent coal ash and/or coal fragments, ACM and other buried waste material. Elevated concentrations of lead were reported to be widespread in fill material across the site.

- **Asbestos in or on soils:** ACM was identified to be widespread, both in and on soils across the site. A significant quantity of buried and layered ACM was identified in the southern portion of the site to a maximum depth of 2.2 m. Whilst the exact source of the ACM in and on soils remains unclear, it is likely associated with the inappropriate removal of ACM from the roof of the Roundhouse, demolition of the eastern portion of the Roundhouse and progressive removal of ACM from on-site structures.

10.2 Exposure and migration pathways

The pathways for potential contaminant migration and potential exposure to receptors are controlled by the geological environment, the built environment overlying the site and in adjacent areas, as well as physical separation distances between sources and potential receptors.

The considered pathways for potential soil, groundwater, surface water and/or vapour impact at this site include the following:
- exposure via dermal contact (incidental), ingestion (incidental) and/or inhalation (dust and/or vapour) of contaminated soils;
- migration and exposure of vapours from contaminated soils / groundwater and/or LNAPL;
- generation and pooling of ground gases that may present an explosive hazard;
- groundwater migration off-site or to an underlying aquifer;
- direct contact or ingestion of impacted groundwater;
- discharge of impacted groundwater to surface water bodies;
- groundwater migration to an underlying aquifer; and
- exposure to contaminated soils via plant root uptake.

The viability of these pathways is further assessed in Section 10.4.

10.3 Receptors

The following potential receptors have been identified at the site:

Human receptors

- current and future on-site occupants in a commercial/industrial scenario where unrestricted access to soil exists;
- current and future on-site excavation / intrusive maintenance workers; and
- potential users of groundwater for supply purposes.

Ecological receptors

- on-site terrestrial ecological receptors including soil processes, plant species and organisms that may inhabit or contact soils; and
- freshwater aquatic organisms off-site within the Mulwaree River.

10.4 Significant linkages

A source-pathway-receptor (SPR) linkage is considered to be present when a pathway links a source with a receptor. These linkages explain when there may be risks to the receptor, either now or in future.

All SPR linkages considered to be potentially complete are summarised in Table 10.1, below.

Table 10.1: Summary of Source-Pathway-Receptor linkages

Source	Pathway	Receptor(s)
Lead in soil – Fill material	Dermal contact, ingestion and/or dust inhalation	– on-site occupants in a commercial/industrial land use scenario. – On-site intrusive maintenance workers.
Asbestos in or on soil	Indoor / outdoor dust inhalation	– on-site occupants in a commercial/industrial land use scenario. – on-site intrusive maintenance workers.
TRH, copper, lead and zinc in soil – Fill material	Ecological exposure, dermal contact, inhalation, ingestion and/or absorption.	– on-site terrestrial ecological receptors including on-site soil processes, plant species and organisms that may inhabit or contact soils.
Phenanthrene, chromium, lead and zinc in groundwater.	Uptake / absorption of contaminated water	– Freshwater aquatic organisms off-site within the estuarine environment of Mulwaree River.
Lead in groundwater	Groundwater extraction for beneficial use.	– beneficial users of groundwater (drinking water).

Contaminated soils – human health

The presence of lead in uncovered surface soil on-site provides a potential source of exposure to site occupants and intrusive maintenance workers via dermal contact, dust inhalation or ingestion of contaminated soil. Elevated concentrations of lead were reported to be widespread in fill material across the site which represents a potential risk to human health.

Non-friable ACM was identified in and on soil which provides a potential source of exposure to on-site occupants and intrusive maintenance workers via dust inhalation if not appropriately managed. Due to the highly concentrated and uncontrolled nature of the buried and layered ACM identified, the potential risk to human health is increased should the material be disturbed. In these circumstances, the buried ACM should be treated as friable.

Contaminated soils – ecological

Copper, lead, zinc and / or TRH were reported to exceed the adopted ecological assessment criteria. These criteria are designed for the protection of the upper 0 – 2 m of the soil profile, which corresponds to the root zone and habitation of many species. In all cases, the exceedances were associated with fill material and/or buried waste material present on-site. Whilst the site is highly disturbed, including the presence of fill material and the absence of significant vegetation and habitat for potential ecological receptors to exist, the potential for these to represent a risk to ecological receptors cannot be excluded at this stage.

Groundwater extraction for beneficial use

The nearest registered groundwater abstraction well downgradient of the site is located approximately 689 m to the northeast. The presence of lead (and TRH) is generally delineated by a significant reduction in contaminant concentrations in monitoring wells MW01, to the north and W2, to the east. Given this, and proximity to the nearest registered abstraction bore, a potentially complete SPR linkage through groundwater extraction is considered unlikely.

Contaminated groundwater – Freshwater ecosystems

The presence of chromium, lead, zinc and/or and phenanthrene in groundwater provides a potential exposure pathway to off-site freshwater aquatic organisms through dermal contact, inhalation, ingestion and/or absorption of contaminated groundwater. However, given the absence of sensitive ecological receptors within the immediate vicinity and proximity of the site to the Mulwaree River (570 m), the presence of these contaminants in groundwater on-site is unlikely to represent an unacceptable risk to ecological receptors off-site.

Management limits / aesthetic issues

TRH concentrations in soil were reported to exceed the adopted management limits within the area of the former refuelling gantry and within the proximity to the Roundhouse building maintenance pits. Whilst the magnitude of the reported concentrations are not considered to indicate the presence of LNAPL (CCME, 2008), the potential risk of hazardous atmospheres, aesthetic issues and effects on buried infrastructure, such as penetration of, or damage to in-ground services by hydrocarbons cannot be excluded.

10.5 Data gaps

Based on Cavvanba's understanding of site conditions developed through information gathered as part of this investigation, the following key data gaps are considered to remain outstanding:

- Data Gap 1: TRH in groundwater. The presence of TRH in groundwater, particularly within the vicinity of the former refuelling gantry and Roundhouse building maintenance pits are not well understood based on a single round of groundwater monitoring. Additionally, the extent and significance of TRH and potential LNAPL impact within the immediate vicinity of the former refuelling gantry represents a key data gap warranting further investigation.

- Data Gap 2: Site infilling and waste disposal areas. The site has been heavily filled including the presence of buried waste, particularly in the southern portion of the site. This fill material comprises lead at concentrations exceeding the adopted human health assessment criteria. Both the fill material and waste disposal areas have not been adequately characterised.

- Data Gap 3: Asbestos in and on soil. In the absence of an asbestos management plan for the site, the appropriate management of asbestos in soil remains unclear. Additionally, the presence and appropriate management / remediation of asbestos in soil remains a data gap.

- Data Gap 4: Site history. The site has a long and complicated history with over 100 years of heavy industrial activity, and a change in site operations and management from approximately 1989 when the GLRPS acquired the lease. Given this, there are a number of current and historical site features where the use could not be determined and therefore represents a data gap.

11.0 Conclusions and recommendations

Based on the scope of works completed, the objectives are considered to have been met and an increased understanding of soil and groundwater conditions at the site has been established, sufficient to assist in identifying and addressing data gaps and to provide an assessment of potential risks to human health and/or the environment on and off-site.

In the context of the conceptual site model developed for the site, the following conclusions have been drawn:

- The site has a long history of industrial activities, with railway operations commencing in the late 1800's. The NSW Government Railways opened the Goulburn Roundhouse in 1918, which replaced an earlier locomotive depot. Both new and old locomotive depots operated simultaneously until 1935. The old depot was demolished in 1941. The Roundhouse was closed in 1981, and later leased to the Goulburn City Council for use by a historical society to restore and maintain heritage locomotives, railway vehicles and railway orientated machinery and equipment.

- The primary contaminating activity at the site was considered to be the current and historical use of the site as a Roundhouse, including locomotive maintenance and repair activities, historical land filling and poor waste disposal practices.

- The soil profile beneath the site was observed to generally consist of fill material which was reported to extend to depths of up to 2.5 m on-site, comprising spent coal ash and/or coal fragments, ACM and other buried waste material. Natural sandy clays and clays were reported to underlay fill material at the site to the maximum depth of investigation, being 10.0 m.

- Groundwater beneath the site was observed to be present within an unconfined water bearing zone in natural sandy clays and clays at depths of between 4.1 m and 8.7 m.

- Soil analytical data collected as part of this investigation indicated the following commercial/industrial screening criteria exceedances:
  - widespread lead contamination within fill material with a reported maximum concentration of 9,440 mg/kg; and
  - TRH in fill material within the former refuelling gantry and adjacent to the Roundhouse building maintenance pits.

- Non friable asbestos containing material was identified to be widespread, both in and on soils across the site. A significant quantity of buried and layered ACM was identified in the southern portion of the site to a maximum depth of 2.2 m.

- The nature and extent of groundwater contamination at the site can be summarised as follows:
  - evidence of LNAPL was not observed;
  - groundwater analytical concentrations were reported below the applicable CRC CARE HSLs for vapour intrusion;
  - the reported TRH concentrations within monitoring well MW02, located adjacent to the former refuelling gantry exceed the solubility limits for TRH, and therefore may be indicative of a potential source of LNAPL within this location.

Through the development of the conceptual site model, potentially complete source-pathway-receptor linkages resulting in a potential risk to human health receptors under a commercial/industrial land use scenario have been identified which require further assessment. These have been summarised as data gaps, and associated recommendations to reconcile these gaps has been provided within Table 11.1, below.

Table 11.1: Data gaps and recommendations

Data Gap	Recommendation
1) TRH in groundwater	Further assess the presence and significance of TRH in groundwater and commencement of a program of routine groundwater monitoring. This should also incorporate the confirmation of the integrity of the subterranean waste oil network and drainage system.
2) Site infilling and waste disposal areas	Implement interim management measures. Determine the nature and extent of waste material, including the presence of lead in fill material across the site.
3) Asbestos in and on soil	Implement interim management measures, develop and implement an asbestos management plan to manage asbestos in and on soil. Determine the nature and extent of asbestos in soil to enable appropriate management / remediation.
4) Site history	Where practicable, further understand historical site features and operations to determine whether further investigation within these areas is considered warranted.

Duty to report

Section 60 of the *Contaminated Land Management Act 1997* outlines the responsibilities and triggers for people whose activities have contaminated land, or owners of land that has been contaminated.

The *Guidelines on the Duty to Report Contamination under the CLM Act* (NSW EPA, 2015) provide information to land owners or occupiers in determining whether there is sufficient information to report contamination to the NSW EPA.

The presence of lead within fill material at concentrations equal to, and more than 250% of the health investigation level (ASC NEPM, 2013) and a person has been or foreseeably will be exposed to lead, is considered to meet the notification trigger as defined within the guidelines (NSW EPA, 2015). It is therefore considered that a duty to report exists for the site.

It is recommended that the contamination status of the site is communicated to the site owner, and legal advice be sought to support the formal notification process and discuss implications for notifying the site under Section 60 of the *Contaminated Land Management Act 1997*.

12.0 References

Other References

Bozier, R (2011) *NSW Rail.net* (webpage) accessed at www.nswrail.net.

Cavvanba (2019) *Contamination Summary Report – Goulburn Roundhouse*.

Cavvanba (2020) *Interim Management Plan – Goulburn Roundhouse, 12 Braidwood Road, Goulburn NSW 2580*.

CCME (2008) *Canada-wide standard for petroleum hydrocarbons (PHC) in soil*. Technical supplement, January, Canadian Council of the Ministers of the Environment.

CMPS&F Pty Ltd (1996) *Phase 1 Environmental Contamination Assessment*

Jeffrey and Katauskas Pty Ltd (1997) *Environmental Investigation – Goulburn Fuelling Facility at Braidwood Rd.*

DM McMahon Pty Ltd (2014) *Preliminary Contamination Investigation – Goulburn Roundhouse Railway Track*.

NSW Department of Primary Industries – Water Division (2016) http://allwaterdata.water.nsw.gov.au/water.stm (accessed September 2020).

O.D. Thomas, D.J. Pogson, A.J. Johnston, M.M. Scott, A.Y.E. Warren, L. Sherwin, G.P. Colquhoun, J.J. Watkins, R.G. Cameron, G.P. MacRae, R.A. Glen & J.J. Vassallo. 2013. *Goulburn 1:250 000 Geological Sheet SI/55-12, 2nd edition. (2 sheets). Geological Survey of New South Wales, Maitland*

Guidelines made by EPA

DEC (2007) *Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination*. NSW EPA, Sydney.

Department of Environment, Climate Change and Water (DECCW) (2009) *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008*. NSW DECCW, Sydney;

EnRiskS (2016) *Proposed Decision Tree for Prioritising Sites Potentially Contaminated with PFASs.* Carlingford Court, NSW.

EPA (2016) *Designing Sampling Programs for Sites Potentially Contaminated by PFAS: Guidance Document*. EPA, Sydney.

EPA (2016) *Contaminated Land Management: Draft Guidelines for the NSW Site Auditor Scheme (3rd edition)*. EPA, Sydney.

EPA (1995a) *Contaminated Sites: Guidelines for the Vertical Mixing of Soil on Former Broad-acre Agricultural Land*. NSW EPA, Sydney.

EPA (1995b) *Contaminated Sites: Sampling Design Guidelines*. NSW EPA, Sydney.

EPA (1997) *Contaminated Sites: Guidelines for Assessing Banana Plantation Sites*. NSW EPA, Sydney.

EPA (2005) *Contaminated Sites: Guidelines for Assessing Former Orchards and Market Gardens*. NSW EPA, Sydney.

EPA (1999) *Contaminated Sites: Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report*. NSW EPA, Sydney.

EPA (2000) *Environmental Guidelines: Use and Disposal of biosolids products*. NSW EPA, Sydney.

EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*.NSW EPA, Sydney.

EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. NSW DECC, Sydney.

EPA (November 2014) *Waste Classification Guidelines – Part 1: Classifying Waste*. NSW EPA, Sydney, NSW.

EPA (2020) *Consultants Reporting on Contaminated Land*.

Guidelines approved by the EPA

ANZECC/ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, Paper No 4, Canberra.

ANZECC/NHMRC (1992) *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*. Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council, Canberra.

Department of Health and Ageing and EnHealth Council (2002) *Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards*. Commonwealth of Australia, Canberra.

Lock, W. H., (1996) "Composite Sampling", *National Environmental Health Forum Monographs, Soil Series No. 3*. SA Health Commission, Adelaide.

NEPC (1999) *National Environment Protection (Assessment of Site Contamination) Measure, Schedule A and Schedules B(1)-B(10), amended April 2013*. National Environment Protection Council, Adelaide.

NHMRC/ NRMMC (2011) *Australian Drinking Water Guidelines*. National Health and Medical Research Council and Agriculture and Resource Management Council of Australia and New Zealand, Canberra, and Natural Resource Management Ministerial Council (NRMMC), Australian Government, Canberra.

NSW Agricultural/CMPS&F (1996) *Guidelines for the Assessment and Clean Up of Cattle Tick Dip Sites for Residential Purposes*. NSW Agricultural and CMPS&F Environmental, Canberra.

Figures

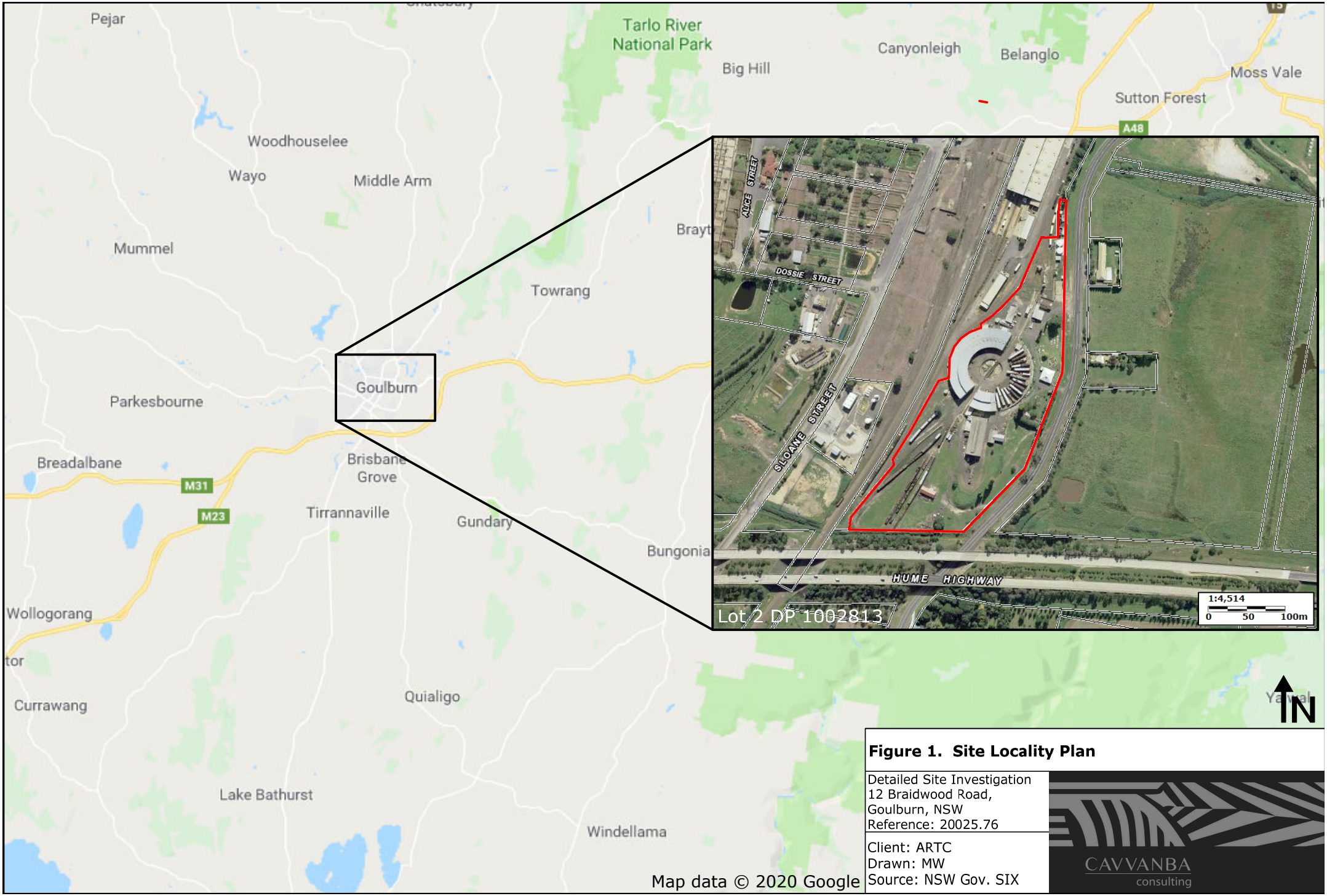


Figure 1. Site Locality Plan

Detailed Site Investigation 12 Braidwood Road, Goulburn, NSW Reference: 20025.76	CAVVANBA consulting
Client: ARTC Drawn: MW Source: NSW Gov. SIX	

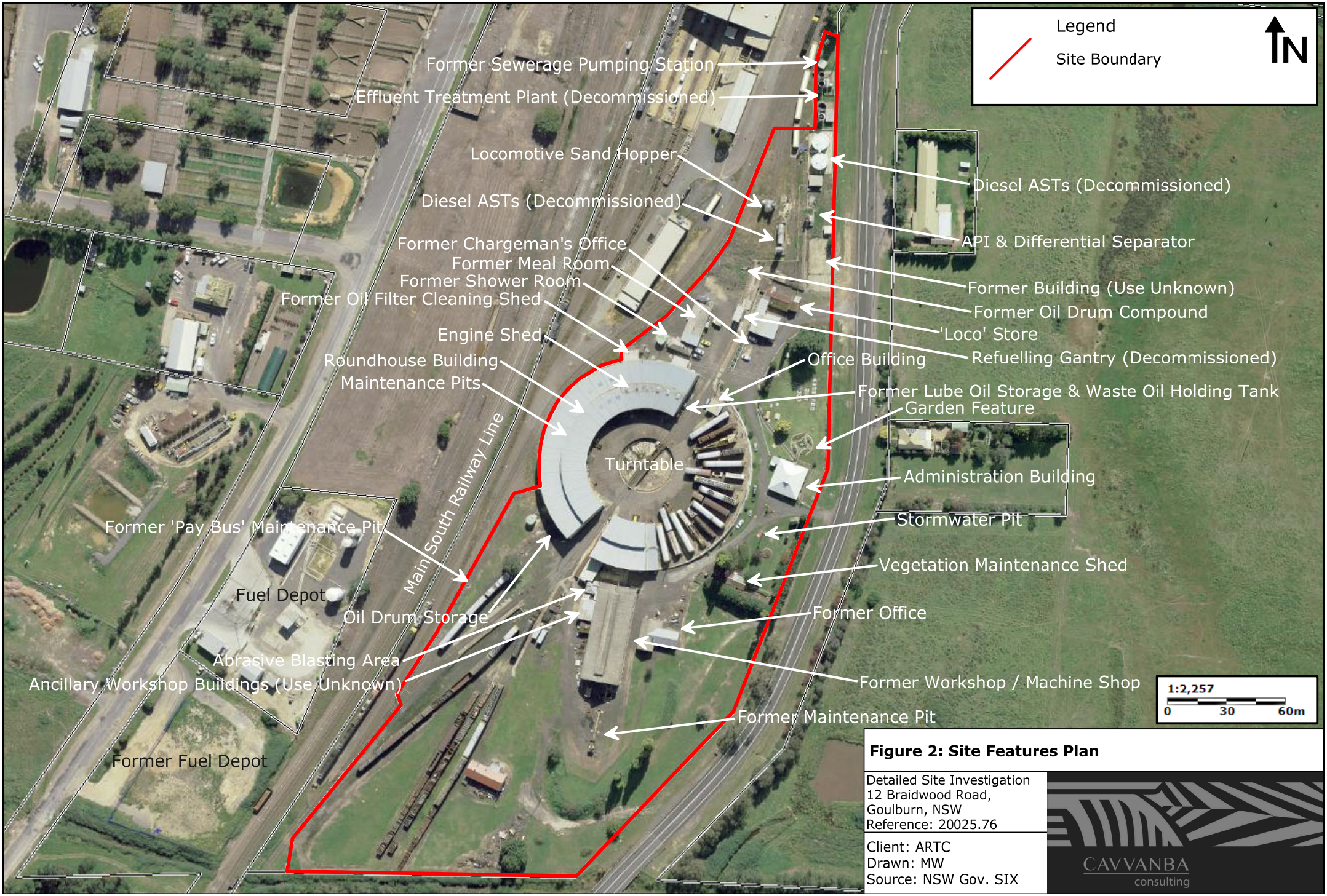


Figure 2: Site Features Plan

Detailed Site Investigation
12 Braidwood Road,
Goulburn, NSW
Reference: 20025.76

Client: ARTC
Drawn: MW
Source: NSW Gov. SIX

CAVVANBA consulting

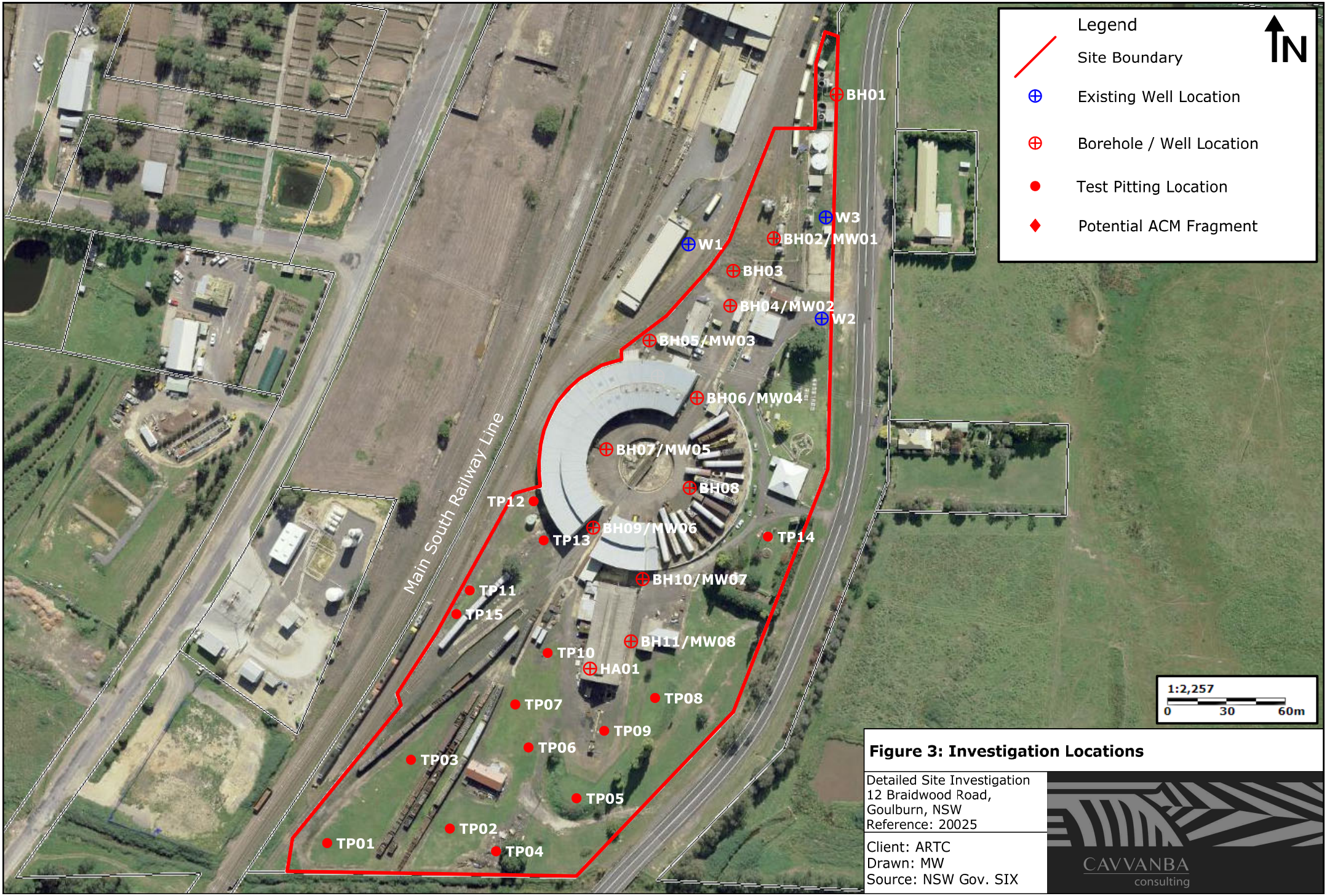


Figure 3: Investigation Locations

Detailed Site Investigation
12 Braidwood Road,
Goulburn, NSW
Reference: 20025

Client: ARTC
Drawn: MW
Source: NSW Gov. SIX

CAVVANBA consulting

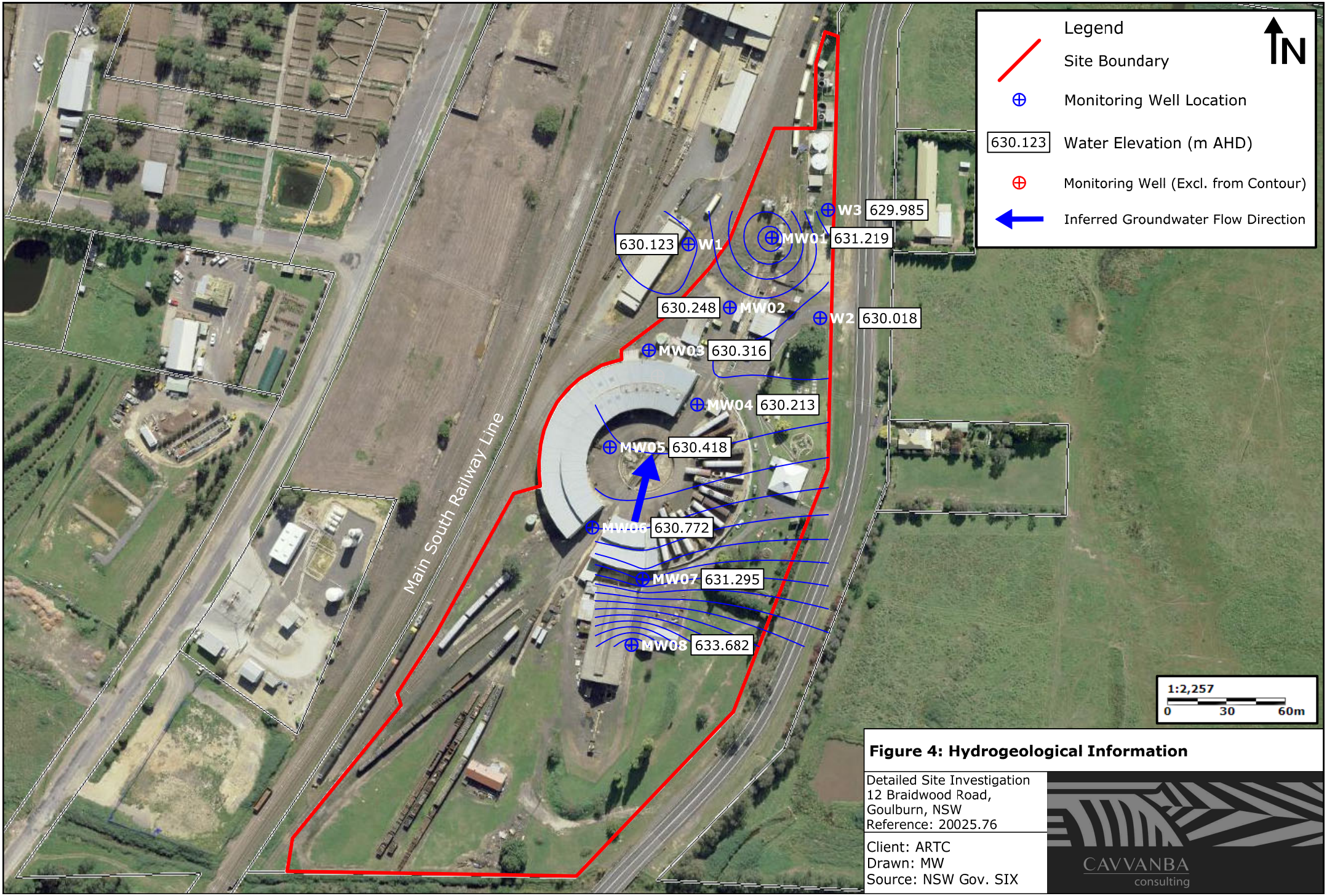


Figure 4: Hydrogeological Information

Detailed Site Investigation
12 Braidwood Road,
Goulburn, NSW
Reference: 20025.76

Client: ARTC
Drawn: MW
Source: NSW Gov. SIX

CAVVANBA consulting

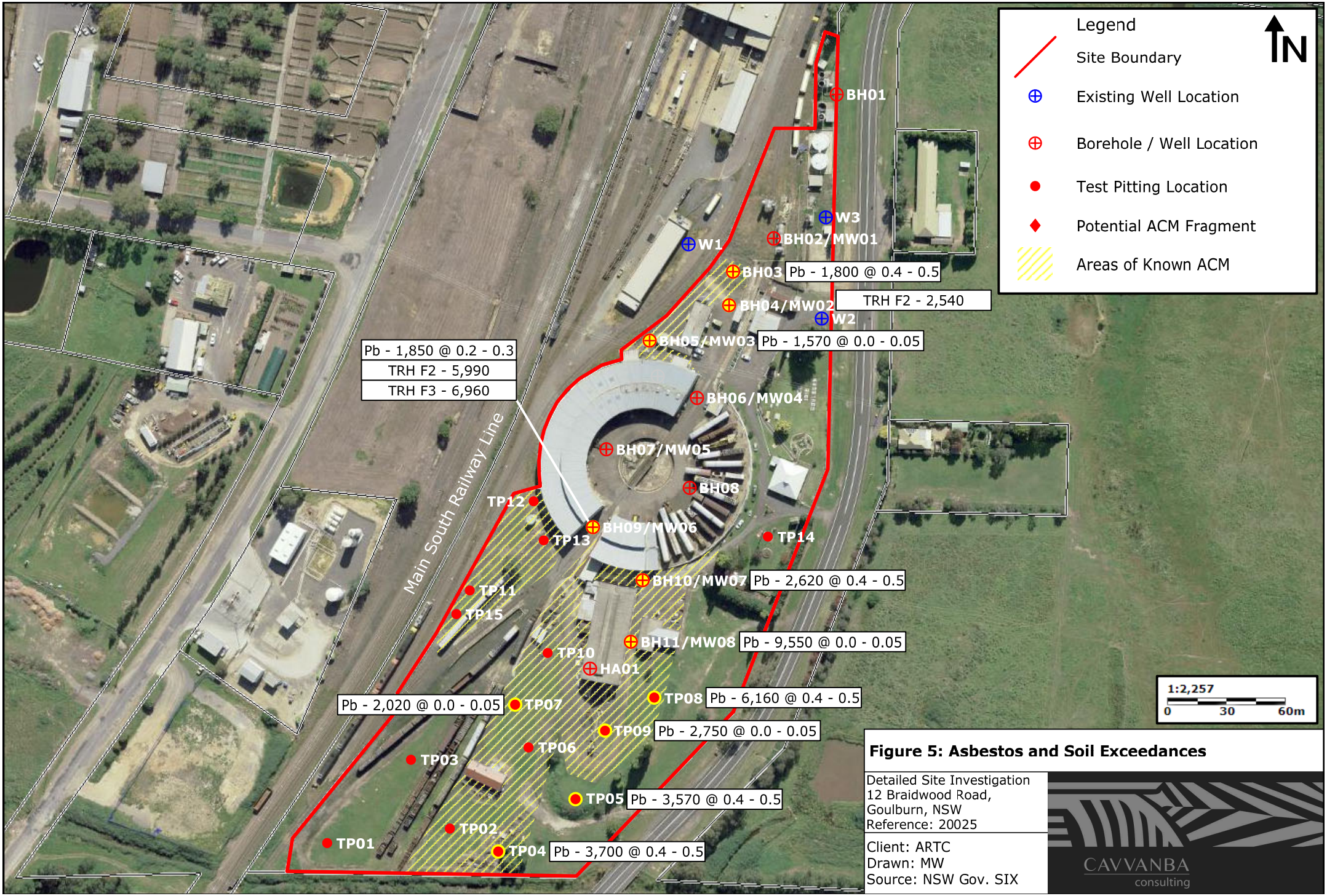


Figure 5: Asbestos and Soil Exceedances

Detailed Site Investigation
12 Braidwood Road,
Goulburn, NSW
Reference: 20025

Client: ARTC
Drawn: MW
Source: NSW Gov. SIX

CAVVANBA consulting

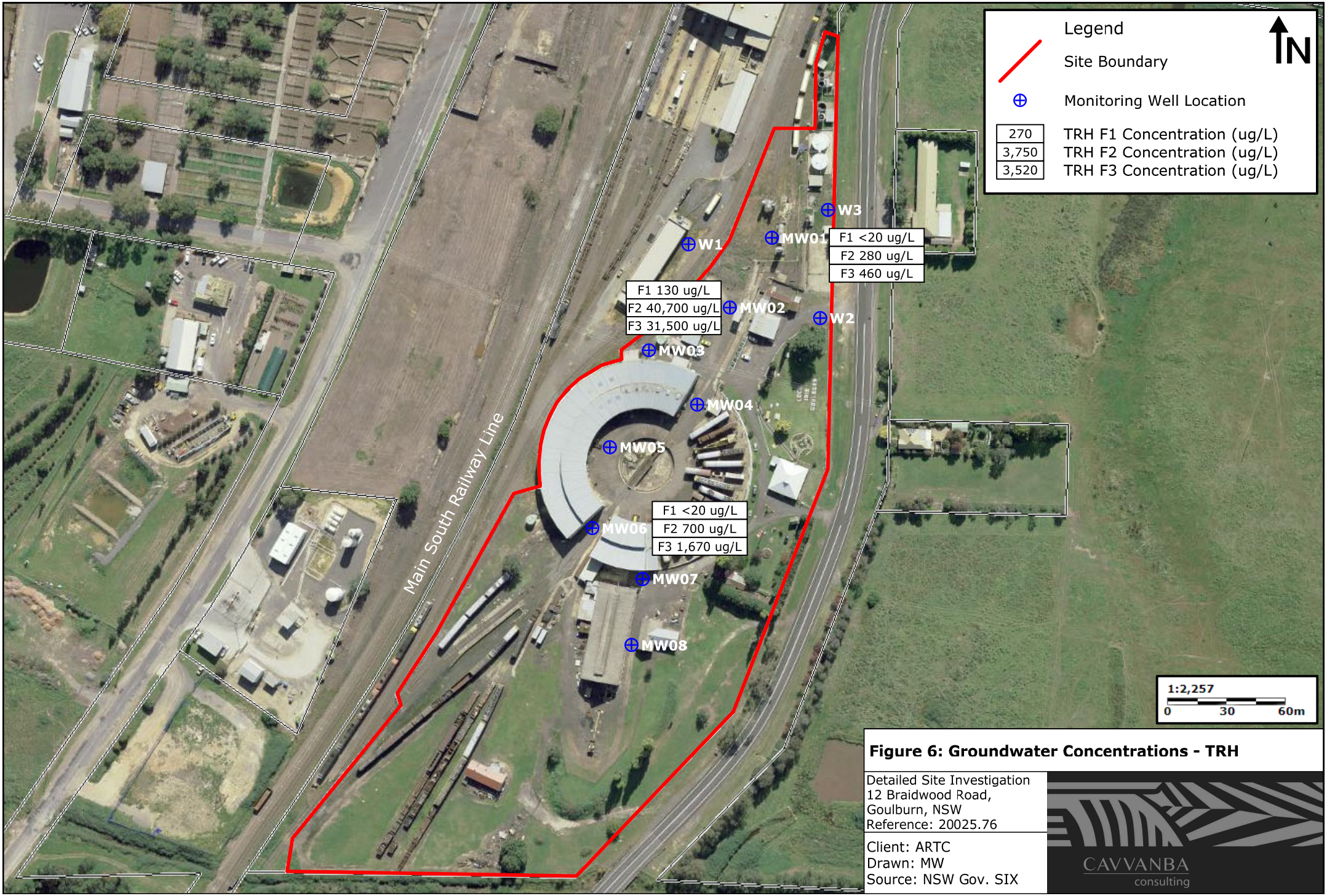


Figure 6: Groundwater Concentrations - TRH

Detailed Site Investigation
12 Braidwood Road,
Goulburn, NSW
Reference: 20025.76

Client: ARTC
Drawn: MW
Source: NSW Gov. SIX

CAVVANBA consulting

Tables

Table 1: Soil Analytical Summary - Sample Description and Analytical Summary

Sample	Depth (m)	Date sampled	Description	Analysis								
				Heavy metals	BTEX	TRH	PAHs	Phenols	OCPs/OPPs	VOCs	Phenoxyacetic acids	Physicochemical properties
Soil Bores												
BH01 0.4-0.5	0.4-0.5	19/08/20	Sandy CLAY, grey,low plasticity / soft clay, loose sand, slightly moist, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
BH02 0.0-0.05	0.0-0.05	19/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
BH02 6.9-7.0	6.9-7.0	19/08/20	CLAY, light brown / grey, medium plasticity / medium stiffness clay, moist, no hyrdocarbon staining or odours noted	•	•	•	•	•		•		
BH03 0.4-0.5	0.4-0.5	19/08/20	Sandy GRAVEL, black, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•		•	
BH04 1.9-2.0	1.9-2.0	18/08/20	Sandy CLAY, grey, medium plasticity / soft clay, loose sand, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•		•		
BH04 6.9-7.0	6.9-7.0	18/08/20	CLAY, light brown / orange, medium plasticity / medium stiffness clay, moist, no hyrdocarbon staining noted, slight hydrocarbon odours noted	•	•	•	•	•				
BH05 0.0-0.05	0.0-0.05	18/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•		•	
BH06 0.0-0.05	0.0-0.05	18/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
BH07 0.0-0.05	0.0-0.05	18/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
BH07 5.9-6.0	5.9-6.0	18/08/20	Gravelly CLAY, light brown, medium plasticity / medium stiffness clay, moist, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•				
BH08 0.0-0.05	0.0-0.05	18/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•				•	
BH09 0.2-0.3	0.2-0.3	18/08/20	Sandy GRAVEL / ASH, black, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining,strong hydrocarbon odours noted	•	•	•	•	•	•	•	•	
BH09 5.2-5.3	5.2-5.3	18/08/20	CLAY, grey, medium plasticity / medium stiffness clay, moist, no hyrdocarbon staining noted, slight hydrocarbon odours noted	•	•	•	•	•		•		
BH10 0.4-0.5	0.4-0.5	18/08/20	Sandy GRAVEL / ASH, black, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining,strong hydrocarbon odours noted	•	•	•	•	•	•			
BH10 7.9-8.0	7.9-8.0	18/08/20	Gravelly CLAY, brown, medium plasticity / medium stiffness clay, moist, fine to coarse grained sand, no hydrocarbon staining or odours noted									•

Table 1: Soil Analytical Summary - Sample Description and Analytical Summary

Sample	Depth (m)	Date sampled	Description	Analysis								
				Heavy metals	BTEX	TRH	PAHs	Phenols	OCPs/OPPs	VOCs	Phenoxyacetic acids	Physicochemical properties
BH11 0.0-0.05	0.0-0.05	18/08/20	Sandy GRAVEL / ASH, black, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining,strong hydrocarbon odours noted	•	•	•	•	•	•			
HA01 .0-0.05	0.0-0.05	18/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
Test Pits												
TP01 0.05-0.1	0.05-0.1	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•			•	
TP02 0.4-0.5	0.4-0.5	20/08/20	Gravelly Sandy CLAY, grey, loose, slightly moist, fine to coarse grained sand / gravel, low plasticity clay, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP03 0.0-0.05	0.0-0.05	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP03 1.4-1.5	1.4-1.5	20/08/20	Sandy CLAY, light brown, low plasticity / soft clay, loose sand, slightly moist, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP04 0.4-0.5	0.4-0.5	20/08/20	Sandy GRAVEL, black, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•				
TP05 0.05-0.1	0.05-0.1	20/08/20	Clayey Sandy GRAVEL, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP05 0.4-0.5	0.4-0.5	20/08/20	Gravelly Sandy CLAY, brown, loose, dry, fine to coarse grained sand / gravel, low plasticity clay, no hydrocarbon staining or odours noted	•	•	•	•	•				
TP06 0.4-0.5	0.4-0.5	20/08/20	Clayey Sandy GRAVEL, black, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•		•	
TP07 0.0-0.05	0.0-0.05	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•		•	
TP08 0.4-0.5	0.4-0.5	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP08 2.2-2.3	2.2-2.3	20/08/20	Sandy CLAY, light brown, low plasticity / soft clay, loose sand, slightly moist, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP09 0.0-0.05	0.0-0.05	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP10 0.4-0.5	0.4-0.5	20/08/20	Clayey Sandy GRAVEL, brown, loose, slightly moist, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			

Table 1: Soil Analytical Summary - Sample Description and Analytical Summary

Sample	Depth (m)	Date sampled	Description	Analysis								
				Heavy metals	BTEX	TRH	PAHs	Phenols	OCPs/OPPs	VOCs	Phenoxyacetic acids	Physicochemical properties
TP10 1.9-2.0	1.9-2.0	20/08/20	Sandy CLAY, brown / orange, low plasticity / soft clay, loose sand, slightly moist, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP11 0.0-0.05	0.0-0.05	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP12 0.05-0.1	0.05-0.1	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP13 0.0-0.05	0.0-0.05	20/08/20	Sandy GRAVEL, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP13 1.9-2.0	1.9-2.0	20/08/20	Gravelly Sandy CLAY, light brown, loose, slightly moist, fine to coarse grained sand / gravel, low plasticity clay, no hydrocarbon staining or odours noted	•	•	•	•	•				
TP14 0.05-0.1	0.0-0.05	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•			
TP15 0.05-0.1	0.05-0.1	20/08/20	Sandy GRAVEL / ASH, black, loose, dry, fine to coarse grained sand / gravel, no hydrocarbon staining or odours noted	•	•	•	•	•	•		•	
TP15 0.4-0.5	0.4-0.5	20/08/20	Sandy CLAY, grey, low plasticity / soft clay, loose sand, moist, fine to coarse grained sand, no hydrocarbon staining or odours noted	•	•	•	•	•				

Table 2: Soil Analytical Summary - Heavy Metals (mg/kg)

Sample	Depth (m)	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
LOR		*5*	*1*	*2*	*5*	*5*	*2*	*5*	*0.1*
Analytical - Soil Bores									
BH01 0.4-0.5	0.4-0.5	nd	nd	44	16	27	9	9	nd
BH02 0.0-0.05	0.0-0.05	7	nd	17	143	212	16	94	nd
BH02 6.9-7.0	6.9-7.0	nd	nd	36	21	18	27	16	nd
BH03 0.4-0.5	0.4-0.5	27	nd	11	1,900	**1,800**	17	297	0.4
BH04 1.9-2.0	1.9-2.0	nd	nd	65	24	17	16	15	nd
BH04 6.9-7.0	6.9-7.0	nd	nd	34	19	22	24	14	nd
BH05 0.0-0.05	0.0-0.05	16	1	8	944	**1,570**	16	592	0.2
BH06 0.0-0.05	0.0-0.05	7	nd	8	739	576	8	62	nd
BH07 0.0-0.05	0.0-0.05	8	nd	8	461	391	11	116	nd
BH07 5.9-6.0	5.9-6.0	7	nd	14	9	15	24	11	nd
BH08 0.0-0.05	0.0-0.05	11	nd	9	349	447	13	67	nd
BH09 0.2-0.3	0.2-0.3	12	nd	12	906	**1,850**	14	147	0.2
BH09 5.2-5.3	5.2-5.3	nd	nd	20	13	18	14	13	nd
BH10 0.4-0.5	0.4-0.5	8	nd	6	1,160	**2,620**	12	219	0.2
BH11 0.0-0.05	0.0-0.05	22	nd	8	3,530	**9,440**	17	270	0.2
HA01 .0-0.05	0.0-0.05	6	nd	9	292	304	13	459	nd
Analytical - Test Pits									
TP01 0.05-0.1	0.05-0.1	9	nd	9	83	122	12	234	nd
TP02 0.4-0.5	0.4-0.5	nd	nd	52	10	15	10	7	nd
TP03 0.0-0.05	0.0-0.05	20	nd	36	173	362	36	387	nd
TP03 1.4-1.5	1.4-1.5	nd	nd	40	18	23	12	13	nd
TP04 0.4-0.5	0.4-0.5	13	nd	26	86	**3700#**	19	313	nd
TP05 0.05-0.1	0.05-0.1	16	nd	50	116	320	9	183	nd
TP05 0.4-0.5	0.4-0.5	13	nd	31	1,820	**3,570**	27	450	0.1
TP06 0.4-0.5	0.4-0.5	33	1	31	1,180	1,420	30	645	0.1
TP07 0.0-0.05	0.0-0.05	46	1	10	923	**2,020**	13	597	0.2
TP08 0.4-0.5	0.4-0.5	30	28	151	1,210	**6,160**	102	6,140	0.3
TP08 2.2-2.3	2.2-2.3	nd	nd	43	15	26	11	15	nd
TP09 0.0-0.05	0.0-0.05	30	8	193	2,430	**2,750**	90	26,200	nd
TP10 0.4-0.5	0.4-0.5	8	nd	22	297	385	20	119	nd
TP10 1.9-2.0	1.9-2.0	nd	nd	28	22	15	12	14	nd
TP11 0.0-0.05	0.0-0.05	16	nd	16	179	248	21	422	nd
TP12 0.05-0.1	0.05-0.1	nd	nd	29	142	194	11	101	nd
TP13 0.0-0.05	0.0-0.05	19	nd	94	212	320	53	230	nd
TP13 1.9-2.0	1.9-2.0	nd	nd	46	21	34	10	154	nd
TP14 0.05-0.1	0.0-0.05	7	nd	155	721	717	19	180	nd
TP15 0.05-0.1	0.05-0.1	12	nd	17	162	221	14	225	nd
TP15 0.4-0.5	0.4-0.5	nd	nd	51	13	17	6	9	nd
Statistics									
Samples analysed		37	37	37	37	36	37	37	37
Detects		25	5	37	37	36	37	37	9
% detect		68%	14%	100%	100%	100%	100%	100%	24%
Maximum		46	28	193	3,530	**9,440**	102	26,200	0.4
Mean		16	8	39	550	1,063	21	1,055	0.2
Median		13	1	28	173	312	14	154	0.2
Minimum		<5	<1	6	9	15	6	7	<0.1
Criteria									
HILs - Commercial / Industrial D		3,000	900	3,600	240,000	**1,500**	6,000	400,000	730/180
EILs - Commercial and Industrial (Aged)		160	-	1,000	300	1,800	310	740	-

Table 3: Soil Analytical Summary - TRH and BTEXN (mg/kg)

Sample	Depth (m)	Benzene	Toluene	Ethyl benzene	meta- & para-Xylenes	ortho-Xylene	Naphthalene	F1 TRH C_6 - C_{10}	F2 TRH >C_{10} - C_{16}	F3 TRH >C_{16} - C_{34}	F4 TRH >C_{34} - C_{40}
LOR		*0.2*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*10*	*50*	*100*	*100*
Analytical - Soil Bores											
BH01 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH02 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	220	nd
BH02 6.9-7.0	6.9-7.0	nd	nd	nd	nd	nd	nd	nd	130	110	nd
BH03 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	2,060	880
BH04 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	21	**2,540**	2,220	nd
BH04 6.9-7.0	6.9-7.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH05 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	260	nd
BH06 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	250	140
BH07 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	330	100
BH07 5.9-6.0	5.9-6.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH08 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	130	nd
BH09 0.2-0.3	0.2-0.3	nd	0.6	0.6	2.3	nd	4	28	**5,990**	**6,960**	470
BH09 5.2-5.3	5.2-5.3	nd	nd	nd	nd	nd	nd	nd	460	470	nd
BH10 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	420	160
BH11 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
HA01 .0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	380	160
Analytical - Test Pits											
TP01 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP02 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP03 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	260	150
TP03 1.4-1.5	1.4-1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP04 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP05 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP05 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	210	nd
TP06 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	440	140
TP07 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	170	nd
TP08 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	620	260
TP08 2.2-2.3	2.2-2.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP09 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP10 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP10 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP11 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP12 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP13 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	260	nd
TP13 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP14 0.05-0.1	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	200	nd
TP15 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	170	nd
TP15 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Statistics											
Samples analysed		37	37	37	37	37	37	37	37	37	37
Detects		0	1	1	1	0	1	2	4	20	9
% detect		0%	3%	3%	3%	0%	3%	5%	11%	54%	24%
Maximum		<0.2	0.6	0.6	2.3	<0.5	4	28	**5,990**	**6,960**	880
Mean		<0.2	0.6	0.6	2.3	<0.5	4	25	2280	807	273
Median		<0.2	0.6	0.6	2.3	<0.5	4	25	1500	260	160
Minimum		<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<50	<100	<100
Criteria - Commercial / Industrial (Clay)											
HSL D - 0 m to < 1 m		4	NL	NL	NL		NL	310	NL	NL	NL
HSL D - 1 m to < 2 m		6	NL	NL	NL		NL	480	NL	NL	NL
HSL D - 2 m to < 4 m		9	NL	NL	NL		NL	NL	NL	NL	NL
HSL D - 4 m+		20	NL	NL	NL		NL	NL	NL	NL	NL
HILs - Commercial / Industrial D		-	-	-	-		-	-	-	-	-
Ecological - Commercial / Industrial (Aged)		75	135	165	180		370	215	170	1,700	3,300
Management Limits - Commercial and Industrial		-	-	-	-		-	-	**1,000**	**3,500**	10,000
HSL D - Direct Contact		430	99,000	27,000	81,000		-	26,000	20,000	27,000	38,000
Intrusive Maintenance Worker - Direct Contact		1,100	120,000	85,000	130,000		29,000	82,000	62,000	85,000	120,000
Intrusive Maintenance Worker - Shallow Trench - 0 m to < 2 m		350	NL	NL	NL		NL	NL	NL	NL	NL
Intrusive Maintenance Worker - Shallow Trench - 2 m to < 4 m		NL	NL	NL	NL		NL	NL	NL	NL	NL
Intrusive Maintenance Worker - Shallow Trench - 4 m+		NL	NL	NL	NL		NL	NL	NL	NL	NL

Table 4: Soil Analytical Summary - PAHs & Phenols (mg/kg)

Sample	Depth (m)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Total PAHs	B(a)P TEQ	Phenol	Pentachlorophenol
LORs		*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*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*2*
Analytical - Soil Bores																					
BH01 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH02 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH02 6.9-7.0	6.9-7.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH03 0.4-0.5	0.4-0.5	nd	nd	nd	nd	1	nd	0.9	1	0.6	0.7	0.8	nd	nd	nd	nd	nd	5.5	nd	nd	nd
BH04 1.9-2.0	1.9-2.0	1.3	nd	0.7	1.6	2.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	6.4	nd	nd	nd
BH04 6.9-7.0	6.9-7.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH05 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH06 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH07 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH07 5.9-6.0	5.9-6.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH08 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH09 0.2-0.3	0.2-0.3	7.1	nd	1.1	2.2	4.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	15.2	nd	nd	nd
BH09 5.2-5.3	5.2-5.3	nd	nd	nd	nd	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.5	nd	nd	nd
BH10 0.4-0.5	0.4-0.5	nd	nd	nd	nd	0.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.6	nd	nd	nd
BH11 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
HA01 .0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Analytical - Test Pits																					
TP01 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP02 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP03 0.0-0.05	0.0-0.05	0.8	nd	nd	nd	0.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	1.6	nd	nd	nd
TP03 1.4-1.5	1.4-1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP04 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

Table 4: Soil Analytical Summary - PAHs & Phenols (mg/kg)

Sample	Depth (m)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Total PAHs	B(a)P TEQ	Phenol	Pentachlorophenol
LORs		*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*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*2*
TP05 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP05 0.4-0.5	0.4-0.5	nd	nd	nd	nd	0.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.6	nd	nd	nd
TP06 0.4-0.5	0.4-0.5	nd	nd	nd	nd	0.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.7	nd	nd	nd
TP07 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP08 0.4-0.5	0.4-0.5	nd	nd	nd	nd	0.6	nd	0.5	0.5	nd	nd	nd	nd	nd	nd	nd	nd	1.6	nd	nd	nd
TP08 2.2-2.3	2.2-2.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP09 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP10 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP10 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP11 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP12 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP13 0.0-0.05	0.0-0.05	nd	nd	nd	nd	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.5	nd	nd	nd
TP13 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP14 0.05-0.1	0.0-0.05	0.6	nd	nd	nd	0.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	1.2	nd	nd	nd
TP15 0.05-0.1	0.05-0.1	nd	nd	nd	nd	0.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.8	nd	nd	nd
TP15 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Statistics																					
Samples analysed		37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Detects		4	0	2	2	12	0	2	2	1	1	1	0	0	0	0	0	12	0	0	0
% detect		11%	0%	5%	5%	32%	0%	5%	5%	3%	3%	3%	0%	10%	0%	0%	0%	32%	0%	0%	0%
Maximum		7.1	<0.5	1.1	2.2	4.3	<0.5	0.9	1.0	0.6	0.7	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	15.2	<0.5	<0.5	<2
Mean		2.5	<0.5	0.9	1.9	1.2	<0.5	0.7	0.8	0.6	0.7	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	2.9	<0.5	<0.5	<2
Median		1.1	<0.5	0.9	1.9	0.7	<0.5	0.7	0.8	0.6	0.7	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	<2
Minimum		<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	<0.5	<0.5	<0.5	<0.5	<0.5	<2
Criteria																					
HILs - Commercial / Industrial D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,000	40	240,000	660
EILs - Commercial / Industrial (Aged)		370	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-

Table 5: Soil Analytical Summary - OCPs, OPPs and Phenoxyacetic Acid Herbicides (mg/kg)

Sample	Depth (m)	OCPs							OPPs	Phenoxyacetic Acid Herbicides					
		Heptachlor	Total Chlordane (sum)	Endrin	Endosulfan (sum)	Methoxychlor	Sum of Aldrin + Dieldrin	Sum of DDD + DDE + DDT	Chloropyrifos	2.4.5-T	2.4-D	MCPA	MCPB	Mecoprop	Picloram
LORs		*0.2*	*0.1*	*0.05*	*0.05*	*0.2*	*0.05*	*0.05*	*0.05*	*0.02*	*0.02*	*0.02*	*0.02*	*0.02*	*0.02*
Analytical - Soil Bores															
BH01 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
BH02 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
BH02 6.9-7.0	6.9-7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH04 1.9-2.0	1.9-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04 6.9-7.0	6.9-7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH06 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
BH07 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
BH07 5.9-6.0	5.9-6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	nd	nd	nd	nd	nd	nd
BH09 0.2-0.3	0.2-0.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH09 5.2-5.3	5.2-5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
BH11 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
HA01 .0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
Analytical - Test Pits															
TP01 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP02 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP03 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP03 1.4-1.5	1.4-1.5	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP04 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP05 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP07 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP08 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP08 2.2-2.3	2.2-2.3	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP09 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP10 0.4-0.5	0.4-0.5	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP10 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP11 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP12 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP13 0.0-0.05	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP13 1.9-2.0	1.9-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14 0.05-0.1	0.0-0.05	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-
TP15 0.05-0.1	0.05-0.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TP15 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics															
Samples analysed		27	27	27	27	27	27	27	27	8	8	8	8	8	8
Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0
% detect		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Maximum		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mean		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Median		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Minimum		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Criteria															
HILs - Commercial / Industrial D		50	530	100	2,000	2,500	45	3,600	2,000	5,000	9,000	5,000	5,000	5,000	35,000
EILs - Commercial and Industrial (Aged)		-	-	-	-	-	-	640 (DDT only)	-	-	-	-	-	-	-

Table 6: Soil Analytical Summary - Volatile Organic Compounds (mg/kg)

Sample	Depth (m)	1,1-dichloroethene	Chloroethane	Chloroform	Chloromethane	Trichloroethene	Tetrachloroethene	Vinyl chloride	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Bromobenzene	Chlorobenzene	2-hexanone (MBK)	p-Isopropyltoluene
LORs		*0.5*	*5*	*0.5*	*5*	*0.5*	*0.5*	*5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*5*	*0.5*
Analytical - Soil Bores															
BH01 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02 6.9-7.0	6.9-7.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH03 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04 1.9-2.0	1.9-2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH04 6.9-7.0	6.9-7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07 5.9-6.0	5.9-6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09 0.2-0.3	0.2-0.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.5
BH09 5.2-5.3	5.2-5.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BH10 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA01 .0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analytical - Test Pits															
TP01 0.05-0.1	0.05-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03 1.4-1.5	1.4-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05 0.05-0.1	0.05-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08 2.2-2.3	2.2-2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10 1.9-2.0	1.9-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12 0.05-0.1	0.05-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13 0.0-0.05	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13 1.9-2.0	1.9-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14 0.05-0.1	0.0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15 0.05-0.1	0.05-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15 0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics															
Samples analysed		4	4	4	4	4	4	4	4	4	4	4	4	4	4
Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	1
% detect		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%
Maximum		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.1	<0.2	<0.1	<0.05	<0.05	0.5
Mean		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.1	<0.2	<0.1	<0.05	<0.05	0.5
Median		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.1	<0.2	<0.1	<0.05	<0.05	0.5
Minimum		<0.2	<0.1	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.1	<0.2	<0.1	<0.05	<0.05	<0.2
Criteria															
HILs - Commercial / Industrial D		NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL

A complete VOC scan is presented within the associated laboratory analytical report.

Table 7: Soil Analytical Summary - Asbestos

Sample	Field observations	Asbestos detected in laboratory sample?	Asbestos Type Laboratory result	Classification - AF or ACM Based on laboratory & field assessment
ACM05	Cement sheeting fragment adjacent to TP06	Yes	Chrysotile	ACM
ACM06	Cement sheeting fragment within TP06	Yes	Chrysotile	ACM
ACM07	Cement sheeting fragment collected from rail abutment, adjacent to TP13	Yes	Chrysotile	ACM

Table 8: Soil Analytical Summary - Quality Control (mg/kg)

Analyte	LOR mg/kg	BH08 0.0-0.05	QS01	**RPD**	BH08 0.0-0.05	QS02	**RPD**	TP04 0.4-0.5	QS07	**RPD**	TP04 0.4-0.5	QS08	**RPD**	Trip Blank	Trip Spike	Trip Spike	Trip Spike
Type	-	*Primary*	*Intralab Duplicate*	*%*	*Primary*	*Interlab Duplicate*	*%*	*Primary*	*Intralab Duplicate*	*%*	*Primary*	*Interlab Duplicate*	*%*	*Lab prep*	*Field*	*Lab*	*Recovery*
Date	-	18/08/20	18/08/20	-	18/08/20	18/08/20	-	20/08/20	20/08/20	-	20/08/20	20/08/20	-	20/08/20	20/08/20	20/08/20	-
Media	*Soil*	*Soil*	*Soil*	-	*Soil*	*Soil*	-	*Soil*	*Soil*	-	*Soil*	*Soil*	-	*Soil*	*Soil*	*Soil*	
Heavy metals																	
Arsenic	*5*	11	10	10	11	66	**143**	13	10	26	13	8	44	-	-	-	-
Cadmium	*1*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	-	-	-	-
Chromium	*2*	9	10	11	9	18	**67**	26	30	14	26	25	4	-	-	-	-
Copper	*5*	349	354	1	349	310	12	86	54	46	86	51	**51**	-	-	-	-
Lead	*5*	447	485	8	447	280	46	146	141	3	146	3,700	**185**	-	-	-	-
Nickel	*2*	13	13	0	13	26	**67**	19	13	38	19	20	5	-	-	-	-
Zinc	*5*	67	71	6	67	56	18	313	229	31	313	250	22	-	-	-	-
Mercury	*0.1*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	-	-	-	-
Organics																	
Benzene	*0.2*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	nd	-
Toluene	*0.5*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	nd	10.6	12.6	84
Ethyl benzene	*0.5*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	nd	1.9	2.3	83
meta- & para-Xylene	*0.5*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	nd	10.1	12.2	83
ortho-Xylene	*0.5*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	nd	4.5	5.3	85
F1 TRH C_6 - C_{10}	*10*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	nd	42	49	86
F2 TRH >C_{10} - C_{16}	*50*	nd	nd	-	nd	nd	-	nd	nd	-	nd	nd	-	-	-	-	-
F3 TRH >C_{16} - C_{34}	*100*	130	nd	**-**	nd	83	**-**	nd	nd	**-**	nd	nd	**-**	-	-	-	-
F4 TRH >C_{34} - C_{40}	*100*	nd	nd	**-**	nd	80	**-**	nd	nd	**-**	nd	nd	**-**	-	-	-	-
Sum PAHs	*0.5*	nd	nd	**-**	nd	nd	-	nd	nd	-	nd	nd	-	-	-	-	-
Data Quality Indicator		-	-	*<50%*	-	**-**	***<50%***	-	-	*<50%*	-	**-**	***<50%***	-	-	-	*70-130%*

Soil Analytical Summary Table Notes

LOR denotes limit of reporting (standard LOR unless otherwise shown)

nd denotes not detected above the LOR

NL denotes non-limiting

- denotes not analysed/not available

Bold - Exceeds landuse criteria

RPD denotes relative percent difference

^ denotes raised LOR

TRH C_6-C_{10} F1 = TRH C_6-C_{10} minus BTEX compounds

HSL for VI = Health Screening Levels for Vapour Intrusion

Management limits = Petroleum hydrocarbon management limits (ASC NEPM (2013))

HSLs for direct contact = CRC CARE (2011)

ESL = Ecological Screening Levels

EIL = Ecological Investigation Levels (ASC NEPM (2013))

*analyte list shown on laboratory report

1. Methyl mercury / inorganic mercury

EILs calculated based on a pH of 8.4, Electrical Conductivity of 111 μS/cm, Cation Exchange Capacity = 10.8 meq/100g, Total Organic Carbon = 0.28%, Clay content = 34%

[#] Inter-laboratory duplicate sample concentration adopted for decision making purposes - Refer to Table 8 and Data Usability Assessment.

Table 9: Groundwater Monitoring Well Construction Details

Well ID	Date of Installation	Top of Well Casing Elevation (m AHD)	Bottom of Well Depth (m)	Top of Well Screen (m)	Bottom of Well Screen (m)	Location (MGA)		Initial Water Strike	Initial Groundwater level	Lithology of screened selection
						Easting	Northing			
W1	28/05/1997	637.330	12.0	9.0	12.0	-	-	11.0	7.207	Silty Clay
W2	28/05/1997	636.230	10.5	7.5	10.5	-	-	10.0	6.212	Silty Clay
W3	28/05/1997	635.810	9.0	6.0	9.0	-	-	8.5	5.825	Silty Clay
MW01	19/08/2020	637.670	9.0	5.0	9.0	-	-	7.5	6.451	Sandy Clay / Clay
MW02	19/08/2020	638.200	9.0	5.0	9.0	-	-	5.5	7.952	Sandy Clay / Clay
MW03	19/08/2020	638.600	9.0	5.0	9.0	-	-	7.7	8.284	Clay / Sandy Clay
MW04	19/08/2020	638.090	9.0	5.0	9.0	-	-	7.0	7.877	Sandy Clay
MW05	19/08/2020	638.110	10.0	5.0	10.0	-	-	5.8	7.692	Sandy Clay / Gravelly Clay
MW06	19/08/2020	638.010	9.0	5.0	9.0	-	-	6.4	7.238	Clay / Gravelly Clay
MW07	19/08/2020	638.050	9.0	5.0	9.0	-	-	7.0	6.755	Clay / Gravelly Clay
MW08*	19/08/2020	637.920	6.0	5.0	6.0	-	-	6.3	4.238	Sandy Clay / Gravelly Clay

m AHD: metres Australian Height Datum
MGA: Map Grid of Australia
*: Installed to 8.0 m, however borehole collapse

Table 10: Groundwater Gauging Data

Well ID	Gauging Date	TOC Elevation (mAHD)	Ground Surface Elevation (mAHD)	Depth of Well (mbTOC)	Depth to NAPL (mbTOC)	Depth to Water (mbTOC)	NAPL Thickness (m)	Corrected Depth to Water (m)	Water Elevation (mAHD)
W1	24/08/2020	637.330	638.900	12.073	-	7.207	-	8.777	630.123
W2	24/08/2020	636.230	635.310	11.270	-	6.212	-	5.292	630.018
W3	24/08/2020	635.810	635.070	9.370	-	5.825	-	5.085	629.985
MW01	24/08/2020	637.670	637.700	8.567	-	6.451	-	6.481	631.219
MW02	24/08/2020	638.200	638.195	8.728	-	7.952	-	7.947	630.248
MW03	24/08/2020	638.600	638.660	8.974	-	8.284	-	8.344	630.316
MW04	24/08/2020	638.090	638.200	8.947	-	7.877	-	7.987	630.213
MW05	24/08/2020	638.110	638.180	9.964	-	7.692	-	7.762	630.418
MW06	24/08/2020	638.010	638.110	8.960	-	7.238	-	7.338	630.772
MW07	24/08/2020	638.050	638.150	9.056	-	6.755	-	6.855	631.295
MW08	24/08/2020	637.920	637.830	6.133	-	4.238	-	4.148	633.682

m AHD: metres Australian Height Datum
mbTOC: metres below top of casing
NAPL: non-aqueous phase liquid

Table 11: Groundwater Quality Parameters

Location ID	Date Sampled	DO (mg/L)	EC (µScm-¹)	TDS (mg/L)	pH	Eh (mV)	TEMP (ºC)	Turbidity (NTU)	Purge Volume (L)	Comments
W1	24/08/2020	3.38	2,710	1,816	6.77	168	10.80	32.4	2.5	Clear, no odour or sheen, well in good condition, PID = 0.0 ppm
W2	24/08/2020	6.23	1,260	844	6.84	235	8.36	78.0	2.5	Clear, no odour or sheen, well in good condition, PID = 0.0 ppm
W3	24/08/2020	2.61	654	438	7.01	155	16.88	305.0	2.5	Cloudy, milky brown, no odour or sheen, well in good condition, PID = 0.1 ppm
MW01	25/08/2020	2.86	940	630	7.05	196	11.06	374.7	2.5	Cloudy, slight hydrocarbon odour, no sheen, well in good condition, PID = 4.9 ppm
MW02	25/08/2020	5.01	1,180	791	6.81	-76	15.25	>1000	2.5	Turbid, brown, strong hydrocarbon odour, no sheen, well in good condition, PID = 19.8 ppm
MW03	25/08/2020	6.8	1,910	1,280	7.29	136	13.80	11.3	2.5	Clear, no odour or sheen, well in good condition, PID = 0.0 ppm
MW04	25/08/2020	5.06	1,070	717	7.47	217	10.32	30.7	2.5	Clear, no odour or sheen, well in good condition, PID = 0.2 ppm
MW05	25/08/2020	3.4	1,210	811	7.19	-319	9.95	34.2	2.5	Clear, no odour or sheen, well in good condition, PID = 0.2 ppm
MW06	26/08/2020	4.45	754	505	7.82	79	6.79	21.3	2.5	Clear, slight hydrocarbon odour, no sheen, well in good condition, PID = 53.9 ppm
MW07	26/08/2020	9.20	825	553	7.54	167	9.94	32.7	3.0	Clear, no odour or sheen, well in good condition, PID = 0.8 ppm
MW08	26/08/2020	9.78	515	345	7.23	190	11.95	96.2	2.5	Slightly cloudy, milky white, no odour or sheen, well in good condition, PID = 0.1 ppm

Table 12: Groundwater Analytical Summary - TRH & BTEXN (µg/L)

Sample Identification	Date Sampled	BTEXN					TRH					
		Benzene	Toluene	Ethyl benzene	Xylenes	Naphthalene	C_6 - C_9 TRH	F1>C_6 - C_{10} TRH	F2 >C_{10} - C_{16} TRH	F3 >C_{16} - C_{34} TRH	F4 >C_{34} - C_{40} TRH	>C_{10} - C_{40} TRH
LOR		*1*	*2*	*2*	*2*	*2*	*20*	*20*	*100*	*100*	*100*	*100*
Analytical - Groundwater												
W1	24/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
W2	24/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
W3	24/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW01	25/08/2020	nd	nd	nd	nd	nd	nd	nd	280	460	nd	740
MW02	25/08/2020	nd	nd	nd	nd	nd	40	130	40,700	31,500	350	72,600
MW03	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW04	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW05	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW06	26/08/2020	nd	nd	nd	nd	nd	nd	nd	700	1,670	nd	2,370
MW07	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW08	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Statistics												
Samples analysed		11	11	11	11	11	11	11	11	11	11	11
Detects		0	0	0	0	0	1	1	3	3	1	3
% detect		0%	0%	0%	0%	0%	9%	9%	27%	27%	9%	27%
Maximum		<1	<2	<2	<2	<2	40	130	40,700	31,500	350	72,600
Mean		<1	<2	<2	<2	<2	3.6	11.8	3,789	3,057	31.8	6,883
Median		<1	<2	<2	<2	<2	40	130	700	1,670	350	2,370
Minimum		<1	<2	<2	<2	<2	<20	<20	<100	<100	<100	<100
Criteria - Commercial / Industrial												
ANZG (2018) 95% Level of Species Protection		950	180	80	75	16	-	-	-	-	-	-
GILs Drinking Water		1	800	300	600	-	-	-	-	-	-	-
HSL D 4 m to < 8 m (Clay)		30,000	NL	NL	NL	NL	NL	NL	NL	-	-	-
HSL D > 8 m (Clay)		35,000	NL	NL	NL	NL	NL	NL	NL	-	-	-
HSL D Intrusive Maintenance Worker 2 m to < 4m (Clay)		NL	NL	NL	NL	NL	NL	NL	NL			
HSL D Intrusive Maintenance Worker 4 m to < 8 m (Clay)		NL	NL	NL	NL	NL	NL	NL	NL	-	-	-
HSL D Intrusive Maintenance Worker > 8 m (Clay)		NL	NL	NL	NL	NL	NL	NL	NL	-	-	-

Table 13: Groundwater Analytical Summary - Metals (µg/L)

Sample Identification	Date Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
LOR		*1*	*0.1*	*1*	*1*	*1*	*1*	*5*	*0.1*
Analytical - Groundwater									
W1	24/08/2020	nd	nd	1	nd	nd	nd	nd	nd
W2	24/08/2020	nd	nd	41	nd	nd	nd	12	nd
W3	24/08/2020	nd	nd	7	nd	nd	nd	21	nd
MW01	25/08/2020	nd	nd	nd	nd	nd	2	18	nd
MW02	25/08/2020	5	nd	nd	nd	**13**	3	5	nd
MW03	25/08/2020	nd	nd	nd	1	nd	nd	33	nd
MW04	25/08/2020	nd	nd	5	nd	nd	nd	20	nd
MW05	25/08/2020	nd	nd	1	nd	nd	nd	46	nd
MW06	26/08/2020	nd	nd	nd	nd	nd	2	20	nd
MW07	26/08/2020	nd	nd	nd	nd	nd	nd	14	nd
MW08	26/08/2020	nd	nd	1	1	2	nd	nd	nd
Statistics									
Samples analysed		11	11	11	11	11	11	11	11
Detects		1	0	6	2	2	3	9	0
% detect		9%	0%	55%	18%	18%	27%	82%	0%
Maximum		5	<0.1	41	1	**13**	3	46	<0.1
Mean		0.5	<0.1	5.1	0.2	1.4	0.6	17.2	<0.1
Median		5	<0.1	3	1	8	2	20	<0.1
Minimum		<1	<0.1	<1	<1	<1	<1	<5	<0.1
Criteria - Commercial / Industrial									
ANZG (2018) 95% Level of Species Protection		13**	0.2	1*	1.4	3.4	11	8	0.06***
GILs Drinking Water		10	2	50	2,000	**10**	20	-	1

Table 14: Groundwater Analytical Summary - PAHs and Phenols (µg/L)

Sample Identification	Date Sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Phenol	Pentachlorophenol	2-Chlorophenol	Total PAHs	B(a)P TEQ
LOR		*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*0.5*	*1*	*1*	*1*	*1*	*2*	*1*	*0.5*	*0.5*
Analytical - Groundwater																						
W1	24/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
W2	24/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
W3	24/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW01	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW02	25/08/2020	nd	nd	nd	nd	28.9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	28.9	nd
MW03	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW04	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW05	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW06	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW07	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW08	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Statistics																						
Samples analysed		11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Detects		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
% detect		0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%
Maximum		<1	<1	<1	<1	28.9	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<2	<1	28.9	<0.5
Mean		<1	<1	<1	<1	2.6	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<2	<1	2.6	<0.5
Median		<1	<1	<1	<1	28.9	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<2	<1	28.9	<0.5
Minimum		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	<2	<1	<0.5	<0.5
Criteria - Commercial / Industrial																						
ANZG (2018) 95% Level of Species Protection		16	-	-	-	0.6***	0.01***	-	-	-	-	-	-	0.1***	-	-	-	-	-	-	-	-
GILs Drinking Water		-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	10	300	-	-

Table 15: Groundwater Analytical Summary - OCPs (µg/L)

Sample Identification	Date Sampled	Endosulfan (sum)	Heptachlor	Total Chlordane (sum)	Endrin	Methoxychlor	Sum of Aldrin + Dieldrin	Sum of DDD + DDE + DDT	Hexachlorobenzene (HCB)
LOR		*0.01*	*0.005*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*	*0.01*
Analytical - Groundwater									
W1	24/08/2020	-	-	-	-	-	-	-	-
W2	24/08/2020	-	-	-	-	-	-	-	-
W3	24/08/2020	-	-	-	-	-	-	-	-
MW01	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd
MW02	25/08/2020	-	-	-	-	-	-	-	-
MW03	25/08/2020	-	-	-	-	-	-	-	-
MW04	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd
MW05	25/08/2020	-	-	-	-	-	-	-	-
MW06	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd
MW07	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd
MW08	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd
Statistics									
Samples analysed		5	5	5	5	5	5	5	5
Detects		0	0	0	0	0	0	0	0
% detect		0%	0%	0%	0%	0%	0%	0%	0%
Maximum		<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Mean		<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Median		<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Minimum		<0.5	<0.5	<0.5	<0.5	<2	<0.5	<0.5	<0.5
Criteria - Commercial / Industrial									
ANZG (2018) 95% Level of Species Protection		0.03***	0.01***	0.03***	0.01***	-	-	0.006***	-
GILs Drinking Water		20	-	2	-	-	3	-	-

Table 16: Groundwater Analytical Summary - VOCs / SVOCs (µg/L)

Sample Identification	Date Sampled	1,2-dichloroethane	cis-1.2-Dichloroethene	Chloroethane	Chloroform	Chloromethane	Trichloroethene	Tetrachloroethene	Vinyl chloride	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Bromobenzene	Chlorobenzene	Methyl Ethyl Ketone	2-hexanone (MBK)	p-Isopropyltoluene
LOR		*5*	*5*	*50*	*5*	*50*	*5*	*5*	*50*	*5*	*5*	*5*	*5*	*5*	*50*	*50*	*5*
Analytical - Groundwater																	
W1	24/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W2	24/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W3	24/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW01	25/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW02	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW03	25/08/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW05	25/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW06	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW07	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
MW08	26/08/2020	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Statistics																	
Samples analysed		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% detect		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Maximum		<5	<5	<50	<5	<50	<5	<5	<50	<5	<5	<5	<5	<5	<50	<50	<5
Mean		<5	<5	<50	<5	<50	<5	<5	<50	<5	<5	<5	<5	<5	<50	<50	<5
Median		<5	<5	<50	<5	<50	<5	<5	<50	<5	<5	<5	<5	<5	<50	<50	<5
Minimum		<5	<5	<50	<5	<50	<5	<5	<50	<5	<5	<5	<5	<5	<50	<50	<5
Criteria - Commercial / Industrial																	
ANZG (2018) 95% Level of Species Protection		1,900	-	-	370	-	-	-	-	160	260	60	-	55	-	-	-
GILs Drinking Water		-	60	-	-	4	-	-	0.3	1,500	-	40	-	300	-	-	-

For a complete VOC / SVOC scan, please refer to the laboratory analytical certificates

Table 17: Groundwater Analytical Summary - Quality Control (µg/L)

Analyte	LOR ug/L	W3	QW01	**RPD**	W3	QW02	**RPD**	Trip Blank	Trip Spike	Trip Spike Control	Trip Spike
Type	-	*Primary*	*Intra-Laboratory Duplicate*	*%*	*Primary*	*Inter-Laboratory Duplicate*	*%*	*Lab prep*	*Lab prep*	*Lab*	*Recovery*
Date	-	*24/08/20*	*24/08/20*		*24/08/20*	*24/08/20*		*02/06/20*	*01/06/20*	*01/06/20*	-
Metals											
Arsenic	1	nd	nd	-	nd	nd	-	-	-	-	-
Cadmium	0.1	nd	nd	-	nd	nd	-	-	-	-	-
Chromium	1	7	7	0	7	7	0	-	-	-	-
Copper	1	nd	nd	**-**	nd	nd	-	-	-	-	-
Lead	1	nd	nd	-	nd	nd	-	-	-	-	-
Nickel	1	nd	nd	-	nd	nd	-	-	-	-	-
Zinc	5	21	16	27	21	21	0	-	-	-	-
Mercury	0.1	nd	nd	-	nd	nd	-	-	-	-	-
BTEXN											
Benzene	1	nd	nd	-	nd	nd	**-**	nd	16	20	80
Toluene	2	nd	nd	-	nd	nd	**-**	nd	16	20	80
Ethylbenzene	2	nd	nd	-	nd	nd	**-**	nd	16	20	80
meta- & para-Xylene	2	nd	nd	-	nd	nd	-	nd	16	20	80
ortho-xylene	2	nd	nd	-	nd	nd	-	nd	17	20	85
Naphthalene	5	nd	nd	-	nd	nd	-	nd	16	20	80
TPHs C6 – C9	10	nd	nd	-	nd	nd	-	-	-	-	-
TPHs C10 - C14	10	nd	nd	-	nd	nd	-	-	-	-	-
TPHs >C15 - C28	50	nd	nd	-	nd	nd	-	-	-	-	-
TPHs >C29 - C36	100	nd	nd	-	nd	nd	-	-	-	-	-
Sum of PAHs	2	nd	nd	-	nd	nd	-	-	-	-	-
Data Quality Indicator	-	-	-	*<50%*		-	*<50%*	-	-	-	*70-130%*

Groundwater Analytical Summary Table Notes

LOR - limit of reporting (standard LOR unless otherwise shown)

nd - not detected above the LOR

Bold - Exceeds criteria

^ - LOR raised

- denotes not analysed/not available

NL - Not limiting

*- Chromium criteria as Cr(VI)

** - Low reliability trigger value, used as interim working level only.

*** - Bioaccumulative, therefore a higher protection level has been adopted. For example, a PC95 will be increased to PC99, a PC80 will be increased to PC90.

Health Screening Levels (HSLs) for vapour intrusion in a clay geology has been derived based on field observations.

HSL D - Commercial/industrial

GILs Drinking Water - National Health and Medical Research Council (NHMRC) (2011) Australian Drinking Water Guidelines (Updated August 2018) (NHMRC (2011) ADWG)

ANZG (2018) - Australian and New Zealand Guidelines for Fresh and Marine Water Quality (http://www.waterquality.gov.au/anz-guidelines as accessed 22 June 2020) (ANZG 2018)

Appendix A

Photographic Log

Photograph 1
View southwest towards the western portion of the Roundhouse. Rolling stock and locomotives are evident within the Roundhouse.

Photograph 2
View east towards the turntable (foreground) and eastern portion of the former Roundhouse Building (background).

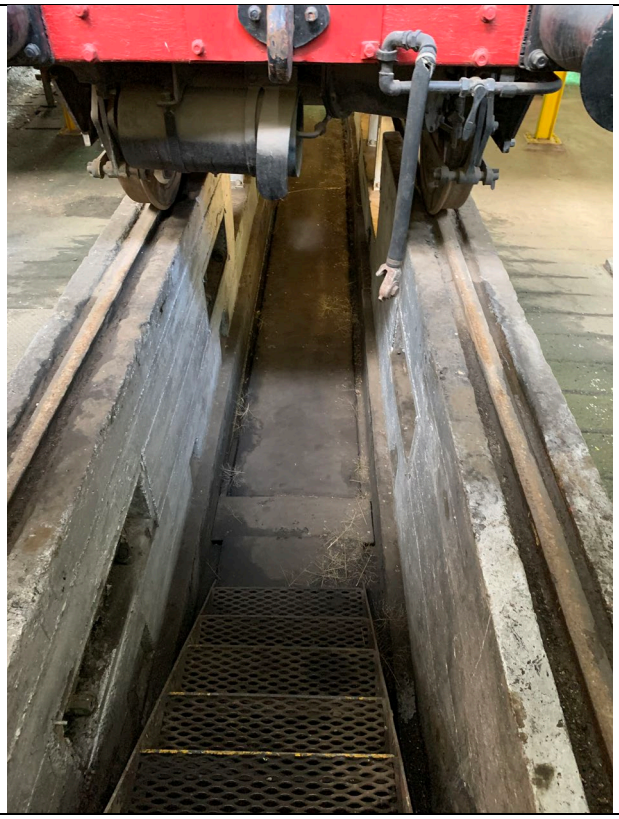
Photograph 3
View northeast towards the decommissioned diesel aboveground storage tanks in the northern portion of the site.

Photograph 4
View south towards the decommissioned effluent treatment plant.

Photograph 5
View north towards the decommissioned diesel aboveground storage tanks.

Photograph 6
View north towards the decommissioned refuelling gantry.

Photograph 7
View south west within the former oil drum compound in the northern portion of the site.



Photograph 8
Locomotive maintenance pit within the northern portion of the Roundhouse.

Photograph 9
Locomotive maintenance pit within the southern portion of the Roundhouse.

Photograph 10
View north towards the maintenance pit (foreground) and former workshop / machine shop in the background.

Photograph 11
View northwest towards ACM fragment on the ground surface adjacent to the south-western corner of the Roundhouse.

Photograph 12
View west towards the signal hut located immediately north of the Roundhouse. ACM observed on the ground surface within this area.

Photograph 13
Earthen surface within the former blacksmiths area of the former Workshop / Machine Shop.

Photograph 14
Oil staining observed adjacent to a stored locomotive within the south-western portion of the site.

Photograph 15
View northeast towards the oil drum storage area located adjacent to the south of the Roundhouse.

Photograph 16
View east towards the stockpiling area located in the south-eastern portion of the site.

Photograph 17
View east towards the stormwater pit in the eastern portion of the site.

Photograph 18
View north towards groundwater monitoring well MW06 (foreground), and the turntable (background).

Photograph 19
View west towards groundwater monitoring well MW07.

Photograph 20
View south during the advancement of borehole BH07, to the east of the Engine Shed within the Roundhouse.

Photograph 21
Sandy gravel ash fill material observed at 0.5 m during advancement of borehole location BH07.

Photograph 22
Sandy gravel ash fill material observed during advancement of borehole location BH02.

Photograph 23
Natural gravelly clay material observed at 8.0 metres during advancement of borehole location BH10.

Photograph 24
Soil profile observed during advancement of test pit location TP03.

Photograph 25
Asbestos sheeting observed within fill material to approximately 1.4 m depth in test pit location TP06.

Photograph 26
Demolition waste material observed immediately below the surface at test pit location TP06.

Photograph 27
ACM fragment (ACM02) observed on the surface during advancement of test pit location TP10.

Photograph 28
Natural sandy clay material observed at 2.0 metres depth within test pit location TP04.

Photograph 29
Asbestos sheeting observed at approximately 1.0 m at test pit location TP08.

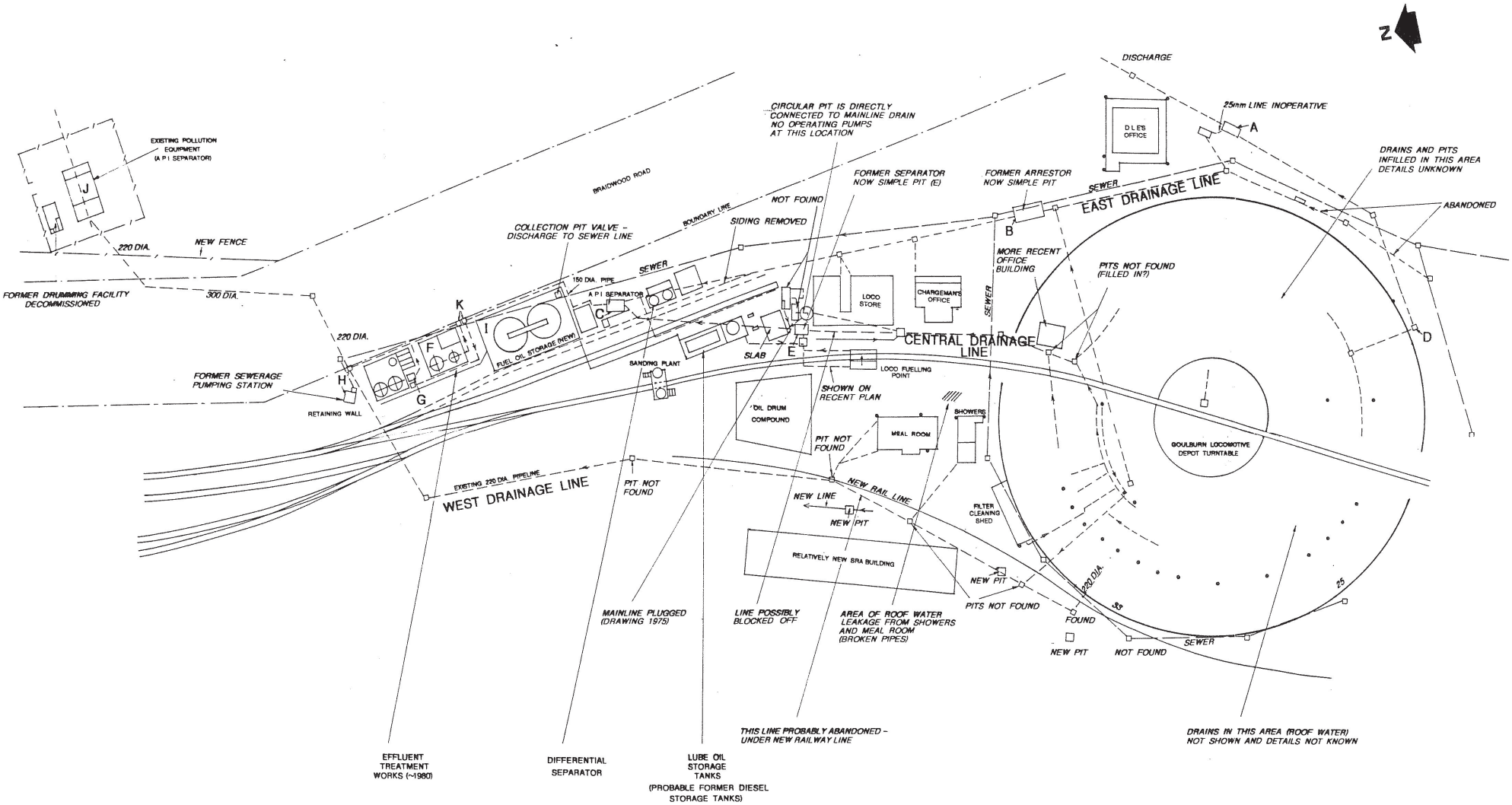
Photograph 30
View north towards the workshop during advancement of test pit location TP09.

Photograph 31
Asbestos fragments observed on the site surface adjacent to test pitting location TP07, (ACM03).

Photograph 32
Asbestos fragments observed on the site surface adjacent to test pitting location TP06, (ACM05).

Appendix B

Drainage, Effluent and Sewerage Systems Diagram (J&K, 1997)



LEGEND

- DRAINAGE SYSTEM PIPELINES
- SEWER PIPELINES
- PROPERTY BOUNDARY
- PITS AND/OR MANHOLES
- ROOF WATER DRAINAGE DOWNPIPES

SCALE

0 50m

Jeffery and Katauskas Pty Ltd CONSULTING GEOTECHNICAL ENGINEERS		39 BUFFALO ROAD GLADESVILLE NSW 2111	Tel: 02-809 7322 Fax: 02-809 7626
DRAWN		DRAINAGE, EFFLUENT AND SEWERAGE SYSTEMS	FIGURE NO. 6
APPROVED		GOULBURN FUELLING FACILITY	
DATE	JULY, 1997		REPORT NO. E12601F
SCALE		BRAIDWOOD ROAD, GOULBURN	

Appendix C

LotSearch Pty Ltd Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 09 Jul 2020 12:32:47

Reference: LS013379 EP

Address: Off Braidwood Road, Goulburn, NSW 2580

Dataset Listing

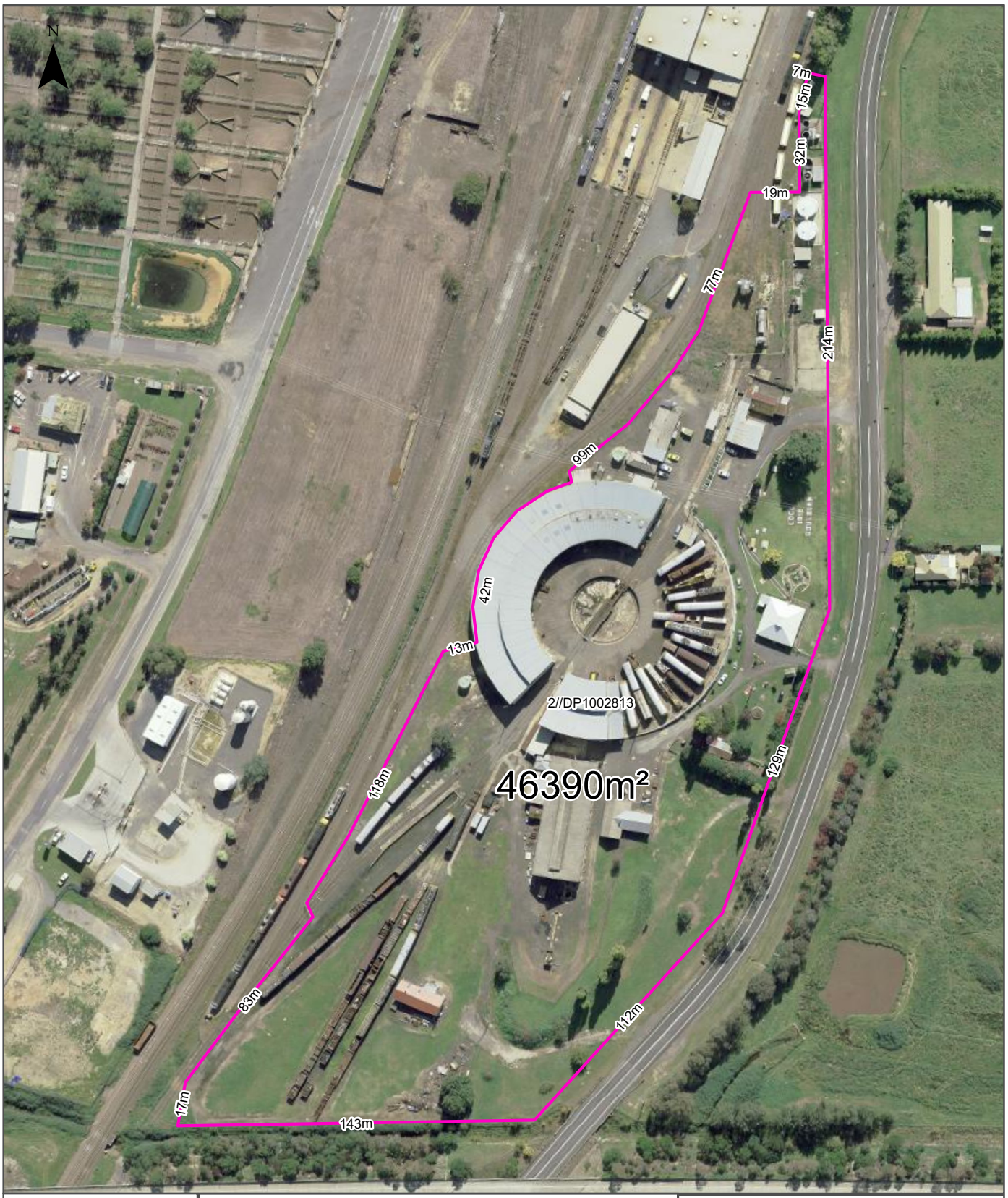
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	28/05/2020	28/05/2020	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	15/06/2020	15/06/2020	Monthly	1000	0	1	1
Contaminated Land Records of Notice	Environment Protection Authority	25/06/2020	25/06/2020	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	22/06/2020	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	15/05/2020	07/03/2017	Quarterly	1000	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	05/02/2020	13/07/2012	Quarterly	1000	0	2	2
EPA PFAS Investigation Program	Environment Protection Authority	01/07/2020	01/07/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	12/02/2020	12/02/2020	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	12/02/2020	12/02/2020	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	29/06/2020	29/06/2020	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	05/06/2020	05/06/2020	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	04/02/2020	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	15/06/2020	15/06/2020	Monthly	1000	0	2	2
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	15/06/2020	15/06/2020	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	15/06/2020	15/06/2020	Monthly	1000	0	3	5
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	59	59
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	1
Points of Interest	NSW Department of Finance, Services & Innovation	30/03/2020	30/03/2020	Quarterly	1000	0	1	13
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	30/03/2020	30/03/2020	Quarterly	1000	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	30/03/2020	30/03/2020	Quarterly	1000	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	30/03/2020	30/03/2020	Quarterly	1000	0	0	6
State Forest	Forestry Corporation of NSW	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	21/01/2020	30/09/2019	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	2	2	2
Botany Groundwater Management Zones	NSW Department of Planning, Industry and Environment	15/03/2018	01/10/2005	As required	1000	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	49
Geological Units 1:250,000	NSW Department of Planning, Industry and Environment	20/08/2014		None planned	1000	1	-	2
Geological Structures 1:250,000	NSW Department of Planning, Industry and Environment	20/08/2014		None planned	1000	1	-	9
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000	2	2	2
Soil Landscapes	NSW Department of Planning, Industry and Environment	12/08/2014		None planned	1000	1	-	3
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	11/06/2020	01/05/2020	Monthly	500	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Department of Planning, Industry and Environment	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	30/03/2020	30/03/2020	Quarterly	1000	0	0	0
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	11/06/2020	07/12/2018	Monthly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	11/06/2020	05/06/2020	Monthly	1000	1	5	16
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2020	20/11/2019	Quarterly	1000	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2020	20/11/2019	Quarterly	1000	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	12/02/2020	09/11/2018	Quarterly	1000	1	1	2
Environmental Planning Instrument Heritage	NSW Department of Planning, Industry and Environment	11/06/2020	05/06/2020	Monthly	1000	1	2	17
Bush Fire Prone Land	NSW Rural Fire Service	04/02/2020	14/12/2019	Quarterly	1000	1	2	2
Vegetation of Southern Forests	NSW Office of Environment & Heritage	09/12/2014	10/10/2011	Unknown	1000	0	0	0
Ramsar Wetlands of Australia	Department of the Agriculture, Water and the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	1
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	3
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	09/07/2020	09/07/2020	Weekly	10000	-	-	-

Site Diagram

Off Braidwood Road, Goulburn, NSW 2580



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 46390m^2

Total Perimeter: 1135m

Scale: 0 25 50 100 Meters

Data Sources: Aerial Imagery © NSW Department of Finance, Services & Innovation

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

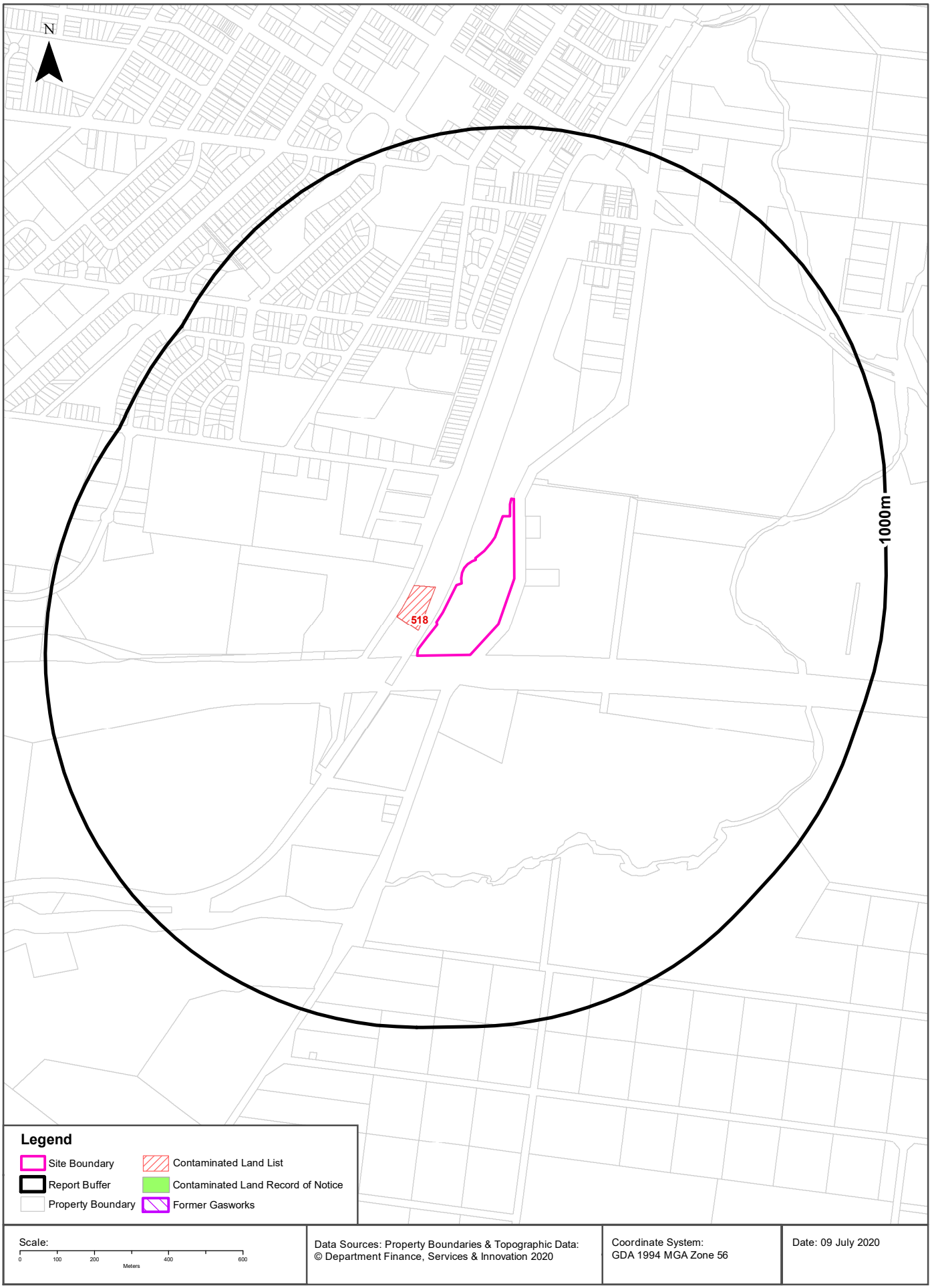
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System: GDA 1994 MGA Zone 56

Date: 09 July 2020

Contaminated Land

Off Braidwood Road, Goulburn, NSW 2580



Contaminated Land

Off Braidwood Road, Goulburn, NSW 2580

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist (m)	Direction
518	Caltex Depot	13 Sloane Street	Goulburn	Other Petroleum	Regulation under CLM Act not required	Current EPA List	Premise Match	31m	West

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land

Off Braidwood Road, Goulburn, NSW 2580

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority

Former Gasworks

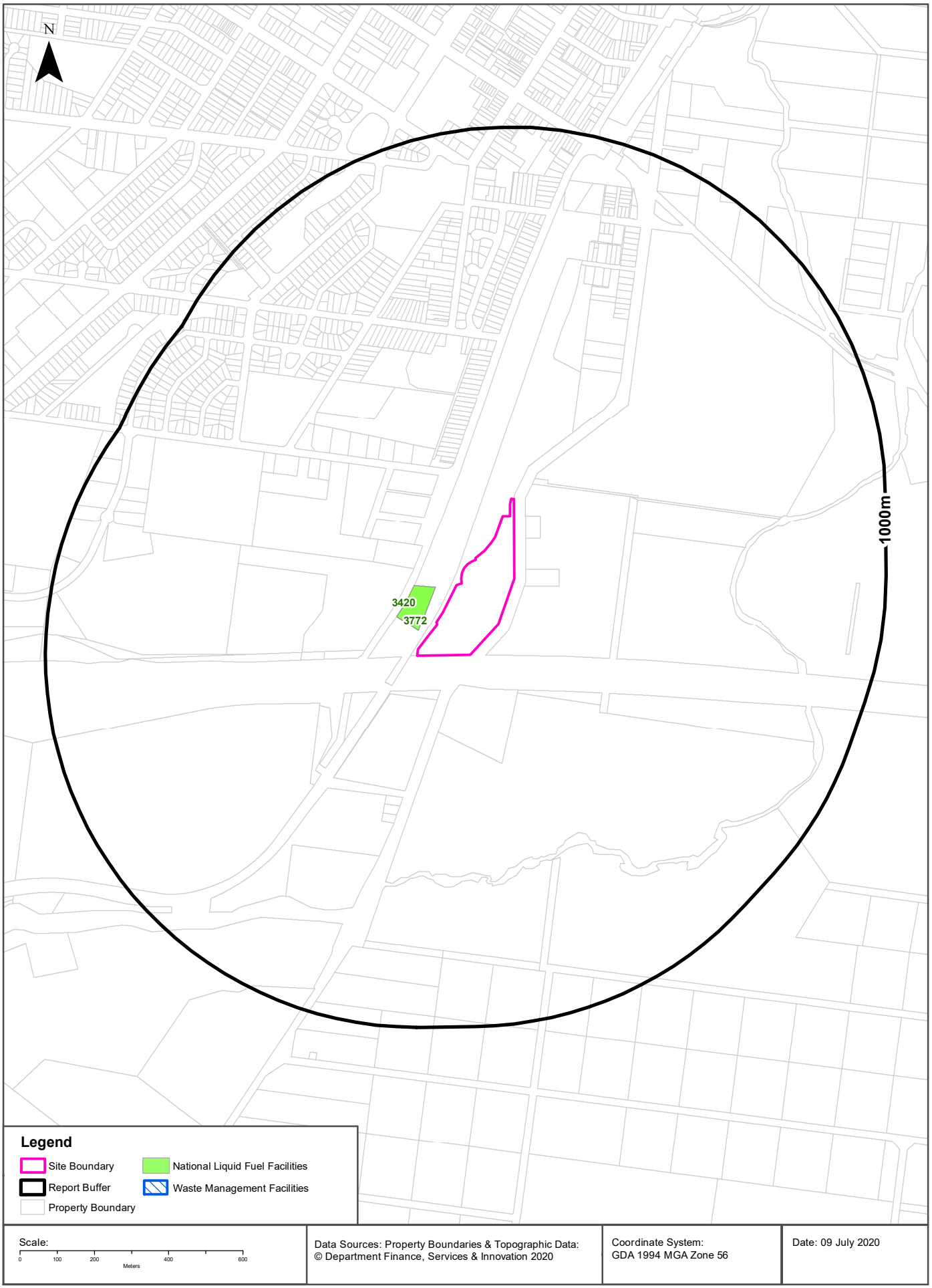
Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority

Waste Management & Liquid Fuel Facilities

Off Braidwood Road, Goulburn, NSW 2580



Waste Management & Liquid Fuel Facilities

Off Braidwood Road, Goulburn, NSW 2580

National Waste Management Site Database

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

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

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist (m)	Direction
3420	Caltex	CPS Goulburn	13-15 Sloane Street	Goulburn	Petrol Station	Operational		25/07/2011	Premise Match	31m	West
3772	Caltex	Goulburn	13-15 Sloane Street	Goulburn	Fuel Depot	Operational		04/10/2012	Premise Match	31m	West

PFAS Investigation & Management Programs

Off Braidwood Road, Goulburn, NSW 2580

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Id	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation Program

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Management Program

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

Off Braidwood Road, Goulburn, NSW 2580

Defence 3 Year Regional Contamination Investigation Program

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

EPA Other Sites with Contamination Issues

Off Braidwood Road, Goulburn, NSW 2580

EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority

Current EPA Licensed Activities

Off Braidwood Road, Goulburn, NSW 2580

EPA Activities

Off Braidwood Road, Goulburn, NSW 2580

Licensed Activities under the POEO Act 1997

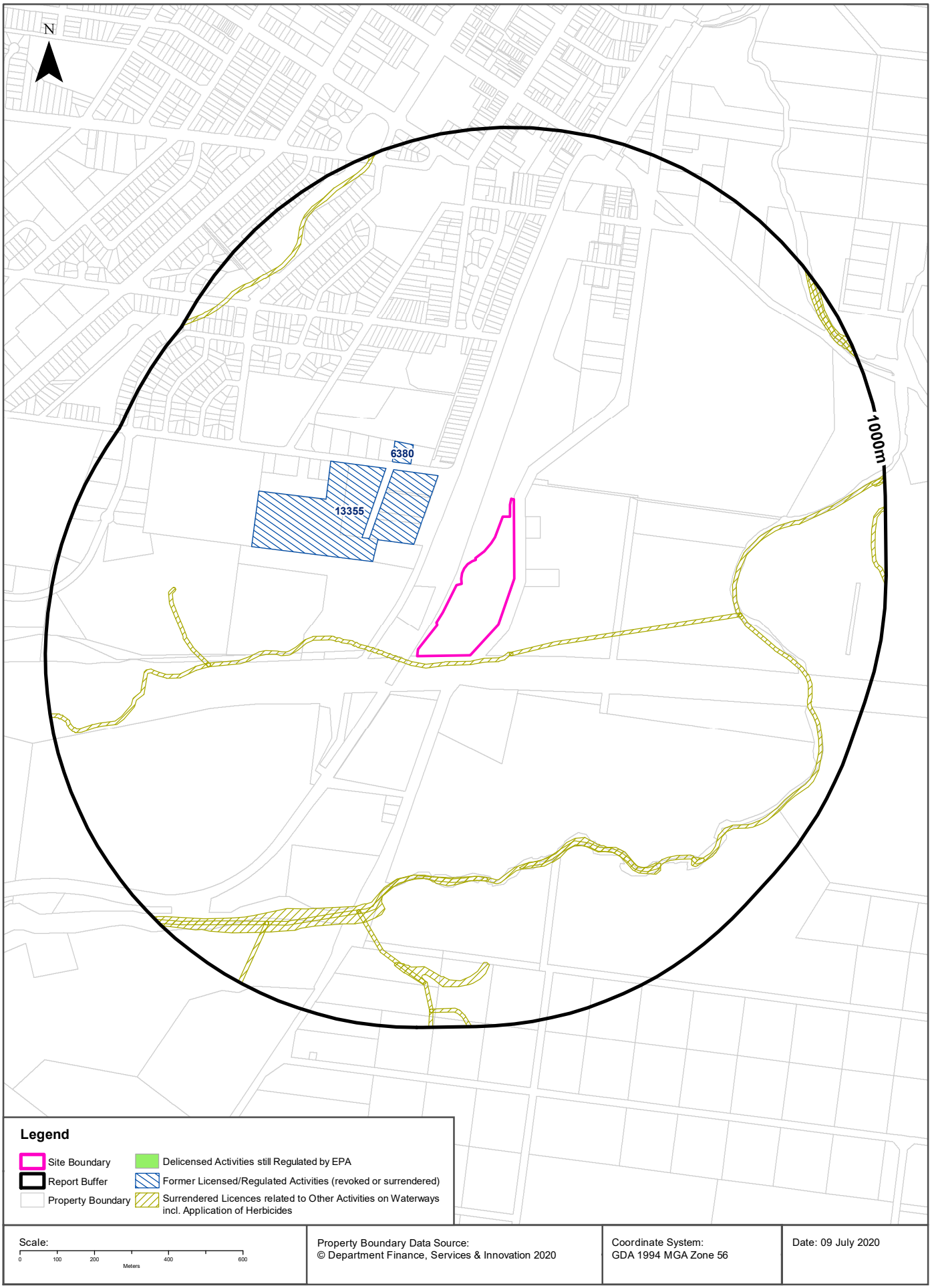
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
20760	CFCL AUSTRALIA MAINTENANCE PTY LTD		67 Braidwood Road	GOULBURN, NSW 2580	Wood Preservation	Premise Match	0m	North
3142	AUSTRALIAN RAIL TRACK CORPORATION LIMITED		Australian Rail Track Corporation (ARTC) network as defined by the ARTC Network Deeds within NSW., SYDNEY, NSW 2001		Railway systems activities	Network of Features	16m	North West

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

Off Braidwood Road, Goulburn, NSW 2580



EPA Activities

Off Braidwood Road, Goulburn, NSW 2580

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

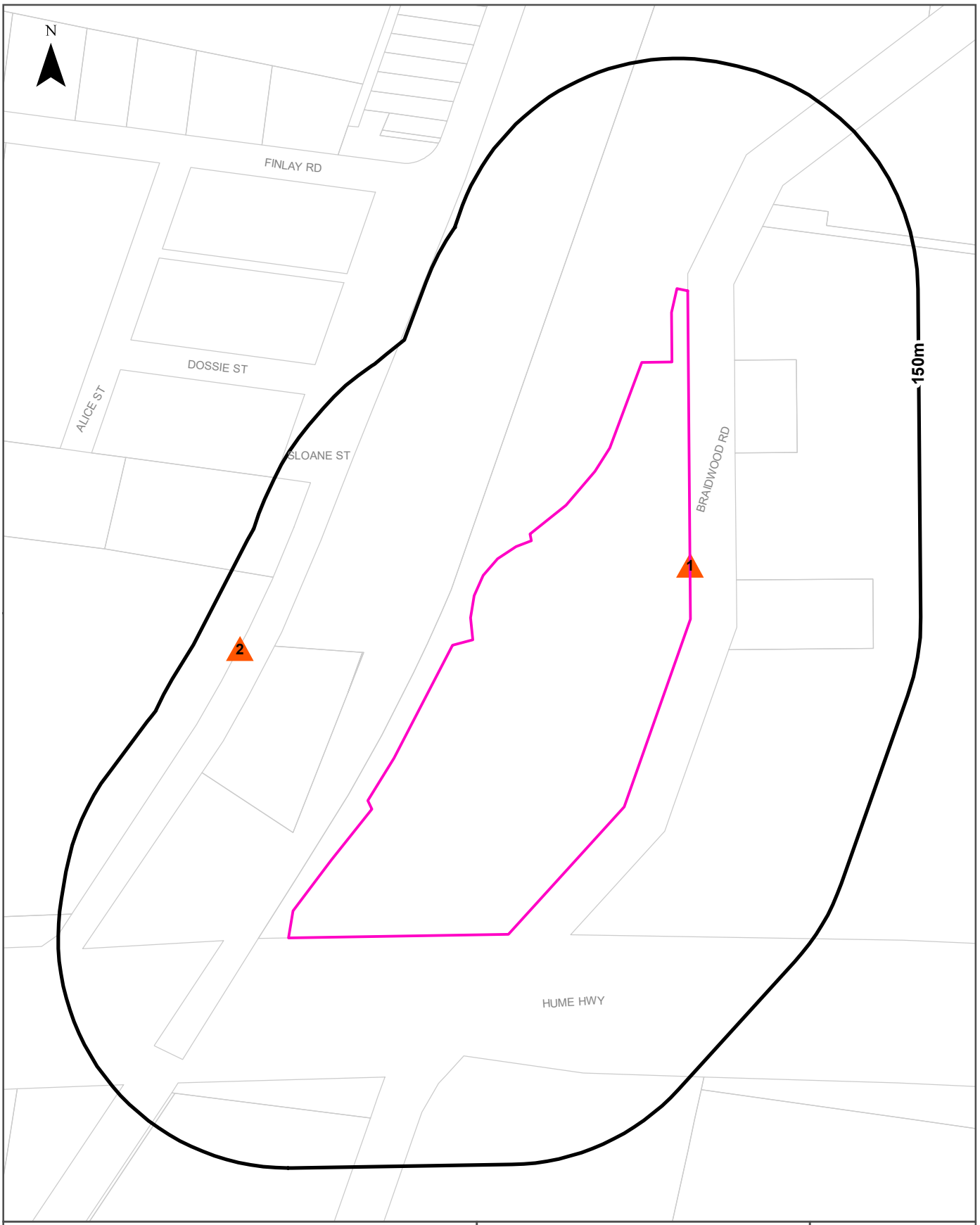
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	15m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	15m	-
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	15m	-
13355	KATTLE GEAR AUSTRALIA PTY. LTD.	Goulburn Livestock Saleyards, 2A Sloane Street, GOULBURN	Surrendered	09/06/2011	Animal accommodation	Premise Match	149m	North West
6380	RAIL INFRASTRUCTURE CORPORATION	11 FINLAY STREET, GOULBURN, NSW 2580	Surrendered	16/06/2001	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	285m	North West

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

Off Braidwood Road, Goulburn, NSW 2580



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 40 80 120 160 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 09 July 2020

Historical Business Directories

Off Braidwood Road, Goulburn, NSW 2580

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

Business Directory Records 1950-1991
Road or Area Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

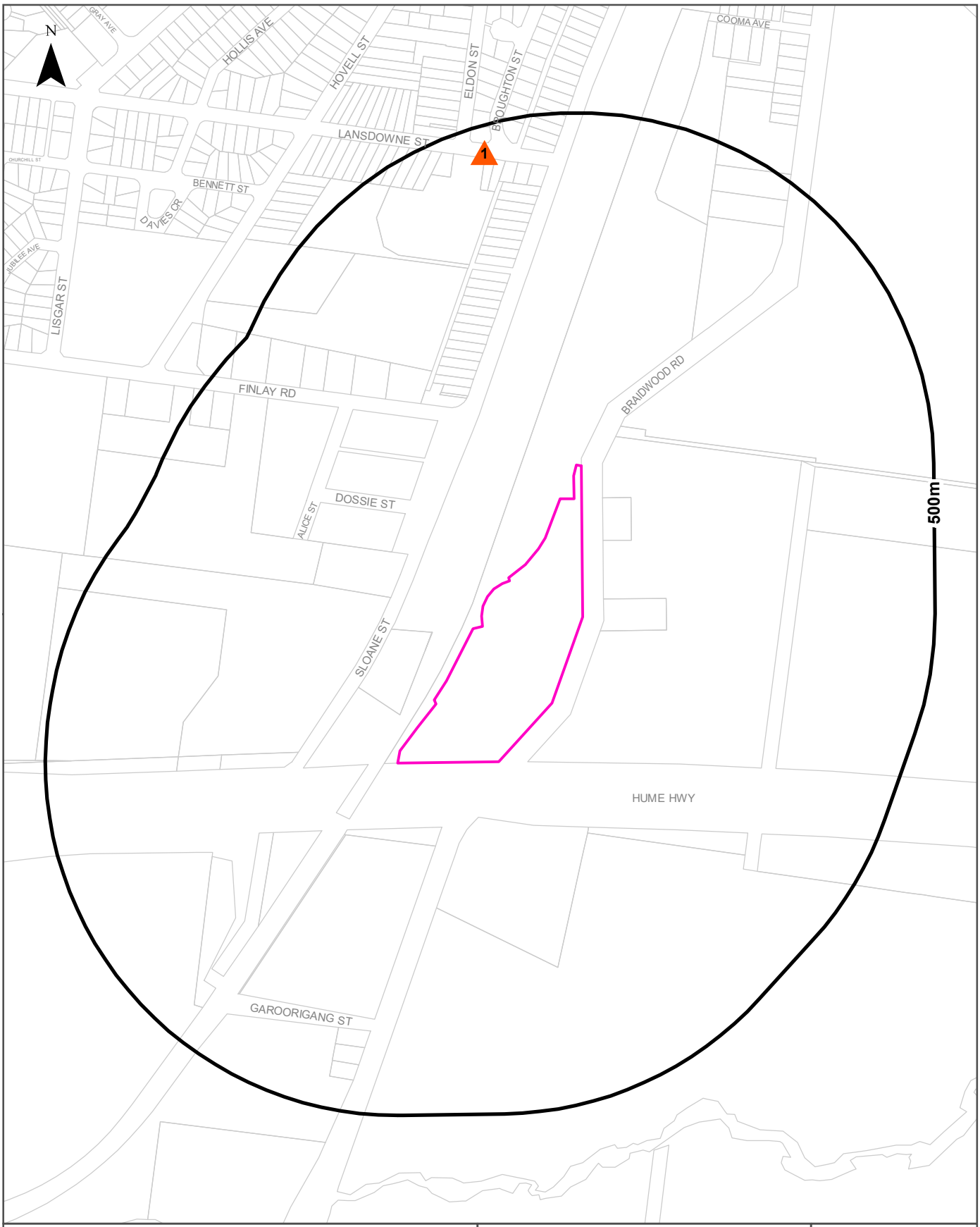
Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR OIL, SPIRIT & GREASE MFRS. &/OR IMPS. &/OR DISTS.	Bp Australia Ltd., Braidwood Rd, Goulburn	147543	1991	Road Match	0m
	MOTOR OIL, SPIRIT & GREASE MFRS. &/OR IMPS. &/OR DISTS.	Caltexoil (Aust.) Pty Ltd., Braidwood Rd, Goulburn	147544	1991	Road Match	0m
	DAIRY PRODUCT MFRS. &/OR W/SALERS.	Dairy Farmers Co-Op. Ltd., Braidwood Rd, Goulburn	147096	1991	Road Match	0m
	MOTOR OIL, SPIRIT & GREASE MFRS. &/OR IMPS. &/OR DISTS.	Mobil Oil Australia Ltd., Braidwood Rd, Goulburn	147547	1991	Road Match	0m
	MOTOR OIL &/OR SPIRIT DEPOTS	BP Australia Ltd., Braidwood Rd., Goulburn	155960	1982	Road Match	0m
	MOTOR OIL &/OR SPIRIT DEPOTS	Caltex Oil. (Aust.) Pty. Ltd., Braidwood Rd., Goulburn	155961	1982	Road Match	0m
	DAIRY PRODUCTS - MFRS. &'/OR W/SALERS	Dairy Farmers Co-op. Ltd., Braidwood Rd., Goulburn	155612	1982	Road Match	0m
	MILK PRODUCTS MFRS. &/ OR DISTS	Dairy Farmers Co-op. Ltd., Braidwood Rd., Goulburn	155883	1982	Road Match	0m
	MOTOR OIL &/OR SPIRIT DEPOTS	Mobil Oil Australia Ltd., Braidwood Rd., Goulburn	155964	1982	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	B.P. (Aust.) Limited, Braidwood Rd. Goulburn	574074	1970	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Caltex Oil (Aust.) Pty. Ltd., Braidwood Rd. Goulburn	574075	1970	Road Match	0m
	DAIRY PRODUCTS MFRS. &/OR W'SALE	Dairy Farmers Co-op. Milk Co. Ltd. (The), Braidwood Rd. Goulburn	573576	1970	Road Match	0m
	MILK VENDORS	Dairy Farmers Co-op. Milk Co., Braidwood Rd. Goulburn	573957	1970	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Esso Standard Oil Co. Ltd., Braidwood Rd. Goulburn	574077	1970	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Holgate, R., Braidwood Rd. Goulburn	574078	1970	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Mobil Oil Aust. Ltd., Braidwood Rd. Goulburn	574079	1970	Road Match	0m
	WOOL, SKIN & HIDE BUYERS	Wilcox Moffin Ltd., Braidwood Rd. Goulburn	574387	1970	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Atlantic Union Oil Co. Ltd., Braidwood Rd., Goulburn	205423	1961	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	B.P. (Aust.) Limited., Braidwood Rd., Goulburn	205424	1961	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Caltex Oil (Aust.) Pty. Ltd., Braidwood Rd., Goulburn	205425	1961	Road Match	0m
	MILK VENDORS	Dairy Farmers Co-op. Milk Co., Braidwood Rd., Goulburn	205299	1961	Road Match	0m
	BUILDERS & CONTRACTORS	Goldsbrough, M., Braidwood Rd., Goulburn	204582	1961	Road Match	0m
	MOTOR OIL & SPIRIT DEPOTS	Vacuum Oil Co. Pty. Ltd., Braidwood Rd., Goulburn	205428	1961	Road Match	0m
	MILK VENDORS	Byrne, R., Braldwood Rd., Goulburn	186526	1950	Road Match	0m
	MOTOR OIL & SPIRIT MERCHANTS	C.O.R. Ltd., Braidwood Rd., Goulburn	186622	1950	Road Match	0m
	MOTOR OIL & SPIRIT MERCHANTS	Hicks, T. H. (Agent, Atlantic Union Oil Co. Ltd.), Braidwood Rd., Goulburn	186626	1950	Road Match	0m
2	FOOTWEAR - BOOT & SHOE - MFRS. &/OR DISTS.	Baxter & Co. Pty. Ltd., Sloane St, Goulburn	147177	1991	Road Match	100m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	BOWLING CENTRES.	Goulburn Leisure Centre., Sloane St, Goulburn	146927	1991	Road Match	100m
	SKATING RINKS	Goulburn Leisure Centre., Sloane St, Goulburn	147773	1991	Road Match	100m
	ASSOCIATIONS &/OR SOCIETIES.	Railways Institute Bowling Club., Sloane St, Goulburn	146859	1991	Road Match	100m
	FOOTWEAR MFRS. - BOOTS &/OR SHOES	Baxter & Co. Pty. Ltd., Sloane St., Goulburn	155687	1982	Road Match	100m
	GOVERNMENT DEPARTMENTS	Police Station, Sloane St., Goulburn	155731	1982	Road Match	100m
	ASSOCIATIONS, SOCIETIES, CLUBS &/ OR SPORTING BODIES	Railways Institute Bowling Club. Sloane St., Goulburn	155450	1982	Road Match	100m
	MOTOR OIL & SPIRIT DEPOTS	Ampol Petroleum Ltd., Sloane St. Goulburn	574073	1970	Road Match	100m
	FOOTWEAR MFRS.-BOOTS & SHOES	Baxter & Co. Pty. Ltd., Off Sloane St. Goulburn	573679	1970	Road Match	100m
	POULTRY FOOD MANUFACTURER & DISTRIBUTOR	Conolly, W. M. (Stockfood) Pty. Ltd., Sloane St. Goulburn	574180	1970	Road Match	100m
	FLOUR MERCHANTS & MILLERS	Conolly, W. M. Pty. Ltd., Sloane St. Goulburn	573676	1970	Road Match	100m
	INSURANCE AGENTS	Conolly, W. M. Pty. Ltd., Sloane St. Goulburn	573811	1970	Road Match	100m
	STOCK FOODS MANUFACTURER & DISTRIBUTOR	Conolly, Wm. (Stockfood) Pty. Ltd., Sloane St. Goulburn	574287	1970	Road Match	100m
	ASSOCIATIONS, SOCIETIES, CLUBS & SPORTING BODIES	Goulburn Railways Institute Bowling Club, Sloane St. Goulburn	573381	1970	Road Match	100m
	GOVERNMENT DEPARTMENTS	Railway Department, Sloane St. Goulburn	573734	1970	Road Match	100m
	ENGINEERS-DIESEL	Southern Fuel Pump & Injector Service, Sloane St. Goulburn	573646	1970	Road Match	100m
	MOTOR OIL & SPIRIT DEPOTS	Total Oil Products Aust. Ltd., Sloane St. Goulburn	574081	1970	Road Match	100m
	FOOTWEAR MFRS.-BOOTS & SHOES	Baxter and Co. Pty. Ltd., off Sloane St., Goulburn	204898	1961	Road Match	100m
	POULTRY FOOD MANUFACTURER & DISTRIBUTOR	Conolly, W. M. (Stock Foods) Pty. Ltd., Sloane St., Goulburn	205558	1961	Road Match	100m
	STOCK FOODS MANUFACTURER & DISTRIBUTOR	Conolly, W. M. (Stock Foods) Pty. Ltd., Sloane St., Goulburn	205676	1961	Road Match	100m
	FLOUR MERCHANTS & MILLERS	Conolly, W. M. Pty. Ltd., Sloane St., Goulburn	204891	1961	Road Match	100m
	INSURANCE AGENTS	Conolly, W. M. Pty. Ltd., Sloane St., Goulburn	205117	1961	Road Match	100m
	CLUBS & SPORTS BODIES	Goulburn Railways Institute Bowling Club, Sloane St., Goulburn	204740	1961	Road Match	100m
	GOVERNMENT DEPARTMENTS	Land Board Office and Crown Land Agent, Sloane St., Goulburn	204978	1961	Road Match	100m
	GOVERNMENT DEPARTMENTS	Railway Department, Sloane St., Goulburn	204983	1961	Road Match	100m
	FLOUR MILLERS	Argyle Roller Flour Mills, Sloane St., Goulburn	186180	1950	Road Match	100m
	FOOTWEAR MANUFACTURERS	Baxter and Co. Pty. Ltd., off Sloane St., Goulburn	186182	1950	Road Match	100m
	HOTELS	Carlton Hotel, Sloane St., Goulburn	186356	1950	Road Match	100m
	INSURANCE AGENTS	Conolly, Wm. Pty. Ltd. (Agents, National Insrnce. Co. of N.Z.), Sloane St., Goulburn	186387	1950	Road Match	100m
	FLOUR MILLERS	Conolly, Wm. Pty. Ltd., Sloane St., Goulburn	186181	1950	Road Match	100m
	MARKET GARDENERS	Garland, S. and Sons, Sloane St., Goulburn	186467	1950	Road Match	100m
	HOTELS	Hotel Carlton (T. McKavanagh, Propr.), Sloane St., Goulburn	186362	1950	Road Match	100m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	GOVERNMENT DEPARTMENTS	Land Board Office and Crown Land Agent, Sloane St., Goulburn	186254	1950	Road Match	100m

Dry Cleaners, Motor Garages & Service Stations

Off Braidwood Road, Goulburn, NSW 2580



Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 100 200 300 400 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 09 July 2020

Historical Business Directories

Off Braidwood Road, Goulburn, NSW 2580

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES & ENGINEERS	Taunton & Haynes Pty. Ltd., Lansdowne St. Goulburn	574068	1970	Road Match	425m

Aerial Imagery 2020

Off Braidwood Road, Goulburn, NSW 2580

Scale:	Data Source Aerial Imagery: © 2020 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 08 July 2020

0 40 80 120 160 Meters

Aerial Imagery 2013, 2014

Off Braidwood Road, Goulburn, NSW 2580

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 09 July 2020
0 25 50 100 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 2002

Off Braidwood Road, Goulburn, NSW 2580

Scale:	Data Source Aerial Imagery: © 2020 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 08 July 2020

0 40 80 120 160 Meters

Aerial Imagery 1997

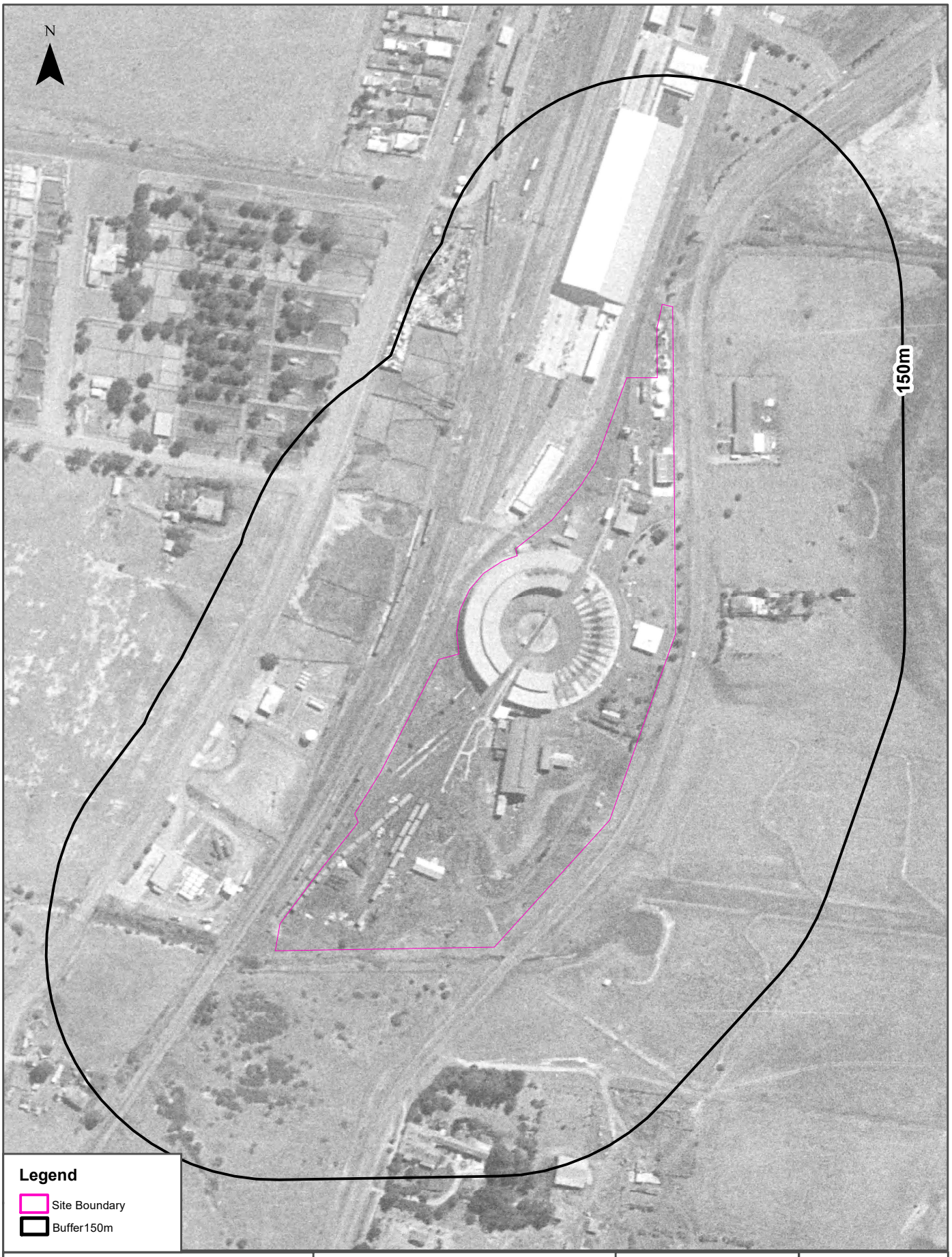
Off Braidwood Road, Goulburn, NSW 2580

Aerial Imagery 1991

Off Braidwood Road, Goulburn, NSW 2580

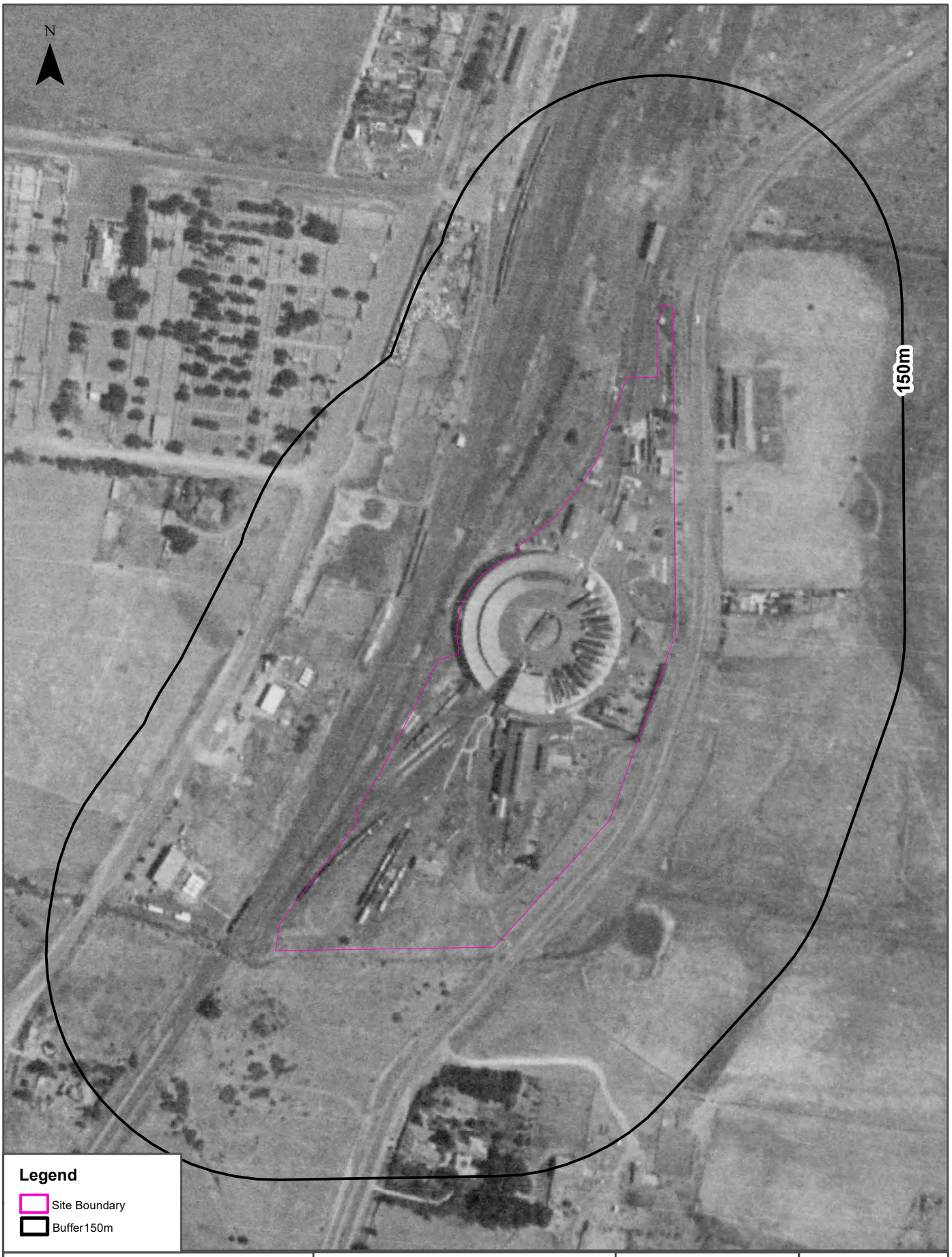
Aerial Imagery 1987

Off Braidwood Road, Goulburn, NSW 2580



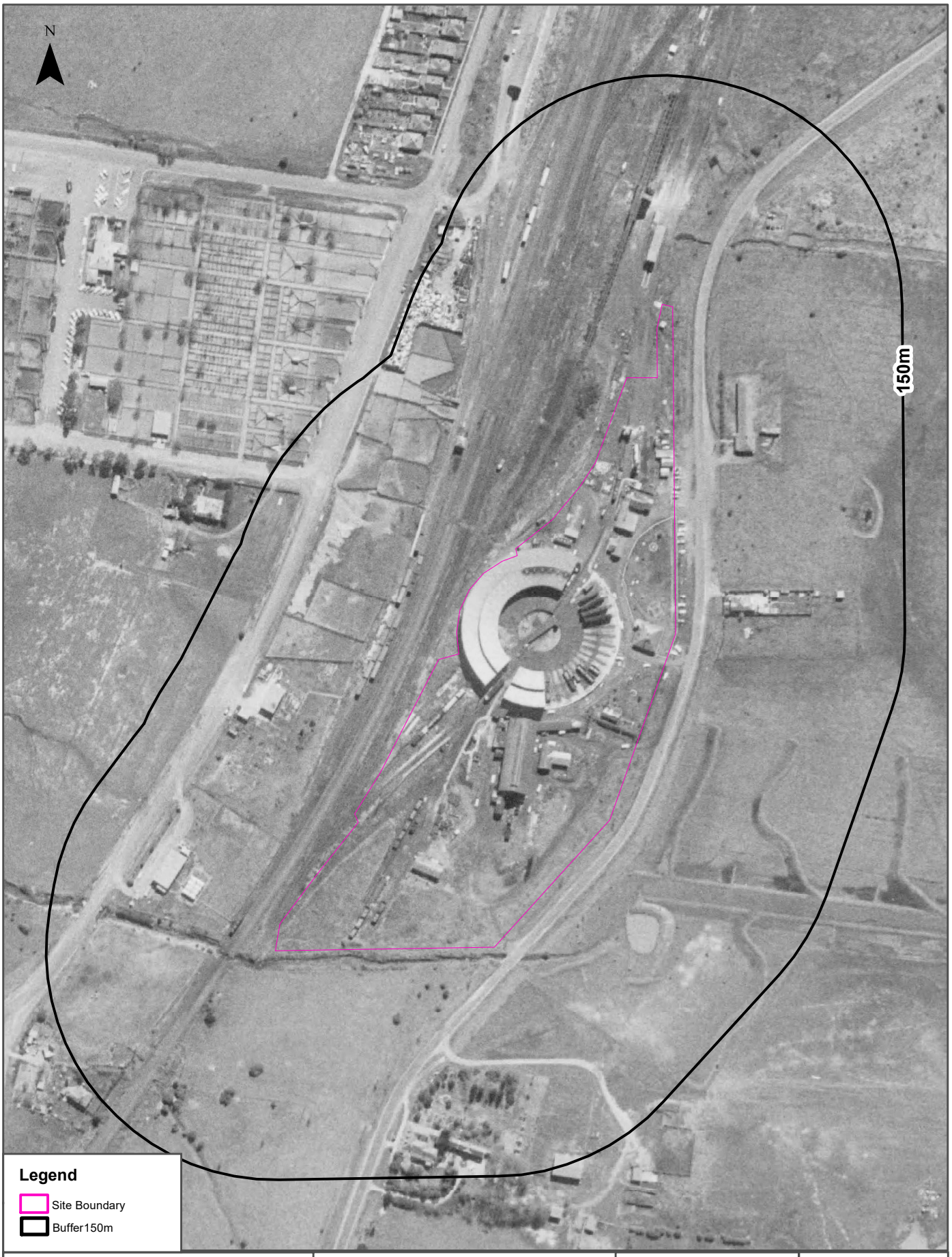
Aerial Imagery 1979

Off Braidwood Road, Goulburn, NSW 2580



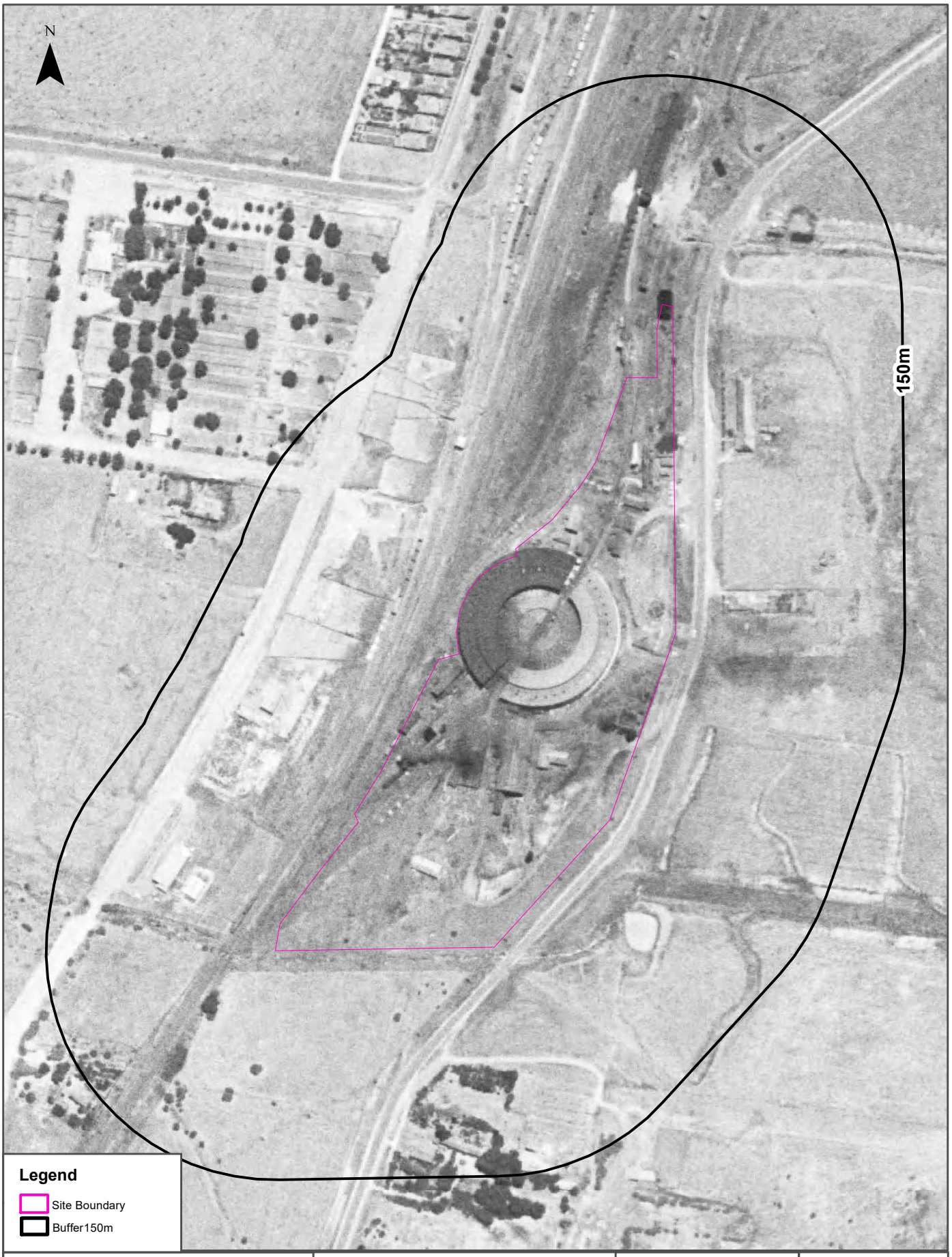
Aerial Imagery 1975

Off Braidwood Road, Goulburn, NSW 2580



Aerial Imagery 1967

Off Braidwood Road, Goulburn, NSW 2580



Aerial Imagery 1953

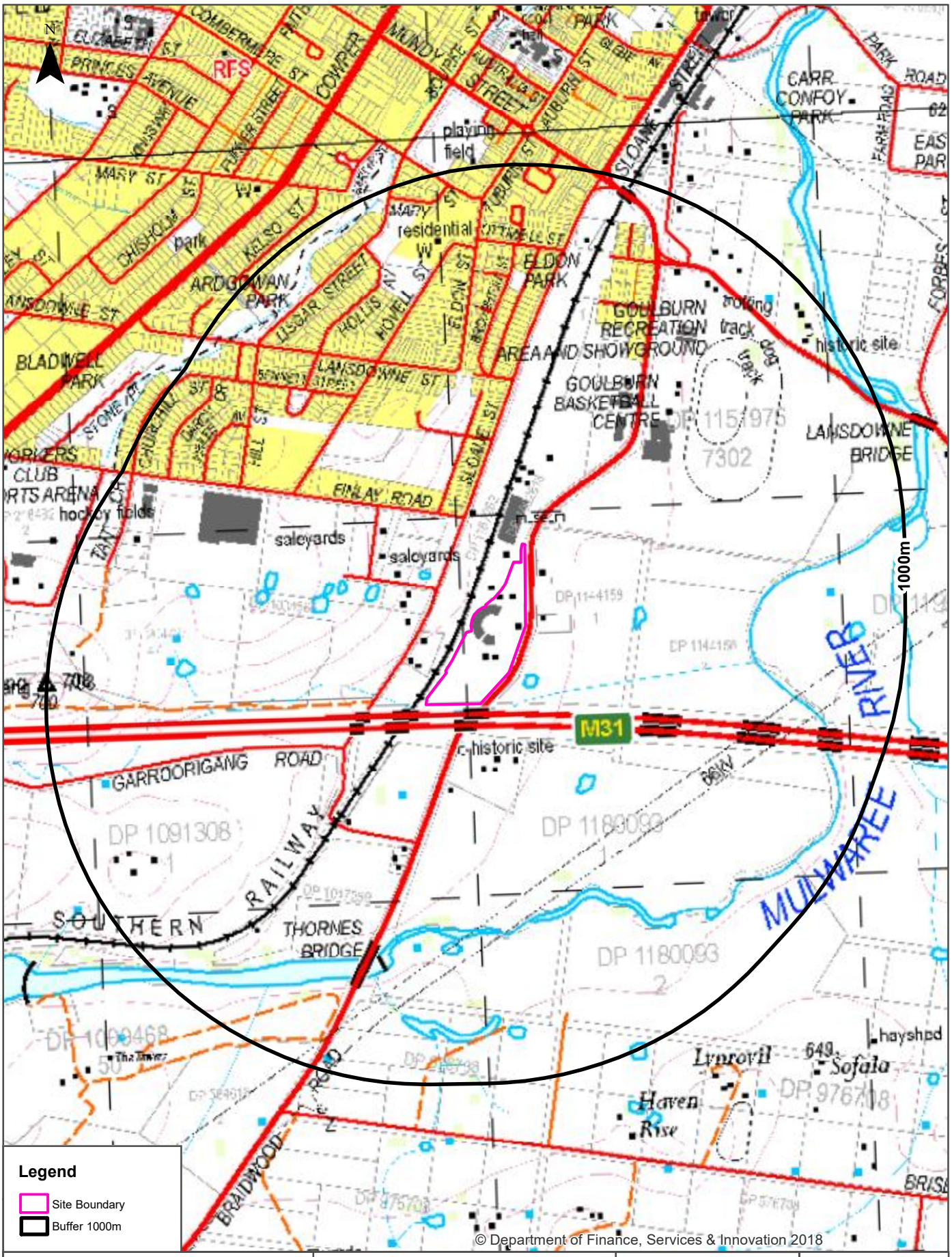
Off Braidwood Road, Goulburn, NSW 2580

Aerial Imagery 1944

Off Braidwood Road, Goulburn, NSW 2580

Topographic Map 2015

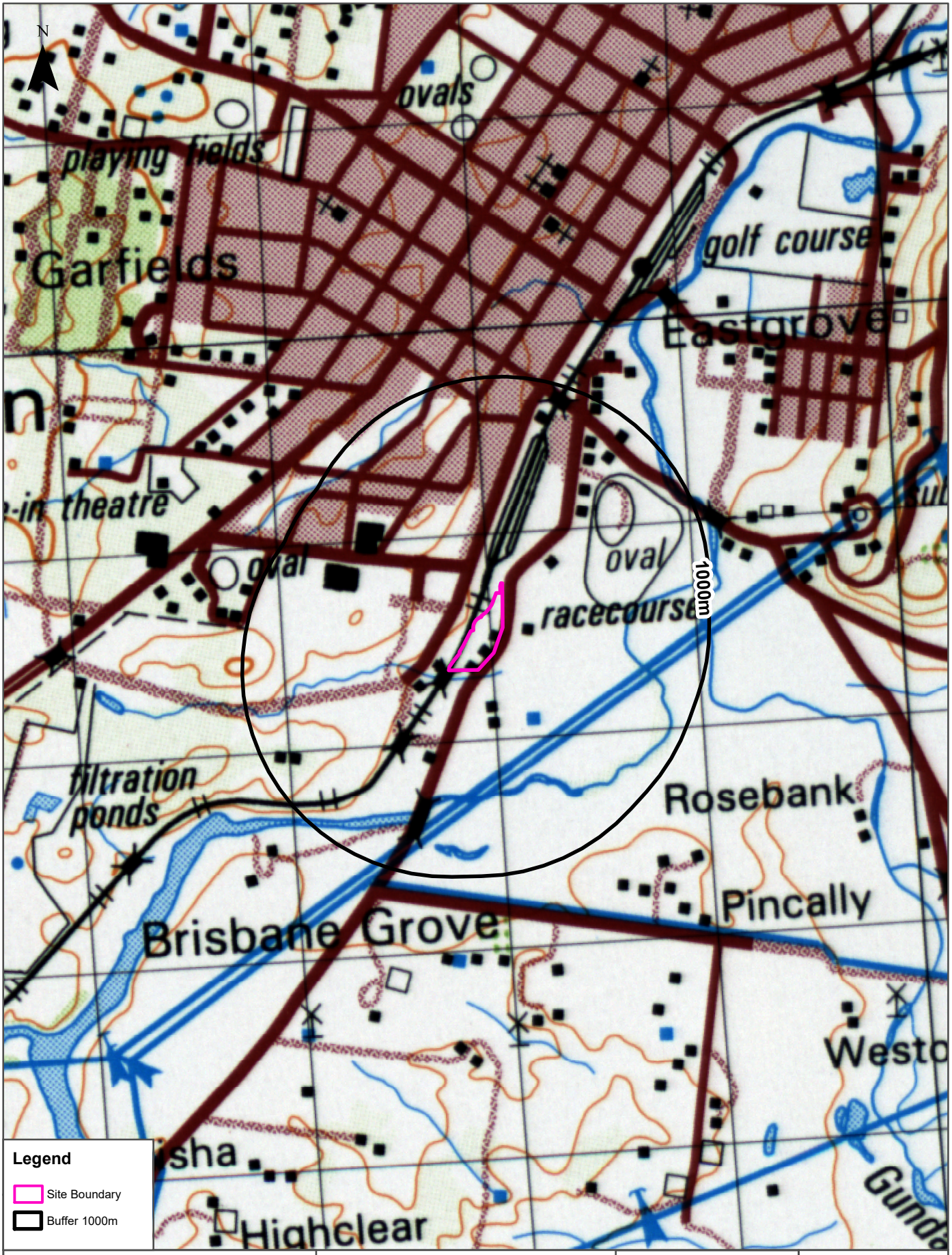
Off Braidwood Road, Goulburn, NSW 2580



Scale:	Data Sources: Topographic Map Data © NSW Land and Property Information	Coordinate System: GDA 1994 MGA Zone 56	Date: 09 July 2020

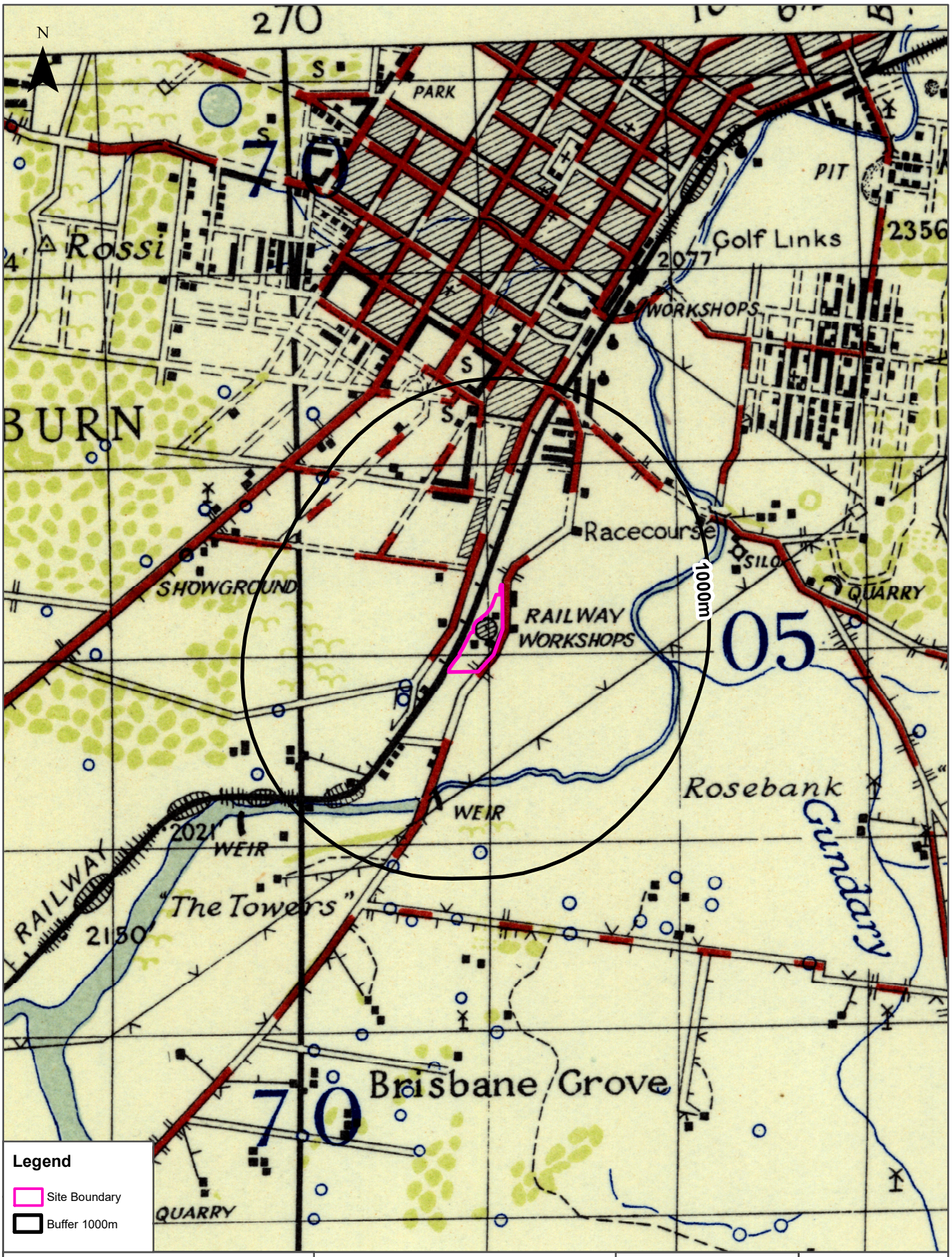
Historical Map 1981

Off Braidwood Road, Goulburn, NSW 2580



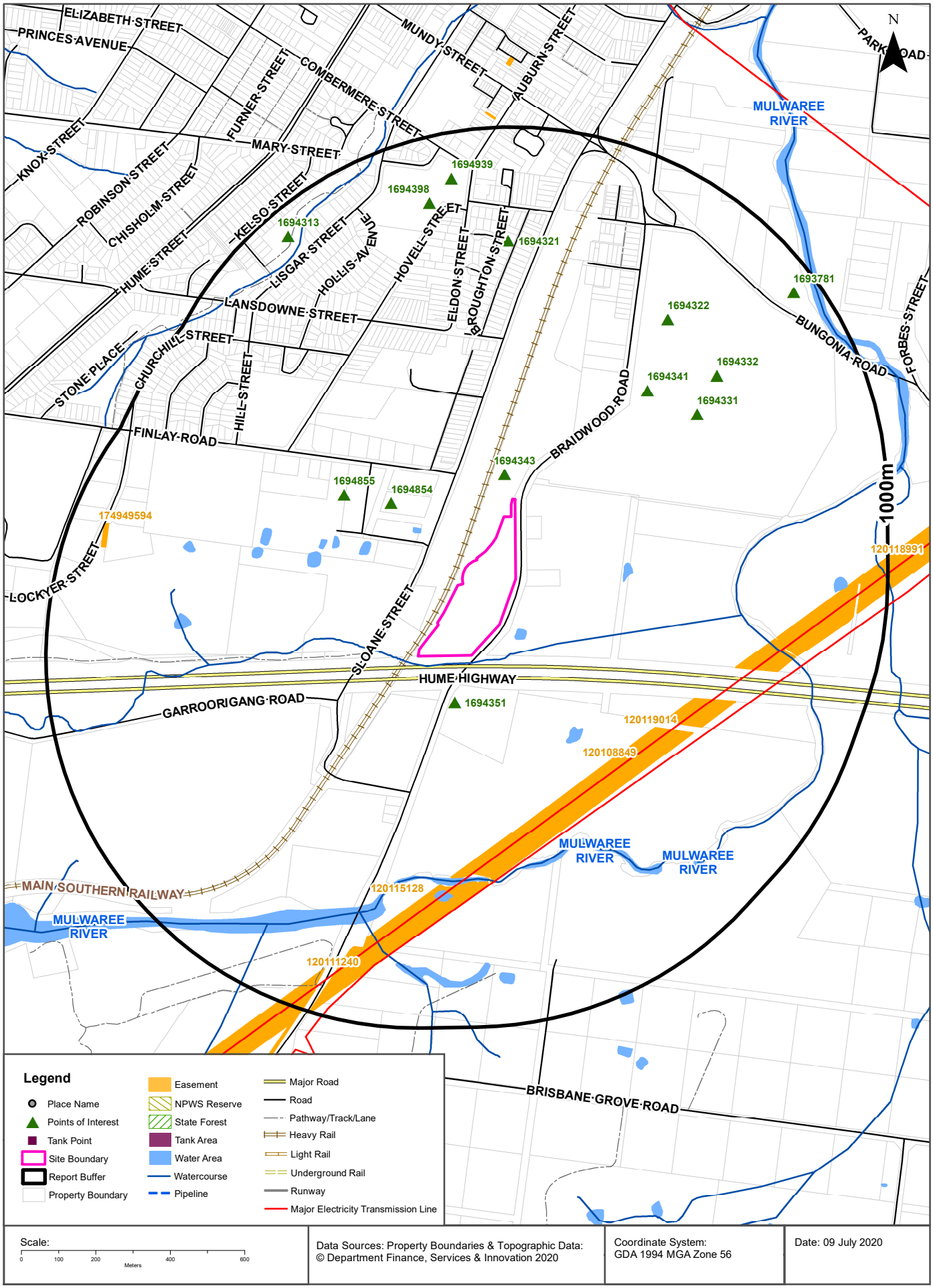
Historical Map c.1942

Off Braidwood Road, Goulburn, NSW 2580



Topographic Features

Off Braidwood Road, Goulburn, NSW 2580



Topographic Features

Off Braidwood Road, Goulburn, NSW 2580

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1694343	Museum	GOULBURN RAIL HERITAGE CENTRE	69m	North
1694351	Historic Site	GARROORIGANG HISTORIC HOME	125m	South
1694854	Stock Sale Yard	Stock Sale Yard	266m	North West
1694855	Stock Sale Yard	Stock Sale Yard	381m	North West
1694341	Sports Centre	GOULBURN BASKETBALL CENTRE	460m	North East
1694331	Trotting Track	GOULBURN PACEWAY	540m	North East
1694322	Showground	GOULBURN RECREATION AREA AND SHOWGROUND	634m	North East
1694332	Dog Track	GOULBURN GREYHOUND TRACK	636m	North East
1694321	Park	ELDON PARK	695m	North
1694398	Place Of Worship	SALVATION ARMY CHURCH	826m	North
1694939	Nursing Home	GILL WAMINDA AGED CARE PLUS CENTRE	878m	North
1694313	Park	ARDGOWAN PARK	928m	North West
1693781	Historic Site	OLD GOULBURN BREWERY	933m	North East

Topographic Features

Off Braidwood Road, Goulburn, NSW 2580

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Major Easements

What Major Easements exist within the dataset buffer?
Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120119014	Primary	Undefined		450m	South East
120108849	Primary	Undefined		492m	South East
120118991	Primary	Undefined		593m	East
120115128	Primary	Undefined		606m	South West
120111240	Primary	Undefined		878m	South West
174949594	Primary	Right of way	10m	887m	West

Topographic Features

Off Braidwood Road, Goulburn, NSW 2580

State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

Elevation Contours (m AHD)

Off Braidwood Road, Goulburn, NSW 2580

Legend

- Elevation Contour (m AHD)
- Site Boundary
- Report Buffer
- Property Boundary

Accuracy & Currency: This contour data can be up to 0.4 of the contour interval out in height and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source photography such as buildings, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening thirty years since the original contour capture.

Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2020	Coordinate System: GDA 1994 MGA Zone 56	Date: 09 July 2020

Hydrogeology & Groundwater

Off Braidwood Road, Goulburn, NSW 2580

Hydrogeology

Description of aquifers on-site:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive aquifers of low to moderate productivity

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

Botany Groundwater Management Zones

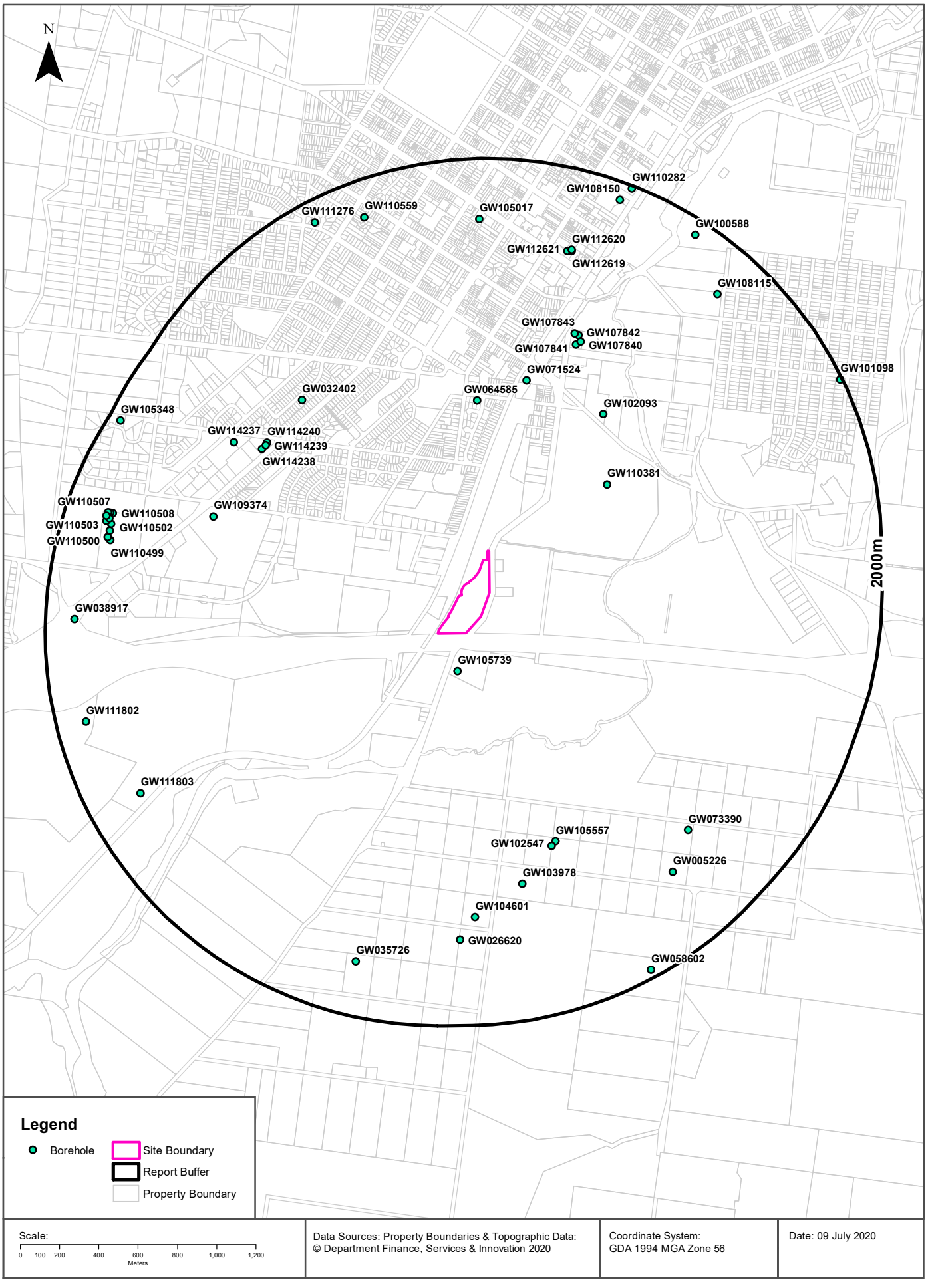
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

Off Braidwood Road, Goulburn, NSW 2580



Hydrogeology & Groundwater

Off Braidwood Road, Goulburn, NSW 2580

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW105739	10BL161630, 10WA115384	Bore	Private	Domestic, Stock	Domestic, Stock		26/02/2004	78.00	78.00	600	2.00	0.488		195m	South
GW110381	10BL165684, 10BL603298, 10WA116148	Bore	Local Govt	Recreation (groundwater), Test Bore	Recreation (groundwater)		19/10/2005	54.00	54.00		5.00	0.375		689m	North East
GW064585	10BL137238, 10WA115038	Bore	Private	Domestic, Stock	Domestic, Stock		01/12/1987	15.80	15.80					765m	North
GW071524	10BL150186	Bore	Private	Monitoring Bore	Monitoring Bore		15/04/1992	6.50	6.50		5.30		624.00	887m	North
GW102093	10BL157876, 10WA115177	Bore	Private	Domestic	Domestic		02/02/1997	27.40	27.40	Good	0.60	1.260		907m	North East
GW107841	10BL165495	Bore		Monitoring Bore	Monitoring Bore		28/04/2004	5.00	5.00		1.40			1139m	North East
GW105557	10BL134090, 10BL161195, 10WA115348	Bore		Domestic, Stock	Domestic, Stock		28/10/2002	72.00	72.00	Good	11.00	1.000		1158m	South
GW107840	10BL165495	Spear	Private	Monitoring Bore	Monitoring Bore		22/04/2004	7.00	7.50		5.00			1163m	North East
GW102547	10BL159320, 10WA115237	Bore		Domestic	Domestic		01/01/1987	36.60			7.60	0.300		1171m	South
GW107843	10BL165495	Bore		Monitoring Bore	Monitoring Bore		27/04/2004	7.50	7.50		5.00			1189m	North
GW107842	10BL165495	Bore		Monitoring Bore	Monitoring Bore		27/04/2004	7.50	7.50		5.00			1189m	North
GW032402	40BL024921	Bore	Private	Stock	Stock			243.80		1001-3000 ppm				1214m	North West
GW114239	10BL602058	Bore	Private	Monitoring Bore	Monitoring Bore		10/08/2011	10.30	10.30					1235m	North West
GW114240	10BL602058	Bore	Private	Monitoring Bore	Monitoring Bore		10/08/2011	9.50	9.50					1237m	North West
GW114238	10BL602058	Bore	Private	Monitoring Bore	Monitoring Bore		10/08/2011	8.80	8.80		4.90			1240m	North West
GW109374	10BL162375, 10BL602425, 10WA116132	Bore	Private	Recreation (groundwater), Test Bore	Recreation (groundwater)		29/09/2008	62.00	62.00		15.00	0.760		1281m	West
GW103978	10BL159301, 10WA115234	Bore		Domestic	Domestic, Stock		20/09/2000	79.00	79.00					1312m	South
GW114237	10BL602058	Bore	Private	Monitoring Bore	Monitoring Bore		10/08/2011	10.40	10.40		5.10			1378m	North West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW104601	10BL160519, 10WA115292	Bore	Private	Domestic, Stock	Domestic, Stock		25/03/2002		48.00			1.010		1450m	South
GW073390		Bore open thru rock	Private		Domestic, Stock		31/07/1995	36.00	36.00	Poor				1515m	South East
GW026620	10BL017006, 10WA114836	Bore open thru rock	Private	Domestic, Stock	General Use		01/02/1966	50.30	50.30	1001-3000 ppm				1564m	South
GW112621	10BL603269	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	19/02/2010	9.00	9.00					1578m	North
GW112619	10BL603269	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	19/02/2010	9.00	9.00		4.80			1585m	North
GW112620	10BL603269	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	19/02/2010	9.00	9.00					1589m	North
GW005226		Bore	Private		Domestic, Stock		01/02/1959	34.70	34.80					1612m	South East
GW105017	10BL161668, 10BL162517	Bore	Private	Industrial, Test Bore	Industrial		26/03/2003	61.00	61.00			0.250		1689m	North
GW111803	10BL605145	Bore	Private	Monitoring Bore	Monitoring Bore		15/05/2012	2.50	2.50					1718m	South West
GW035726	10BL029259, 10WA114884	Bore open thru rock	Private	Stock	Stock		01/09/1973	50.20	50.30	Fresh				1723m	South
GW110499	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	12.00	12.00		11.70			1731m	West
GW110501	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	1.20	3.10		0.56			1747m	West
GW110500	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	2.10	2.10		1.31			1748m	West
GW110502	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	1.60	1.60		1.40			1750m	West
GW108115	10BL164528, 10BL600181, 10WA116072	Bore		Recreation (groundwater), Test Bore	Recreation (groundwater)		25/10/2004	81.00	81.00			0.025		1750m	North East
GW110508	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	2.90	2.90		1.87			1760m	West
GW110504	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	3.20	73.20		0.59			1768m	West
GW110507	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	1.75	1.75		1.17			1772m	West
GW110503	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	2.00	2.00		1.32			1779m	West
GW110506	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	1.90	1.90		0.90			1784m	West
GW110505	10BL602945	Bore	Private	Monitoring Bore	Monitoring Bore		18/03/2009	1.75	1.75		1.07			1786m	West
GW110559	10BL602986, 10WA115789	Bore	Private	Domestic	Domestic		02/09/2009	78.00	78.00	700	9.00	1.000		1808m	North
GW111802	10BL605145	Bore	Private	Monitoring Bore	Monitoring Bore		15/05/2012	2.00	2.00					1845m	West
GW038917	10BL101151, 10WA114914	Bore open thru rock	Private	Domestic	General Use		01/01/1974	76.20	76.20	Good				1851m	West
GW111276	10BL604274, 10WA115949	Bore	Private	Domestic, Stock	Domestic, Stock		10/12/2010	62.00	62.00		7.00			1887m	North

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW108150	10BL600166, 10BL600405, 10CA116074	Bore		Recreation - Low Security, Test Bore	Recreation (groundwater)		29/04/2006	55.00	55.00		3.50	1.500		1908m	North
GW100588	10BL152995, 10CA115988	Bore		Irrigation, Recreation (groundwater)	Recreation (groundwater)		31/12/1995	54.00	54.00			9.000		1922m	North East
GW105348	10BL161865, 10WA115411	Bore		Domestic, Stock	Domestic, Stock		30/01/2003	54.00	54.00	Good		0.600		1938m	North West
GW058602	10BL128691, 10WA114994	Bore	Private	Domestic, Stock	Domestic, Stock		01/04/1983	68.60	68.60	Good Stock				1959m	South East
GW110282	10BL601959	Bore	Private	Test Bore	Test Bore		06/09/2007	84.00	84.00		4.00	0.625		1984m	North
GW101098	10BL157485, 10WA115165	Bore	Private	Domestic	Domestic		01/03/1996	99.00	99.00	Good	24.40	0.500		1990m	North East

Hydrogeology & Groundwater

Off Braidwood Road, Goulburn, NSW 2580

Driller's Logs

Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW105739	0.00m-5.00m soil, clays 5.00m-18.00m gravel sands, large 18.00m-78.00m volcanic, blud grey	195m	South
GW110381	0.00m-4.00m SOIL/ CLAYS 4.00m-12.00m GRAVEL 12.00m-54.00m SILTSTONE VOLCANIC	689m	North East
GW064585	0.00m-0.60m Topsoil 0.60m-5.50m Clay 5.50m-9.70m Gravel Water Supply 9.70m-15.80m Shale Hard Water Supply	765m	North
GW071524	0.00m-0.50m Silt, sandy, orange brown 0.50m-6.50m Silty, clayey, mottled	887m	North
GW102093	0.00m-0.30m Topsoil 0.30m-3.00m Sandy Clay 3.00m-22.50m Sand and Gravel 22.50m-24.40m Gravel 24.40m-27.40m Blue Shale	907m	North East
GW107841	0.00m-1.00m SILT 1.00m-5.00m CLAY	1139m	North East
GW105557	0.00m-6.00m WEATHERED SHALE 6.00m-29.00m FRACTURED VOLCANICS 29.00m-38.00m RED SOFT VOLCANIC 38.00m-72.00m SILTSTONES	1158m	South
GW107840	0.00m-0.10m BITUMEN 0.10m-2.50m FILL 2.50m-7.50m CLAY	1163m	North East
GW107842	0.00m-0.20m CONCRETE 0.20m-1.50m FILL 1.50m-7.50m CLAY	1189m	North
GW107843	0.00m-0.20m CONCRETE 0.20m-2.50m FILL 2.50m-7.50m CLAY	1189m	North
GW109374	0.00m-2.00m CLAY WITH SANDY SOIL 2.00m-5.00m VOLCANICS.SOFT.BROWN 5.00m-25.00m VOLCANICS.GREY SILTSTONE 25.00m-62.00m VOLCANICS, GREY BLUE	1281m	West
GW103978	0.00m-36.00m BROWN PINK WHITE DECOMPOSED SHALE 36.00m-54.00m BROWN HARD SHALE 54.00m-79.00m GREY SILTSTONE/QUARTZ	1312m	South
GW104601	0.00m-1.50m SOIL/CLAYS 1.50m-29.00m YELLOW RED SOFT SHALE 29.00m-48.00m BLUE GREY SHALES/QUARTZ BANDS	1450m	South
GW073390	0.50m-24.00m White Clay 24.00m-30.00m Brown Decomposed Limestone	1515m	South East

Groundwater No	Drillers Log	Distance	Direction
GW026620	0.00m-15.24m Clay Red 15.24m-18.90m Shale 15.24m-18.90m Sandstone 18.90m-27.43m Clay 27.43m-31.39m Shale Red 31.39m-33.22m Shale Grey Water Bearing 33.22m-35.05m Shale Grey Or Mudstone 35.05m-36.58m Mudstone 36.58m-50.29m Shale Coarse Layers Water Supply	1564m	South
GW112621	0.00m-0.10m CONCRETE 0.10m-1.10m FILL, DENSE , DRY,GREY,BROWN 1.10m-3.40m CLAY,FIRM,MOIST,BROWN 3.40m-9.00m CLAY,SOFT,FIRM,MOIST,WET,BROWN	1578m	North
GW112619	0.00m-0.10m CONCRETE 0.10m-2.00m FILL,DENSE,DRY,GREY/BROWN 2.00m-4.00m CLAY WITH MINOR SAND M/GRAIN,FIRM,DRY 4.00m-9.00m CLAY ,MINOR SAND,M/GRAIN.FIRM,.WET	1585m	North
GW112620	0.00m-0.10m CONCRETE 0.10m-2.00m FILL, DENSE, DRY/BROWN/GREY 2.00m-4.40m CLAY,FIRM,DRY,BROWN/RED 4.40m-7.50m CLAY FIRM,MOIST,M/PLASTICITY 7.50m-9.00m CLAY,SOFT, WET,H/PLASTICITY,BROWN	1589m	North
GW005226	0.00m-0.46m Soil 0.46m-0.91m Clay Yellow 0.91m-2.44m Clay Gravel 2.44m-4.57m Clay Yellow Loose Rock 4.57m-8.53m Slate Yellow 8.53m-11.28m Slate Cream 11.28m-13.72m Clay White 13.72m-17.07m Clay Yellow Gravel Water Supply 17.07m-21.03m Slate Cream Soft Water Supply 21.03m-23.16m Slate Yellow Clay Bands 23.16m-28.35m Slate Cream Clay Bands 28.35m-34.75m Slate Fairly Hard 28.35m-34.75m Quartz Bands	1612m	South East
GW105017	0.00m-1.00m TOPSOIL/CLAY 1.00m-3.00m BROWN SHALE 3.00m-17.00m YELLOW SHALE 17.00m-20.00m GREY/GREEN SHALE 20.00m-61.00m BLACK SHALE	1689m	North
GW111803	0.00m-0.50m TOPSOIL BROWN LOAM,RED LOAM 0.50m-1.00m CLAY BROWN SOME GRAVEL 1.00m-1.60m SHALE GREY DECOMPOSED 1.60m-2.00m SHALE GREY 2.00m-2.50m SHALE GREY	1718m	South West
GW035726	0.00m-0.91m Topsoil 0.91m-8.83m Topsoil Clay 8.83m-35.96m Clay Grey Slate Decomposed Seams Water Supply 35.96m-39.31m Slate Grey Hard 39.31m-40.23m Slate Grey Decomposed Water Supply 40.23m-50.29m Slate Grey Hard Bands Quartz Water Supply	1723m	South
GW110499	0.00m-1.80m WEATHERED SEDIMENT 1.80m-2.40m CHERT 2.40m-3.40m SILTSTONE BROWN 3.40m-8.20m SEDIMENT 8.20m-12.00m SEDIMENT YELLOW	1731m	West
GW110501	0.00m-0.70m FILL,SHALE AND GRAVEL 0.70m-0.90m CONCRETE 0.90m-3.10m FILL,SANDY GRAVEL 3.10m-73.30m SILTSTONE NATURAL BROWN	1747m	West
GW110500	0.00m-0.90m FILL,SANDY CLAY,RUBBLE 0.90m-1.90m FILL,YELLOW BROWN SAND 1.90m-2.10m SILTSTONE,NATURAL YELLOW	1748m	West
GW108115	0.00m-1.00m TOPSOIL 1.00m-5.00m CLAY 5.00m-11.50m GRAVEL 11.50m-54.00m HARD GREY SHALE 54.00m-81.00m HARD BLACK SHALE	1750m	North East
GW110502	0.00m-0.25m FILL,CONCRETE,SHALE 0.25m-1.00m FILL,GRAVEL,SILTSTONE 1.00m-1.30m FILL,BROWN COARSE SAND 1.30m-1.60m SILTSTONE,NATURAL GREY	1750m	West

Groundwater No	Drillers Log	Distance	Direction
GW110508	0.00m-0.20m FILL,SHALE FRAGMENTS 0.20m-0.90m FILL.BROWN CLAY 0.90m-1.40m FILL YELLOW CLAY 1.40m-2.20m FILL.BROWN CLAY,SHALE 2.20m-2.70m FILL,YELLOW CLAY AND SILTSTONE 2.70m-2.90m YELLOW CLAY NATURAL	1760m	West
GW110504	0.00m-0.20m CONCRETE 0.20m-0.60m FILL METAL 0.60m-0.90m CONCRETE 0.90m-1.70m VOLCANIC 1.70m-1.80m METAL 1.80m-3.00m FILL COARSE,YELLOW SAND 3.00m-73.20m META SEDIMENTOS	1768m	West
GW110507	0.00m-0.15m CONCRETE 0.15m-0.80m FILL YELLOW CLAY 0.80m-1.40m FILL COARSE YELLOW SAND 1.40m-1.75m FILL,YELLOW CLAY	1772m	West
GW110506	0.00m-0.20m CONCRETE 0.20m-0.25m BLUE METAL 0.25m-0.80m FILL ORANGE CLAY 0.80m-1.05m FILL BLUE METAL 1.05m-1.90m WEATHERED SILTSTONE	1784m	West
GW110505	0.00m-0.17m CONCRETE 0.17m-0.25m METAL 0.25m-1.00m FILL BROWN CLAY 1.00m-1.75m FILL BROWN COARSE SAND	1786m	West
GW110559	0.00m-2.00m CLAY RED 2.00m-16.00m SHALE (YELLOW) 16.00m-78.00m SHALE / SILTSTONE	1808m	North
GW111802	0.00m-0.50m BROWN CLAY LOAM 0.50m-1.00m CLAY ORANGE 1.00m-1.50m SHALE MOIST YELLOW 1.50m-2.00m SHALE YELLOW GREY	1845m	West
GW038917	0.00m-0.30m Topsoil 0.30m-4.26m Clay Sandy 0.30m-4.26m Boulders Sandstone 4.26m-12.19m Sandstone 12.19m-19.81m Slate Water Supply 19.81m-67.05m Slate Grey Water Supply 67.05m-67.36m Slate Green 67.36m-76.20m Slate Grey Water Supply	1851m	West
GW111276	0.00m-1.00m TOPSOIL 1.00m-3.00m CLAY 3.00m-19.00m SHALE SOFT 19.00m-35.00m SHALE GREY 35.00m-56.00m SHALE BROKEN 56.00m-62.00m SHALE HARD	1887m	North
GW108150	0.00m-1.00m SOIL, LOAM 1.00m-6.00m CLAY,BROWN AND STICKY 6.00m-10.00m GRAVELS COARSE 10.00m-55.00m SILTSTONES BLACK SHALES	1908m	North
GW105348	0.00m-5.00m CLAY 5.00m-54.00m SHALE	1938m	North West
GW058602	0.00m-0.30m Topsoil 0.30m-5.49m Clay 5.49m-68.58m Shale	1959m	South East
GW110282	0.00m-2.00m SOIL BLACK 2.00m-6.00m CLAY BROWN 6.00m-12.00m SAND AND GRAVEL 12.00m-24.00m SHALE,SILSTSTONE,L/GREY 24.00m-84.00m SILTSTONE DARK GREY,VOLCANICS	1984m	North
GW101098	0.00m-0.30m Top soil 0.30m-99.00m Hard sandstone	1990m	North East

Geology 1:250,000

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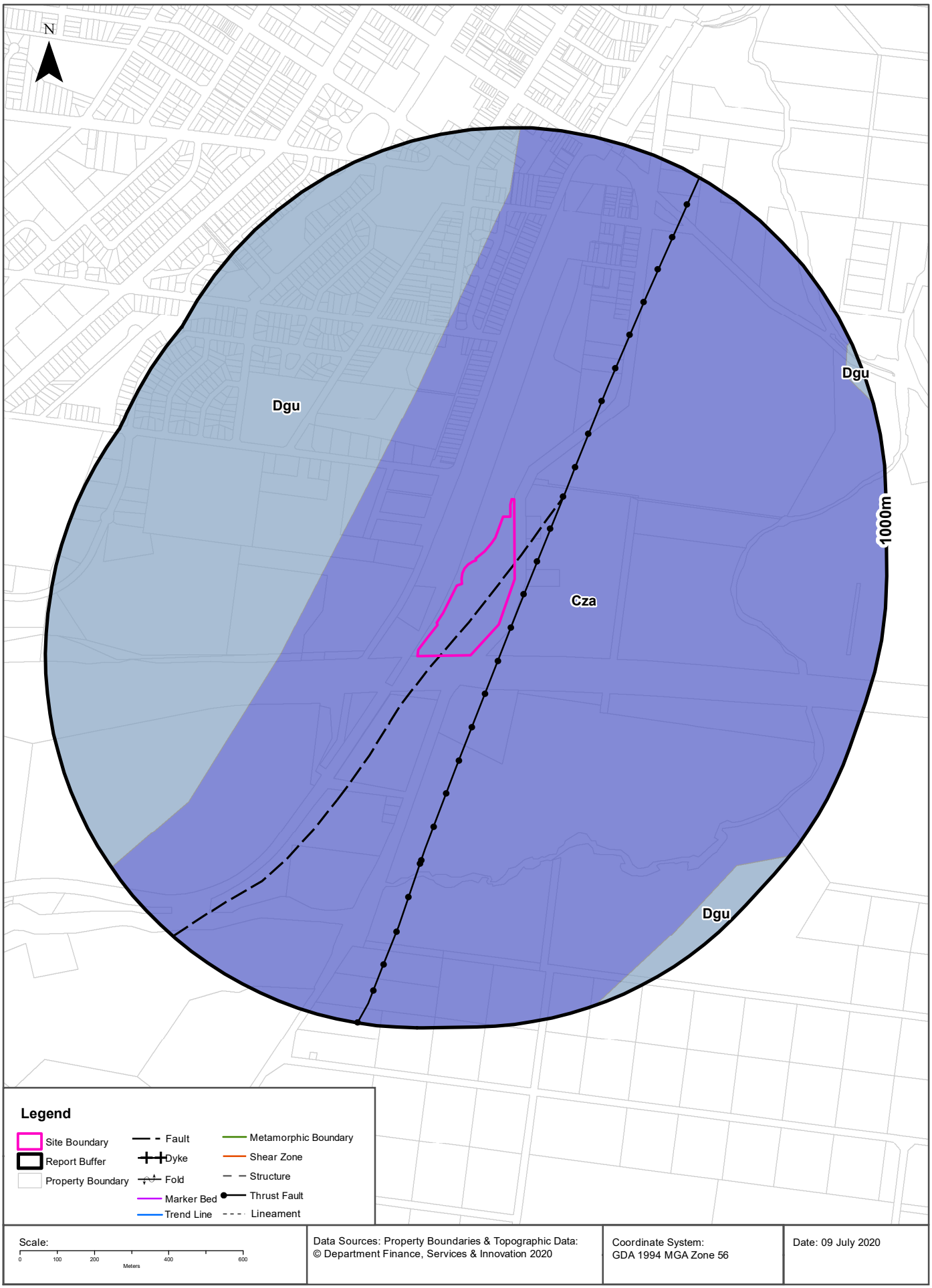

Geology

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Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Cza	Cainozoic alluvium: gravel, sand	undifferentiated			Cainozoic			1:250,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Cza	Cainozoic alluvium: gravel, sand	undifferentiated			Cainozoic			1:250,000
Dgu	Siltstone, sandstone, dacite, andesite, conglomerate, tuff, felsite, porphyry, claystone	Gundary beds			Palaeozoic			1:250,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
Fault		Fault, inferred	Goldburn	1:250,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
Thrust Fault	Mulwaree Fault	Thrust fault - concealed	Goldburn	1:250,000
Fault		Fault, inferred	Goldburn	1:250,000
Fault		Fault, inferred	Goldburn	1:250,000
Thrust Fault	Mulwaree Fault	Thrust fault - concealed	Goldburn	1:250,000
Thrust Fault	Mulwaree Fault	Thrust fault - concealed	Goldburn	1:250,000
Thrust Fault	Mulwaree Fault	Thrust fault - concealed	Goldburn	1:250,000
Fault		Fault, inferred	Goldburn	1:250,000
Thrust Fault	Mulwaree Fault	Thrust fault - concealed	Goldburn	1:250,000
Fault		Fault, inferred	Goldburn	1:250,000

Geological Data Source : NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

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Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Atlas of Australian Soils

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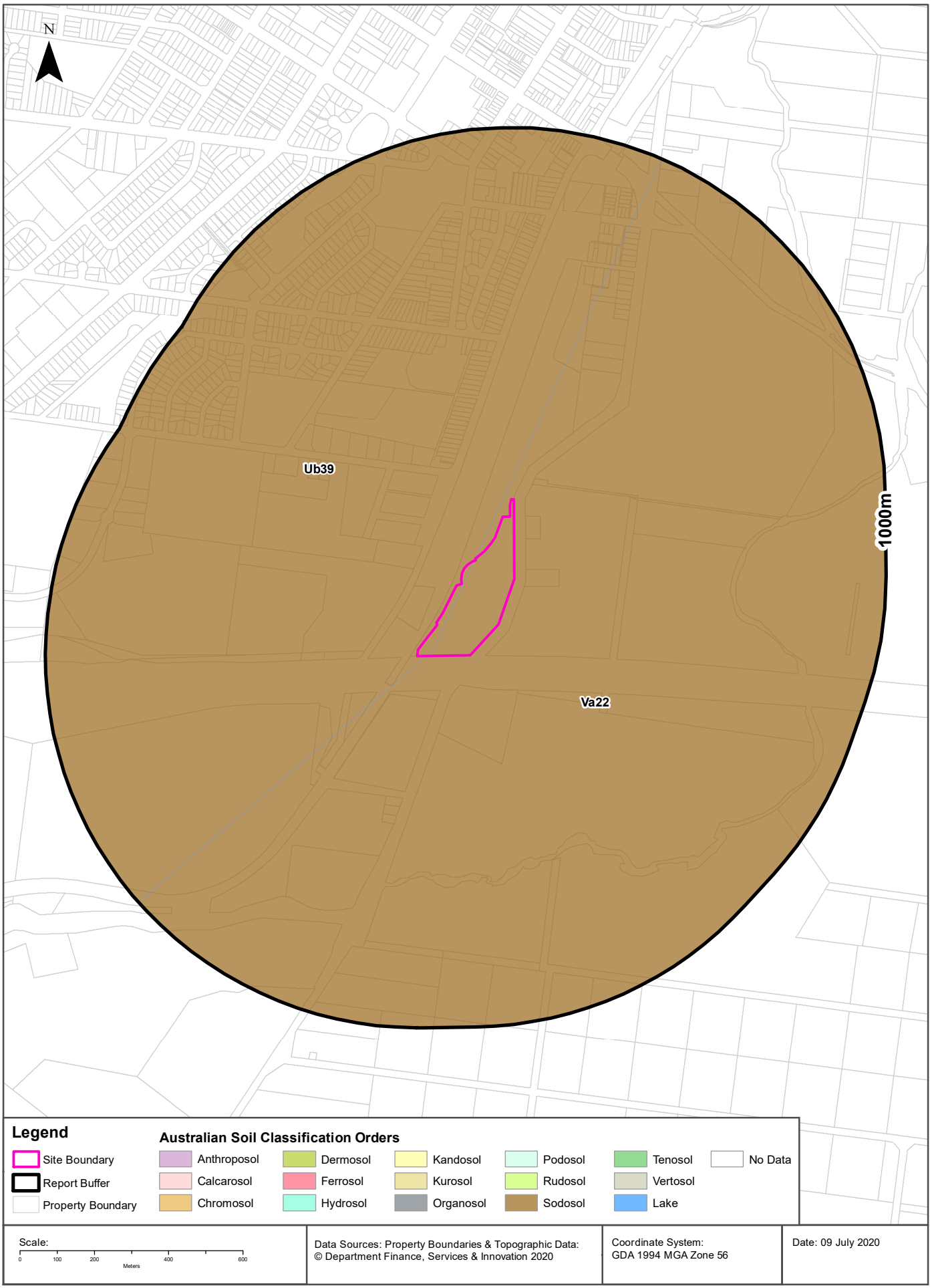

Soils

Off Braidwood Road, Goulburn, NSW 2580

Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance
Ub39	Sodosol	Undulating to hilly country: chief soils are hard neutral and acid yellow mottled soils (Dy3.42 and Dy3.41) in a general pattern as follows: (i) undulating to hilly slopes of various (Dy) and (Dr) soils, including (Dy3.41), (Dy3.42), (Dy3.2), (Dr2.2), (Dr2.4); (ii) (Dy3.42) and sometimes (Dr3.42) soils in basins which merge with unit Va21 and lower-lying sites generally; and (iii) less frequently (Gn2. 15) and (Gn2.25) soils on gently undulating areas, usually situated between (i) and (ii). As mapped, small areas of units Tb22 and Va22 are included. Data are limited.	0m
Va22	Sodosol	Valley plain: chief soils are hard alkaline yellow and yellow mottled soils (Dy2.43) and (Dy3.43). Associated are various soils, notably (Gn2.95), also (Ug5.16) and (Gn2.1), with some (Um) soils close to the stream.	0m

Soil Landscapes

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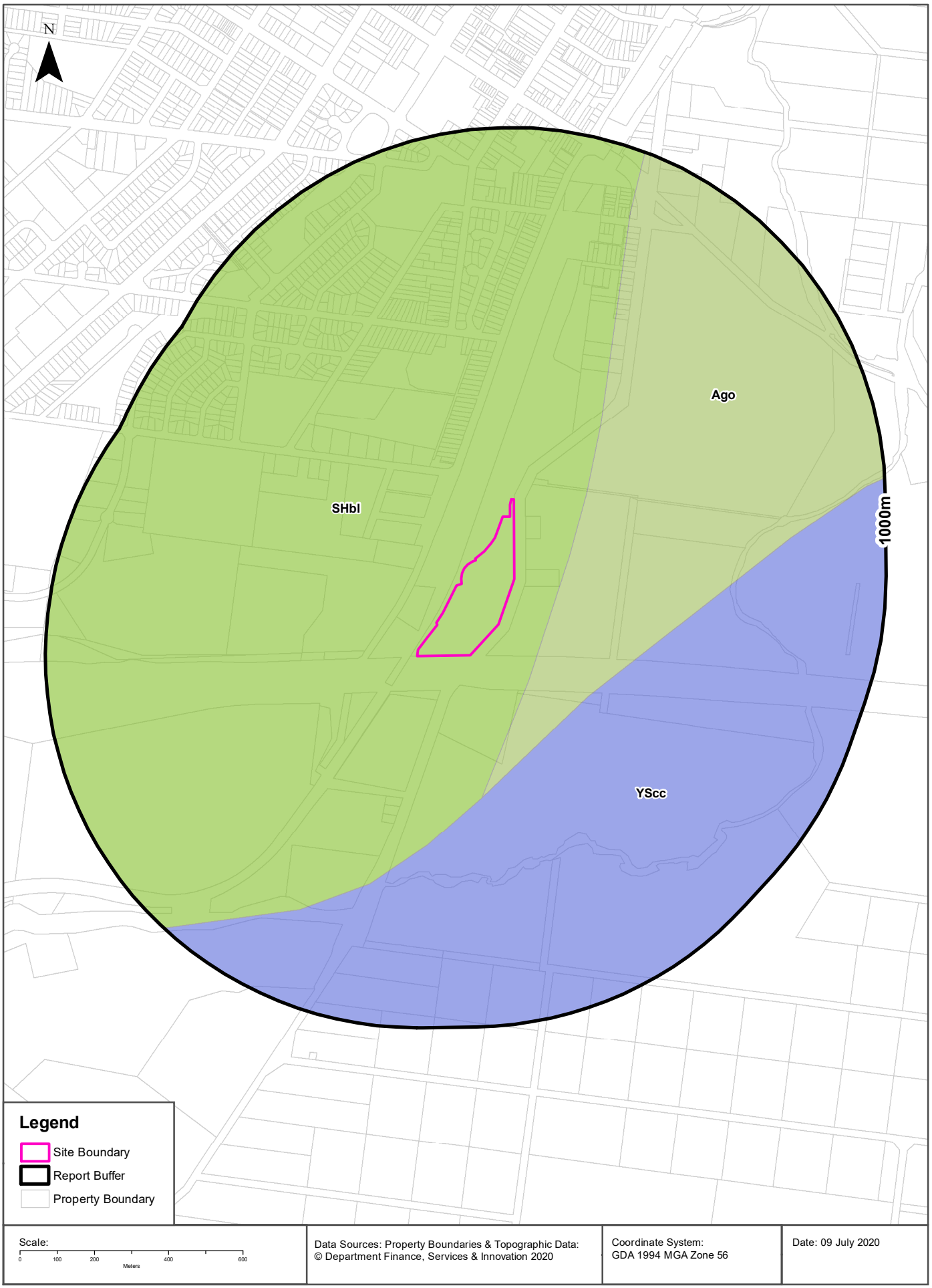

Soils

Off Braidwood Road, Goulburn, NSW 2580

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
SHbl	BULLAMALITA	SOLOTHS		Goulburn	1:250,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
Ago	GOULBURN	ALLUVIAL SOILS		Goulburn	1:250,000
SHbl	BULLAMALITA	SOLOTHS		Goulburn	1:250,000
YScc	COLLECTOR CREEK	YELLOW SOLODIC SOILS		Goulburn	1:250,000

Acid Sulfate Soils

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Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	EPI Name
N/A		

If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

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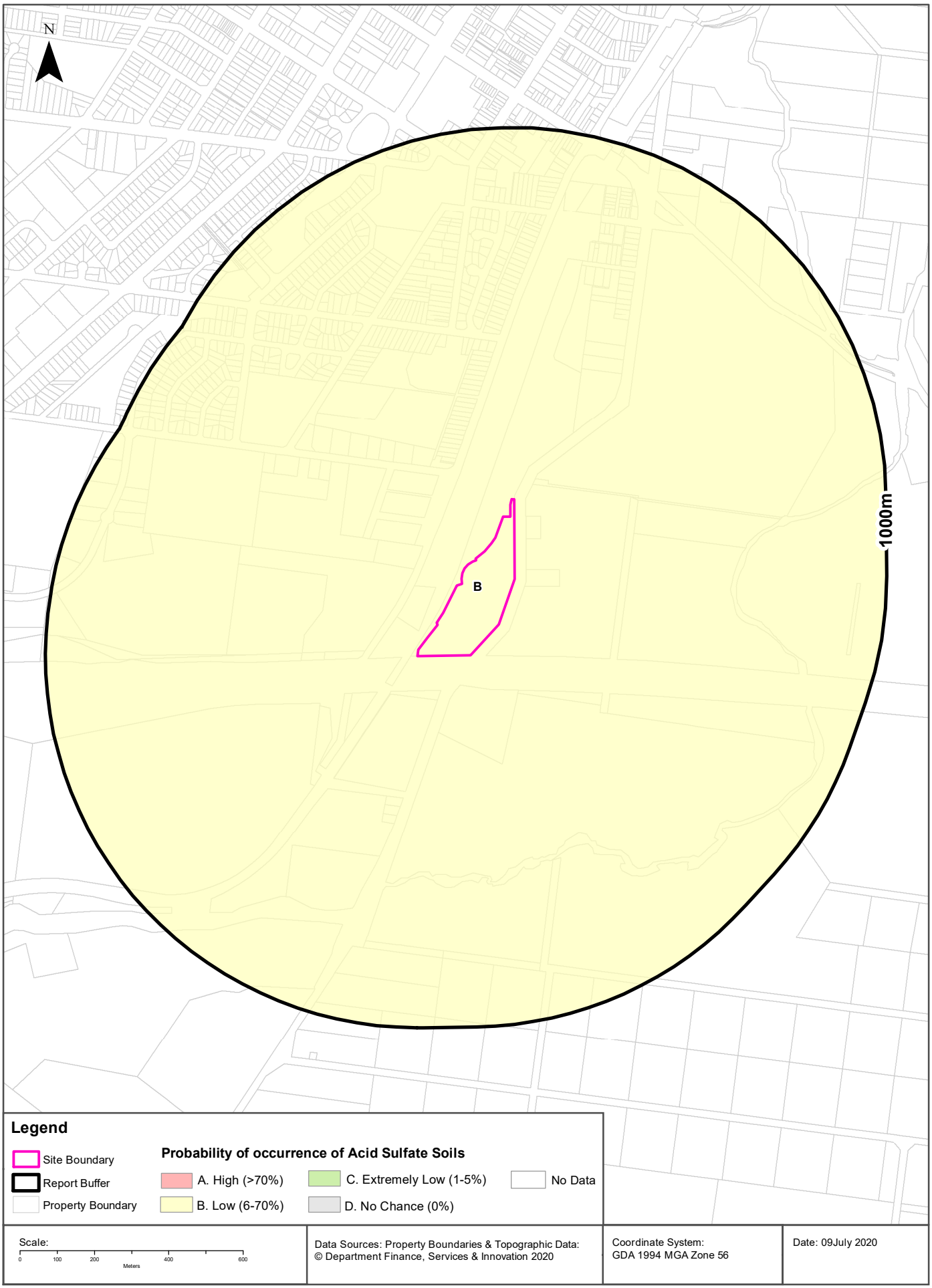

Acid Sulfate Soils

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Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m

Dryland Salinity

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Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

Mining Subsidence Districts

Off Braidwood Road, Goulburn, NSW 2580

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

State Environmental Planning Policy

Off Braidwood Road, Goulburn, NSW 2580

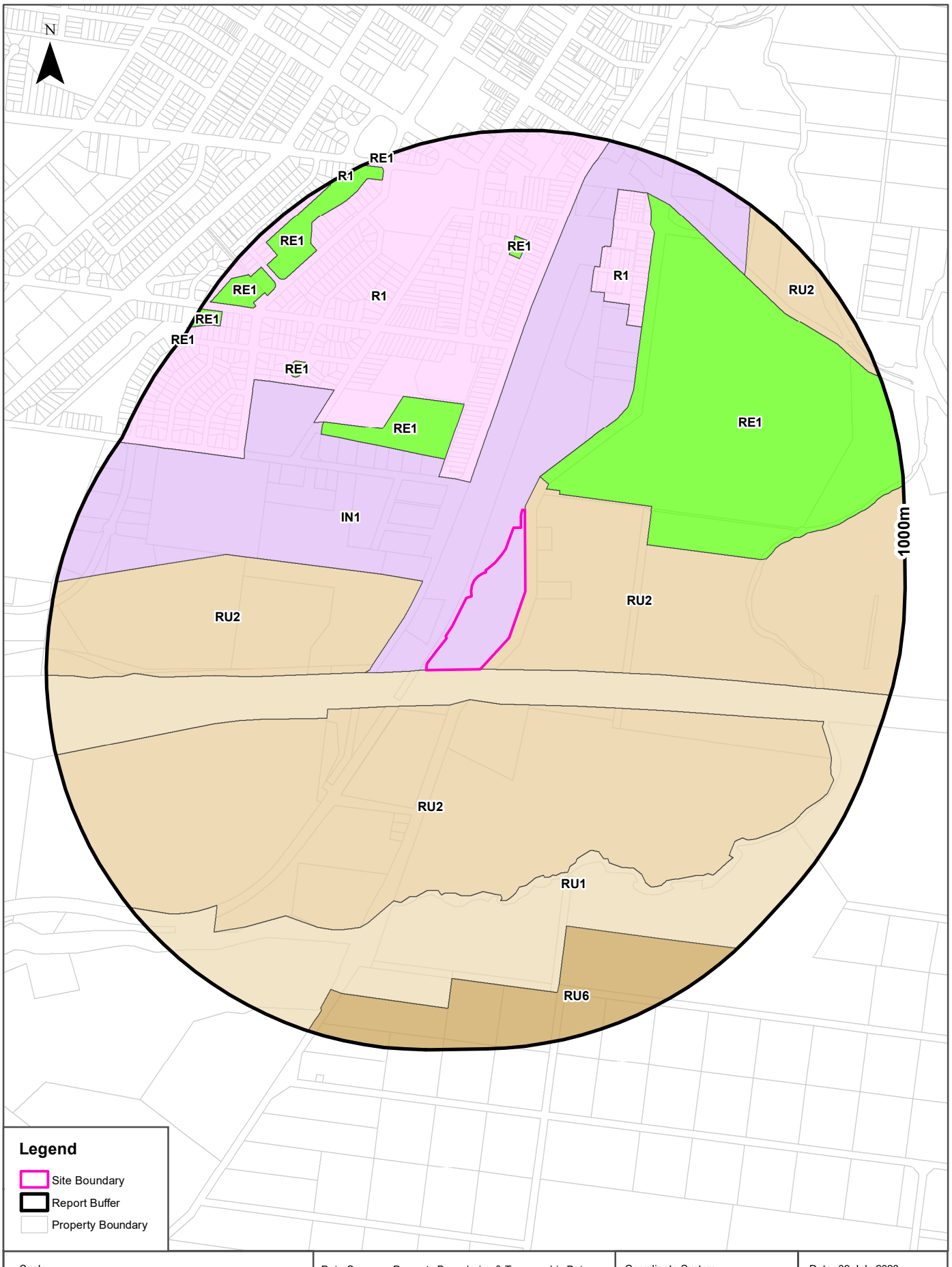
State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No Records in Buffer							

EPI Planning Zones

Off Braidwood Road, Goulburn, NSW 2580



Environmental Planning Instrument

Off Braidwood Road, Goulburn, NSW 2580

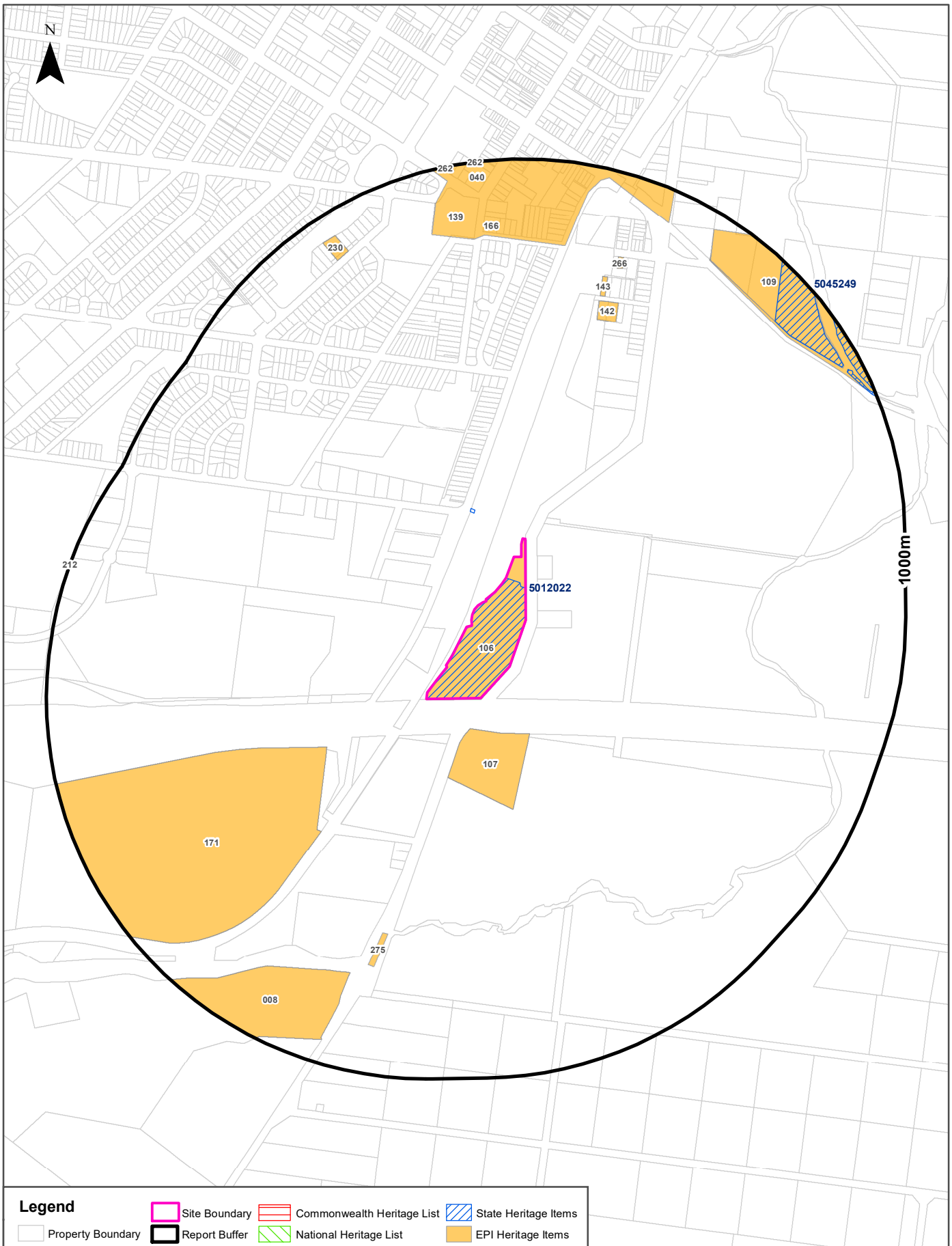
Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
IN1	General Industrial		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		0m	Onsite
RU1	Primary Production		Goulburn Mulwaree Local Environmental Plan 2009	13/07/2012	13/07/2012	29/05/2020	Amendment No 2	0m	South West
RU2	Rural Landscape		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		0m	East
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		79m	North East
RU2	Rural Landscape		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		79m	South West
RU2	Rural Landscape		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		119m	West
R1	General Residential		Goulburn Mulwaree Local Environmental Plan 2009	19/10/2018	19/10/2018	29/05/2020	Amendment No 8	155m	North
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		244m	North West
R1	General Residential		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		556m	North
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		662m	North
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		685m	North West
RU6	Transition		Goulburn Mulwaree Local Environmental Plan 2009	13/07/2012	13/07/2012	29/05/2020	Amendment No 2	713m	South
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		870m	North West
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		876m	North West
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		931m	North West
RE1	Public Recreation		Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	29/05/2020		997m	North

Heritage Items

Off Braidwood Road, Goulburn, NSW 2580



Heritage

Off Braidwood Road, Goulburn, NSW 2580

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
Creative Commons 3.0 © Commonwealth of Australia https://creativecommons.org/licenses/by/3.0/au/deed.en

National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch
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State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5012022	Goulburn Railway Station, yard group and movable relics	Main Southern railway, Goulburn	Goulburn Mulwaree	02/04/1999	01152	2791	0m	Onsite
5045249	Goulburn Brewery	Bungonia Road, Goulburn	Goulburn Mulwaree	02/04/1999	00178	308	872m	North East

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage
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Environmental Planning Instrument - Heritage

What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
106	Railway Roundhouse, Part of (former) Railway Infrastructure, Turntable	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	0m	Onsite

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
107	Garroorigang', Stables	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	79m	South
171	South Hill Complex, Early Homestead (c 1860)	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	292m	South West
142	Cottages, 'Araluen'	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	608m	North
275	Thorne's Bridge	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	625m	South
143	Dwelling, Cottage	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	671m	North
008	Dwelling, 'The Towers' (c 1840)	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	749m	South West
266	Dwelling (c 1890)	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	754m	North
	Goulburn City Conservation Area	Conservation Area - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	779m	North
139	Gill Waminda Nursing Home	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	798m	North
166	Dwelling, Two Storey (1906)	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	806m	North
	Lansdowne Estate Conservation Area	Conservation Area - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	863m	North East
109	Dwelling, 'Broughton', Goulburn Brewery	Item - General	State	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	868m	North East
230	Dwelling	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	880m	North
040	Dwellings	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	920m	North
262	St Johns Orphanage (former)	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	989m	North
212	Goulburn Workers Club Arena, Grandstand, Rifle Range, Nissan Huts (c 1900)	Item - General	Local	Goulburn Mulwaree Local Environmental Plan 2009	13/03/2009	13/03/2009	19/10/2018	1000m	West

Natural Hazards - Bush Fire Prone Land

Off Braidwood Road, Goulburn, NSW 2580

Scale: 0 100 200 400 600 Meters

Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2020. Property Boundaries: © Department Finance, Services & Innovation 2020

Coordinate System: GDA 1994 MGA Zone 56

Date: 09 July 2020

Natural Hazards

Off Braidwood Road, Goulburn, NSW 2580

Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	Onsite
Vegetation Category 3	29m	South West

Ecological Constraints

Off Braidwood Road, Goulburn, NSW 2580

Vegetation of the Southern Forests

What vegetation of the Southern Forests exists within the dataset buffer?

Map Id	Veg Code	Formation	Class	Group	Distance	Direction
N/A	No records within buffer					

Vegetation of the Southern Forests: NSW Office of Environment and Heritage

Ramsar Wetlands

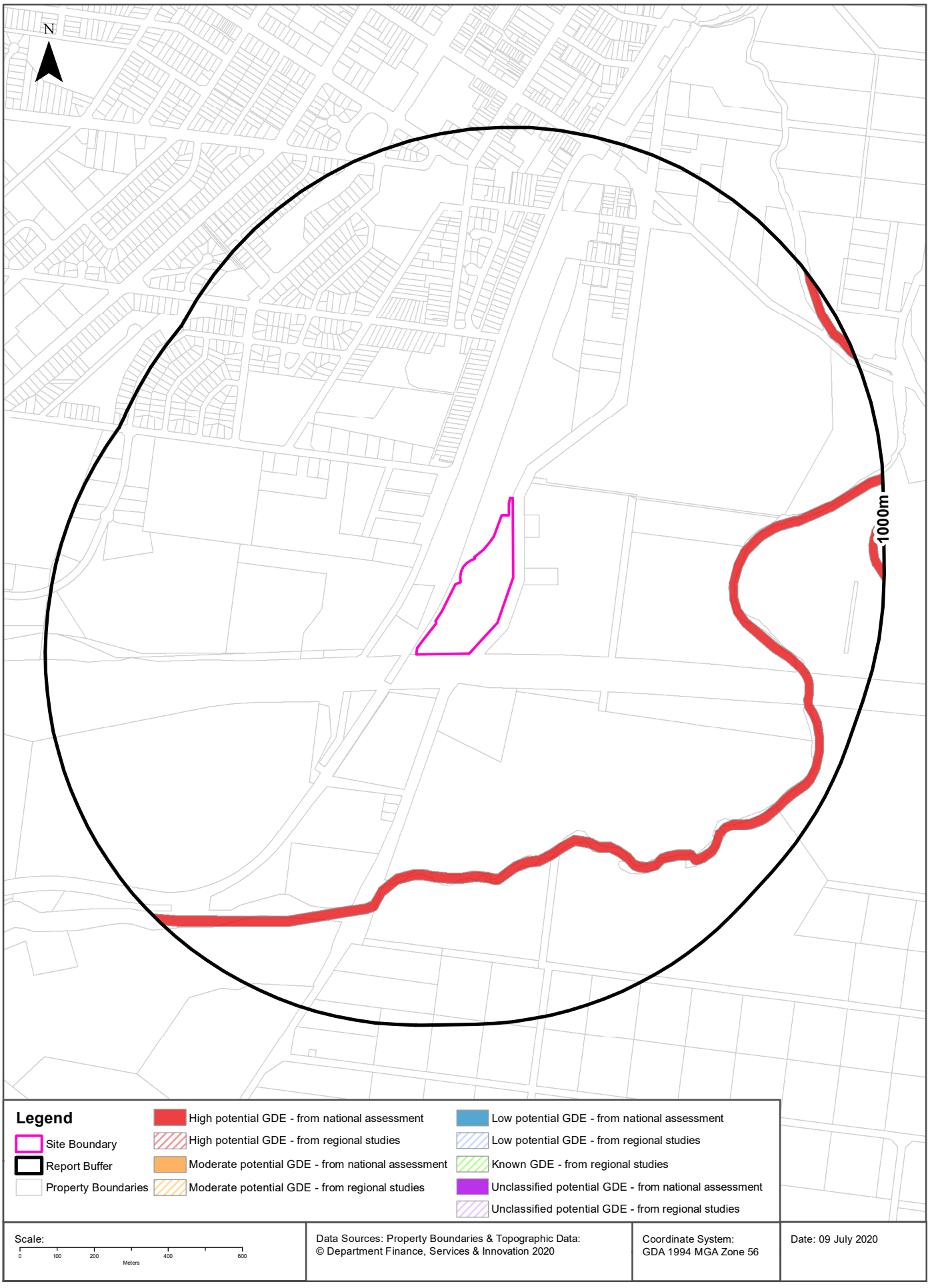
What Ramsar Wetland areas exist within the dataset buffer?

Map Id	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Environment

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

Off Braidwood Road, Goulburn, NSW 2580



Ecological Constraints

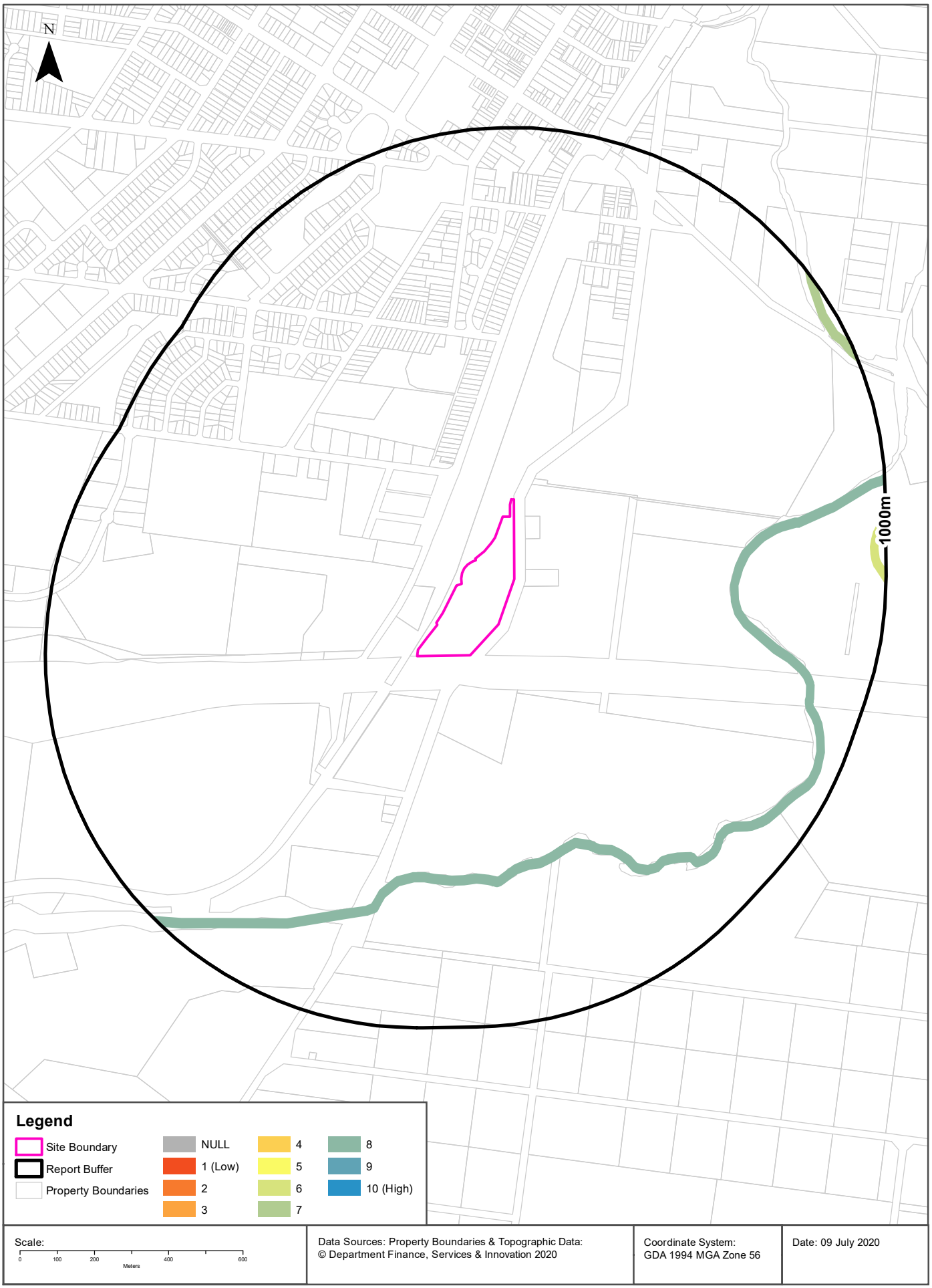
Off Braidwood Road, Goulburn, NSW 2580

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Aquatic	High potential GDE - from national assessment	Upland plains with separating strike-aligned hills, closed lake basins.	River		564m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

Off Braidwood Road, Goulburn, NSW 2580



Ecological Constraints

Off Braidwood Road, Goulburn, NSW 2580

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Aquatic	8	Upland plains with separating strike-aligned hills, closed lake basins.	River		564m
Aquatic	7	Upland plains with separating strike-aligned hills, closed lake basins.	River		955m
Aquatic	6	Upland plains with separating strike-aligned hills, closed lake basins.	River		956m

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Ecological Constraints

Off Braidwood Road, Goulburn, NSW 2580

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Macropus parma	Parma Wallaby	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Nyctophilus corbeni	Corben's Long-eared Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Delma impar	Striped Legless Lizard	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Bossiaea oligosperma	Few-seeded Bossiaea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Dichanthium setosum	Bluegrass	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Diuris aequalis	Buttercup Doubletail	Endangered	Category 2	Vulnerable	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Leucochrysum albicans var. tricolor	Hoary Sunray	Not Listed	Not Sensitive	Endangered	
Plantae	Flora	Pomaderris delicata	Delicate Pomaderris	Critically Endangered	Not Sensitive	Critically Endangered	
Plantae	Flora	Rutidosis leptorrhynchoides	Button Wrinklewort	Endangered	Not Sensitive	Endangered	

Data does not include NSW category 1 sensitive species.

Location Confidences

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

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

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Appendix D

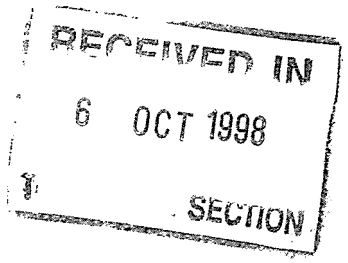
Storage of Hazardous Chemicals

FreightCorp™

Tel: (02) 9843 9288
Fax: (02) 9843 9673

Your Ref:
Our Ref: Doc.6080.RC.LL
(File No.A/284)

2 October, 1998



Senior Licensing Clerk, Dangerous Goods
WorkCover NSW
Locked Bag 10
Clarence Street
SYDNEY NSW 2000

Dear Sir/Madam

RE: LICENCE 35/002902 - BRAIDWOOD ROAD, GOULBURN

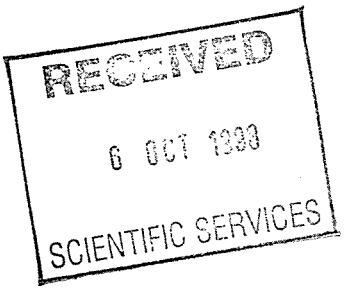
The use of the above premises for the storage of diesel has ceased.

The existing tanks have had the contents removed and have been desludged. All reticulation pipework has been water flushed and valves removed. All manholes have been removed from the tanks and the openings secured with mesh to prevent access.

Will you please cancel the licence as from today's date.

Yours faithfully,

RAY CLIFFORD
Environmental Engineer
Environmental Services Unit



cc Ian Gordon
Station Master
GOULBURN

ATF

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Telephone 9370 5000 ALL MAIL TO LOCKED BAG 10, CLARENCE STREET SYDNEY 2000

WORKCOVER NEW SOUTH WALES

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: *Please renew licence number 35/002902 to 1999. I confirm that all the licence details shown below are correct (amend if necessary).*

..... PETER LEA ..... 14-5-98.....

(Signature) *(Please print name)* *(Date signed)*

for: FREIGHT RAIL CORPORATION

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section (Level 3)
Locked Bag 10
P O CLARENCE STREET 2000

Enquiries: ph (02) 9370 5187
fax (02) 9370 6105

RECEIVED
15 MAY 1998
SCIENTIFIC SERVICES

Details of licence on 29 April 1998

Licence Number 35/002902 **Expiry Date** 30/06/98

Licensee FREIGHT RAIL CORPORATION
FREIGHT CORP

Postal Address LEVEL 4, LOCKED BAG 90, PARRAMATTA PRIVATE BOXES 2124

Licensee Contact John Cree/ Ray Clifford Ph. 9843 9091 Fax. 9843 9673

Premises Licensed to Keep Dangerous Goods
BRAIDWOOD RD Loco depot
GOULBURN 2580

Nature of Site RAIL TRANSPORT **Major Supplier of Dangerous Goods** AUSTRALIAN (ex Caltex)

Emergency Contact for this Site Ian Gordon ph. ~~048-23-2333~~ 0248271335

Site staffing 24hrs 5 days

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
T1	ABOVE-GROUND TANK	Class c1	190000 L
		UN 00C1 DIESEL	190000 L
T2	ABOVE-GROUND TANK	Class c1	190000 L
		UN 00C1 DIESEL	190000 L

licence renewed on SCIDI
dB

DATA
18 JUN 1998
ENTER

35/002902

RAILWAY SERVICES GROUP
ROLLING STOCK DIVISION

Goulburn Railway Workshop
Braidwood Road
PO Box 1110
Goulburn NSW 2580
Ph: (048) 21 2145
Int. 64437
Fax: (048) 23 2379
Int. 64379

Quality Endorsed Company

A E FISHER
Workshop Manager
Goulburn Railway Workshop
(048) 21 2145
03/06 / 96

CHIEF INSPECTOR
WorkCover Authority
Scientific Services Branch
Dangerous Goods Licensing
400 Kent ST. Sydney

Re: Removal of Under Ground Fuel Tanks — Reference 35-002902.

Further to my letter on the 18/8/95 concerning the abandoned Under Ground Fuel tanks on Land inherited by the Goulburn Railway Workshop from the Freight Rail, Purchase and Supply Branch.

The Fuel Tanks have been removed and disposed off by Canberra Petroleum Services on the 30th. March 1996.

A copy of their notification is attached.

Sincerely:

AE Fisher
Workshop Manager

Our Reference AF:RW:WCL9602

CANBERRA PETROLEUM SERVICES PTY LTD T/A
A.C.N. 003 955 208

CPS PETROLEUM SERVICES

25-27 Gulson Street Goulburn 2580
PO Box 99 Goulburn NSW 2580
Phone Head Office (048) 21 8903
Customer Nº 008 809 065
Fax (048) 21 6957

30th May, 1996

State Rail Authority
Braidwood Road
GOULBURN NSW 2580

ATTENTION: Bob Walsh

This is to certify that our Company removed both Type 10 underground fuel tanks from this site on the 30th March, 1996.

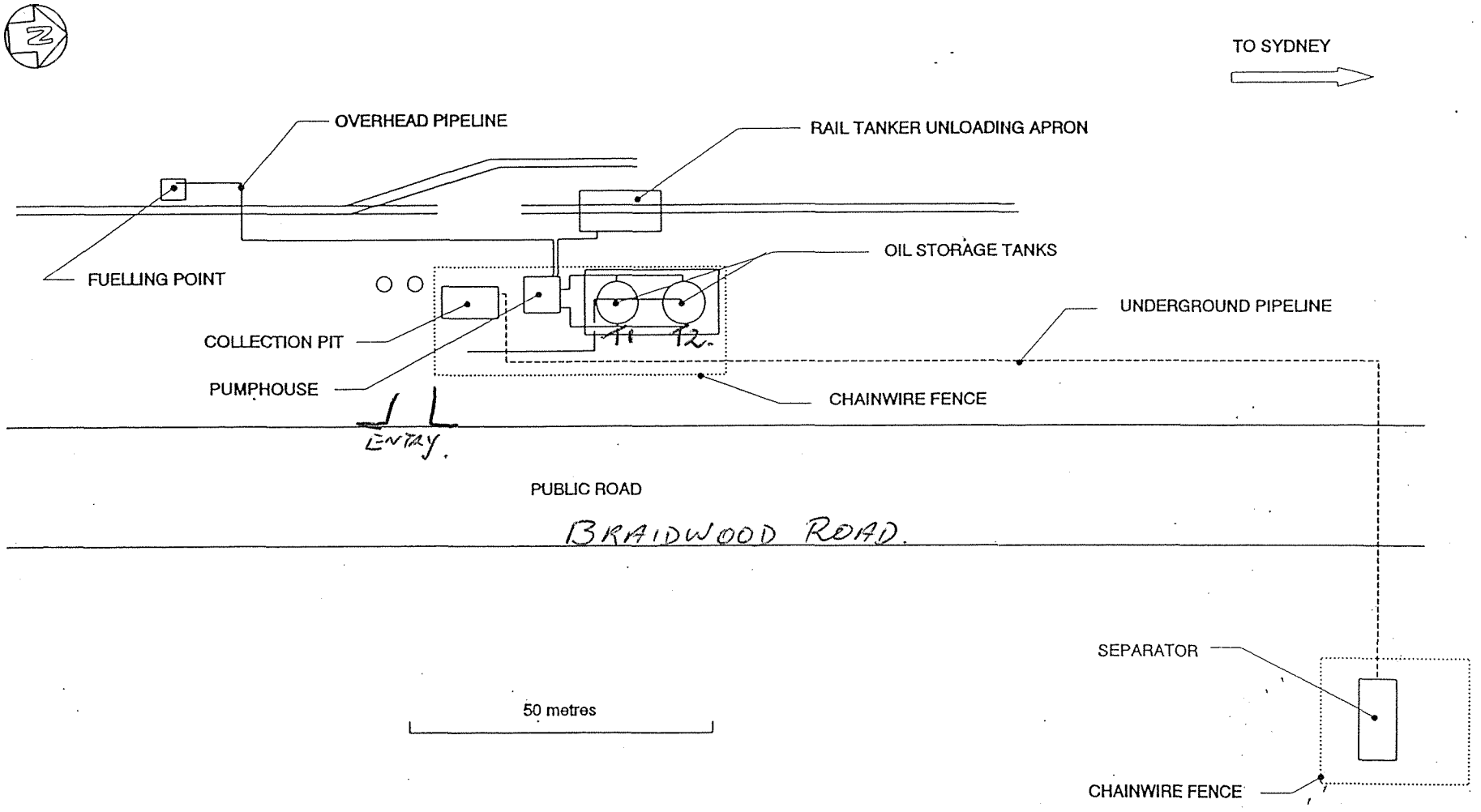
Excavation was tested, backfill and rebitumened. Both tanks were scrapped.

Yours faithfully
CPS PETROLEUM SERVICES

Frazer Roberts
Managing Director

RECEIVED
GOULBURN WORKSHOP
- 3 [illegible] 1996
By.....

COPY FOR YOUR INFORMATION



REV	REVISION DETAILS	BY	DATE	REV	REVISION DETAILS	BY	DATE	REFERENCE DRAWINGS	DRG No.

KEVIN GOTHAM CONSULTANTS PTY. LIMITED
ACN 002 894 005
15 Fairy Dell Close, WESTLEIGH NSW 2120
Telephone: (02) 481 8754 Facsimile: (02) 980 7178

K.S.Gotham Dec 94

GOULBURN LOCOMOTIVE DEPOT
SITE DIAGRAM

941 - 232

Complete 1 section per depot

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
T1	ABOVEGROUND STORAGE TANK.	3-3	190,000 LTRS.

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1268		3	3		DISTILLATE	190,000	L.

Depot number	Type of depot	Class	Licensed maximum storage capacity
T2	ABOVEGROUND STORAGE TANK.	3-3	190,000 LTS

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1268		3	3		DISTILLATE	190,000	L

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

ENT OF INDUSTRIAL RELATIONS
O STREET, P.O. BOX 847, DARLINGHURST 2010, N.S.W.
HONE: 266 8111 (DX22, SYDNEY)

PAID – PLEASE RETAIN AS PROOF OF PAYMENT

LICENCE FOR THE KEEPING OF DANGEROUS GOODS
UNDER AND SUBJECT TO THE PROVISIONS OF THE
DANGEROUS GOODS ACT, 1975
AND REGULATIONS THEREUNDER.

DEPOT	TYPE	PRODUCT	UNITS (ABT)	CLASS	FEE
1	ROOFED	FLAMMABLE LIQUID	10,000	3	$15
2	A/G TANK	COMBUST LIQUIDS	200,000	3.3	$15
3	A/G TANK	COMBUST LIQUIDS	200,000	3.3	$15
4	A/G TANK	COMBUST LIQUIDS	20,000	3.3	$15
5	U/G TANK	FLAMMABLE LIQUID	10,000	3	$15
6	U/G TANK	FLAMMABLE LIQUID	10,000	3	$15

THESE TWO TANKS ARE THE ONLY REMAINING DEPOT LEFT.

J Shaw.

CHIEF INSPECTOR

LICENSEE OR REGISTERED HOLDER
STATE RAIL AUTHORITY OF NSW
STORES & SUPPLY BRCH
BOX 514 G P O
SYDNEY 2001

PAYMENT DETAILS
RECEIPT NO 490904
09/11 $90.0

PREMISES TO BE LICENSED OR REGISTERED IF NOT AS ABOVE
LOCO & PER WAY DEPOT STORE
GOULBURN 2580

55 0029027 15 AUG 9
LICENCE/REG. No. EXPIRY D

atkinks.

RAILWAY SERVICES GROUP
ROLLING STOCK DIVISION

Goulburn Railway Workshop
Braidwood Road
PO Box 1110
Goulburn NSW 2580
Ph: (048) 21 2145
Int. 64437
Fax: (048) 23 2379
Int. 64379

Quality Endorsed Company

18 August 1995.

Chief Inspector
WorkCover Authority
Scientific Services Branch
Dangerous Goods Licensing
400 Kent St. Sydney 2000

7/4/96

Ref: RW:DP:dmp:L001

RE: Removal of Under Ground Fuel Tanks - Reference 35 - 002902.

I have been Notified by the Manager, Environmental Service , Freight Rail Parramatta of the WorkCover requirements for the abandoned Fuel Tanks from the former Per Way Depot Store at Goulburn.

This Land has been placed under the ownership of the Workshop Manager, Goulburn Railway Workshop.

As the Tanks will not be used again, they will be removed from the ground and taken to an appropriate place for disposal.

A certificate detailing the locations and the method of disposal will be forwarded at the completion of the removal.

If further information is required please contract the Workshop on (048) 212145

R K Walsh
A/Workshop Manager
Goulburn Railway Workshop

application forwarded to Penny

WorkCover Authority

Details of Licence for Keeping Dangerous Goods on 31 August 1994

Licence Number 35/002902 Expiry Date 15/08/90

application to Penny

35/029405

Licensee Details

Licensee STATE RAIL AUTHORITY OF NSW

Trading name Box 29 GPO

Postal Address ~~99 YORK ST~~, SYDNEY 2000

Licensee Contact

Phone call to Robert Walsh SRA on other side of railway

Site Details

Premises Licensed to Keep Dangerous Goods
~~LOCO &~~ PER WAY DEPOT STORE
GOULBURN 2580

NB Perway depot closed 12 yrs ago
PW 31/8/94

Nature of Site PRIVATE DWELLING **Supplier** NOT APPLICABLE

Emergency Contact ph.

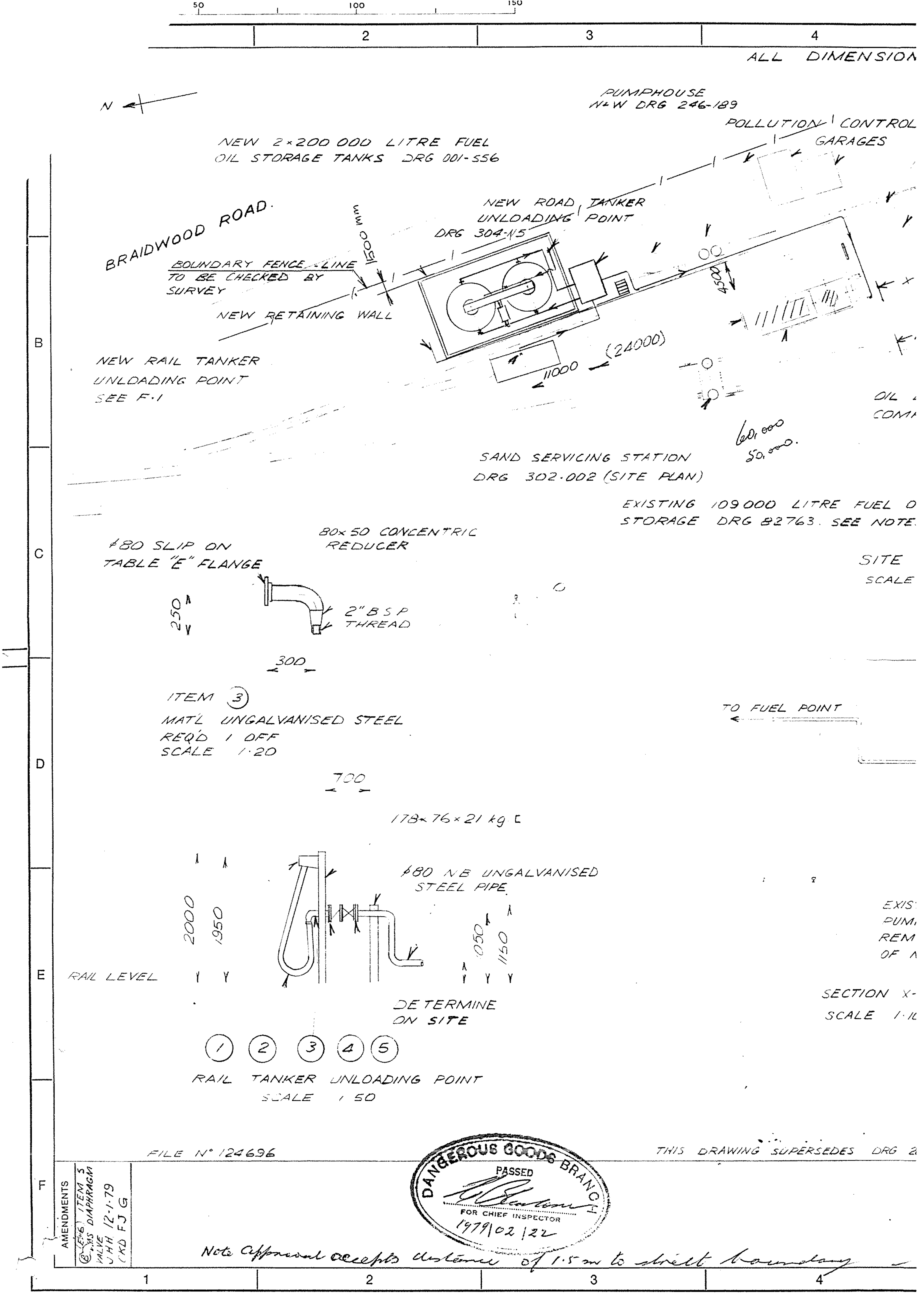
Site staffing

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	ROOFED STORE	Class 3	10000 L
2	ABOVEGROUND TANK	Class 3.3	200000 L
3	ABOVEGROUND TANK	Class 3.3	200000 L
4	ABOVEGROUND TANK	Class 3.3	20000 L
5	UNDERGROUND TANK	Class 3	10000 L
6	UNDERGROUND TANK	Class 3	10000 L

RS cc 1/11/95 if app not located
Send u/c tel ltr to head office.
PW 12/1/95

Printed by Scientific Services Branch, 400 Kent St, Sydney 2000 ☎ (02) 370 5187



ALL DIMENSION
N
PUMPHOUSE
N.W DRG 246-189
POLLUTION CONTROL
GARAGES
NEW 2×200 000 LITRE FUEL
OIL STORAGE TANKS DRG 001-556
BRAIDWOOD ROAD.
NEW ROAD TANKER
UNLOADING POINT
DRG 304-N5
1500 mm
BOUNDARY FENCE LINE
TO BE CHECKED BY
SURVEY
NEW RETAINING WALL
4500
(24000)
11000
NEW RAIL TANKER
UNLOADING POINT
SEE F.1
OIL
COM
60,000
50,000.
SAND SERVICING STATION
DRG 302.002 (SITE PLAN)
EXISTING 109 000 LITRE FUEL O
STORAGE DRG 82763. SEE NOTE
80×50 CONCENTRIC
REDUCER
ϕ80 SLIP ON
TABLE "E" FLANGE
SITE
SCALE
250
2" BSP
THREAD
300
ITEM 3
MAT'L UNGALVANISED STEEL
REQ'D 1 OFF
SCALE 1:20
TO FUEL POINT
700
178×76×21 kg ⊏
ϕ80 NB UNGALVANISED
STEEL PIPE
2000
1950
1050
1150
EXIS
PUM
REM
OF N
RAIL LEVEL
SECTION X-
SCALE 1:1
DETERMINE
ON SITE
1 2 3 4 5
RAIL TANKER UNLOADING POINT
SCALE 1:50
FILE N° 124696
THIS DRAWING SUPERSEDES DRG 2
AMENDMENTS
ITEM 5
DIAPHRAGM
VALVE
JHH 12-1-79
CKD FJG
DANGEROUS GOODS BRANCH
PASSED
FOR CHIEF INSPECTOR
1979/02/22
Note Approval accepts distance of 1.5 m to street boundary

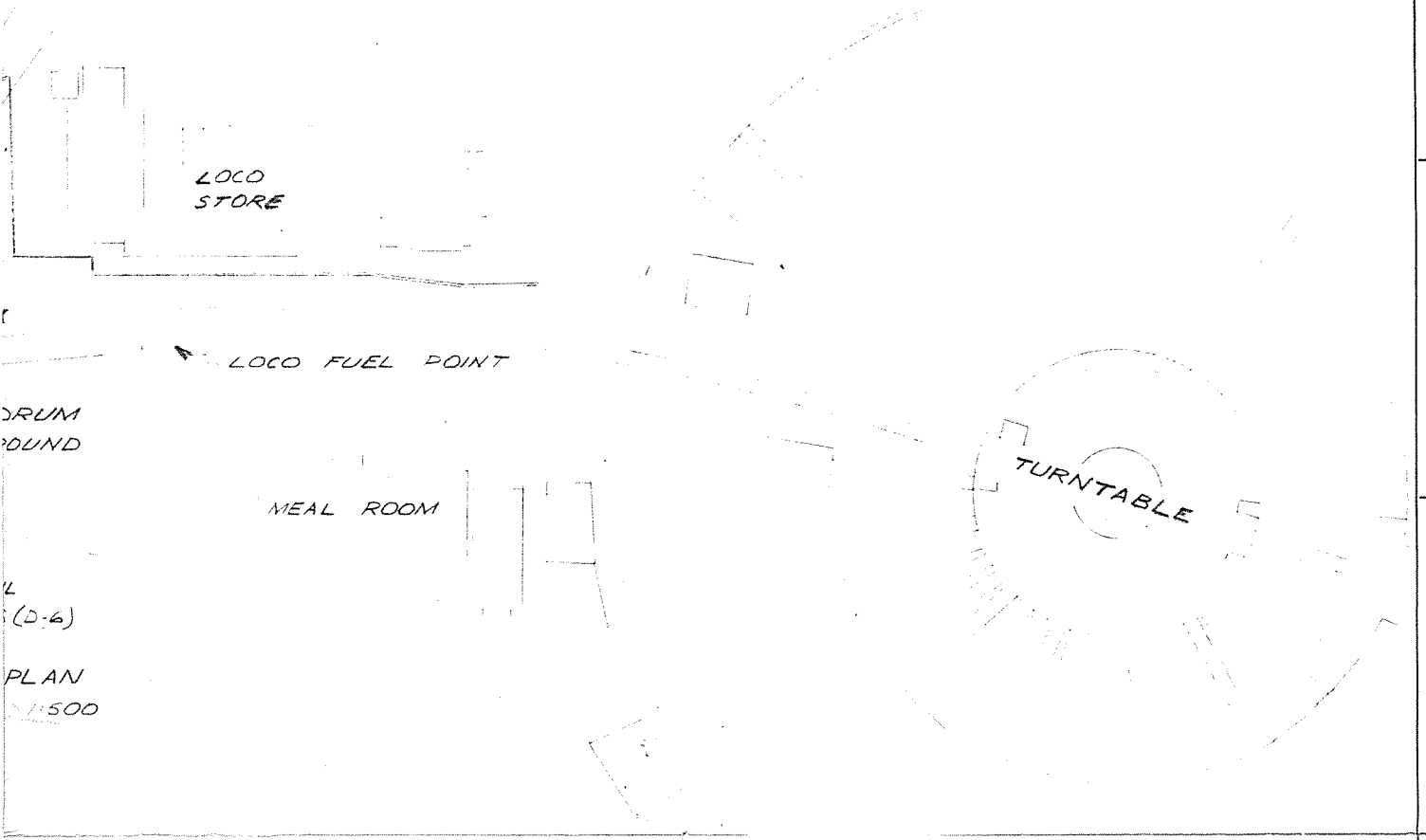
5 | 6 | 7 | 8

S IN MILLIMETRES

PER	REQ'D		REMARKS
			FITTED
		(1)	

THIS SIDING TO BE REMOVED

THIS SECTION OF SIDING TO BE REMOVED



DRUM
POUND

(D-6)

PLAN
1:500

NEW ϕ80 PIPE FROM NEW PUMPHOUSE FITTED WITH ϕ80 TABLE "E" SLIP ON FLANGE

ING PIPE FROM EXISTING
PS TO FLANGE TO BE
OVED TO ALLOW CONNECTION
EW PIPE

X (B-4)
O

NOTES:

1. CONTRACTOR TO DISMANTLE ALL DISUSED FACILITIES FOR RETENTION BY DISTRICT MANAGER
2. DISUSED TANKS TO BE COMPLETELY EMPTIED & DRAIN VALVES LEFT OPEN
3. ALL NEW PIPE CONNECTIONS TO BE EITHER FLANGED OR WELDED

REF.	LOC'N.	DESCRIPTION AND SIZE	REQD. PER ASSY.	MATERIAL SPEC.	
5	E-2	ϕ80 RISING SPINDLE GATE VALVE	1	STEEL	"JOHN" SGA 150 B
4	E-2	ϕ80 CHECK VALVE	1	BRONZE	"JOHN" FIG. 5
3	E-2, D-1	HOSE CONNECTOR PIPE	1	STEEL	
2	E-2	ϕ50 N.B. HOSE x 4600 LONG FITTED WITH ϕ50 REUSABLE COUPLING ONE END & ϕ40 THE OTHER END MINIMUM HOSE WORKING PRESSURE 690 kPa	1	OIL RESISTANT RUBBER	SEE DRG 80591 FOR SUITABLE ADAPTORS
1	E-1	RAIL TANKER CONNECTOR COVER	1	STEEL	DRG 81823

4-800

DRAWING REFERENCE	CHIEF DESIGN ENGR.
601-356 NEW STORAGE 304-115 ROAD TANK POINT 82763 EXISTING STORAGE W&W 246-189 PUMPHOUSE	

DRAWN: J.H.H
DATE: 19-10-78
TRACED:
DATE:
CHECKED: J.C.A
DATE: 31-10-78

PUBLIC TRANSPORT COMMISSION OF N.S.W.
RAIL DIVISION — MECHANICAL BRANCH

GOULBURN
LOCOMOTIVE DEPOT
400 000 LITRE
FUEL OIL STORAGE

205-409

AB

PROJECTION —

SCALE AS SHOWN

5 | 6 | 7 | 8

FOR

Register No. 2704

INFLAMMABLE LIQUID ACT, 1915-1946.

Application for Registration of Premises or Store License under Division A or for the transfer, alteration or amendment of any such Registration or License, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915-46, for the ensuing year.

EXPLANATORY.

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.

Mineral Spirit—includes petrol, benzine, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—*Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.*

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

DIRECTIONS.

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Department of Mines, Bridge-street, Sydney, and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee, 10s. p.a.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, £1. p.a.).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or *mineral spirit, and/or Dangerous Goods of Classes 1 and 2.*

Store License, Div. B (Fee, £2. p.a.).—For quantities exceeding 4,000 gallons of mineral oil and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.

For the keeping of Dangerous Goods of Classes 3 and/or 4.

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915-1946, or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... ... Department of Railways, N.S.W.

2. Occupation... ... ... Department of Railways.

3. Locality of the premises in which the depot or depots are situated... No. or Name GOULBURN - Per Way Yard.
Street Railway Yards.
Town Goulburn

4. Nature of premises (Dwelling, Garage, Store, etc.) ... ... Store and Workshops

5. Will mineral spirit be kept in a prescribed underground tank depot? Yes.

1-8

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots.			Inflammable Liquid.		Dangerous Goods.			
	Walls.	Roof.	Floor.	Mineral Spirit. Gallons.	Mineral Oil. Gallons.	Class 1. Gallons.	Class 2. Gallons.	Class 3. lb.	Class 4. cub. ft.
1	Iron	Iron	Iron		200				
2	Iron	Iron	Iron	200					
3	Underground Tank			500					
4									
5									
6									
7									
8									
9									
10									

Ch 1

Public Revenue Account
(Date) 3 SEP 1948
Receipt No. 2118

Signature of Applicant W. B. HUDSON, Comptroller of Stores, per

Date of Application 26th July, 1948.

Postal Address 19 York Street, Sydney.

CERTIFICATE OF INSPECTION.

I, William Teague being an Inspector under the Inflammable Liquid Act, 1915-46, do hereby certify that the premises or store herein referred to and decribed is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature

Application for Registration of Premises or Store License under Division 17 or for the transfer, alteration or amendment of any such Registration or License, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.
Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, No. 16 Grosvenor Street, Sydney (Box 48, G.P.O.), and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee £1 10s. 0d. p.a.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, £3 5s. 0d. p.a.).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

Store License, Div. B (Fees, See Regulation 7).—For quantities exceeding 4,000 gallons of mineral and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. **(£7 10s. 0d. p.a.).**

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915 (as amended), or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... ... Commissioner for Railways

2. Occupation ... ...

3. Locality of the premises in which the depot or depots are situated ... No. or Name Perway & Loco. Depot
Street
Town Goulburn

4. Nature of premises (Dwelling, Garage, Store, etc.) ... ... Railway Depot

5. Will mineral spirit be kept in a prescribed underground tank depot? Yes

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots			Inflammable Liquid		Dangerous Goods			
	Walls	Roof	Floor	Mineral Spirit Gallons	Mineral Oil Gallons	Class 1 Gallons	Class 2 Gallons	Class 3 lb.	Class 4 cub. ft.
1	Iron	Iron	Iron		200				
2	Iron	Iron	Iron	200					
3	Underground tank			1,000					
4	Iron	Iron	Concrete		2,200		(Loco. Depot)		
5									
6				SUSPENSE A/C					
7	60/- TRANSFERED TO PUBLIC REVENUE ACCOUNT 23-10-64 0519			Refund		63/-			
8									
9				(Date)	31-8-64				
10				Receipt No.	5755				

J. M. RUSSELL
Comptroller of Stores

Date of Application 24.8.64. 19

Signature of Applicant per [signature]

Postal Address Comptroller of Stores,
Box 514, G. P. O.,
SYDNEY.

CERTIFICATE OF INSPECTION

I, Eric Olson being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

INSPECTION RECORD

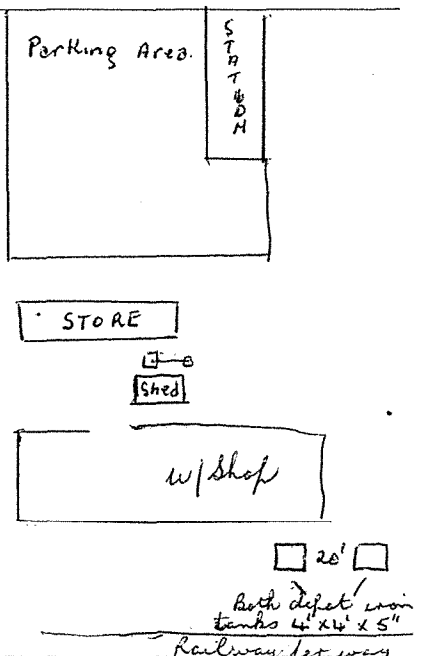
Licence No. A 2902

Licensee: Railways Dept. N.S.W.

Address: Per way Yard, Railway Station, Goulburn

Storage licensed: III 200, III 200 4/1000

Sketch of Premises (Dimensions of depot and distance of same from adjoining "protected works" to be shown).



Inspected	Initials	Requisitions made or state of depot
21/8/57	RBB	Sat
4-3-64	RBB	Sat.
12/8/70	[illegible]	Sat

...LICATIONS for ~~Registration of Premises or~~ Store License under Division ~~II~~
...keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions ...he Inflammable Liquid Act, 1915–31, for the year ending 30th June, 19 44

Inflammable Liquid— EXPLANATORY.

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.

Mineral Spirit—includes petrol, benzine, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class I.—Acetone, amylacetate, butylacetate, carbon bi-sulphide; any combination of substances of an inflammable character, other than ether alcohol, used as a solvent for nitro-cellulose or other cellulose compound, having a true flashing point of less than 73 degrees Fahrenheit.

Class II.—Nitro-cellulose, moistened with an alcohol, methylated spirits, vegetable turpentine and turpentine substitutes (other than inflammable liquid); any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class III.—Nitro-cellulose product and celluloid.

Class IV.—Compressed or dissolved acetylene contained in a porous substance.

DIRECTIONS.

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Department of Mines, Bridge-street, Sydney, and must be accompanied by the statutory fee, as set out hereunder :—

REGISTRATION OF PREMISES (FEE, 10s.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

STORE LICENSE, DIV. A (FEE, £1).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

STORE LICENSE, DIV. B (FEE, £2).—For quantities exceeding 4,000 gallons of mineral oil and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4.

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915–1931, or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier	~~Wales~~ New South Government Railways
2. Occupation	Railway Department
3. Locality of the premises in which the depot or depots are situated	No. or Name Railway Dept Premises Street Sloane Street Town Goulburn.
4. Nature of premises (Dwelling, Garage, Store, etc.)	Railway Stacking Area.
5. Will mineral spirit be kept in a prescribed underground tank depot?	———
6. Will mineral spirit in quantities exceeding 3 gallons be kept or used for any industrial purpose ? (State nature of industry.)	———

7. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots.			Inflammable Liquid.		Dangerous Goods.			
	Walls.	Roof.	Floor.	Mineral Spirit. Gallons.	Mineral Oil. Gallons.	Class 1. Gallons.	Class 2. Gallons.	Class 3. lb.	Class 4. cub. ft.
1	Iron	Iron	Iron	—	200				
~~2~~	~~Iron~~	~~Iron~~	~~Earth~~		~~200~~		Depot not provided		
2	Iron	Iron	Iron	200					
3						£1	1		
4									
5						Public Revenue			
6						(Date) 14.7.43			
7						Receipt No. 7135			
8									
9									
10									

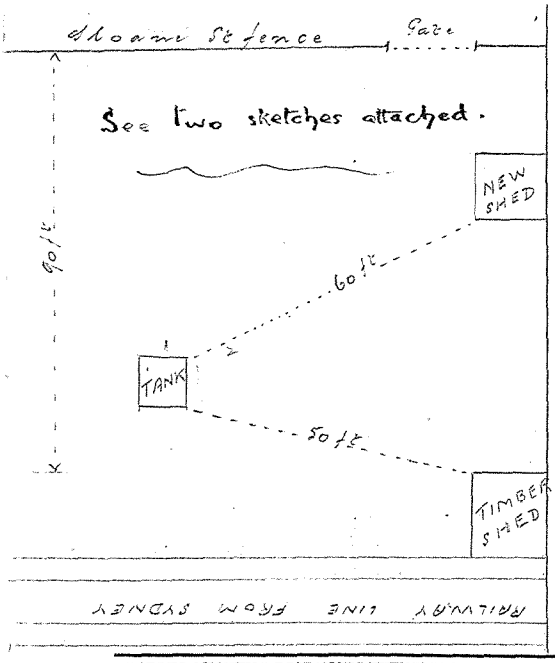
Date of Application 30th June 1943. Signature of Applicant W. D. Hudson

Postal Address per Wale

CERTIFICATE OF INSPECTION.

I ... being an Inspector under the Inflammable

Sketch is not required for underground tanks.



Sketch attached

TABLES SHOWING DISTANCES WHICH UNDER LICENSE MUST SEPARATE PROTECTED WORKS FROM DEPOTS.

TABLE I.—Where Mineral Spirit and/or Dangerous Goods of Class 1 (with or without Mineral Oil and/or Dangerous Goods of Class 2) are kept or to be kept:—

In an underground Tank Depot, in quantity exceeding 500 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot wholly surrounded by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not wholly surrounded by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	Distance not less than—
Gallons.	Gallons.	Gallons.	Feet.
2,000	1,000	250	10
2,400	1,200	300	11
2,800	1,400	350	12
3,200	1,600	400	13
3,600	1,800	450	14
4,000	2,000	500	15
7,200	3,600	900	16
10,400	5,200	1,300	17
13,600	6,800	1,700	18
16,800	8,400	2,100	19
20,000	10,000	2,500	20
22,000	11,000	2,750	21
24,000	12,000	3,000	22
26,000	13,000	3,250	23
28,000	14,000	3,500	24
30,000	15,000	3,750	25
32,000	16,000	4,000	26
40,000	20,000	5,000	30
80,000	40,000	10,000	40
100,000 and over.	80,000	20,000	50
	160,000	40,000	75
	320,000 and over.	80,000	100
		120,000	115
		240,000	130
		400,000 and over.	150

TABLE II.—Where Mineral Oil and/or Dangerous Goods of Class 2 only are kept or to be kept:—

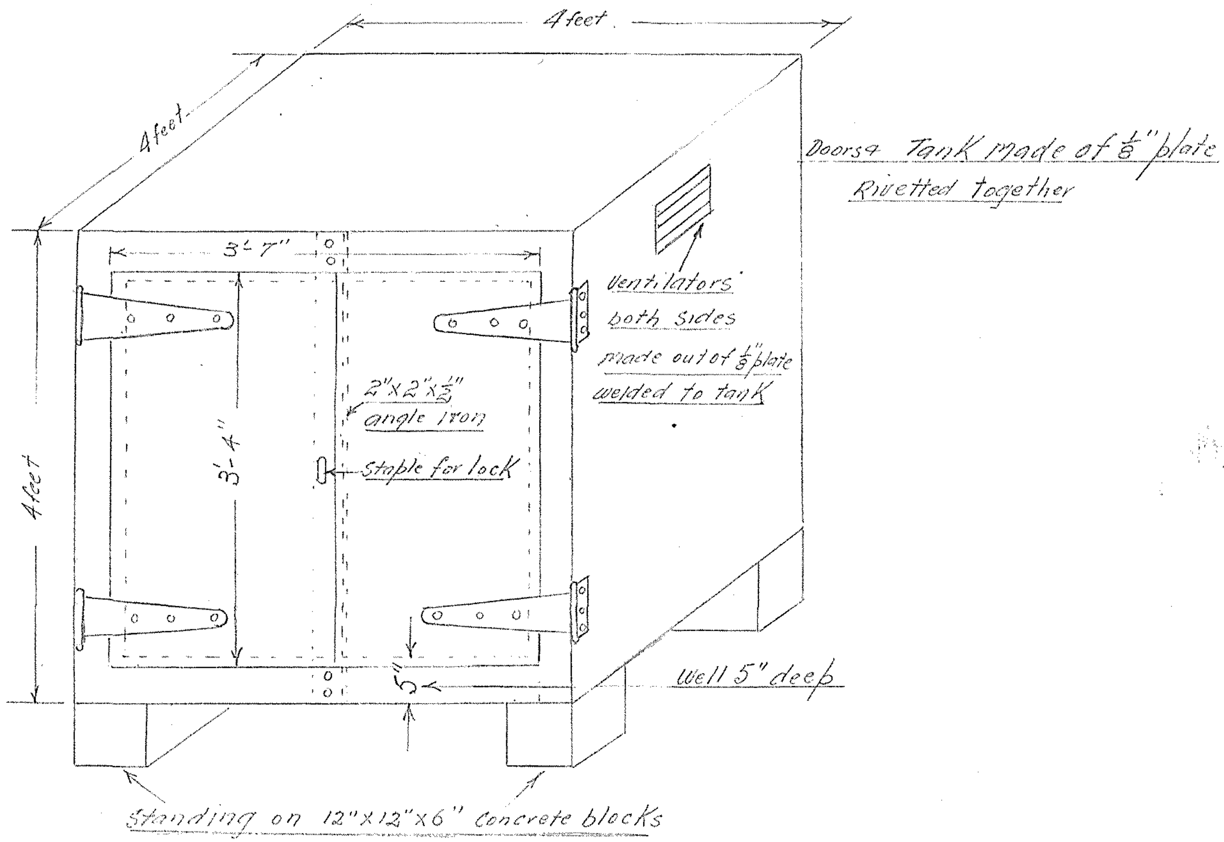
In an underground Tank Depot, in quantity exceeding 800 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot wholly surrounded by a screen wall, in quantity exceeding 800 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not wholly surrounded by a screen wall, in quantity exceeding 800 gallons, but not exceeding—	Distance not less than—
Gallons.	Gallons.	Gallons.	Feet.
4,000	2,000	1,000	10
8,000	4,000	2,000	15
14,400	7,200	3,600	16
20,800	10,400	5,200	17
40,000	20,000	10,000	20
80,000	40,000	20,000	30
160,000	80,000	40,000	40
320,000 and over.	160,000	80,000	50
	320,000 and over.	160,000	75
		320,000 and over.	100

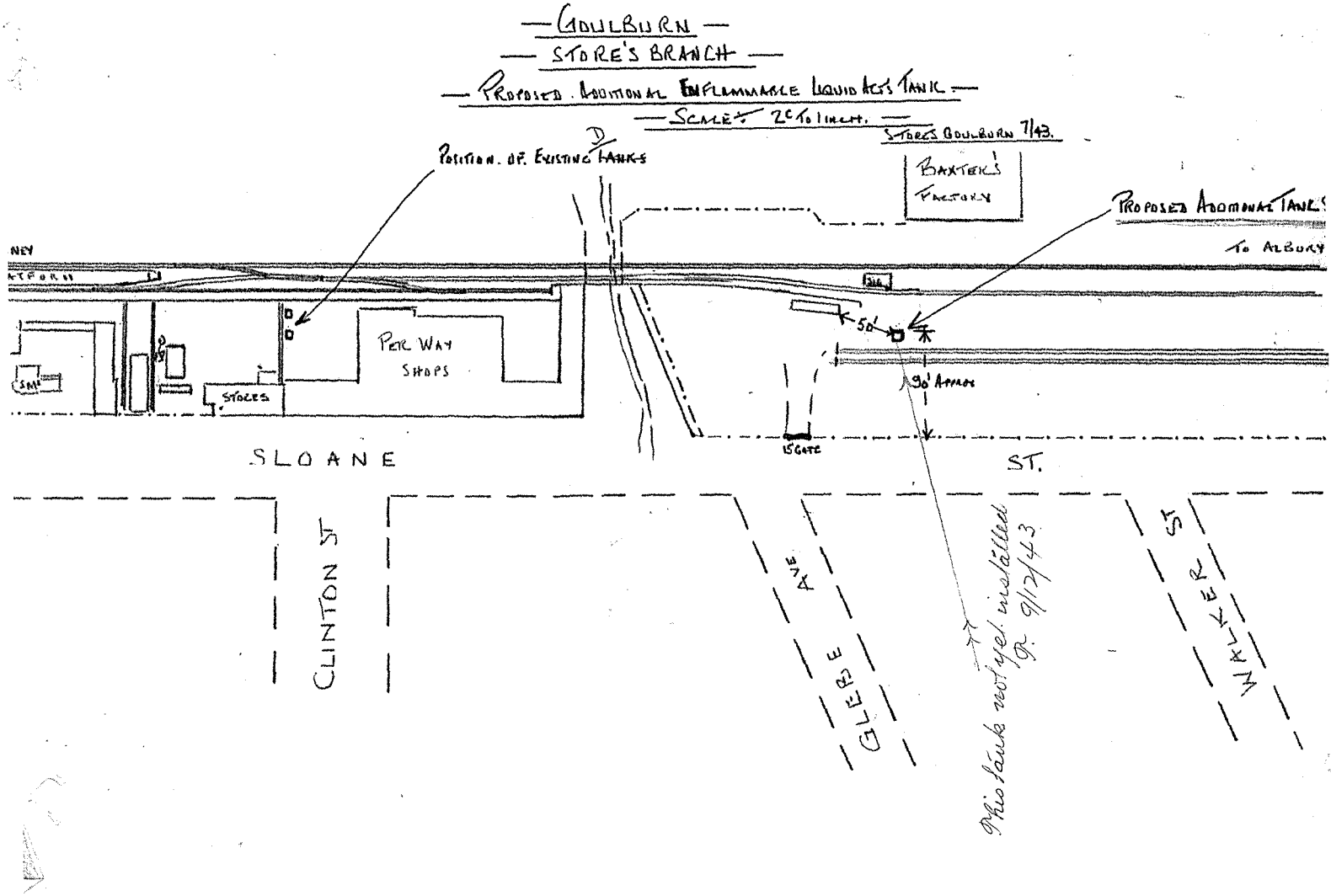
Provided that the distances shown above may be altered proportionately for intermediate quantities.

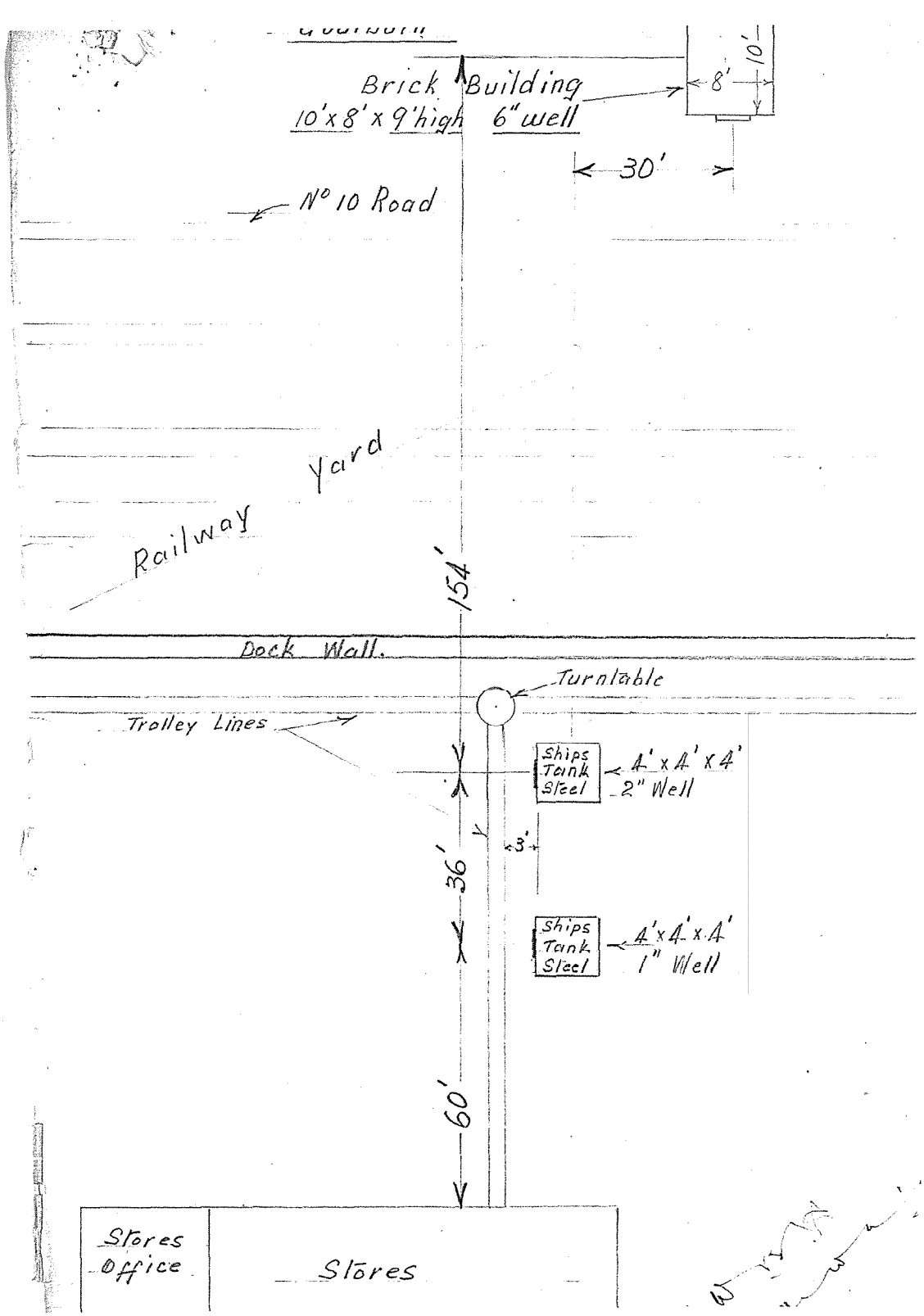
Protected Work means:—

Building in which any person dwells or in which persons are accustomed to assemble for the purpose of public concourse, public religious worship, public entertainment or amusement, education or [illegible]

A. 7902 Goulburn ter way.




GOULBURN
STORE'S BRANCH
PROPOSED ADDITIONAL INFLAMMABLE LIQUID ACID TANK
SCALE 2" TO 1 INCH.
STORES GOULBURN 7/43.
POSITION OF EXISTING TANKS
BAXTER'S FACTORY
PROPOSED ADDITIONAL TANKS
TO ALBURY
NEW
PERC WAY SHOPS
STORES
50'
90' APPROX
15' GATE
SLOANE ST.
CLINTON ST
GLEBE AVE
WALKER ST
This tank not yet installed 9/12/43


Brick Building
10'x8'x9'high 6" well
8'
10'
30'
No 10 Road
Yard
Railway
154'
Dock Wall.
Turntable
Trolley Lines
Ships Tank Steel
4'x4'x4'
2" Well
3'
36'
Ships Tank Steel
4'x4'x4'
1" Well
60'
Stores Office
Stores

FORM B.

Register No. 2902

INFLAMMABLE LIQUID ACT, 1915-1931.

APPLICATIONS for Registration of Premises or Store License under Division ..... for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915–31, for the year ending 30th June, 19.....

EXPLANATORY.

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.

Mineral Spirit—includes petrol, benzine, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class I.—Acetone, amylacetate, butylacetate, carbon bi-sulphide; any combination of substances of an inflammable character, other than ether alcohol, used as a solvent for nitro-cellulose or other cellulose compound, having a true flashing point of less than 73 degrees Fahrenheit.

Class II.—Nitro-cellulose, moistened with an alcohol, methylated spirits, vegetable turpentine and turpentine substitutes (other than inflammable liquid); any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class III.—Nitro-cellulose product and celluloid.

Class IV.—Compressed or dissolved acetylene contained in a porous substance.

MINES DEPARTMENT 18 MAR 1947

DIRECTIONS.

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Department of Mines, Bridge-street, Sydney, and must be accompanied by the statutory fee, as set out hereunder :—

REGISTRATION OF PREMISES (FEE, 10s.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

STORE LICENSE, DIV. A (FEE, £1).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

STORE LICENSE, DIV. B (FEE, £2).—For quantities exceeding 4,000 gallons of mineral oil and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.

For the keeping of Dangerous Goods of Classes 3 and/or 4.

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915–1931, or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier	Commissioner for Railways
2. Occupation	–
3. Locality of the premises in which the depot or depots are situated	No. or Name Permanent Way Yard Street GOULBURN. Town
4. Nature of premises (Dwelling, Garage, Store, etc.)	Railway Yards
5. Will mineral spirit be kept in a prescribed underground tank depot?	Yes
6. Will mineral spirit in quantities exceeding 3 gallons be kept or used for any industrial purpose ? (State nature of industry.)	No

7. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots.			Inflammable Liquid.		Dangerous Goods.			
	Walls.	Roof.	Floor.	Mineral Spirit. Gallons.	Mineral Oil. Gallons.	Class 1. Gallons.	Class 2. Gallons.	Class 3. lb.	Class 4. cub. ft.
~~1~~	~~Underground Tank~~			~~500~~					
1	Iron	Iron	Iron		200				
2	"	"	"	200					
3	Underground Tank			500					
5									
6									
7									
8									
9									
10									

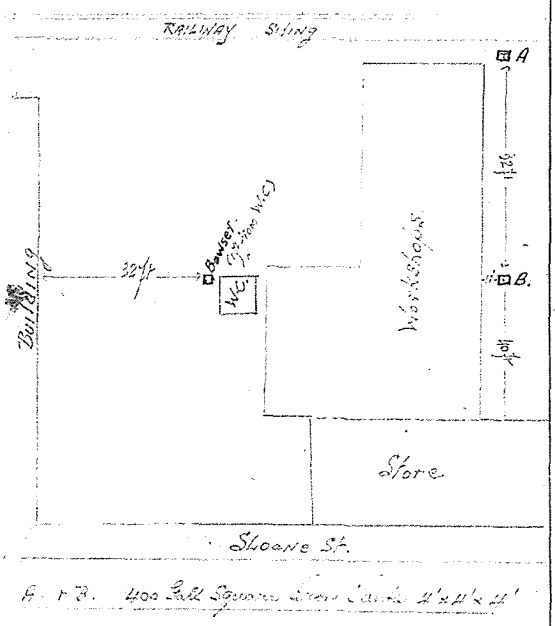
Public Revenue Account
(Date) 3/4/47
Receipt No. [illegible]

W. B. Hudson,
Comptroller of Stores.

Signature of Applicant [illegible]

Make Rough Sketches showing:—

Ground plans of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings.



Sketch of depot or depots showing provision made for venti' also inside dimensions (length, width, and depth) of th lower portion, designed to prevent outflow.
This sketch is not required for underground tanks.

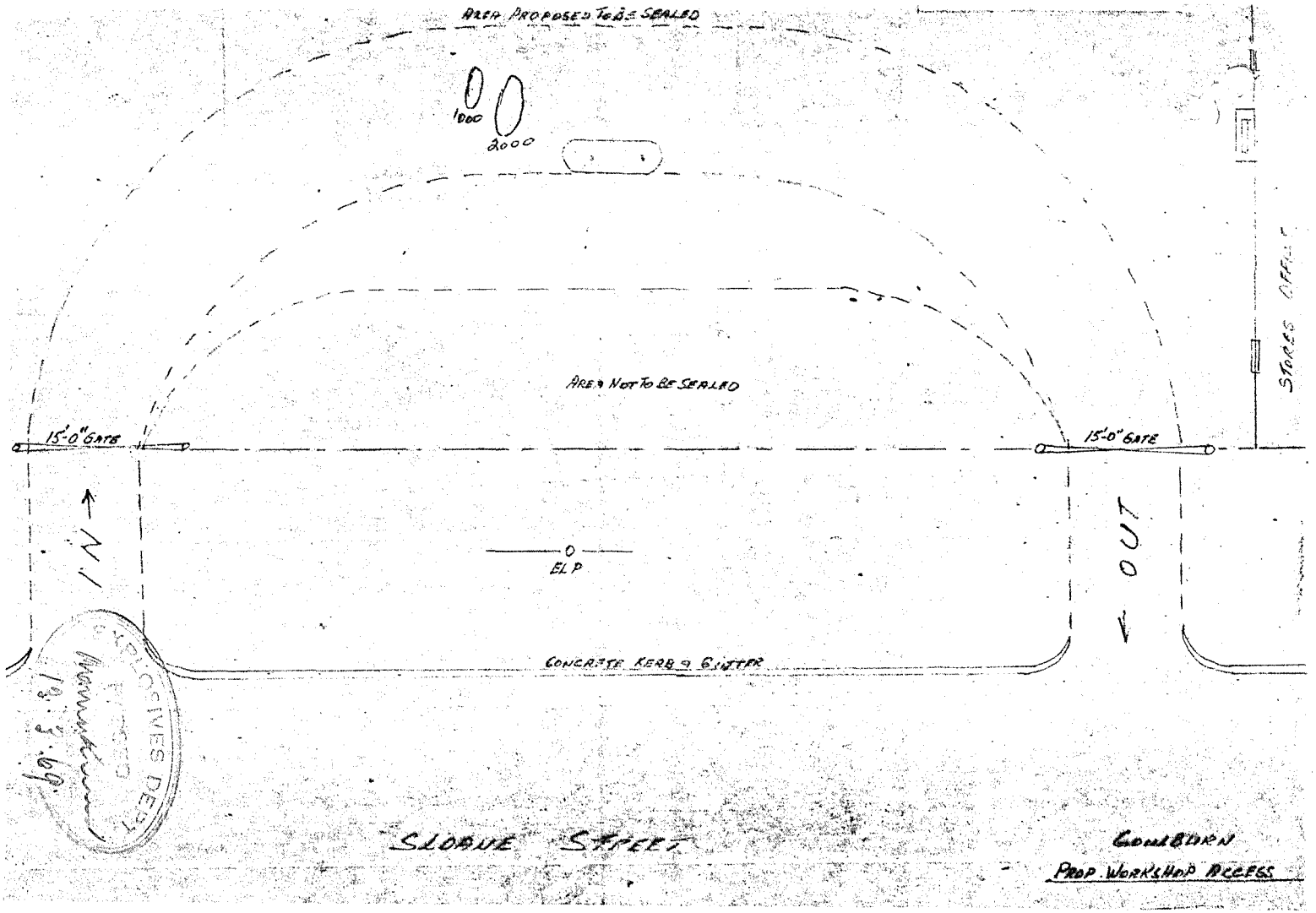
TABLES SHOWING DISTANCES WHICH UNDER LICENSE MUST SEPARATE PROTECTED WORKS FROM DEPOTS.

TABLE I.—Where Mineral Spirit and/or Dangerous Goods of Class 1 (with or without Mineral Oil and/or Dangerous Goods of Class 2) are kept or to be kept:—

In an underground Tank Depot, in quantity exceeding 500 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot wholly surrounded by a screen wall, in quantity exceeding 100 gallons, *but not exceeding*—	In an aboveground Tank Depot or other Depot not wholly surrounded by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	Distance not less than—
Gallons.	Gallons.	Gallons.	Feet.
2,000	1,000	250	10
2,400	1,200	300	11
2,800	1,400	350	12
3,200	1,600	400	13
3,600	1,800	450	14
4,000	2,000	500	15
7,200	3,600	900	16
10,400	5,200	1,300	17
13,600	6,800	1,700	18
16,800	8,400	2,100	19
20,000	10,000	2,500	20
22,000	11,000	2,750	21
24,000	12,000	3,000	22
26,000	13,000	3,250	23
28,000	14,000	3,500	24
30,000	15,000	3,750	25
32,000	16,000	4,000	26
40,000	20,000	5,000	30
80,000	40,000	10,000	40
100,000 and over.	80,000	20,000	50
	160,000	40,000	75
	320,000 and over.	80,000	100
		120,000	115
		240,000	130
		400,000 and over.	150

TABLE II.—Where Mineral Oil and/or Dangerous Goods of Class 2 only are kept or to be kept:—

In an underground Tank Depot, in quantity exceeding 800 gallons, but *not exceeding*—	In an aboveground Tank Depot or other Depot wholly surrounded by a screen wall, in quantity exceeding 800 gallons, *but not exceeding*—	In an aboveground Tank Depot or other Depot not wholly surrounded by a screen wall, in quantity exceeding 800 gallons, *but not exceeding*—	Distance not less than—
Gallons.	Gallons.	Gallons.	Feet.
4,000	2,000	1,000	10
8,000	4,000	2,000	15
14,400	7,200	3,600	16
20,800	10,400	5,200	17
40,000	20,000	10,000	20
	40,000	20,000	30


AREA PROPOSED TO BE SEALED
1000
2000
AREA NOT TO BE SEALED
15'-0" GATE
15'-0" GATE
STORES OFFICE
ELP
IN
OUT
CONCRETE KERB & GUTTER
SLOANE STREET
COMMERCIAL
PROP. WORKSHOP ACCESS

INSPECTION RECORD

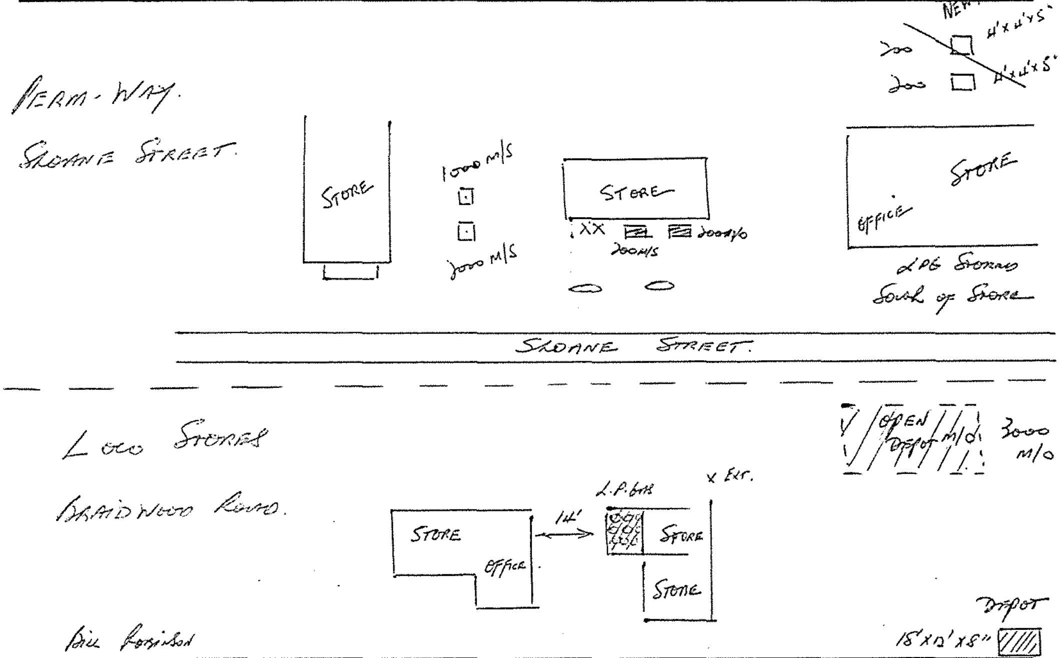
Licence No. B2902 (8)

Licensee: ~~Department of Railway NSW.~~
Public Transport Commission of NSW.

Address: Loco + Perm Way Depot Stores Goulburn

Storage licensed: Perm Way — Iron / Iron / Iron 200 m/s
✓ ✓ ✓ 200 m/o
O.I.T. 590 kg DGSA (60x40lb; 8x20lb; 2x100lb).
Loco-Depot. 1/2000, 1/1000 o/g M.S.
I.I.C. 2,200 m/o
O.O.E. 3000 m/o
2T;20; Iron T. 560 kg DGSA. (6x40lb; 8x20lb; 2/100lb).

Sketch of Premises (Dimensions of depot and distance of same from adjoining "protected works" to be shown).



Bill Robinson

Inspected	Initials	Requisitions made or state of depot
		Braidwood Road.
14.11.72	[initials]	Amendment Reqd. Red cards 2+3. Compound wall open Depot Reqd. Amendment effected 28/11/72 Also Signs.
13.4.73	[initials]	Sat.
15.2.74	[initials]	Amended. 15/3/74 to include 560 kg DGSA. Perway.

alteration or amendment of any such Registration or Licence, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.

Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1—acetal, acetaldehyde, acetone, acrolein, amyl mercaptan, butyl acetate, butyl mercaptan, butyl propionate, crotonaldehyde, dichloro-ethylene, diethylketone, dioxane, diethylamine, dimethyl hydrozine, dipropylamine, divinyl ether, dipropyl ether, ethyl acetate, ethyl acrylate, ethyl chloride, ethyl ether, dichloroethane (ethylene dichloride), ethyl mercaptan, ethyl methacrylate, ethyl methyl ether, ethyl propyl ether, ethyl propionate, methyl propyl ketone, methyl acetate, methyl acrylate, methylal, methyl ethyl ether, methyl ethyl ketone, methyl methacrylate, methyl vinyl ketone, methyl vinyl acetate, piperidine, propanal, propyl acetate, propylamine, propylene oxide, pyridine, tetrahydrofuran, thiophene, triethylamine, valeraldehyde, vinyl acetate, vinyl allyl ether, vinyl butyl ether, vinyl butyrate, vinyl cyanide (acrylonitrile), vinylidene chloride, vinyl ethyl ether, vinyl propyl ether, vinyl propionate, any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit manufactured products, containing organic solvents, having a true flashing point of less than 73 degrees Fahrenheit.

Class 2—acetic acid, acetyl acetone, acetic anhydride, allyl alcohol, amyl acetate, amyl alcohol, butyl alcohol, butyl methacrylate, chlorobenzene, cyclohexanone, dibutyl ether, dibutyl ketone, dipentene, epichlorohydrin, ethanol (ethyl alcohol), ethyl benzene, ethylene diamine, furfural, mesityl oxide, methyl alcohol, methyl amyl ketone, methyl butyl ketone, pine oil (having a flashing point below 150° F), propyl benzene, propanol, vegetable turpentine, vinyl benzene (styrene monomer), any liquid containing more than 50 per centum ethyl alcohol, manufactured products, containing organic solvents, having a true flashing point of 73 degrees Fahrenheit and above but not exceeding 150 degrees Fahrenheit.

Class 3—nitro-cellulose moistened with an alcohol, nitro-cellulose product.

Class 4—compressed or dissolved acetylene contained in a porous substance.

Class 5 (A)—liquefied inflammable gases (liquefied petroleum gas, vinyl chloride, ethylene chloride, ethylene oxide, butadine, methylamine, dimethylamine, and trimethylamine).

Class 9—carbon, disulphide, ethyl nitrite.

DIRECTIONS

Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Sydney, and must be accompanied by the prescribed fee, as set out in Regulation 7.

1. Name of occupier including full Christian names — Commissioner for Railways
2. Occupation — Room 101D,
3. Locality of the premises in which the depot or depots are situated — Box 514, G. P. O., SYDNEY. 2001.
   No. or Name Loco. & Per Way Depot Stores
   Street
   Town Goulburn
4. Nature of premises (Dwelling, Garage, Store, etc.) — Railway Depot Stores
   Postcode 2001

16/8.

5. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time

PLEASE ATTACH PLAN OF PREMISES

Depot No.	Construction of depots*			Inflammable liquid		Dangerous goods					
	Walls	Roof	Floor	Mineral Spirit gallons	Mineral Oil gallons	Class 1 gallons	Class 2 gallons	Class 3 lb	Class 4 cu ft	Class 5A water gallons	Class 9 gallons
1	IRON	IRON	IRON		200						
2	IRON	IRON	IRON	200							
3	UNDERGROUND TANK			1000							
4	UNDERGROUND TANK			2000							
5	IRON	IRON	CONCRETE		2200						
6											
7											
8											
9											
10											

PUBLIC REVENUE A/c.
Cash / $ 15-00
5/6/69
(Date)
Receipt No. 2885

* If product is kept in tanks describe depots as underground or aboveground tanks.

T. H. FUSSELL
Comptroller of Stores
per

Signature of Applicant

Postal Address — Box 514 G.P.O
SYDNEY

Date of Application ——— ———, 19——.

EQUIPMENT REQUIRED

Product	Single/~~Dual~~	Manual/Meter	No.	Tanks	No.
1. STANDARD	SINGLE	METER	1	1000 GALLON	1
2. SUPER.	SINGLE	METER	1	2000 GALLON	1
3.					

ELECTRIC METER PUMPS: SPECIAL DETAILS

Is electrical power connected? YES. A.C. or D.C. A.C. Voltage (Refer to Switchboard) 240

Distance from Pump to Switchboard 40 FEET

Is power available at pump? (Conversion Manual to Meter) NO.

NOTE: G.F. assumes obligation to CONNECT to switchboard only: Be certain client understands meter pump CANNOT BE INSTALLED UNLESS SWITCHBOARD CAPACITY IS SUFFICIENT. Each pump whether single or dual must have its own circuit fuse: Single 4½ Amps. — Dual 9 Amps.

Be certain client understands HE must arrange for any necessary adjustments to the switchboard.

GENERAL DETAILS

Distance from Pump Block to Tank/s 15 FEET Distance from Tank/s to Fill Point/s 15 FEET

(Explosives Regulations provide that the Fill Point cannot be inside a building or within 5 feet of a doorway or window.)

Distance from Tank/s to Nearest Wall 20 FEET Height of Wall 20 FEET.

Will Tank/s be inside Building? NO If so, under what surface (wood, concrete, etc.)? —

Tank/s to be outside building describe present surface (Earth, Concrete, gravel, etc.) EARTH

Excavation for Tank/s — Describe type of soil (sand, clay, rock, etc.) EARTH / CLAY

Local labour available for excavations (Country Only) state contractor's name and address —

LOCAL COUNCIL REQUIREMENTS

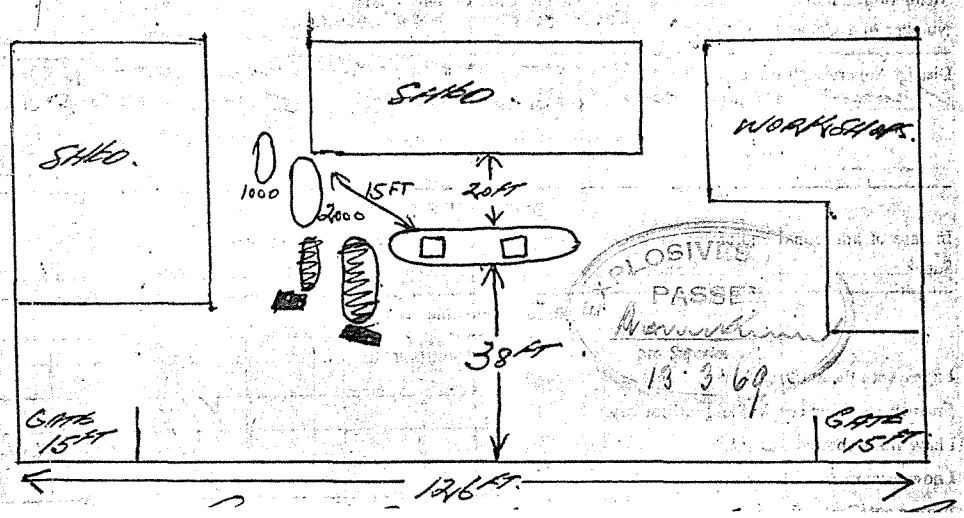
Name of Municipality GOULBURN CITY

Council Permit been obtained? NOT REQUIRED

Are any special council requirements? NIL

Draw below Sketch Plan of Driveway Area showing details of Pump, Tank and Fill Point including location of other Pumps in relation to the Building. Frontages of property, distance between pumps, width of driveways, etc., to be shown.

Single Pumps Dual Pumps



Appendix E

Section 10.7 Planning Certificate

Goulburn Mulwaree Council
Locked Bag 22
Goulburn NSW 2580

Civic Centre
184 - 194 Bourke Street
Goulburn NSW 2580
t (02) 4823 4444
e council@goulburn.nsw.gov.au
www.goulburn.nsw.gov.au

Contact: Planning & Environment

Cavvanba Consulting
Unit 1/66 Centennial Circuit
BYRON BAY NSW 2481

SECTION 10.7 (2) PLANNING CERTIFICATE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Receipt No.: 319594
Applicant's Reference: 20025.76
Certificate No: PLAN/0040/2021

DESCRIPTION OF PROPERTY

Address: **12 Braidwood Road GOULBURN NSW 2580**
Legal Description: **Lot 2 DP 1002813**

1 Names of relevant planning instruments and DCP's

(1) The name of each environmental planning instrument that applies to the development on the land.

State Environmental Planning Policies (SEPP)

SEPP No. 21 – Caravan Parks	SEPP (Building Sustainability Index: BASIX) 2004
SEPP No. 33 – Hazardous and Offensive Development	SEPP (Exempt and Complying Development Codes) 2008
SEPP No. 36 – Manufactured Home Estates	SEPP (Housing for Seniors or People with a Disability) 2004
SEPP No. 50 – Canal Estate Development	SEPP (Infrastructure) 2007
SEPP No. 55 – Remediation of Land	SEPP (Mining, Petroleum Production and Extractive Industries) 2007
SEPP No. 64 – Advertising and Signage	SEPP (Miscellaneous Consent Provisions) 2007
SEPP No. 65 - Design Quality of Residential Apartment Development	SEPP (State & Regional Development) 2011
SEPP No. 70 – Affordable Housing (Revised Schemes)	SEPP (State Significant Precincts) 2005
SEPP (Concurrences) 2018	SEPP (Affordable Rental Housing) 2009
SEPP (Primary Production and Rural Development) 2019	SEPP (Educational Establishments and Child Care Facilities) 2017
SEPP (Koala Habitat Protection) 2019	SEPP (Sydney Drinking Water Catchment) 2011
SEPP (Vegetation in Non-Rural Areas) 2017	

Local Environmental Plan (LEP)

Goulburn Mulwaree Local Environmental Plan 2009

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless Secretary has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft Amendments to the *Goulburn Mulwaree Local Environmental Plan 2009*
Draft *Goulburn Mulwaree Local Environmental Plan 2009* (Amendment Hovell Street). • *This amendment only affects Lot 8 DP 832816* Draft *Goulburn Mulwaree Local Environmental Plan 2009* (Amendment Lansdowne Street). • *This amendment only affects Lot 10 DP 1247119* Draft *Goulburn Mulwaree Local Environmental Plan 2009* (Wingello Park). • *This amendment only affects Lot 2 DP 1138469*
Draft State Environmental Planning Policies (SEPP's)
Draft SEPP Environment

(3) The name of each development control plan that applies to the carrying out of development on the land.

Goulburn Mulwaree Development Control Plan 2009

(4) In this clause, proposed environmental planning instruments includes a planning proposal for a LEP or a draft environmental planning instrument.

2 Zoning and land use under relevant LEP's

(a) The identity of the zone is IN1 General Industrial under the *Goulburn Mulwaree Local Environmental Plan 2009*.

(b) The purposes for which the plan or instrument provides that development may be carried out within the zone without the need for development consent.

(c) The purposes for which the plan or instrument provides that development may not be carried out within the zone except with development consent.

(d) The purposes for which the plan or instrument provides that development is prohibited within the zone.

The answers for parts (b) to (d) are set out in the land use table below:

Zone IN1 General Industrial

1 Objectives of zone
- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To support and protect industrial land for industrial uses.

2 Permitted without consent
Roads.

3 Permitted with consent

Depots; Extensive agriculture; Freight transport facilities; Funeral homes; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Markets; Medical centres; Neighbourhood shops; Oyster aquaculture; Places of public worship; Plant nurseries; Rural supplies; Tank-based aquaculture; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4.

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat launching ramps; Boat sheds; Business premises; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Eco-tourist facilities; Educational establishments; Exhibition homes; Exhibition villages; Function centres; Health services facilities; Heavy industrial storage establishments; Heavy industries; Helipads; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Jetties; Marinas; Mooring pens; Moorings; Pond-based aquaculture Recreation facilities (major); Residential accommodation; Restricted premises; Retail premises; Tourist and visitor accommodation; Water recreation structures; Wharf or boating facilities.

(e) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.
No

(f) Whether the land includes or comprises critical habitat.

No the land does not include or comprise critical habitat.

(g) Whether the land is located in a heritage conservation area.

The land is not within a heritage conservation area.

(h) Whether an item of environmental heritage is situated on the land.

An item of environmental heritage is situated on the land, refer to Clause 5.10 and Schedule 5 of *Goulburn Mulwaree Local Environmental Plan 2009*.

2A Zoning and land use under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*

Not applicable to the Goulburn Mulwaree Local Government Area.

3 Complying development

Whether or not the land to which the certificate relates is land on which complying development may be carried out under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*?

Housing Code
No. Complying development under the Housing Code cannot be undertaken on the land due to the zoning of the land.

Low Rise Housing Diversity Code
No. Complying development under the Low Rise Housing Diversity Code cannot be undertaken on the land due to the zoning of the land.

Greenfield Housing Code
No. Complying development under the Greenfield Housing Code cannot be undertaken on the land due to the land not being within a Greenfield Housing Code Area Map under the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Inland Code
No. Complying development under the Inland Code cannot be undertaken on the land due to the zoning of the land.

Rural Housing Code
No. Complying development under the Rural Housing Code cannot be undertaken on the land due to the zoning

of the land.

Housing Alterations Code
No. Complying development under the Housing Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

General Development Code
No. Complying development under the General Development Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Commercial and Industrial Alterations Code
No. Complying development under the Commercial and Industrial Alterations Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Commercial and Industrial (New Buildings and Additions) Code
No. Complying development under the Commercial and Industrial (New Buildings and Additions) Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Container Recycling Facilities Code
No. Complying development under the Container Recycling Facilities Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Subdivisions Code
No. Complying development under the Subdivisions Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Demolition Code
No. Complying development under the Demolition Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Fire Safety Code
No. Complying development under the Fire Safety Code cannot be carried out on the land because the land is affected by the following exclusions:
The land contains or comprises a heritage item that is listed under an environmental planning instrument.

Note. If the land is a lot to which the Housing Code, Rural Housing Code, Housing Alterations Code, General Development Code, Commercial and Industrial Alterations Code or Commercial and Industrial (New Buildings and Additions) Code (within the meaning of the *State Environmental Planning Policy (Exempt and Complying Development Codes)* 2008 applies, complying development may be carried out on any part of the lot that is not affected by the provisions of Clause 1.19 of that Policy.

4B Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

Not applicable to the Goulburn Mulwaree Local Government Area.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of Section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by Road widening or road realignment under:

(a) Division 2 of Part 3 of the *Roads Act 1993*; or

(b) any environmental planning instrument; or

(c) any resolution of the Council.

No.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by Policy:

(a) adopted by the council, or

(b) adopted by any other public authority,

that restricts development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)?

No.

7A Flood related development controls information

(1) Whether or not development on the land or part of the land for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purpose of group homes or seniors housing) is subject to flood related development controls.

No.

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

No.

Note: All of the land is identified as being flood prone under the Probable Maximum Flood map in the *Wollondilly and Mulwaree Rivers Flood Study 2016*.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument makes provision in relation to the acquisition of the land by a public authority, as referred to in Section 3.15 of the Act?

No.

9 Contribution plans

The name of each contributions plan applying to the land.

Goulburn Mulwaree Section 94 Development Contributions Plan 2009 and / or Section 94A Development Contributions Plan 2009

The land may be affected by any of the following plans under Section 64 of the *Local Government Act 1993*:

Development Servicing Plan for Water Supply, Sewerage and Stormwater 2017.

9A Biodiversity certified land

If the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*, a statement to that effect.

No. Council is not aware that the land is biodiversity certified under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10 Biodiversity stewardship sites

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016,* a statement to the effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

No. Council has not been notified of a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* relating to the land.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016***.**

10A Native vegetation clearing set asides

If the land contains a set aside area under Section 60ZC of the *Local Land Services Act 2013*, a statement to that effect (but only if the council has been notified of the existence of the set aside area by the Local Land Services or it is registered in the public register under that section).

No. Council has not been notified that the land contains an area set aside under Section 60ZC of the *Local Land Services Act 2013*.

11 Bush fire prone land

Whether or not some or all of the land is bush fire prone land.

The land or part of the land is not bush fire prone land.

12 Property vegetation plans

If the land is land to which a property vegetation plan approved under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

Council is not aware of a property vegetation plan under the *Native Vegetation Act 2003* relating to the land.

13 Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether an order under the *Trees (Disputes Between Neighbours) Act 2006* has been made to carry out work in relation to a tree on the land (but only if Council has been notified of the order)?

No, an order under the *Trees (Disputes Between Neighbours) Act 2006* has not been made.

14 Directions under Part 3A

Whether there is a direction by the Minister in force under the former Section 75P (2) (c1) of the Act.

No direction is in force.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies:

(a) Whether or not Council is aware of a current site compatibility certificate (seniors housing), in respect of the proposed development on the land.

Council is not aware of any current site compatibility certificates (seniors housing) in respect of proposed development on the land.

(b) Whether or not any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after October 2007 in respect of the land.

No terms referred to in clause 18(2) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* have been imposed as conditions of consent to a development application for the land granted after 11 October 2007.

16 Site compatibility certificates for infrastructure, schools or TAFE establishments

Whether or not Council is aware of a valid site compatibility certificate in respect of proposed development on the land.

Council is not aware of any valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments) in respect of proposed development on the land.

17 Site compatibility certificates and conditions for affordable rental housing

(1) Whether or not Council is aware of a current site compatibility certificate (affordable rental housing) in respect of proposed development on the land.

Council is not aware of any current site compatibility certificate (affordable rental housing) in respect of proposed development on the land.

(2) Whether or not any terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

No terms referred to in clause 17(1) or 37(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* have been imposed as conditions of consent to a development application in respect of the land.

18 Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

(2) The date of any subdivision order that applies to the land.

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of *Environmental Planning and Assessment Regulation 2000*.

Not applicable.

19 Site verification certificates

Whether or not Council is aware of a current site verification certificate, in respect of the land.

Council is not aware of a current site verification certificate in respect of the land.

20 Loose-fill asbestos insulation

Whether or not the land includes any residential premises (as defined in Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on a register of residential premises that contain or have contained loose-fill asbestos insulation.

No the land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

21 Affected Building Notices and Building Product Orders

(1) Whether or not there is any affected building notice of which Council is aware that is in force in respect to the land.

Council is not aware of any affected building notice that is in force in respect of the land.

(2) (a) Whether there is any building product rectification order of which Council is aware that is in force in respect of the land and has not been fully complied with.

Council is not aware of any affected building notice that is in force in respect of the land.

(b) Whether any notice of intention to make a building product rectification order of which Council is aware has been given in respect of the land and is outstanding.

Council is not aware of any intention to make a building product rectification order in respect of the land and is outstanding.

Additional Matters

Note. The following matters are prescribed by Section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

(a) Whether or not the land to which the certificate relates is significantly contaminated land within the meaning of that Act.

The land is not significantly contaminated as at the date this certificate is issued.

(b) Whether or not the land to which the certificate relates is subject to a management order within the meaning of that Act.

The land is not subject to a management order as at the date this certificate is issued.

(c) Whether or not the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of the Act.

The land is not the subject of an approved voluntary management proposal as at the date this certificate is issued.

(d) Whether or not the land to which this certificate relates is subject to an ongoing maintenance order within the meaning of that Act.

The land is not subject to an ongoing maintenance order as at the date this certificate is issued.

(e) Whether or not the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act – if a copy of such statement has been provided at any time to the local authority issuing the certificate.

The land is not the subject of a site audit statement as at the date this certificate is issued.

Legislation and Environmental Planning Instruments including *Goulburn Mulwaree Local Environmental Plan 2009* and the *Standard Instrument (Local Environmental Plans) Order 2006* can be found at www.legislation.nsw.gov.au

SECTION 10.7 (5) PLANNING CERTIFICATE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

At the date of this certificate, Council is aware of the following matters affecting the above mentioned land (other than those matters set out in Schedule 4 of the *Environmental Planning and Assessment Regulation 2000*.

A Does the land have frontage to a Classified Road and consequently affected by Clauses 3.3.6, 4.1.7, 6.4.2 and 6.4.3 of *Goulburn Mulwaree Development Control Plan 2009*?

Yes.

B Is the land identified on the Height of Buildings Map and consequently affected by Clause 4.3 of *Goulburn Mulwaree Local Environmental Plan 2009*?

No.

C Is the land identified on the Floor Space Ratio Map and consequently affected by Clauses 4.4 and 4.5 of *Goulburn Mulwaree Local Environmental Plan 2009*?

No.

D Is the land located within 50 metres of a zone boundary and consequently affected by Clause 5.3 of *Goulburn Mulwaree Local Environmental Plan 2009*?

Yes.

E Is a permit required from Council to clear vegetation under Part 3 of *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*?

No.

Note: The requirements for approval of vegetation clearing are varied depending on the location and uses of the land and the intention of the clearing. The question above relates only to whether a permit is required from Council under *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*.

F Is the land identified on the Urban Release Area Map and consequently affected by Part 6 of *Goulburn Mulwaree Local Environmental Plan 2009*?

No.

G Is the land identified on the Terrestrial Biodiversity Map and consequently affected by Clause 7.2 *Goulburn Mulwaree Local Environmental Plan 2009*?

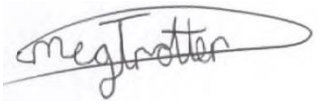
No.

Information regarding loose-fill asbestos insulation

Some residential homes located in the Goulburn Mulwaree local government area have been identified as potentially containing loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Contact NSW Fair Trading for further information.



Date of Certificate
15 July 2020

for **Warwick Bennett**
General Manager
Goulburn Mulwaree Council

Notice to Prospective Purchasers/Residents of Urban Land in the Goulburn Mulwaree Local Government Area

Due to extensive growth and development within and alongside the urban areas of the Goulburn Mulwaree Local Government Area, non-residential land uses increasingly adjoin residential developments. These mixed land uses and zones have resulted in the potential for land use conflicts.

Goulburn Mulwaree Council supports the right of persons carrying out legitimate non-residential land use activities on urban land.

Council advises that whilst some land use activities will have formal consent from Council and/or other Government Agencies for operations, other activities may not require consent and are undertaken within the objectives of the land use zone.

Council will not support any action that will unreasonably interfere with the existing use or ongoing operation of land uses, particularly where such activities or uses are carried out in accordance with existing approvals, industry standards and relevant legislation. Many businesses and commercial enterprises carry out operations as required, early in the morning or late in the evening. These operations may involve vehicle movements, machinery noise and trade and supply activities which may impact upon the amenity of an area.

Prospective purchasers of land are encouraged to undertake their own enquiries into any operations or activities on adjoining, neighbouring or nearby properties that may cause noise or amenity impact. Intending purchasers are advised that legitimate land uses in urban areas may include, but are not limited to:

- Agricultural produce stores
- Building trade supply retailers
- Childcare centres and schools
- Concrete batching plants
- Equine training and stabling facilities
- Food businesses
- Home businesses
- Landscape supplies
- Medical practices and services
- Motor vehicle and/or heavy machinery workshops
- Motorsport facilities
- Nurseries
- Nursing homes and aged care facilities
- Petrol stations
- Public recreation facilities including aquatic centres, playgrounds and sporting fields
- Pubs and clubs
- Recycling facilities
- Retail suppliers/ shops
- Steel fabrication and engineering
- Transport depots
- Veterinary practices
- Vehicle retailers
- Waste management facilities
- Water and waste water treatment facilities
- Wholesalers

In addition to the above, prospective purchasers are encouraged to attend locations of interest during different times of the day to determine the suitability of land for their intended use.

Notice to Prospective Purchasers/Residents of Rural Land in the Goulburn Mulwaree Local Government Area

Goulburn Mulwaree Council supports the rights of persons to carry out legitimate rural and agricultural uses and practices on rural land.

Goulburn Mulwaree Council will not support any action to unreasonably interfere with the legitimate rural and agricultural use of the land, where such activities or uses are carried out in accordance with industry standards, relevant regulations or approvals. Council wishes to point out that some rural activities will have required formal consent of Council and/or Government Agencies.

Legitimate activities are not limited to those listed and prospective purchasers are advised that they should be aware of them at the time of purchasing land. Many rural and agricultural practices, by necessity, are carried out very early in the morning or late into the evening. Intending purchasers are advised that legitimate rural and agricultural uses of the land may include:

- Abattoir operations
- Intensive livestock farming
- Dairies
- Livestock waste disposal systems
- Stockyard activities.
- Animal husbandry practices (castration, dehorning, mulesing etc.)
- The presence of noisy animals, including crowing roosters
- Livestock movement on Council roads
- Clearing and land cultivation
- Bush fire hazard reduction burning
- Burning of stubble for cropping operations
- Construction of fire breaks
- Earthmoving including construction of dams, drains and contour banks
- Construction of access roads and tracks
- Pumping and irrigation
- Harvesting operations
- Grain receival operations
- Transportation of rural produce
- Fodder conservation
- Chaff cutting operations
- Silage productions
- The growing of any agricultural crop or pasture species which may produce detectable aromas or pollens e.g. canola & lucerne
- Slashing and mowing of vegetation
- Logging
- Spreading of fertilisers, including lime and gypsum
- Crop spraying by both aerial and ground operations
- Control and eradication of noxious weeds
- Authorised measures to control agricultural pests including baiting, ripping, fumigation and shooting
- Planting of trees and shrubs for woodblocks, windbreaks etc
- Fencing construction and erection
- Tourist facilities
- Manufacture and repair of agricultural machinery
- Processing of rural commodities
- Council Landfill Facilities
- Council Sewerage Treatment Works.

In addition to the above, Council also wishes to highlight the land management responsibilities. In particular weeds management that accompany the ownership of rural land. In this regard, it is advisable to become familiar with Council's 'Rural Living Handbook' to ensure these responsibilities are met. The handbook is available on Council's website at www.goulburn.nsw.gov.au/Development/Plans-Strategies or in hard copy at Customer Service.

Appendix F

Data Quality Objectives: Planning Process Output

DQOs Planning Process Output – Decision Problems

Project:	Detailed Site Investigation – Goulburn Roundhouse, 12 Braidwood Road, Goulburn, NSW 2580
Field work stage:	Detailed Site Investigation
DQOs completed (by/date):	Mr Michael Wright – 24 July 2020
DQOs reviewed (by/date):	Mr Drew Wood – 24 July 2020
Background to DQOs:	The proposal to Australian Rail Track Corporation (ARTC) dated April 2020 was prepared based on information provided to Cavvanba by ARTC. The site is an operational railway roundhouse by the Goulburn Locomotive Roundhouse Preservation Society Inc, with a long history of potentially contaminating activities. A detailed site investigation was required to assess whether there is an unacceptable risk to human health and/or the environment on and/or off-site. Refer to Section 1 of the body of the report.
DQOs Objective:	Estimate problem

Step 1 - State the problem

Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem.

1.1	Write a brief summary of the contamination problem: The objectives of the DSI are stated in Section 1 of the main body of this report. It is uncertain whether potential contamination issues exist as a result of current and historical land use practices that could be considered to represent an unacceptable risk to human health or the environment under the prescribed land use zoning. There is insufficient information to determine whether the site is considered suitable for ongoing commercial/industrial use.
1.2	Identify members of the planning team

Person	Organisation	Role
Drew Wood	Cavvanba	Principal Environmental Scientist
Mark Curran	Australian Rail Track Corporation	Senior Environmental Specialist
Michael Wright	Cavvanba	Field Environmental Scientist
Ben Wackett	Cavvanba	Principal Environmental Scientist
Various	GLRPS	Lessee

Step 1 - State the problem

Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem.

1.3 Develop/refine the conceptual site model (CSM) (see **CSM**):

The conceptual site model is outlined in the body of the report, including details of contamination sources, exposure pathways and receptors.

1.4 Define the summary exposure scenarios (Y/N)*:

Soil/dust	Y/N	Groundwater	Y/N	Surface Water	Y/N
Dermal	C/M	Dermal	U	Dermal	U
Ingestion	C/M	Ingestion	U	Ingestion	U
Inhalation	C/M	Inhalation	C/M	Inhalation	U
Ecological	P	Ecological	U	Ecological	U
			-		-

** C = Commercial worker; M = Maintenance worker (i.e. during site works/construction); U = Unlikely; P = Potential. *Add additional if required.*

1.5 Specify the available resources and constraints, such as relevant deadlines for the study, budget, availability of personnel and schedule, etc.:

The scope of work and methodology was consistent with that detailed within Cavvanba's proposal titled *Remediation of Contaminated land – Package 1* (RFQ: NSW-TC-06198-00) submitted to ARTC in April 2020 (Cavvanba Ref: P20025).

The site is an operational roundhouse and museum, therefore the investigation works progressed with a practical allowance for working with and around on-site activities and utilities, including concrete slab / footings, underground services, subterranean waste oil lines and site-specific geological features.

Step 2 - Identify the decision

To identify the decision that requires new environmental data to address the contamination problem.

2.1 Identify the principal study questions:

Is there actual or potential contamination that may represent a risk to human health or the environment under the prescribed land use scenario?

2.2 Identify the alternative outcomes or actions that could result from resolution of the principal study questions:

If contamination is identified at concentrations exceeding the adopted assessment criteria, will further investigation, remediation or management be required?

If contamination is identified at concentration below the adopted assessment criteria, will no further action be required?

Is the extent of contamination appropriately characterised such that decisions can be made regarding management / remediation?

Is the extent of contamination appropriately characterised such that decisions can be made regarding management / remediation? If not will further investigation be required?

Step 2 - Identify the decision *To identify the decision that requires new environmental data to address the contamination problem.*	
2.3	Combine the principal study questions and the alternative actions into decision statements: If the contamination present at the site poses an unacceptable risk to human health or the environment on and/or off-site, additional investigation, remediation and/or management will be required. If the contamination present at the site does not pose an unacceptable risk to human health or the environment, the site will be suitable for ongoing commercial / industrial land use.
2.4	Organise multiple decisions (attached flow charts/logic diagrams, summary tables, etc.): N/A

Step 3 - Identify the inputs to the decision *To identify the information that will be required to support the decision and specify which inputs require new environmental measurements.*	
3.1	Identify the information that will be required to resolve the decision statements, including existing information and new environmental data, and identify the sources for each item of information required:
	Existing information:
	• *Phase 1 Environmental Contamination Assessment – SR50 Goulburn* (CMPS&F Pty Ltd, 1996); • *Environmental Investigation – Goulburn Fuelling Facility at Braidwood Rd* (Jeffrey and Katauskas Pty Ltd, 1997); • *Decommissioning/Decontamination Strategy for Goulburn Railyard* (Dames and Moore Pty Ltd, 1997); • *Environmental Management Plan – The Goulburn Roundhouse Complex* (Goulburn Loco Roundhouse Preservation Society Incorporated, 2006); and • *Preliminary Contamination Investigation – Goulburn Roundhouse Railway Track* (DM McMahon Pty Ltd, 2014).
	New environmental data:
	Measurements of soil and groundwater for potential contaminants of concern (PCOCs), being total recoverable hydrocarbons (TRH), benzene, toluene, ethyl-benzene, xylenes and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAHs), phenols, heavy metals (As, Hg, Cd, Cr, Cu, Pb, Ni and Zn), organochlorine and organophosphate pesticides (OCPs and OPPs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs) and asbestos. Furthermore, geological logs, field data and observations provide additional environmental data.

Step 3 - Identify the inputs to the decision *To identify the information that will be required to support the decision and specify which inputs require new environmental measurements.*	
3.2	Identify the information needed to establish the action level: The Tier 1 assessment criteria will be sourced from guidelines made or approved under the *Contaminated Land Management (CLM) Act (1997),* and will be based on a review of the following reference documents: • National Environment Protection Council (NEPC) (April 2013) National Environment Protection (Assessment of Site Contamination) Measure 1999, NEPC, Canberra (ASC NEPM 2013). • CRC Care Technical Report no. 10 – Health screening level for petroleum hydrocarbon in soil and groundwater – Part 2: Application Document (CRC Care, 2011). • National Health and Medical Research Council (NHMRC) (2011) Australian Drinking Water Guidelines (Updated August 2018) (NHMRC (2011) ADWG). With respect to asbestos, the criteria outlined in the ASC NEPM (2013) is applicable, which includes a requirement for the top 10 cm to be free of visible asbestos.
3.3	Confirm that appropriate analytical methods exist to provide the necessary data: Feasible analytical methods, both field and laboratory were consistent with existing guidance including being in accordance with ASC NEPM (2013). The laboratories used as part of the investigation were national association of testing authorities (NATA) accredited and use analytical methods based on USEPA and APHA methods. All PCOC limits of reporting were less than the applicable assessment criteria.

Step 4 - Define the boundaries of the study *To define the spatial and temporal boundaries that the data must represent to support the decisions.*	
4.1	Specify the characteristics that define the population of interest: The site is referred to as 12 Braidwood Road, Goulburn NSW 2580, being Lot 2 in DP 1002813, as presented on Figure 1. The study area was limited to accessible areas on-site where investigation can be safely and physically achieved. The site is an operational roundhouse and museum, potentially filled with historical wastes.
4.2	Define the geographic area and media to which the decision statement applies: The site is referred to as 12 Braidwood Road, Goulburn NSW 2580, being Lot 2 in DP 1002813. The investigation included the vertical extent of investigation to a maximum depth of 10 m and within the site boundary where accessed could be achieved. It is noted that access into the Effluent Treatment Plant and select buildings could not be achieved. The investigation also included the sampling of one existing groundwater monitoring well W1, located off-site to the west. The media to which the decision statement applies includes fill material / natural soils and groundwater. Media is also stratified depending on the nature of the material encountered (i.e. fill material/natural soil) and groundwater. Groundwater is defined as the unconfined water bearing zone in natural clays.

Step 4 - Define the boundaries of the study *To define the spatial and temporal boundaries that the data must represent to support the decisions.*	
4.3	When appropriate, divide the populations into strata that have relatively homogenous characteristics: Stratification is desirable for studying subpopulations or for reducing the complexity of the problem by breaking it into more manageable pieces. It can also improve the efficiency of the sampling design, and the planning team can subsequently make separate decisions about each stratum as well as the entire population. As previously discussed, this will be applied to fill material and natural soil, and groundwater.
4.4	Determine the time frame to which the decision applies: N/A.
4.5	Determine when to collect data: The investigation was undertaken during normal working hours, Monday to Friday.
4.6	Define the scale of the decision making: The scale of decision making was aimed at the collection of sufficient data such that an assessment can be made regarding whether the contamination at the site presents an unacceptable risk to human health or the environment on and off-site. Limited to understanding potential contamination issues at the site.
4.7	Identify any practical constraints on data collection: The practical constraints on the data collection included above and below ground services on-site and where investigation locations could be safely achieved.

Step 5 - Develop the analytic (statistical) approach *Develop a logical "if …, then …, else …" statement that defines the conditions that would cause the decision maker to choose among alternative actions.*	
5.1	Specify the statistical parameter that characterises the population of interest, such as mean, median, maximum or proportion, etc.: The 95% upper confidence limit (UCL) of the arithmetic average concentration is the primary parameter used in making decisions for soils. Other parameters may be appropriate, based on site specific considerations and the objectives of the study, e.g. maximum, mean, median, or specified percentiles. For all statistical tests, appropriate grouping of data by media/strata is required. For some tests, seasonality needs to be considered. Requirements for statistical interpretation of data may also include that the relevance of localised elevated values is considered by using additional tests, e.g. ASC NEPM 2013 specifies that the standard deviation of the results should be less than 50% of the criterion; and no single value should exceed 250% of the criterion.

Step 5 - Develop the analytic (statistical) approach *Develop a logical "if …, then …, else …" statement that defines the conditions that would cause the decision maker to choose among alternative actions.*	
5.2	Specify the action level for the decision: Analytical actions levels were based on guidelines made or approved under the *Contaminated Land Management (CLM) Act (1997)*, and included the ASC NEPM (2013) and CRC CARE (2011). The criteria is not clean-up criteria, therefore exceedances were screened to determine whether further investigation, management or remediation is required.
5.3	Confirm that measurement detection will allow reliable comparisons with the action level: Representative samples were collected and submitted to a NATA accredited laboratory for analysis. Standard limits of reporting were considered to be appropriate. Visual observations on the nature and extent of contamination was also made during the investigation.
5.4	Combine the outputs from the previous DQOs steps and develop an "if ..., then ..., else ..." theoretical decision rule based on the chosen action level: If statistical parameters of the data exceed applicable action levels, further remediation or management may be required. For example, if the 95% UCL of the arithmetic average is ≤ the action level, then the site may be considered suitable for continued commercial/industrial landuse, otherwise additional investigation, remediation or management will be required.

Step 6 – Specify performance or acceptance criteria *To specify probability limits for false rejection and false acceptance decision errors.*	
6.1	Specify the decision rule as a statistical hypothesis test: Project specific, but for landuse suitability the statistical hypotheses are: - null hypotheses (H_O) the 95% UCL is > action level; and - alternate hypotheses (H_A) the 95% UCL is ≤ action level.
6.2	Examine consequences of making incorrect decisions from the test: False rejection or Type I error of determining the site is suitable when it is not (wrongly rejects a true H_O). Consequence is potential risks to human health and/or the environment. False acceptance or Type II error of determining the site is not suitable when it is (wrongly accepts a false H_O). Consequence is unnecessary expenditure of resources or a site not being used for its highest value.
6.3	Place acceptable limits on the likelihood of making decision errors: The Australian Standard (AS 4482.1) specifies an alpha risk (Type I error) of $\alpha = 0.05$, and a beta risk (Type II error) of $\beta = 0.2$. Application of these include the 95% UCL (α only as a onesided test is used), and determination of the number of samples required to determine the average concentration (Appendix D of AS 4482.1), which should be used to confirm that sufficient samples have been analysed to support the decision.

Step 7 – Optimise the design for obtaining data

To identify a resource effective sampling and analysis design for generating data that are expected to satisfy the DQOs.

7.1 Document the final sampling and analysis design, along with a discussion of the key assumptions underlying this design:

The sampling approach was selected in order to gain spatial coverage across the site, and to target areas in which potential sources of contamination were suspected. The strategy was not considered to, nor designed to, meet the definition of a systematic sampling approach, and does not meet the minimum sampling requirements in accordance with Sampling Design Guidelines (NSW EPA, 1995). The selection of sampling locations was based on professional judgement at the time of the investigation, where access could be safely and physically achieved.

Soil and groundwater samples were analysed for concentrations with PCOCs.

7.2 Detail how the design should be implemented, together with contingency plans for unexpected events:

Prior to commencing the intrusive investigation, any unexpected finds were to be clearly communicated to ARTC including requirements for further investigation.

7.3 Determine the quality assurance and quality control (QA/QC) procedures that would be performed to detect and correct problems to ensure defensible results:

The field QA, and the field and laboratory QC, are described in the *Data Usability Summary Assessment*. In summary, the following QC samples were completed in accordance with the ASC NEPM 2013.

Field QC samples		Lab QC samples	
Blind duplicate	≥ 5%	Lab blank	≥ 1/lab batch
Blind triplicate	≥ 5%	Surrogate spike	Organics by GC
Rinsate sample	≥ day	LCS	≥ 1/lab batch
Trip blank	≥ 1/field batch	Matrix spike	≥ 1/media type
Trip spike	≥ 1/field batch	Lab duplicate	≥ 10%

7.4 Document the operational details and theoretical assumptions of the selected design in the sampling, analysis and quality plan (SAQP):

Prior to commencing the intrusive investigation, it was assumed that there would be no unexpected finds and unimpeded access was achievable to all proposed investigation locations. The rationale for the sampling design is detailed within the body of the report.

Appendix G

Field Data and Calibration Certificates

CAVVANBA consulting

Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: WH
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 2-/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 12.073

Water Level Depth WL in m BTOC): 7.207

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic
☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: 15:05 Stop: 15:30 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (mS/cm)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations)	
								NTU	
5	0.5	6.95	2,340	14.36	3.90	123	7.415	28.2	
10	1.0	6.92	2,350	14.17	3.57	127	7.432	29.1	
15	1.5	6.77	2,700	10.88	3.47	166	7.450	32.1	
20	2.0	6.77	2700	10.91	3.41	168	7.455	32.5	
25	2.5	6.77	2710	10.80	3.38	168	7.468	32.4	

Observations during purging (well condition, turbidity, colour, odour, sheen):
clear, No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION

Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
1	100 ml Amber	PAHs / Phenols / TPH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Ⓨ / N
2	40ml VOA vials	BTEXN / TRH	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: W2
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 24/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME	PURGE METHOD
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other
Total Depth of Well (TD in m BTOC): 11.270	☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other
Water Level Depth WL in m BTOC): 6.212	**PUMP INTAKE SETTING**
Number of well volumes to be purged (# VOLS) ☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Depth (m BTOC)
	Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: 16:00 Stop: 16:25 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (mS/cm)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.12	1,250	8.40	9.04	178	6.315	81.7	
10	1.0	7.05	1,340	8.48	7.22	191	6.325	86.2	
15	1.5	6.42	1260	8.38	6.57	229	6.338	77.0	
20	2.0	6.86	1270	8.22	6.40	234	6.347	76.4	
25	2.5	6.84	1260	8.36	6.23	235	6.350	78.0	

Observations during purging (well condition, turbidity, colour, odour, sheen): Clear No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
1	100 ml Amber	PAHs/Phenols/TPH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? (Y) / N
2	40 ml VOA vials	BTEXN/TRH	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: W3
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 24/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 9.370

Water Level Depth WL in m BTOC): 5.825

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25minutes PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: 14:00 Stop: 14:25 Elapsed: 25 Initial: MW Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS/cm~~ uS)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.54	581	19.42	2.55	99	5.952	339	
10	1.0	7.39	590	17.85	2.24	113	5.990	765	
15	1.5	7.07	644	16.91	2.99	149	6.015	312	
20	2.0	7.03	650	16.93	2.70	151	6.035	305	
25	2.5	7.01	654	16.88	2.61	155	6.033	305	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Cloudy, Milky Brown, No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☒ Same as purge method

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION

Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
1	100 ml Amber	PAHs/phenols/TRH	unpreserved	ALS	
1	60 ml plastic	metals	HNO_3	ALS	field filtered? Y/ N
2	40 ml VOA vials	BTEXN/TPH	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples			Blank Samples			Other Samples	
Original No	Duplicate No		Type	Sample No		Type	Sample No
W3	QW01						
W3	QW02						

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW01
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 25/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME	PURGE METHOD
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other
Total Depth of Well (TD in m BTOC): 8.567	☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other
Water Level Depth WL in m BTOC): 6.636	**PUMP INTAKE SETTING**
Number of well volumes to be purged (# VOLS) ☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Depth (m BTOC)
	Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25mins PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: 12:40 Stop: 13:05 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS~~/cm) uS	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	6.94	741	10.75	2.20	181	6.758	32.3	
10	1.0	7.69	864	10.69	1.96	158	6.772	334.7	
15	1.5	7.33	934	10.95	3.01	191	6.801	457.8	
20	2.0	7.14	937	11.03	3.06	195	6.832	387.2	
25	2.5	7.05	940	11.06	2.86	196	6.835	374.7	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Clear, cloudy, Brown tinge, slight HC odour, No sheen. well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
2	100 ml Amber	PAHs/phenols/OPPs/TRH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Y / N
2	40 ml VOA vials	BTEXN/TPH	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW02
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 25/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 8.728

Water Level Depth WL in m BTOC): 7.952

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: Stop: Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (mS/cm)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	6.94	1160	15.51	6.47	-68	8.082	930	
10	1.0	6.91	1180	15.30	5.22	-70	8.103	4 >1000	
15	1.5	6.86	1180	15.29	5.14	-73	8.115	>1600	
20	2.0	6.82	1180	15.29	5.04	-76	8.132	>1600	
25	2.5	6.81	1186	15.25	5.01	-76	8.135	>1000	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Turbid, Brown, strong Hydrocarbon odour, no sheen well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
1	100 ml Amber	PAHs/Phenols/TRH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Ⓨ / N
4	40 ml VOA vials	BTEXN/TPH/SVOCs	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW03
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 25/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME	PURGE METHOD
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other
Total Depth of Well (TD in m BTOC): 8.974	☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other
Water Level Depth WL in m BTOC): 8.284	**PUMP INTAKE SETTING**
Number of well volumes to be purged (# VOLS) ☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Depth (m BTOC)
	Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 3.0 L ACTUAL PURGE VOLUME 2.5 L

Start: Stop: Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS~~/cm) uS	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.66	965	13.87	9.81	110	8.357	34.6	
10	1.0	7.63	1,370	13.90	9.89	119	8.362	35.3	
15	1.5	7.39	1,800	13.67	6.79	128	8.383	30.7	
20	2.0	7.29	1910	13.69	6.56	134	8.401	18.7	
25	2.5	7.29	1910	13.80	6.80	136	8.423	11.3	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Clear, No odour, No sheen, well in good condition.

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
1	100 ml Amber	PAHs/Phenols/TRH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Y / N
2	40 ml VOA vials	BTEXN/TPH	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW04
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 25/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 8.947

Water Level Depth WL in m BTOC): 7.892

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: Stop: Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS/cm~~) uS/cm	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.39	955	9.87	6.74	155	7.953	31.2	
10	1.0	8.04	969	9.98	6.12	201	7.959	30.8	
15	1.5	7.57	1,060	10.27	5.28	213	7.972	31.5	
20	2.0	7.57	1060	10.29	5.20	216	7.995	38.7	
25	2.5	7.47	1070	10.32	5.06	217	7.999	30.7	

Observations during purging (well condition, turbidity, colour, odour, sheen):
clear, No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION

Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
2	100 ml Amber	PAHs/phenols/OCP/PAH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Y / N
2	40 ml VOA vials	BTEXN/TPH	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW05
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 25/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME	PURGE METHOD
Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other	☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other
Total Depth of Well (TD in m BTOC): 9.964	☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other
Water Level Depth WL in m BTOC): 7.712	**PUMP INTAKE SETTING**
Number of well volumes to be purged (# VOLS) ☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other	Depth (m BTOC)
	Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 4.0 ACTUAL PURGE VOLUME 2.5L

Start: 16:00 Stop: 16:25 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. ~~(mS/cm)~~ uS/cm	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.91	632	10.10	12.36	-289	7.915	28.7	
10	1.0	8.07	921	10.08	9.09	-290	7.932	33.2	
15	1.5	7.26	1200	9.96	3.61	-311	7.957	43.7	
20	2.0	7.21	1,210	9.96	3.40	-315	7.982	39.8	
25	2.5	7.19	1,210	9.95	3.40	-319	7.981	34.2	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Clear, No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
1	100 ml Amber	PAHs/phenols/TRH	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Y/ N
4	40ml VOA vials	BTEXN/TPH/SVOCs	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW06
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 26/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 8.960

Water Level Depth WL in m BTOC): 7.283

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25mins PURGE RATE 4.0L ACTUAL PURGE VOLUME 2.5L

Start: 09:30 Stop: 09:55 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS/cm~~ uS/cm)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	8.13	849	4.71	9.57	114	7.291	28.7	
10	1.0	8.12	1,020	5.01	8.60	116	7.305	33.5	
15	1.5	7.92	756	6.61	4.85	88	7.312	34.6	
20	2.0	7.88	754	6.80	4.59	78	7.330	22.3	
25	2.5	7.82	754	6.79	4.45	79	7.335	21.3	

Observations during purging (well condition, turbidity, colour, odour, sheen):
clear, slight HC odour, no sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION

Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
2	100 ml Amber	PAHs/phenols/TRH/OPPs	unpreserved	ALS	
	60 ml plastic	metals	HNO_3	ALS	field filtered? (Y) / N
4	40ml VOA vials	BTEXN/TPH/SVOCs	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW07
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 26/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 9.056

Water Level Depth WL in m BTOC): 6.770

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic
☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 30 mins PURGE RATE 4.0 L ACTUAL PURGE VOLUME 3.0L

Start: 10:20 Stop: 10:50 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS/cm~~ uS/cm)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.57	909	10.43	8.88	153	6.995	33.2	
10	1.0	7.47	822	10.59	8.37	155	7.012	28.6	
15	1.5	7.64	862	9.90	11.08	157	7.035	33.1	
20	2.0	7.62	806	9.93	9.54	163	7.052	33.0	
25	2.5	7.62	812	9.93	9.17	166	7.051	32.9	
30	3.0	7.54	825	9.94	9.20	167	7.057	32.7	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Clear, No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION

Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
2	100 ml Amber	PAHs/Phenols/TRH/OPPs	unpreserved	ALS	
1	60 ml plastic	Metals	HNO_3	ALS	field filtered? Y / N
4	40 ml VOA vials	BTEXN/TRH/SVOCs	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

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Ground Water Sampling Sheet

Job Name: ARTC Goulburn Roundhouse	Well No: MW08
Job Number: 20025.76	Well Type: ☒ Monitor ☐ Extractor ☐ Other
Recorded By: M.Wright	Well Material: ☒ PVC ☐ SS ☐ Other
Date: 26/08/2020	Sample by: M.Wright

PURGING

PURGE VOLUME

Well Diameter (D in mm): ☒ 50 ☐ 100 ☐ Other

Total Depth of Well (TD in m BTOC): 6.133

Water Level Depth WL in m BTOC): 4.238

Number of well volumes to be purged (# VOLS)
☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Pump – Type: ☐ Submersible ☒ Peristaltic ☐ Other

PUMP INTAKE SETTING

Depth (m BTOC)

Screen Interval (m BTOC) – Top : Bottom:

PURGE TIME

PURGE TIME 25 mins PURGE RATE 4-0L ACTUAL PURGE VOLUME 2.5L

Start: 11.10 Stop: 11:35 Elapsed: Initial: Final:

FIELD PARAMETER MEASUREMENTS

Min since purge began	Volume Purged (L)	pH	Cond. (~~mS/cm~~ uS/cm)	Temp (°C)	DO (mg/L)	Redox (mV)	SWL (mBTOC)	Other (e.g. observations) NTU	
5	0.5	7.65	511	10.50	11.23	165	4.355	67.4	
10	1.0	7.50	522	10.51	11.08	168	4.387	63.3	
15	1.5	7.30	516	11.86	9.88	187	4.401	141	
20	2.0	7.25	516	11.91	9.86	189	4.405	98.9	
25	2.5	7.23	515	11.95	9.78	190	4.576	96.2	

Observations during purging (well condition, turbidity, colour, odour, sheen):
Slightly cloudy, milky white, No odour, No sheen, well in good condition

Discharge water disposal: ☐ Drums ☐ Sanitary sewer ☐ Storm sewer ☐ Surface ☒ Other

SAMPLING

SAMPLING METHOD

☐ Bailer – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

☒ Same as purge method

☐ Pump – Type: ☐ PVC ☐ SS ☐ Teflon ☐ Other

SAMPLE DISTRIBUTION

Sample Name:

Bottles:	Vol/Cont.	Analysis	Preservatives	Lab	Comments
2	100 ml Amber	PAHs/phenols/TRH/OPP	unpreserved	ALS	
1	60 ml plastic	metals	HNO_3	ALS	field filtered? Y / N
4	40 ml VOA vials	BTEXN, TPH/SVOCs	HCl	ALS	

QUALITY CONTROL SAMPLES

Duplicate Samples		Blank Samples		Other Samples	
Original No	Duplicate No	Type	Sample No	Type	Sample No

Groundwater – Standing Water Levels

Job Ref. 20025.76

Location.....

Initials. MW

Date. 24/08/20

Well ID	Date / Time	Depth to NAPL (mBTOC)	Depth to Water (m BTOC)	Depth to Bottom (mBTOC)	Comments
BH02/MW01	24/08/20	–	6.451	8.567	PID = 4.9 ppm
BH04/MW02	24/08/20	–	7.952	8.728	PID = 19.8 ppm
BH05/MW03	24/08/20	–	8.284	8.974	PID = 0.0 ppm
BH06/MW04	24/08/20	–	7.877	8.947	PID = 0.2 ppm
BH07/MW05	24/08/20	–	7.692	9.964	PID = 0.2 ppm
BH09/MW06	24/08/20	–	7.238	8.960	PID = 53.9 ppm
BH10/MW07	24/08/20	–	6.755	9.056	PID = 0.8 ppm
BH11/MW08	24/08/20	–	4.238	6.133	PID = 0.1 ppm
~~W2~~ W2	24/08/20	–	6.212	11.270	PID = 0.0 ppm Stick up = 937 mm
W1	24/08/20	–	7.207	17.073	PID = 0.0 ppm Stick up = 420 mm
W3	24/08/20	–	5.825	9.370	PID = 0.1 ppm

Photoionisation Detector Calibration Record

Equipment: MiniRAE 3000

Serial Number: SN-592-905868

To enter calibration mode: hold down MODE & NO buttons for 3 seconds to enter SPAN calibration.

Project Number	Date	Time	Span gas conc' (e.g 100 ppm isobutylene)	Span gas reading	Fresh air Cal reading	Initials
20025.76	18-08-20	07:30	100ppm	101ppm	0.0ppm	MW
20025.76	19-08-20	07:15	100ppm	100 ppm	0.0 ppm	MW
20025.76	20-08-20	07:30	100ppm	103 ppm	0.0 ppm	MW
20025.76	24-08-20	12:30	100ppm	101 ppm	0.0 ppm	MW
20025.69	25-08-20	07:45	100ppm	102 ppm	0.0 ppm	MW
20025.76	26-08-20	07:15	100ppm	100 ppm	0.0 ppm	MW

Equipment Calibration Report

Horiba Water Quality Meter U-5000G – Serial No. UOF5YK53

pH	☑ pH 4.01	Actual: 4.00
Conductivity	☑ 4.49 mS/cm	Actual: 4.53
Turbidity	☑ 0 NTU	Actual: 0.0
Dissolved oxygen	☑ 8.92 mg/L	Actual: 8.99

Temperature, (i.e. Room temperature): 11.5°C

Calibrated by: M. Wright

Date tested: 24/08/2020

Job Reference: 20025.76

Notes: N/A

Appendix H

Borehole and Test Pit Logs

Borehole Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH01**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**3.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**19/08/2020**	Ground Level:	----------
Date Completed:	**19/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

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Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
SFA		0.5				Fill	**FILL** - Sandy CLAY, grey, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	BH01/0.0-0.05	No hydrocarbon odour. No Staining.
		0.90							0.0	BH01/0.4-0.5	
		1.0				Fill	**FILL** - Sandy CLAY, light brown, medium stiff, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	BH01/0.9-1.0	No hydrocarbon odour. No Staining.
		1.5									
		2.0							0.0	BH01/1.9-2.0	
		2.50			CL	Natural	**Gravelly Sandy CLAY** - light brown, medium stiff, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	moist			No hydrocarbon odour. No Staining.
		3.00							0.0	BH01/2.9-3.0	
		3.5					**Terminated at 3.00 m** Target depth.				
		4.0									

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **19/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH02/MW01**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**9.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**19/08/2020**	Ground Level:	----------
Date Completed:	**19/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Grass						
SFA		1				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.2	BH02/0.0-0.05	No hydrocarbon odour. No Staining. Ash.		Gat
									0.0	BH02/0.4-0.5			
									0.1	BH02/0.9-1.0			
		1.80											
		2			CL		**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.2	BH02/1.9-2.0	No hydrocarbon odour. No Staining.		Grout
		3							0.2	BH02/2.9-3.0			
		3.70											
		4			CL	Natural	**CLAY** - light brown, medium stiff, medium plasticity.	slightly moist	0.1	BH02/3.9-4.0	No hydrocarbon odour. No Staining.	4.00	Bentonite
		5						moist	0.0	BH02/4.9-5.0		4.50 5.00	
		6							0.4	BH02/5.9-6.0			Sand
		7							7.5	BH02/6.9-7.0			
		7.50											Screen
		8			CL		**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	very moist	1.3	BH02/7.9-8.0	No hydrocarbon odour. No Staining.		
		9.00							0.4	BH02/8.9-9.0			
		10					**Terminated at 9.00 m** Target depth.						

Additional Comments

Well developed by bailer 20/08/2020.

Log Drawn By:	Laurie White	Logged By:	**Michael Wright**	Date: **19/08/2020**
Contact:	laurie.white@reumad.com.au	Checked By:	**Michael Wright**	Date: **12/11/2020**

Borehole Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH03**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
SFA		0.5				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.6	BH03/0.0-0.05 QS03/QS04	No hydrocarbon odour. No Staining.
		1.0						slightly moist	0.4	BH03/0.4-0.5	
		1.5							0.0	BH03/0.9-1.0	
		1.80									
		2.00			CL	Natural	**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	BH03/1.9-2.0	No hydrocarbon odour. No Staining.
		2.5					**Terminated at 2.00 m** Target depth.				
		3.0									
		3.5									
		4.0									

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **18/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH04/MW02**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**9.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

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Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		1				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.6	BH04/0.0-0.05	No hydrocarbon odour. No Staining.		Gat
									0.4	BH04/0.4-0.5			
									0.1	BH04/0.9-1.0			
		1.80											
		2			CL	Natural	**Sandy CLAY** - grey, soft, medium plasticity, loose, fine to coarse grained sand.	moist	22.5	BH04/1.9-2.0	Strong hydrocarbon odour. No Staining.		Grout
		3					Brown from 2.9m.		6.5	BH04/2.9-3.0			
		3.90											
		4			CL		**Sandy CLAY** - brown / orange, medium stiff, medium plasticity, loose, fine to coarse grained sand.	moist	3.2	BH04/3.9-4.0		4.00	Bentonite
		5							8.5	BH04/4.9-5.0		4.50	
		5.50										5.00	
		6			CL		**CLAY** - brown / orange, medium stiff, medium plasticity.	moist	6.2	BH04/5.9-6.0			Sand
		7							0.7	BH04/6.9-7.0	Slight hydrocarbon odour. No Staining.		
		8					Light brown from 7.9m.		1.2	BH04/7.9-8.0			Screen
		9.00							3.0	BH04/8.9-9.0			
		10					**Terminated at 9.00 m** Target depth.						

Additional Comments

Well developed by bailer 24/08/2020.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **18/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH05/MW03**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**9.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**19/08/2020**	Ground Level:	----------
Date Completed:	**19/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		1				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.4	BH05/0.0-0.05	No hydrocarbon odour. No Staining.		Gat
								slightly moist	0.0	BH05/0.4-0.5			
		1.20							0.2	BH05/0.9-1.0			
		2			CL	Natural	**Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.4	BH05/1.9-2.0	No hydrocarbon odour. No Staining.		Grout
		3							0.4	BH05/2.9-3.0			
		4							0.4	BH05/3.9-4.0		4.00	Bentonite
		4.80										4.50	
		5					**CLAY** - brown / orange, medium stiff, medium plasticity.	moist	0.3	BH05/4.9-5.0	No hydrocarbon odour. No Staining.	5.00	
		6			CL			very moist	0.4	BH05/5.9-6.0			Sand
		7					Light brown from 6.9m.	moist	0.2	BH05/6.9-7.0			Screen
		7.70											
		8			CL		**Sandy CLAY** - light brown, soft, medium plasticity, loose, fine to coarse grained sand.	moist	0.2	BH05/7.9-8.0	No hydrocarbon odour. No Staining.		
		9.00							0.1	BH05/8.9-9.0			
		10					**Terminated at 9.00 m** Target depth.						

Additional Comments

Well developed by bailer 20/08/2020.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **19/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH06/MW04**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**9.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		0.40				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.6	BH06/0.0-0.05	No hydrocarbon odour. No Staining. Ash.		Gat
									0.4	BH06/0.4-0.5			
							Sandy CLAY - light brown, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.3	BH06/0.9-1.0	No hydrocarbon odour. No Staining.		
		1											
		2						sat'd	1.0	BH06/1.9-2.0			Grout
		3					Medium plasticity from 2.9m.	slightly moist	0.2	BH06/2.9-3.0			
		4			CL	Natural	Medium stiff from 3.9m.		0.0	BH06/3.9-4.0		4.00	Bentonite
												4.50	
		5							0.1	BH06/4.9-5.0		5.00	
		6						moist	0.0	BH06/5.9-6.0			Sand
		7							0.0	BH06/6.9-7.0			Screen
		8							0.0	BH06/7.9-8.0			
		9.00							0.0	BH06/8.9-9.0			
		10					**Terminated at 9.00 m** Target depth.						

Additional Comments

Well developed by bailer 24/08/2020.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **18/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH07/MW05**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**10.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		0.20					**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.8	BH07/0.0-0.05	No hydrocarbon odour. No Staining. Ash.		Gat
								slightly moist	1.0	BH07/0.4-0.5			
		1			CL		**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand. Medium stiff from 0.9m.	moist	0.4	BH07/0.9-1.0	No hydrocarbon odour. No Staining.		
		1.70											
		2					**CLAY** - light brown, medium stiff, medium plasticity.	slightly moist	0.3	BH07/1.9-2.0	No hydrocarbon odour. No Staining.		Grout
		3			CL				0.0	BH07/2.9-3.0			
		4							0.0	BH07/3.9-4.0		4.00	
		4.90										4.50	Bentonite
		5			CL	Natural	**Sandy CLAY** - light brown, medium stiff, medium plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	BH07/4.9-5.0	No hydrocarbon odour. No Staining.	5.00	
		5.80											
		6					**Gravelly CLAY** - light brown, medium stiff, medium plasticity, fine to coarse grained sand.	moist	0.3	BH07/5.9-6.0	No hydrocarbon odour. No Staining.		Sand
		7							0.0	BH07/6.9-7.0			
		8			CL		Brown from 7.9m.		0.0	BH07/7.9-8.0			Screen
		9							0.0	BH07/8.9-9.0			
		10.00							0.0	BH07/9.9-10.0			
		11					**Terminated at 10.00 m** Target depth.						

Additional Comments

Well developed by bailer 24/08/2020.

REUMAD	Log Drawn By: Laurie White	Logged By: **Michael Wright**	Date: **18/08/2020**	
	Contact: laurie.white@reumad.com.au	Checked By: **Michael Wright**	Date: **12/11/2020**	

Borehole Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH08**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**3.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
SFA		0.30				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.3	BH08/0.0-0.05 QS01/QS02	No hydrocarbon odour. No Staining. Ash.
		0.5					**FILL** - Sandy GRAVEL, brown, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	BH08/0.4-0.5	No hydrocarbon odour. No Staining.
		1.0							0.1	BH08/0.9-1.0	
		1.5									
		1.70									
		2.0			CL	Natural	**Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	BH08/1.9-2.0	No hydrocarbon odour. No Staining.
		2.5									
		3.00							0.0	BH08/2.9-3.0	
		3.5					**Terminated at 3.00 m** Target depth.				
		4.0									

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **18/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH09/MW06**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**9.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		0.10				Fill	**CONCRETE**.	slightly moist	12.7	BH09/0.1-0.2	Hydrocarbon odour. No Staining. Ash.		Gat
		0.40				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	37.4	BH09/0.2-0.3			
									45.1	BH09/0.4-0.5			
		1			CL	Natural	**Sandy CLAY** - grey, soft, low plasticity, loose, fine to coarse grained sand.	moist	45.4	BH09/0.9-1.0	Hydrocarbon odour. No Staining.		
		1.50											
		2					**CLAY** - brown / orange, medium stiff, medium plasticity.	slightly moist	7.9	BH09/1.9-2.0	Hydrocarbon odour. No Staining.		Grout
		3							9.9	BH09/2.9-3.0			
		4			CL				15.2	BH09/3.9-4.0		4.00	Bentonite
		4.50											
		5							7.9	BH09/4.9-5.0		5.00	
							Grey from 5.2m.		5.8	BH09/5.2-5.3			
		6					Brown / orange from 5.9m.		1.5	BH09/5.9-6.0	Slight hydrocarbon odour. No staining.		
		6.40											
		7					**Gravelly CLAY** - brown / orange, soft, low plasticity, fine to coarse grained sand.	slightly moist	1.2	BH09/6.9-7.0			Sand
		8			CL				1.1	BH09/7.9-8.0			Screen
		9.00							0.4	BH09/8.9-9.0			
		10					**Terminated at 9.00 m** Target depth.	moist					

Additional Comments

Well developed by bailer 20/08/2020.

Log Drawn By:	Laurie White	Logged By:	**Michael Wright**	Date: **18/08/2020**
Contact:	laurie.white@reumad.com.au	Checked By:	**Michael Wright**	Date: **12/11/2020**

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH10/MW07**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**9.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		0				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	BH10/0.0-0.05	No hydrocarbon odour. No Staining. Ash.		Gat
									0.2	BH10/0.4-0.5			
		1							0.0	BH10/0.9-1.0			
		1.50											
		2			CL		**Sandy CLAY** - brown / orange, medium stiff, medium plasticity, loose, fine to coarse grained sand.	slightly moist	0.1	BH10/1.9-2.0	No hydrocarbon odour. No Staining.		Grout
		3							0.1	BH10/2.9-3.0			
		3.70											
		4			CL	Natural	**CLAY** - brown / orange, medium stiff, medium plasticity.	slightly moist	0.0	BH10/3.9-4.0	No hydrocarbon odour. No Staining.	4.00	Bentonite
		5					Brown from 4.9m.		0.0	BH10/4.9-5.0		4.50 5.00	
		6							0.0	BH10/5.9-6.0			Sand
	▽	6.90											
		7			CL		**Gravelly CLAY** - brown, medium stiff, medium plasticity, fine to coarse grained sand.	moist	0.0	BH10/6.9-7.0	No hydrocarbon odour. No Staining.		Screen
		8							0.0	BH10/7.9-8.0			
		9.00							0.0	BH10/8.9-9.0			
		10					**Terminated at 9.00 m** Target depth.						

Additional Comments

Well developed by bailer 20/08/2020.

REUMAD	Log Drawn By: Laurie White	Logged By: **Michael Wright**	Date: **18/08/2020**	
	Contact: laurie.white@reumad.com.au	Checked By: **Michael Wright**	Date: **12/11/2020**	

Monitoring Well Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**BH11/MW08**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**8.00 m**
Contractor:	**Campbell Drilling**		
Method:	**Solid Flight Auger** Rig Type: **D-4T**		
Date Started:	**18/08/2020**	Ground Level:	----------
Date Completed:	**18/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments	Well Details	Well Construction
							Surface cover: Gravel						
SFA		1				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.5	BH11/0.0-0.05	No hydrocarbon odour. No Staining. Ash.		Gat
									0.4	BH11/0.4-0.5			Grout
									0.0	BH11/0.9-1.0		1.20	
		1.50											Bentonite
		2					**Sandy CLAY** - brown / orange, slightly cohesive, low plasticity, loose, fine to coarse grained sand.	moist	0.0	BH11/1.9-2.0	No hydrocarbon odour. No Staining.	1.80	
												2.20	
		3			CL	Natural	Medium stiff from 2.9m.	slightly moist	0.1	BH11/2.9-3.0			Sand
		4							0.2	BH11/3.9-4.0			
		5							0.0	BH11/4.9-5.0			Screen
		6							0.0	BH11/5.9-6.0		6.20	
		6.30											
		7			CL		**Gravelly CLAY** - brown / orange, soft, medium plasticity, fine to coarse grained sand.	slightly moist	0.0	BH11/6.9-7.0	No hydrocarbon odour. No Staining.		Collapse
		8.00					Medium stiff from 7.9m.		0.0	BH11/7.9-8.0			
		9					**Terminated at 8.00 m**						

Additional Comments

Monitoring Well installed to 6.2m due to collapse and field findings (depth to water).
Well developed by bailer 20/08/2020.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **18/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Borehole Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**HA01**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**0.50 m**
Contractor:	**Campbell Drilling**		
Method:	**Hand Auger**		
Date Started:	**19/08/2020**	Ground Level:	----------
Date Completed:	**19/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
HA		0.50				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	HA01/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
									0.1	HA01/0.4-0.5	
							Terminated at 0.50 m				

1.0 1.5 2.0 2.5 3.0 3.5 4.0

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **19/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP01**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**1.50 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.1	TP01/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.40			CL	Natural	**Sandy CLAY** - grey, soft, low plasticity, loose, fine to coarse grained sand.	sat'd	0.0	TP01/0.4-0.5	No hydrocarbon odour. No Staining.
		0.6									
		0.8									
		0.90									
		1.0			CL		**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	moist			No hydrocarbon odour. No Staining.
		1.2									
		1.4							0.2	TP01/1.4-1.5	
		1.50					**Terminated at 1.50 m** Target depth.				
		1.6									
		1.8									
		2.0									
		2.2									
		2.4									
		2.6									
		2.8									
		3.0									

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP02**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP02/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.40									
		0.6				Fill	**FILL** - Gravelly Sandy CLAY, grey, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP02/0.4-0.5	No hydrocarbon odour. No Staining.
		0.8									
		1.00									
		1.2			CL	Natural	**Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	moist			No hydrocarbon odour. No Staining.
		1.4									
		1.6									
		1.8									
		2.00							0.0	TP02/1.9-2.0	
		2.2					**Terminated at 2.00 m** Target depth.				
		2.4									
		2.6									
		2.8									
		3.0									

Additional Comments

REUMAD

Log Drawn By:	Laurie White	Logged By:	**Michael Wright**	Date:	**20/08/2020**
Contact:	laurie.white@reumad.com.au	Checked By:	**Michael Wright**	Date:	**12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP03**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**1.50 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP03/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.40									
		0.6				Fill	**FILL** - Sandy CLAY, grey, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP03/0.4-0.5	No hydrocarbon odour. No Staining.
		0.8									
		1.0									
		1.10									
		1.2			CL	Natural	**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist			No hydrocarbon odour. No Staining.
		1.4							0.0	TP03/1.4-1.5	
		1.50									
		1.6					**Terminated at 1.50 m** Target depth.				
		1.8									
		2.0									
		2.2									
		2.4									
		2.6									
		2.8									
		3.0									

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP04**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.2 / 0.30				Fill	**FILL** - Gravelly Sandy CLAY, light brown, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP04/0.0-0.05	No hydrocarbon odour. No Staining.
EX		0.4 / 0.6 / 0.8 / 1.00				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP04/0.4-0.5 QS07/QS08	No hydrocarbon odour. No Staining.
EX		1.2 / 1.4 / 1.6 / 1.8 / 2.00			CL	Natural	**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP04/1.9-2.0	No hydrocarbon odour. No Staining.
		2.2 / 2.4 / 2.6 / 2.8 / 3.0					**Terminated at 2.00 m** Target depth.				

Additional Comments

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP05**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.20				Fill	**FILL** - Clayey Sandy GRAVEL, black, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP05/0.05-0.1	No hydrocarbon odour. No Staining.
		0.4					**FILL** - Gravelly Sandy CLAY, brown, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP05/0.4-0.5	No hydrocarbon odour. No Staining. Coal fragments 0.2 to 1.0m. Rock fragments 0.2 to 1.4m.
		1.00			CL	Natural	**Gravelly Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP05/1.9-2.0	No hydrocarbon odour. No Staining.
		2.00					**Terminated at 2.00 m** Target depth.				

Additional Comments

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP06**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP06/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.40					**FILL** - Clayey Sandy GRAVEL, brown, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP06/0.4-0.5	No hydrocarbon odour. No Staining. ACM, concrete, bricks, metal fragments from 0.4 to 1.4m.
		0.6									
		0.8									
		1.0									
		1.2									
		1.4									
		1.6									
		1.80									
		2.00			CL	Natural	**Sandy CLAY** - brown, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP06/1.9-2.0	No hydrocarbon odour. No Staining.
		2.2					**Terminated at 2.00 m** Target depth.				
		2.4									
		2.6									
		2.8									
		3.0									

Additional Comments

ACM05 collected from surface at TP06.
ACM06 collected from 0.5m.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP07**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP07/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.4							0.0	TP07/0.4-0.5	
		0.50					**FILL** - Gravelly Sandy CLAY, brown, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist			No hydrocarbon odour. No Staining. ACM fragments, concrete, metal, glass from 0.5 to 1.5m.
		0.6									
		0.8									
		1.0									
		1.2									
		1.4									
		1.50									
		1.6			CL	Natural	**Sandy CLAY** - grey, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0		No hydrocarbon odour. No Staining.
		1.80									
		2.00			CL	Natural	**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP07/1.9-2.0	No hydrocarbon odour. No Staining.
		2.2					**Terminated at 2.00 m** Target depth.				
		2.4									
		2.6									
		2.8									
		3.0									

Additional Comments

ACM03 collected from surface at TP07.
ACM04 collected from 0.5m.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP08**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.30 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP08/0.05-0.1	No hydrocarbon odour. No Staining. Ash.
		0.4							0.0	TP08/0.4-0.5 QS05/QS06	
		0.50					**FILL** - Sandy GRAVEL, black, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist			No hydrocarbon odour. No Staining. ACM fragments, concrete, metal fragments, glass, brick from 0.5 to 2.2m.
		0.6									
		0.8									
		1.0						moist	0.0	TP08/0.9-1.0	
		1.2									
		1.4									
		1.6									
		1.8									
		2.0									
		2.20									
		2.30			CL	Nat.	**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP08/2.2-2.3	No hydrocarbon odour. No Staining.
		2.4					**Terminated at 2.30 m** Target depth.				
		2.6									
		2.8									
		3.0									

Additional Comments

ACM01 collected from 0.9 to 1.0m.

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP09**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.2	TP09/0.05-0.1	No hydrocarbon odour. No Staining. Ash.
		0.40									
		0.6				Natural	**FILL** - Sandy CLAY, brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP09/0.4-0.5	No hydrocarbon odour. No Staining.
		0.8									
		1.00									
		1.2			CL		**Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist			No hydrocarbon odour. No Staining.
		1.4									
		1.6									
		1.8									
		2.00							0.0	TP09/1.9-2.0	
		2.2					**Terminated at 2.00 m** Target depth.				
		2.4									
		2.6									
		2.8									
		3.0									

Additional Comments

REUMAD

Log Drawn By:	Laurie White	Logged By:	**Michael Wright**	Date:	**20/08/2020**
Contact:	laurie.white@reumad.com.au	Checked By:	**Michael Wright**	Date:	**12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP10**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2 / 0.30				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.2	TP10/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.4 / 0.6 / 0.8 / 1.00				Fill	**FILL** - Clayey Sandy GRAVEL, brown, soft, low plasticity, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP10/0.4-0.5	No hydrocarbon odour. No Staining.
		1.2 / 1.4 / 1.6 / 1.8 / 2.00			CL	Natural	**Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP10/1.9-2.0	No hydrocarbon odour. No Staining.
		2.2 / 2.4 / 2.6 / 2.8 / 3.0					**Terminated at 2.00 m** Target depth.				

Additional Comments

ACM02 collected from surface at TP10.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

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Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP11**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**1.50 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.2				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP11/0.1-0.10	No hydrocarbon odour. No Staining. Ash.
		0.40			CL	Natural	**Sandy CLAY** - grey, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP11/0.4-0.5	No hydrocarbon odour. No Staining.
		1.30			CL		**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP11/1.4-1.5	No hydrocarbon odour. No Staining.
		1.50					**Terminated at 1.50 m** Target depth.				

Additional Comments

Log Drawn By:	Laurie White	Logged By:	**Michael Wright**	Date: **20/08/2020**
Contact:	laurie.white@reumad.com.au	Checked By:	**Michael Wright**	Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP12**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**0.50 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

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Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.2 0.4 ***0.50***				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0 0.0	TP12/0.1-0.10 TP12/0.4-0.5	No hydrocarbon odour. No Staining. Ash
		0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0					**Terminated at 0.50 m** Services encountered at 0.5m.				

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP13**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

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Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
EX		0.2 0.30				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP13/0.0-0.05	No hydrocarbon odour. No Staining. Ash.
		0.4 0.6 0.80				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP13/0.4-0.5	No hydrocarbon odour. No Staining.
		1.0 1.2 1.4 1.6 1.8 2.00			CL	Natural	**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP13/1.9-1.2	No hydrocarbon odour. No Staining.
		2.2 2.4 2.6 2.8 3.0					**Terminated at 2.00 m** Target depth.				

Additional Comments

TP13 completed within abutment.
ACM07 collected from abutment.

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

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Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP14**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**2.00 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Grass				
EX		0.2 / 0.30				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	dry	0.0	TP14/0.1-0.10	No hydrocarbon odour. No Staining. Ash.
		0.4 / 0.6 / 0.80			CL	Natural	**Sandy CLAY** - grey, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP14/0.4-0.5	No hydrocarbon odour. No Staining.
		1.0 / 1.2 / 1.4 / 1.6 / 1.8 / 2.00			CL		**Sandy CLAY** - brown / orange, soft, low plasticity, loose, fine to coarse grained sand.	slightly moist	0.0	TP14/1.9-2.0	No hydrocarbon odour. No Staining.
		2.2 / 2.4 / 2.6 / 2.8 / 3.0					**Terminated at 2.00 m** Target depth.				

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Test Pit Log

Project Name:	**ARTC Goulburn Roundhouse**	Hole ID.	**TP15**
Location / Site:	**Off Braidwood Rd, Goulburn NSW**	Project Number:	**20025.76**
Client:	**Australian Rail Track Corporation**	Hole Depth:	**1.50 m**
Contractor:	**M&M Earthworks**		
Method:	**Excavation**		
Date Started:	**20/08/2020**	Ground Level:	----------
Date Completed:	**20/08/2020**	Easting:	----------
Sheet:	**1 of 1**	Northing:	----------
		Zone:	----------

CAVVANBA consulting

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samples PID ppm	Samples ID No.	Observations / Comments
							Surface cover: Gravel				
EX		0.2 / **0.30**				Fill	**FILL** - Sandy GRAVEL, black, loose, fine to coarse grained sand, fine to coarse gravel.	slightly moist	0.0	TP15/0.1-0.10	No hydrocarbon odour. No Staining. Ash.
		0.4 / **0.60**			CL	Natural	**Sandy CLAY** - grey, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP15/0.4-0.5	No hydrocarbon odour. No Staining.
		0.8 / 1.0 / 1.2 / 1.4 / **1.50**			CL		**Sandy CLAY** - light brown, soft, low plasticity, loose, fine to coarse grained sand.	moist	0.0	TP15/1.4-1.5	No hydrocarbon odour. No Staining.
		1.6 / 1.8 / 2.0 / 2.2 / 2.4 / 2.6 / 2.8 / 3.0					**Terminated at 1.50 m** Target depth.				

Additional Comments

REUMAD

Log Drawn By: Laurie White
Contact: laurie.white@reumad.com.au

Logged By: **Michael Wright** Date: **20/08/2020**
Checked By: **Michael Wright** Date: **12/11/2020**

Appendix I

Survey Data

SCALE - 1:750
AZIMUTH - MGA
CONTOUR INTERVAL -
DATUM - AHD (PM8879)
DATE - 31 AUG 2020
REF - 24126

CAVVANBA CONSULTING P/L
SURVEY SHOWING MONITORING WELLS
GOULBURN ROUNDHOUSE
BRAIDWOOD ROAD - GOULBURN

SOUTHERN CROSS CONSULTING SURVEYORS
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GOULBURN NSW 2580
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Appendix J

Data Usability Assessment

Data Usability Summary Assessment

A background to data usability is provided in this appendix. All site work was completed in accordance with standard Cavvanba sampling protocols, including a quality assurance/quality control (QA/QC) programme and standard operating procedures.

A data usability assessment was performed for all soil and groundwater data collected by Cavvanba, as summarised in the following tables:
- Table 1.1: Field QC samples summary;
- Table 1.2: Summary of field QA/QC; and
- Table 1.3: Summary of laboratory QA/QC.

This data usability assessment was conducted on laboratory batch numbers ES2029494, ES2030032, 739869 and 740831.

Table 1.1: Field QC samples summary

	Total samples	Field duplicates [1]	Inter-lab duplicates [1]	Trip spike	Trip blank
Soil					
BTEXN	37	2 (5.41%)	2 (5.41%)	1	1
TRH C_6 – C_{10}	37	2 (5.41%)	2 (5.41%)	1	1
TRH C_{10} – C_{40}	37	2 (5.41%)	2 (5.41%)	-	-
Metals[1]	37	2 (5.41%)	2 (5.41%)	-	-
PAHs	37	2 (5.41%)	2 (5.41%)	-	-
Phenols	37	2 (5.41%)	2 (5.41%)	-	-
OCPs / OPPs	27	0 (0%)	0 (0%)	-	-
Phenoxyacetic Acid Herbicides	8	0 (0%)	0 (0%)	-	-
VOCs	4	0 (0%)	0 (0%)	-	-
Asbestos	3	0 (0%)	0 (0%)	-	-
Groundwater					
BTEXN	11	1 (9.09%)	1 (9.09%)	1	1
TRH C_6 – C_{10}	11	1 (9.09%)	1 (9.09%)	1	1
TRH C_{10} – C_{40}	11	1 (9.09%)	1 (9.09%)	-	-
Metals[1]	11	1 (9.09%)	1 (9.09%)	-	-
PAHs	11	1 (9.09%)	1 (9.09%)	-	-
Phenols	11	0 (0%)	0 (0%)	-	-
OCPs	5	0 (0%)	0 (0%)	-	-
VOCs	6	0 (0%)	0 (0%)	-	-

Notes:
1. Generally, 8 metals including arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury.

– = not applicable, as trip spike/blank analysed for volatile compounds only.

Table 1.2: Summary of field QA/QC

Parameter	Complies	Comments [1]
Precision		
Standard operating procedures (SOPs) appropriate and complied with	Yes	Sampling was conducted in accordance with Cavvanba standard field operating procedures and project DQOs. The sampling methods complied with industry standards and guidelines.
Field duplicates	Partial	RPD[2] criteria < 30% – 50%, frequency ≥ 5%. RPD exceedances were reported for select analytes in soil samples. The frequency of field duplicates were within the acceptable range.
Inter-laboratory duplicates	Yes	RPD[2] criteria < 30% – 50%, frequency ≥ 5%. No RPD exceedances were reported for inter-laboratory duplicates. The frequency of inter-laboratory duplicates was within the acceptable range.
Accuracy		
Matrix spikes samples appropriate	Yes	≥ 1/media type.
Representativeness		
Sample collection - preservation	Yes	All samples were collected directly into laboratory supplied jars/bottles with no headspace. All samples were placed immediately into eskies containing ice.
Sample collection - sample splitting	Yes	Duplicate samples were split in the field by filling each container collectively (i.e. co-collected).
Field equipment calibrated	Yes	PID and groundwater multi-parameter probe calibration records are included as an appendix to the report.
Decontamination procedures	Yes	Groundwater samples were collected using single use disposable tubing. Decontamination of the interface probe was conducted between each monitoring well. No other re-usable groundwater sampling equipment was used. Soil samples were collected directly from the mechanical auger / excavator bucket / hand auger, ensuring the sampling equipment had been decontaminated between each borehole / test pit location and a new pair of disposable gloves worn for each sample collected.
Rinsate samples	n/a	Required ≥ 1/field batch, < LORs. There were no rinsate samples collected during the course of the investigation.

Parameter	Complies	Comments [1]
Trip blanks	Yes	≥ 1/field batch (volatiles), < LORs. Trip blanks were collected for all sample batches submitted to the laboratory. Analytical results were reported below the laboratory LOR.
Trip spikes	Yes	≥ 1/field batch (volatiles), 70 - 130%, (recovery) or ≤ 30 - 50% (RPDs). One trip spike was collected/analysed for the soil and groundwater samples, and RPDs were within acceptable limits.
Comparability		
Consistent sampling staff	Yes	All field work was conducted by Mr Michael Wright of Cavvanba Consulting.
Consistent weather/field conditions	Yes	No extreme weather conditions occurred during or before/after the investigation.
Completeness		
Sample logs and field data	Yes	Standard field sampling forms were used during the investigation.
Chain of Custody	Yes	-

Notes:
1. For QC samples, specified frequency and acceptance criteria shown.
2. RPD = relative percentage difference.

Table 1.3: Summary of laboratory QA/QC

Parameter	Complies	Notes[1]
Precision		
Laboratory duplicates	Partial	≥ 10%, laboratory specified. Laboratory duplicate recoveries were within the laboratory specified global acceptance criteria with the exception of select analytes. Laboratory frequency outliers were within the acceptable range with the exception of select analytes.
Accuracy		
Surrogate spikes	Partial	Organics by GC, 70% - 130%. Surrogate spike recoveries were within the laboratory specified global acceptance criteria. The frequency of surrogate spikes were within the acceptable range.
Matrix spikes analysis appropriate	Yes	RPD criteria of ≥ 70% - 130%. No matrix spike outliers occurred. Matrix spike frequency outliers were within the acceptable range with the exception of select analytes.
Laboratory control samples (LCSs)	Yes	RPD criteria of 70% - 130%, frequency of ≥ 1/lab batch Laboratory control sample recoveries were within the laboratory specified global acceptance criteria. The frequency of laboratory control samples was within the acceptable range.
Certified reference material (CRM)	n/a	-
Representativeness		
Sample condition	Yes	-
Holding times	Yes	-
Laboratory blanks	Yes	≥ 1/lab batch, < LORs.
Comparability		
NATA accredited laboratory	Yes	ALS Environmental Pty Ltd is a NATA accredited laboratory (accreditation number 825). The inter-laboratory is also NATA accredited, Eurofins Scientific Pty Ltd (accreditation number 1261).
ASC NEPM 2013 methods or similar	Yes	ALS and Eurofins describe their in-house laboratory methods are referenced from NEPC, ASTM and modified USEPA/APHA documents.

Parameter	Complies	Notes[1]
Limits of reporting (LORs) are consistent and appropriate	Yes	-
Completeness		
Sample receipt	Yes	-
Laboratory Reports	Yes	-

Notes:
1. For QC samples, acceptance criteria shown. Acceptance criteria can vary based on analyte, statistical data and laboratory specific methods. Laboratory specified relates to detected concentrations based on LORs, e.g. result < 10 x LOR = no limit, 10 – 20 x LOR = 0 - 50%, > 20 x LOR = 0 - 20%. See laboratory reports for specific details.

Summary and discussion

The following issues were identified with the data:

Precision

RPD exceedances were reported for soil between the primary sample, and the intra-laboratory and inter-laboratory duplicates. These exceedances were associated with select heavy metals concentrations and are likely attributed to the inherent variability of these concentrations reported, and resultant heterogeneity of the fill material sampled. Where the duplicate sample exceeded the applicable assessment criteria, this concentration was adopted for decision making purposes. These are not considered to detract from the precision of the dataset and/or affect the conclusions of the report.

Laboratory duplicate outliers were reported for select heavy metals by the inter-laboratory. It was reported that the cause of the RPD outliers were due to the heterogeneity of the sample. Laboratory duplicate frequency outliers were also reported to be slightly outside of the acceptable ranges for OCPs, PAHs and TRH in the semi-volatile fractions. These reported outliers are considered to be acceptable and do not detract from the overall precision of the dataset.

Accuracy

There were no outliers reported for field QC samples collected to assist in the qualification of accuracy.

Surrogate spikes, matrix spikes and laboratory control sample recoveries were within acceptable ranges.

Matrix spike frequency outliers were reported to be slightly outside of the acceptable range for OCPs, PAHs and TRH in the semi-volatile fractions. These reported outliers are considered to be acceptable and do not detract from the overall accuracy of the dataset.

Representativeness

Trip spike recoveries were within the specified RPDs and trip blank recoveries were below the laboratory LORs.

Comparability

The data is considered to be acceptable, with experienced sampling staff, NATA accredited laboratories and all laboratory LORs below the relevant environmental criteria.

Completeness

Laboratory and field documentation is considered to be complete.

Appendix K

Laboratory Analytical Certificates

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2029494**	Page	: 1 of 50
Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Contact	: Brenda Hong
Address	: NEWCASTLE	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 6685 7811	Telephone	: +61 2 8784 8555
Project	: 20025.76	Date Samples Received	: 21-Aug-2020 12:56
Order number	: 20025.76	Date Analysis Commenced	: 24-Aug-2020
C-O-C number	: ----	Issue Date	: 01-Sep-2020 15:45
Sampler	: MICHAEL WRIGHT		
Site	: ----		
Quote number	: SY/159/20		
No. of samples received	: 165		
No. of samples analysed	: 46		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Sum of chlorinated hydrocarbons includes carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichlorothene, trans-1,2-dichlorothene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, vinyl chloride, hexachlorobutadiene and methylene chloride.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP080: Positive results for sample ES2029494_071 has been con firmed by re-ananlysis.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EP068: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.

- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- EA200: N/A - Not Applicable

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
			Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	12.4	19.7	18.3	19.6	21.4
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	7	<5	27	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	44	17	36	11	65
Copper	7440-50-8	5	mg/kg	16	143	21	1900	24
Lead	7439-92-1	5	mg/kg	27	212	18	1800	17
Nickel	7440-02-0	2	mg/kg	9	16	27	17	16
Zinc	7440-66-6	5	mg/kg	9	94	16	297	15
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
				Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	<0.05	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	<0.5	----	<0.5
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	<0.5	----	<0.5
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	<0.5	----	<0.5
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	<0.5	----	<0.5
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	<0.5	----	<0.5
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	<0.5	----	<0.5
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	<0.5	----	<0.5
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
				Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
					Result	Result	Result	Result	Result
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	<5	----	<5
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	<5	----	<5
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	<5	----	<5
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	<5	----	<5
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	<0.5	----	<0.5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	<0.5	----	<0.5
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	<0.5	----	<0.5
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	<0.5	----	<0.5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	<5	----	<5
Chloromethane	74-87-3	5	mg/kg		----	----	<5	----	<5
Vinyl chloride	75-01-4	5	mg/kg		----	----	<5	----	<5
Bromomethane	74-83-9	5	mg/kg		----	----	<5	----	<5
Chloroethane	75-00-3	5	mg/kg		----	----	<5	----	<5
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	<5	----	<5
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	<0.5	----	<0.5
Iodomethane	74-88-4	0.5	mg/kg		----	----	<0.5	----	<0.5
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	<0.5	----	<0.5
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	<0.5	----	<0.5
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	<0.5	----	<0.5
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	<0.5	----	<0.5
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	<0.5	----	<0.5
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	<0.5	----	<0.5
Trichloroethene	79-01-6	0.5	mg/kg		----	----	<0.5	----	<0.5
Dibromomethane	74-95-3	0.5	mg/kg		----	----	<0.5	----	<0.5
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	<0.5	----	<0.5
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	<0.5	----	<0.5
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	<0.5	----	<0.5
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
				Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	<0.5	----	<0.5
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	<0.5	----	<0.5
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	<0.5	----	<0.5
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	<0.5	----	<0.5
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	<0.5	----	<0.5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	<0.5	----	<0.5
Bromobenzene	108-86-1	0.5	mg/kg		----	----	<0.5	----	<0.5
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	<0.5	----	<0.5
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	<0.5	----	<0.5
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	<0.5	----	<0.5
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	<0.5	----	<0.5
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	<0.5	----	<0.5
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	<0.5	----	<0.5
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	<0.5	----	<0.5
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	<0.5	----	<0.5
Bromoform	75-25-2	0.5	mg/kg		----	----	<0.5	----	<0.5
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	----	<1	----	1
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
				Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.3**
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.7**
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.6**
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**0.5**	<0.5	**1.0**	**2.8**
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	**0.9**	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	**1.0**	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	**0.6**	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	**0.7**	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	**0.8**	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	**0.5**	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**0.5**	<0.5	**5.5**	**6.4**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.7**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	**60**	<50	**1240**
C15 - C28 Fraction	----	100	mg/kg		<100	**170**	**180**	**960**	**3460**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	**1490**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**170**	**240**	**2450**	**4700**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	**21**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	**21**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
				Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	**130**	<50	**2540**
>C16 - C34 Fraction	----	100	mg/kg		<100	**220**	**110**	**2060**	**2220**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	**880**	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**220**	**240**	**2940**	**4760**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	**130**	<50	**2540**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	**1**
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	----	----	<0.04	----
2.4-DB	94-82-6	0.02	mg/kg		----	----	----	<0.04	----
Dicamba	1918-00-9	0.02	mg/kg		----	----	----	<0.04	----
Mecoprop	93-65-2	0.02	mg/kg		----	----	----	<0.04	----
MCPA	94-74-6	0.02	mg/kg		----	----	----	<0.04	----
2.4-DP	120-36-5	0.02	mg/kg		----	----	----	<0.04	----
2.4-D	94-75-7	0.02	mg/kg		----	----	----	<0.04	----
Triclopyr	55335-06-3	0.02	mg/kg		----	----	----	<0.04	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	----	----	<0.04	----
2.4.5-T	93-76-5	0.02	mg/kg		----	----	----	<0.04	----
MCPB	94-81-5	0.02	mg/kg		----	----	----	<0.04	----
Picloram	1918-02-1	0.02	mg/kg		----	----	----	<0.04	----
Clopyralid	1702-17-6	0.02	mg/kg		----	----	----	<0.04	----
Fluroxypyr	69377-81-7	0.02	mg/kg		----	----	----	<0.04	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**88.1**	**92.5**	----	**65.1**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**92.9**	**80.4**	----	**65.1**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH01 0.4-0.5	BH02 0.0-0.5	BH02 6.9-7.0	BH03 0.4-0.5	BH04 1.9-2.0
				Client sampling date / time	19-Aug-2020 00:00	19-Aug-2020 00:00	19-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-002	ES2029494-006	ES2029494-014	ES2029494-018	ES2029494-024
					Result	Result	Result	Result	Result
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	91.8	----	103
Toluene-D8	2037-26-5	0.5	%		----	----	98.3	----	104
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	107	----	101
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		91.0	100.0	117	87.1	107
2-Chlorophenol-D4	93951-73-6	0.5	%		97.2	103	118	88.8	108
2.4.6-Tribromophenol	118-79-6	0.5	%		103	108	113	100	112
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		118	102	120	102	96.3
Anthracene-d10	1719-06-8	0.5	%		106	105	108	103	101
4-Terphenyl-d14	1718-51-0	0.5	%		97.3	128	103	92.1	102
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		95.3	95.2	83.0	82.3	78.9
Toluene-D8	2037-26-5	0.2	%		101	108	83.8	87.6	93.4
4-Bromofluorobenzene	460-00-4	0.2	%		100	99.5	94.8	81.5	106
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	----	----	73.9	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH04 6.9-7.0	BH05 0.0-0.05	BH06 0.0-0.05	BH07 0.0-0.05	BH07 5.9-6.0
			Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-029	ES2029494-032	ES2029494-043	ES2029494-054	ES2029494-061
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.4	18.0	25.8	19.8	15.2
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	16	7	8	7
Cadmium	7440-43-9	1	mg/kg	<1	1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	34	8	8	8	14
Copper	7440-50-8	5	mg/kg	19	944	739	461	9
Lead	7439-92-1	5	mg/kg	22	1570	576	391	15
Nickel	7440-02-0	2	mg/kg	24	16	8	11	24
Zinc	7440-66-6	5	mg/kg	14	592	62	116	11
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	<0.2	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH04 6.9-7.0	BH05 0.0-0.05	BH06 0.0-0.05	BH07 0.0-0.05	BH07 5.9-6.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-029	ES2029494-032	ES2029494-043	ES2029494-054	ES2029494-061
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	<0.05	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH04 6.9-7.0	BH05 0.0-0.05	BH06 0.0-0.05	BH07 0.0-0.05	BH07 5.9-6.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-029	ES2029494-032	ES2029494-043	ES2029494-054	ES2029494-061
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**160**	**110**	**200**	<100
C29 - C36 Fraction	----	100	mg/kg		<100	**140**	**180**	**180**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**300**	**290**	**380**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH04 6.9-7.0	BH05 0.0-0.05	BH06 0.0-0.05	BH07 0.0-0.05	BH07 5.9-6.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-029	ES2029494-032	ES2029494-043	ES2029494-054	ES2029494-061
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	**260**	**250**	**330**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	**140**	**100**	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**260**	**390**	**430**	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	<0.02	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		----	<0.02	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		----	<0.02	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		----	<0.02	----	----	----
MCPA	94-74-6	0.02	mg/kg		----	<0.02	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		----	<0.02	----	----	----
2.4-D	94-75-7	0.02	mg/kg		----	<0.02	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		----	<0.02	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	<0.02	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		----	<0.02	----	----	----
MCPB	94-81-5	0.02	mg/kg		----	<0.02	----	----	----
Picloram	1918-02-1	0.02	mg/kg		----	<0.02	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		----	<0.02	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		----	<0.02	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**98.6**	**88.6**	**93.4**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**74.0**	**60.7**	**62.0**	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH04 6.9-7.0	BH05 0.0-0.05	BH06 0.0-0.05	BH07 0.0-0.05	BH07 5.9-6.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-029	ES2029494-032	ES2029494-043	ES2029494-054	ES2029494-061
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		109	94.1	88.9	86.0	97.0
2-Chlorophenol-D4	93951-73-6	0.5	%		109	89.3	92.7	94.4	96.2
2.4.6-Tribromophenol	118-79-6	0.5	%		91.7	62.2	80.2	74.8	104
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		102	104	94.3	100	111
Anthracene-d10	1719-06-8	0.5	%		112	103	100	98.3	109
4-Terphenyl-d14	1718-51-0	0.5	%		103	99.8	101	95.5	101
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		99.2	84.1	92.0	93.3	98.9
Toluene-D8	2037-26-5	0.2	%		115	89.7	101	101	110
4-Bromofluorobenzene	460-00-4	0.2	%		109	78.4	89.6	95.6	110
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	64.6	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
			Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
				Result	Result	Result	Result	Result
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	----	----	7.8
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	8.4
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	----	111
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	----	----	19.2
Moisture Content	----	1.0	%	17.6	20.0	16.1	17.8	----
EA150: Soil Classification based on Particle Size								
Clay (<2 µm)	----	1	%	----	----	----	----	34
EA152: Soil Particle Density								
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	----	----	2.67
ED006: Exchangeable Cations on Alkaline Soils								
Exchangeable Calcium	----	0.2	meq/100g	----	----	----	----	4.6
Exchangeable Magnesium	----	0.2	meq/100g	----	----	----	----	5.9
Exchangeable Potassium	----	0.2	meq/100g	----	----	----	----	0.3
Exchangeable Sodium	----	0.2	meq/100g	----	----	----	----	<0.2
Cation Exchange Capacity	----	0.2	meq/100g	----	----	----	----	10.8
EG005(ED093)T: Total Metals by ICP-AES								
Iron	7439-89-6	0.005	%	----	----	----	----	3.42
Arsenic	7440-38-2	5	mg/kg	11	12	<5	8	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	9	12	20	6	----
Copper	7440-50-8	5	mg/kg	349	906	13	1160	----
Lead	7439-92-1	5	mg/kg	447	1850	18	2620	----
Nickel	7440-02-0	2	mg/kg	13	14	14	12	----
Zinc	7440-66-6	5	mg/kg	67	147	13	219	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	<0.1	0.2	----
EP003: Total Organic Carbon (TOC) in Soil								
Total Organic Carbon	----	0.02	%	----	----	----	----	0.28
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.25	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.25	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.25	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg		----	<0.25	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.25	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.25	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.25	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.25	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	<0.08	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.25	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.25	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.25	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.25	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.25	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	<0.25	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.25	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.15	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.25	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.25	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.25	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<1.0	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.25	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<1.0	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.08	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.08	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.25	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.25	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<1.0	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.25	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.25	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.25	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<1.0	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	<0.25	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.25	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.25	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	<1.0	----	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.25	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.25	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.25	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.25	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.25	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	<0.25	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.25	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.25	----	<0.05	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	<0.5	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	**1.4**	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	**0.5**	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	**0.7**	<0.5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	<5	<5	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	<0.5	<0.5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	<0.5	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg		----	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		----	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg		----	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg		----	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	<0.5	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		----	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	<0.5	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		----	<0.5	<0.5	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	**4**	<1	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	**7.1**	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	**1.1**	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	**2.2**	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	**4.3**	**0.5**	**0.6**	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	**0.5**	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**15.2**	**0.5**	**0.6**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	**11**	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	**3310**	**240**	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	**8780**	**650**	**230**	----
C29 - C36 Fraction	----	100	mg/kg		<100	**950**	<100	**260**	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**13000**	**890**	**490**	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	**31**	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	**28**	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	**5990**	**460**	<50	----
>C16 - C34 Fraction	----	100	mg/kg		**130**	**6960**	**470**	**420**	----
>C34 - C40 Fraction	----	100	mg/kg		<100	**470**	<100	**160**	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**130**	**13400**	**930**	**580**	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	**5990**	**460**	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	**0.6**	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	**0.6**	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	**2.3**	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	**3.5**	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	**2.3**	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	**4**	<1	<1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	<0.04	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	<0.04	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	<0.04	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	<0.04	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.02	<0.04	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	<0.04	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	<0.04	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	<0.04	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	<0.04	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	<0.04	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	<0.04	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	<0.04	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	<0.04	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	<0.04	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	125	----	100	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	122	----	59.5	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	92.2	99.9	----	----
Toluene-D8	2037-26-5	0.5	%		----	88.7	90.1	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	87.6	93.6	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		86.8	102	109	90.1	----
2-Chlorophenol-D4	93951-73-6	0.5	%		88.4	106	116	91.4	----
2.4.6-Tribromophenol	118-79-6	0.5	%		76.9	109	106	73.9	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.0	96.2	109	86.4	----
Anthracene-d10	1719-06-8	0.5	%		100	101	107	92.7	----
4-Terphenyl-d14	1718-51-0	0.5	%		95.0	91.7	88.1	89.8	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		91.0	84.1	76.5	95.9	----
Toluene-D8	2037-26-5	0.2	%		98.9	94.0	80.8	106	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH08 0.0-0.05	BH09 0.2-0.3	BH09 5.2-5.3	BH10 0.4-0.5	BH10 7.9-8.0
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00	18-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-065	ES2029494-071	ES2029494-078	ES2029494-084	ES2029494-092
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		90.9	85.0	98.2	95.6	----
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		68.8	71.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11 0.0-0.05	HA01 0.0-0.05	TP01 0.05-0.1	TP02 0.4-0.5	TP03 0.0-0.05
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-094	ES2029494-104	ES2029494-106	ES2029494-110	ES2029494-112
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		20.6	7.0	40.0	15.2	10.3
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		22	6	9	<5	20
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		8	9	9	52	36
Copper	7440-50-8	5	mg/kg		3530	292	83	10	173
Lead	7439-92-1	5	mg/kg		9440	304	122	15	362
Nickel	7440-02-0	2	mg/kg		17	13	12	10	36
Zinc	7440-66-6	5	mg/kg		270	459	234	7	387
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		0.2	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11 0.0-0.05	HA01 0.0-0.05	TP01 0.05-0.1	TP02 0.4-0.5	TP03 0.0-0.05
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-094	ES2029494-104	ES2029494-106	ES2029494-110	ES2029494-112
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11 0.0-0.05	HA01 0.0-0.05	TP01 0.05-0.1	TP02 0.4-0.5	TP03 0.0-0.05
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-094	ES2029494-104	ES2029494-106	ES2029494-110	ES2029494-112
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.8**
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.8**
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.6**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**220**	<100	<100	**170**
C29 - C36 Fraction	----	100	mg/kg		<100	**220**	<100	<100	**150**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**440**	<50	<50	**320**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11 0.0-0.05	HA01 0.0-0.05	TP01 0.05-0.1	TP02 0.4-0.5	TP03 0.0-0.05
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-094	ES2029494-104	ES2029494-106	ES2029494-110	ES2029494-112
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	**380**	<100	<100	**260**
>C34 - C40 Fraction	----	100	mg/kg		<100	**160**	<100	<100	**150**
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	**540**	<50	<50	**410**
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	----	<0.04	----	----
2.4-DB	94-82-6	0.02	mg/kg		----	----	<0.04	----	----
Dicamba	1918-00-9	0.02	mg/kg		----	----	<0.04	----	----
Mecoprop	93-65-2	0.02	mg/kg		----	----	<0.04	----	----
MCPA	94-74-6	0.02	mg/kg		----	----	<0.04	----	----
2.4-DP	120-36-5	0.02	mg/kg		----	----	<0.04	----	----
2.4-D	94-75-7	0.02	mg/kg		----	----	<0.04	----	----
Triclopyr	55335-06-3	0.02	mg/kg		----	----	<0.04	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	----	<0.04	----	----
2.4.5-T	93-76-5	0.02	mg/kg		----	----	<0.04	----	----
MCPB	94-81-5	0.02	mg/kg		----	----	<0.04	----	----
Picloram	1918-02-1	0.02	mg/kg		----	----	<0.04	----	----
Clopyralid	1702-17-6	0.02	mg/kg		----	----	<0.04	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		----	----	<0.04	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**99.8**	**123**	**106**	**104**	**90.2**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**61.1**	**74.5**	**56.3**	**72.4**	**102**
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11 0.0-0.05	HA01 0.0-0.05	TP01 0.05-0.1	TP02 0.4-0.5	TP03 0.0-0.05
				Client sampling date / time	18-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-094	ES2029494-104	ES2029494-106	ES2029494-110	ES2029494-112
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		97.0	103	102	103	94.8
2-Chlorophenol-D4	93951-73-6	0.5	%		95.2	102	100	101	93.8
2.4.6-Tribromophenol	118-79-6	0.5	%		69.8	73.9	91.9	78.8	93.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		105	97.6	104	108	98.8
Anthracene-d10	1719-06-8	0.5	%		105	104	108	103	96.5
4-Terphenyl-d14	1718-51-0	0.5	%		102	97.6	103	86.6	93.8
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		93.1	95.1	86.0	95.1	88.7
Toluene-D8	2037-26-5	0.2	%		93.0	100	83.0	95.2	87.7
4-Bromofluorobenzene	460-00-4	0.2	%		92.6	102	84.8	102	88.0
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	----	63.9	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP03 1.4-1.5	TP04 0.4-0.5	TP05 0.05-0.1	TP05 0.4-0.5	TP06 0.4-0.5
			Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-114	ES2029494-116	ES2029494-118	ES2029494-119	ES2029494-122
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.9	32.8	18.6	19.6	19.9
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	13	16	13	33
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	40	26	50	31	31
Copper	7440-50-8	5	mg/kg	18	86	116	1820	1180
Lead	7439-92-1	5	mg/kg	23	146	320	3570	1420
Nickel	7440-02-0	2	mg/kg	12	19	9	27	30
Zinc	7440-66-6	5	mg/kg	13	313	183	450	645
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.1	0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	<0.2	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	<0.05	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP03 1.4-1.5	TP04 0.4-0.5	TP05 0.05-0.1	TP05 0.4-0.5	TP06 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-114	ES2029494-116	ES2029494-118	ES2029494-119	ES2029494-122
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	<0.2	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	<0.2	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	<0.2	----	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	----	<0.2	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	<0.05	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP03 1.4-1.5	TP04 0.4-0.5	TP05 0.05-0.1	TP05 0.4-0.5	TP06 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-114	ES2029494-116	ES2029494-118	ES2029494-119	ES2029494-122
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	**0.6**	**0.7**
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	**0.6**	**0.7**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	**120**	**180**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	**320**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**120**	**500**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP03 1.4-1.5	TP04 0.4-0.5	TP05 0.05-0.1	TP05 0.4-0.5	TP06 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-114	ES2029494-116	ES2029494-118	ES2029494-119	ES2029494-122
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	**210**	**440**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	**140**
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	**210**	**580**
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	----	----	----	<0.02
2.4-DB	94-82-6	0.02	mg/kg		----	----	----	----	<0.02
Dicamba	1918-00-9	0.02	mg/kg		----	----	----	----	<0.02
Mecoprop	93-65-2	0.02	mg/kg		----	----	----	----	<0.02
MCPA	94-74-6	0.02	mg/kg		----	----	----	----	<0.02
2.4-DP	120-36-5	0.02	mg/kg		----	----	----	----	<0.02
2.4-D	94-75-7	0.02	mg/kg		----	----	----	----	<0.02
Triclopyr	55335-06-3	0.02	mg/kg		----	----	----	----	<0.02
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	----	----	----	<0.02
2.4.5-T	93-76-5	0.02	mg/kg		----	----	----	----	<0.02
MCPB	94-81-5	0.02	mg/kg		----	----	----	----	<0.02
Picloram	1918-02-1	0.02	mg/kg		----	----	----	----	<0.02
Clopyralid	1702-17-6	0.02	mg/kg		----	----	----	----	<0.02
Fluroxypyr	69377-81-7	0.02	mg/kg		----	----	----	----	<0.02
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**98.9**	----	**93.4**	----	**75.3**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**74.0**	----	**70.6**	----	**81.8**
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP03 1.4-1.5	TP04 0.4-0.5	TP05 0.05-0.1	TP05 0.4-0.5	TP06 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-114	ES2029494-116	ES2029494-118	ES2029494-119	ES2029494-122
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		103	99.8	104	95.8	102
2-Chlorophenol-D4	93951-73-6	0.5	%		103	102	108	96.3	102
2.4.6-Tribromophenol	118-79-6	0.5	%		86.4	75.8	81.6	76.9	85.0
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		106	121	116	113	117
Anthracene-d10	1719-06-8	0.5	%		108	123	110	112	117
4-Terphenyl-d14	1718-51-0	0.5	%		101	127	112	111	118
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		87.2	88.5	93.3	87.3	87.2
Toluene-D8	2037-26-5	0.2	%		83.6	77.6	94.0	88.8	86.7
4-Bromofluorobenzene	460-00-4	0.2	%		93.3	72.7	98.0	88.1	85.7
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	----	----	----	65.9

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP07 0.0-0.05	TP08 0.4-0.5	TP08 2.2-2.3	TP09 0.05--0.1	TP10 0.4-0.5
			Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-124	ES2029494-128	ES2029494-130	ES2029494-131	ES2029494-135
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	15.1	19.8	18.4	13.1	15.0
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	46	30	<5	30	8
Cadmium	7440-43-9	1	mg/kg	1	28	<1	8	<1
Chromium	7440-47-3	2	mg/kg	10	151	43	193	22
Copper	7440-50-8	5	mg/kg	923	1210	15	2430	297
Lead	7439-92-1	5	mg/kg	2020	6160	26	2750	385
Nickel	7440-02-0	2	mg/kg	13	102	11	90	20
Zinc	7440-66-6	5	mg/kg	597	6140	15	26200	119
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	0.3	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP07 0.0-0.05	TP08 0.4-0.5	TP08 2.2-2.3	TP09 0.05--0.1	TP10 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-124	ES2029494-128	ES2029494-130	ES2029494-131	ES2029494-135
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP07 0.0-0.05	TP08 0.4-0.5	TP08 2.2-2.3	TP09 0.05--0.1	TP10 0.4-0.5
			Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-124	ES2029494-128	ES2029494-130	ES2029494-131	ES2029494-135
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	**0.6**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	**0.5**	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	**0.5**	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	**1.6**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	**270**	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	**110**	**440**	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	**110**	**710**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP07 0.0-0.05	TP08 0.4-0.5	TP08 2.2-2.3	TP09 0.05--0.1	TP10 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-124	ES2029494-128	ES2029494-130	ES2029494-131	ES2029494-135
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		**170**	**620**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	**260**	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**170**	**880**	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.04	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.04	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.04	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.04	----	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.04	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.04	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.04	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.04	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.04	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.04	----	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.04	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.04	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.04	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.04	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**72.2**	**75.8**	**98.0**	**105**	**80.2**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**60.2**	**91.6**	**70.1**	**122**	**80.7**
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP07 0.0-0.05	TP08 0.4-0.5	TP08 2.2-2.3	TP09 0.05--0.1	TP10 0.4-0.5
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-124	ES2029494-128	ES2029494-130	ES2029494-131	ES2029494-135
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		110	116	115	96.3	107
2-Chlorophenol-D4	93951-73-6	0.5	%		107	114	113	90.7	105
2.4.6-Tribromophenol	118-79-6	0.5	%		56.4	82.1	72.8	50.6	57.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		116	120	115	111	116
Anthracene-d10	1719-06-8	0.5	%		105	117	123	96.8	112
4-Terphenyl-d14	1718-51-0	0.5	%		114	121	121	105	118
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		93.8	89.7	96.9	93.2	94.4
Toluene-D8	2037-26-5	0.2	%		91.5	85.2	95.6	89.1	90.7
4-Bromofluorobenzene	460-00-4	0.2	%		93.7	86.8	104	90.2	95.6
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		77.7	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP10 1.9-2.0	TP11 0.05-0.1	TP12 0.05-0.1	TP13 0.0-0.05	TP13 1.9-2.0
			Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-136	ES2029494-137	ES2029494-140	ES2029494-142	ES2029494-144
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.3	22.1	20.3	17.2	14.1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	16	<5	19	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	28	16	29	94	46
Copper	7440-50-8	5	mg/kg	22	179	142	212	21
Lead	7439-92-1	5	mg/kg	15	248	194	320	34
Nickel	7440-02-0	2	mg/kg	12	21	11	53	10
Zinc	7440-66-6	5	mg/kg	14	422	101	230	154
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP10 1.9-2.0	TP11 0.05-0.1	TP12 0.05-0.1	TP13 0.0-0.05	TP13 1.9-2.0
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-136	ES2029494-137	ES2029494-140	ES2029494-142	ES2029494-144
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP10 1.9-2.0	TP11 0.05-0.1	TP12 0.05-0.1	TP13 0.0-0.05	TP13 1.9-2.0
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-136	ES2029494-137	ES2029494-140	ES2029494-142	ES2029494-144
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	**0.5**	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	**0.5**	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	**120**	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	**180**	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	**300**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP10 1.9-2.0	TP11 0.05-0.1	TP12 0.05-0.1	TP13 0.0-0.05	TP13 1.9-2.0
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-136	ES2029494-137	ES2029494-140	ES2029494-142	ES2029494-144
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	**260**	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	**260**	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**70.8**	**88.7**	**78.8**	**71.1**	**----**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**76.2**	**87.5**	**65.5**	**83.3**	**----**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**115**	**105**	**99.3**	**99.7**	**98.8**
2-Chlorophenol-D4	93951-73-6	0.5	%		**116**	**105**	**93.1**	**92.3**	**95.2**
2.4.6-Tribromophenol	118-79-6	0.5	%		**69.7**	**75.0**	**93.9**	**78.2**	**79.2**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**118**	**118**	**102**	**101**	**99.8**
Anthracene-d10	1719-06-8	0.5	%		**125**	**116**	**111**	**106**	**106**
4-Terphenyl-d14	1718-51-0	0.5	%		**126**	**120**	**110**	**107**	**107**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**94.6**	**90.6**	**88.6**	**94.6**	**87.1**
Toluene-D8	2037-26-5	0.2	%		**92.9**	**83.9**	**86.1**	**102**	**87.2**
4-Bromofluorobenzene	460-00-4	0.2	%		**96.3**	**85.0**	**87.3**	**99.3**	**94.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP14 0.05-0.1	TP15 0.05-0.1	TP15 0.4-0.5	QS01	QS07
			Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit	ES2029494-145	ES2029494-148	ES2029494-149	ES2029494-151	ES2029494-154
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	30.8	23.1	18.0	22.8	28.1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	12	<5	10	10
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	155	17	51	10	30
Copper	7440-50-8	5	mg/kg	721	162	13	354	54
Lead	7439-92-1	5	mg/kg	717	221	17	485	141
Nickel	7440-02-0	2	mg/kg	19	14	6	13	13
Zinc	7440-66-6	5	mg/kg	180	225	9	71	229
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP14 0.05-0.1	TP15 0.05-0.1	TP15 0.4-0.5	QS01	QS07
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-145	ES2029494-148	ES2029494-149	ES2029494-151	ES2029494-154
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP14 0.05-0.1	TP15 0.05-0.1	TP15 0.4-0.5	QS01	QS07
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-145	ES2029494-148	ES2029494-149	ES2029494-151	ES2029494-154
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		**0.6**	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		**0.6**	**0.8**	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**1.2**	**0.8**	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		**110**	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		**120**	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**230**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP14 0.05-0.1	TP15 0.05-0.1	TP15 0.4-0.5	QS01	QS07
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-145	ES2029494-148	ES2029494-149	ES2029494-151	ES2029494-154
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C16 - C34 Fraction	----	100	mg/kg		**200**	**170**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**200**	**170**	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	<0.04	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		----	<0.04	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		----	<0.04	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		----	<0.04	----	----	----
MCPA	94-74-6	0.02	mg/kg		----	<0.04	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		----	<0.04	----	----	----
2.4-D	94-75-7	0.02	mg/kg		----	<0.04	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		----	<0.04	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	<0.04	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		----	<0.04	----	----	----
MCPB	94-81-5	0.02	mg/kg		----	<0.04	----	----	----
Picloram	1918-02-1	0.02	mg/kg		----	<0.04	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		----	<0.04	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		----	<0.04	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**68.4**	**71.3**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**59.9**	**104**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP14 0.05-0.1	TP15 0.05-0.1	TP15 0.4-0.5	QS01	QS07
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	18-Aug-2020 00:00	20-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2029494-145	ES2029494-148	ES2029494-149	ES2029494-151	ES2029494-154
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	0.5	%		98.9	100	99.3	102	100
2-Chlorophenol-D4	93951-73-6	0.5	%		91.4	91.7	104	93.4	96.4
2.4.6-Tribromophenol	118-79-6	0.5	%		82.6	82.2	87.9	80.4	81.3
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		104	102	102	102	98.8
Anthracene-d10	1719-06-8	0.5	%		102	89.8	107	95.6	107
4-Terphenyl-d14	1718-51-0	0.5	%		107	105	106	107	111
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		100	104	102	103	101
Toluene-D8	2037-26-5	0.2	%		106	106	105	105	102
4-Bromofluorobenzene	460-00-4	0.2	%		100	98.0	106	97.6	98.8
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	89.2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TRIP BLANK	TRIP SPIKE	TSC	----	----
			Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2029494-155	ES2029494-156	ES2029494-164	--------	--------
				Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	**42**	**49**	**----**	**----**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	**52**	**61**	**----**	**----**
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	**25**	**29**	**----**	**----**
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	**----**	**----**
Toluene	108-88-3	0.5	mg/kg	<0.5	**10.6**	**12.6**	**----**	**----**
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	**1.9**	**2.3**	**----**	**----**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	**10.1**	**12.2**	**----**	**----**
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	**4.5**	**5.3**	**----**	**----**
^ **Sum of BTEX**	----	0.2	mg/kg	<0.2	**27.1**	**32.4**	**----**	**----**
^ **Total Xylenes**	----	0.5	mg/kg	<0.5	**14.6**	**17.5**	**----**	**----**
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	**----**	**----**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**83.0**	**78.7**	**79.4**	**----**	**----**
Toluene-D8	2037-26-5	0.2	%	**102**	**82.2**	**84.6**	**----**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%	**100**	**85.0**	**86.2**	**----**	**----**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	ACM05	ACM06	ACM07	----	----
				Client sampling date / time	20-Aug-2020 00:00	20-Aug-2020 00:00	20-Aug-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2029494-161	ES2029494-162	ES2029494-163	--------	--------
					Result	Result	Result	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**Yes**	**Yes**	**Yes**	**----**	**----**
Asbestos Type	1332-21-4	-	--		**Ch**	**Ch**	**Ch**	**----**	**----**
Asbestos (Trace)	1332-21-4	5	Fibres		**N/A**	**N/A**	**N/A**	**----**	**----**
Sample weight (dry)	----	0.01	g		**52.8**	**82.0**	**23.3**	**----**	**----**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**No**	**No**	**----**	**----**
Organic Fibre	----	0.1	g/kg		**No**	**Yes**	**Yes**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--		**B.SCHRADER**	**B.SCHRADER**	**B.SCHRADER**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOLID**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	ACM05 - 20-Aug-2020 00:00	Several pieces of asbestos cement sheeting approximately 65x50x5mm.
EA200: Description	ACM06 - 20-Aug-2020 00:00	Two pieces of asbestos cement sheeting approximately 95x65x5mm.
EA200: Description	ACM07 - 20-Aug-2020 00:00	One piece of asbestos cement sheeting approximately 90x60x5mm.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2029494**	Page	: 1 of 35
Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Contact	: Brenda Hong
Address	: NEWCASTLE	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 6685 7811	Telephone	: +61 2 8784 8555
Project	: 20025.76	Date Samples Received	: 21-Aug-2020
Order number	: 20025.76	Date Analysis Commenced	: 24-Aug-2020
C-O-C number	: ----	Issue Date	: 01-Sep-2020
Sampler	: MICHAEL WRIGHT		
Site	: ----		
Quote number	: SY/159/20		
No. of samples received	: 165		
No. of samples analysed	: 46		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3222064)									
ES2029494-002	BH01 0.4-0.5	EG005T: Chromium	7440-47-3	2	mg/kg	44	36	19.3	0% - 20%
ES2029494-002	BH01 0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	9	12	27.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	42	91.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	31	14.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	9	35	119	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	22400	19700	12.7	0% - 20%
ES2029494-065	BH08 0.0-0.05	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	11	19.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	13	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	349	384	9.61	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	447	470	4.85	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	67	77	14.3	0% - 50%
		EG005T: Iron	7439-89-6	50	mg/kg	25600	28100	9.60	0% - 20%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3222065)									
ES2029494-116	TP04 0.4-0.5	EG005T: Chromium	7440-47-3	2	mg/kg	26	33	26.0	0% - 50%
ES2029494-116	TP04 0.4-0.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	17	10.2	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	13	22	53.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	86	83	4.44	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	146	168	14.4	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	313	342	8.67	0% - 20%
ES2029494-137	TP11 0.05-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3222065) - continued									
ES2029494-137	TP11 0.05-0.1	EG005T: Chromium	7440-47-3	2	mg/kg	16	21	27.7	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	21	16	29.5	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	16	16	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	179	182	1.92	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	248	246	0.687	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	422	378	10.9	0% - 20%
		EG005T: Iron	7439-89-6	50	mg/kg	15000	17200	13.4	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 3222780)									
EM2014605-003	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	5.9	5.9	0.00	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 3214972)									
ES2028747-009	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.9	7.4	7.25	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 3214973)									
ES2029494-092	BH10 7.9-8.0	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	111	93	17.7	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3222067)									
ES2029494-014	BH02 6.9-7.0	EA055: Moisture Content	----	0.1	%	18.3	17.3	5.61	0% - 50%
ES2029494-084	BH10 0.4-0.5	EA055: Moisture Content	----	0.1	%	17.8	18.0	1.24	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3222068)									
ES2029494-118	TP05 0.05-0.1	EA055: Moisture Content	----	0.1	%	18.6	18.0	2.89	0% - 50%
ES2029494-142	TP13 0.0-0.05	EA055: Moisture Content	----	0.1	%	17.2	16.3	5.78	0% - 50%
ED006: Exchangeable Cations on Alkaline Soils (QC Lot: 3218160)									
ES2028794-001	Anonymous	ED006: Exchangeable Calcium	----	0.2	meq/100g	2.1	2.2	0.00	0% - 50%
		ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	<0.2	0.00	No Limit
		ED006: Exchangeable Potassium	----	0.2	meq/100g	0.5	0.5	0.00	No Limit
		ED006: Exchangeable Sodium	----	0.2	meq/100g	1.0	1.1	0.00	No Limit
		ED006: Cation Exchange Capacity	----	0.2	meq/100g	3.6	3.8	5.00	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3222063)									
ES2029494-002	BH01 0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2029494-065	BH08 0.0-0.05	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3222066)									
ES2029494-116	TP04 0.4-0.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.2	0.00	No Limit
ES2029494-137	TP11 0.05-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 3222278)									
ES2028397-001	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.39	0.36	8.92	0% - 50%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3215483)									
ES2029494-002	BH01 0.4-0.5	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3215483) - continued									
ES2029494-002	BH01 0.4-0.5	EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2029494-106	TP01 0.05-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3215488)									
ES2029494-118	TP05 0.05-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3215488) - continued									
ES2029494-118	TP05 0.05-0.1	EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2029494-142	TP13 0.0-0.05	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3215488) - continued									
ES2029494-142	TP13 0.0-0.05	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3215483)									
ES2029494-002	BH01 0.4-0.5	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2029494-106	TP01 0.05-0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3215488)									
ES2029494-118	TP05 0.05-0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2029494-142	TP13 0.0-0.05	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3215111) - continued									
ES2029494-024	BH04 1.9-2.0	EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 3217541)									

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074D: Fumigants (QC Lot: 3217541) - continued									
ES2029368-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3217541) - continued									
ES2029368-001	Anonymous	EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 3217541) - continued									
ES2029368-001	Anonymous	EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 3215111)									
ES2029494-024	BH04 1.9-2.0	EP074: Naphthalene	91-20-3	1	mg/kg	1	<1	0.00	No Limit
EP074H: Naphthalene (QC Lot: 3217541)									
ES2029368-001	Anonymous	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3215482)									
ES2029494-002	BH01 0.4-0.5	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES2029494-106	TP01 0.05-0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 3215482) - continued									
ES2029494-106	TP01 0.05-0.1	EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 3215486)									
ES2029494-118	TP05 0.05-0.1	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES2029494-142	TP13 0.0-0.05	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3215482)									
ES2029494-002	BH01 0.4-0.5	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3215482) - continued									
ES2029494-002	BH01 0.4-0.5	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES2029494-106	TP01 0.05-0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3215486)									
ES2029494-118	TP05 0.05-0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3215486) - continued									
ES2029494-118	TP05 0.05-0.1	EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES2029494-142	TP13 0.0-0.05	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	0.8	46.6	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.5	0.8	46.2	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3215112)									
ES2029494-024	BH04 1.9-2.0	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3215481)									
ES2029494-002	BH01 0.4-0.5	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2029494-106	TP01 0.05-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3215487)									
ES2029494-118	TP05 0.05-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2029494-142	TP13 0.0-0.05	EP071: C15 - C28 Fraction	----	100	mg/kg	120	120	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	180	170	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3217540)									
ES2029368-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3221188)									
ES2029494-002	BH01 0.4-0.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2029494-032	BH05 0.0-0.05	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3221588)									
ES2029494-094	BH11 0.0-0.05	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2029494-124	TP07 0.0-0.05	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3221858)									
ES2029494-145	TP14 0.05-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2029839-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3221859)									
ES2029700-118	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2029874-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3215112)									
ES2029494-024	BH04 1.9-2.0	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	21	21	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3215481)									
ES2029494-002	BH01 0.4-0.5	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2029494-106	TP01 0.05-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3215487)									
ES2029494-118	TP05 0.05-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2029494-142	TP13 0.0-0.05	EP071: >C16 - C34 Fraction	----	100	mg/kg	260	270	6.14	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3217540)									
ES2029368-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3221188)									
ES2029494-002	BH01 0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2029494-032	BH05 0.0-0.05	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3221588)									
ES2029494-094	BH11 0.0-0.05	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2029494-124	TP07 0.0-0.05	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3221858)									
ES2029494-145	TP14 0.05-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2029839-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3221859)									
ES2029700-118	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2029874-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 3215112)									
ES2029494-024	BH04 1.9-2.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	1	1	0.00	No Limit
EP080: BTEXN (QC Lot: 3217540)									
ES2029368-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 3221188)									
ES2029494-002	BH01 0.4-0.5	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2029494-032	BH05 0.0-0.05	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 3221188) - continued									
ES2029494-032	BH05 0.0-0.05	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 3221588)									
ES2029494-094	BH11 0.0-0.05	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2029494-124	TP07 0.0-0.05	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 3221858)									
ES2029494-145	TP14 0.05-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2029839-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 3221859)									
ES2029700-118	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 3221859) - continued									
ES2029700-118	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES2029874-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 3215425)									
EM2014407-005	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
EP2008781-003	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.00	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3222064)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	98 mg/kg	118	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	72.9	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15.4 mg/kg	130	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	110	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	27922 mg/kg	118	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	50 mg/kg	117	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	119	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	115 mg/kg	114	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3222065)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	98 mg/kg	118	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	80.9	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	15.4 mg/kg	130	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	48 mg/kg	120	70.0	130
EG005T: Iron	7439-89-6	50	mg/kg	<50	27922 mg/kg	127	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	50 mg/kg	124	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.4 mg/kg	128	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	115 mg/kg	116	70.0	130
EA010: Conductivity (1:5) (QCLot: 3214973)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	92.0	108
ED006: Exchangeable Cations on Alkaline Soils (QCLot: 3218160)								
ED006: Exchangeable Calcium	----	0.2	meq/100g	<0.2	2.5 meq/100g	102	80.0	110
ED006: Exchangeable Magnesium	----	0.2	meq/100g	<0.2	4.17 meq/100g	101	80.0	110
ED006: Exchangeable Potassium	----	0.2	meq/100g	<0.2	1.28 meq/100g	103	80.0	110
ED006: Exchangeable Sodium	----	0.2	meq/100g	<0.2	2.17 meq/100g	102	80.0	110
ED006: Cation Exchange Capacity	----	0.2	meq/100g	<0.2	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3222063)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	96.4	70.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3222066)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.0847 mg/kg	75.0	70.0	105
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 3222278)								
EP003: Total Organic Carbon	----	0.02	%	<0.02	9.2 %	101	70.0	130
				<0.02	0.48 %	112	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215483)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215483) - continued								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	101	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.3	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	86.1	54.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215488)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	56.0	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215488) - continued								
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	100	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.6	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3215483)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	100	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	103	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	84.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	87.6	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	41.0	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3215488)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	96.0	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	96.9	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	95.5	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	66.0	118

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3215488) - continued								
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.1	41.0	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3215111)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	94.8	67.0	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	92.6	65.0	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	91.5	66.0	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	96.1	68.0	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	92.3	69.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	97.6	69.0	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	98.8	69.0	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	103	66.0	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	94.7	59.0	125
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3217541)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	88.3	67.0	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	94.4	65.0	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	90.4	66.0	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	87.4	68.0	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	92.7	69.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	87.1	69.0	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	90.4	69.0	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	96.0	66.0	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	91.3	59.0	125
EP074B: Oxygenated Compounds (QCLot: 3215111)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	95.4	29.6	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	91.3	58.0	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	96.5	62.0	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	104	54.0	136
EP074B: Oxygenated Compounds (QCLot: 3217541)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	88.6	29.6	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	84.0	58.0	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	99.3	62.0	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	91.4	54.0	136
EP074C: Sulfonated Compounds (QCLot: 3215111)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	102	54.0	126
EP074C: Sulfonated Compounds (QCLot: 3217541)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074C: Sulfonated Compounds (QCLot: 3217541) - continued								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	89.6	54.0	126
EP074D: Fumigants (QCLot: 3215111)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	100	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	91.4	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	91.6	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	95.6	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	91.2	63.0	115
EP074D: Fumigants (QCLot: 3217541)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	91.1	60.0	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	86.8	68.0	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	85.8	51.0	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	86.2	52.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	97.8	63.0	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 3215111)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	104	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	97.8	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	104	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	101	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	103	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	106	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	105	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	99.6	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	101	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	95.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	99.2	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	97.5	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	94.8	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	96.9	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	95.7	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	94.9	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	100	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	91.4	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	91.8	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	99.0	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	92.0	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	97.6	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	92.3	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	92.3	65.0	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 3215111) - continued								
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	92.7	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	97.2	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	98.1	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	98.0	50.0	128
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217541)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	41.7	30.0	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	85.7	41.0	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	109	43.0	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	93.1	47.0	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	96.2	49.0	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	90.2	49.0	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	98.9	54.0	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	81.8	43.0	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	89.3	64.0	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	92.6	67.0	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	93.6	69.0	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	91.0	65.0	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	91.6	65.0	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	86.3	59.0	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	88.1	65.0	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	95.1	70.0	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	91.0	68.0	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	95.9	64.0	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	93.6	68.0	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.4	67.0	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	83.1	62.0	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	95.7	54.0	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	98.3	55.0	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	95.6	65.0	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	93.5	61.0	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	75.6	19.8	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	85.8	53.0	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	93.8	50.0	128
EP074F: Halogenated Aromatic Compounds (QCLot: 3215111)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	93.1	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.5	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	91.4	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	91.5	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	102	70.0	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 3215111) - continued								
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	100	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	94.5	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	100	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	101	52.0	122
EP074F: Halogenated Aromatic Compounds (QCLot: 3217541)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	92.4	68.0	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	87.9	70.0	114
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	90.3	68.0	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	87.4	67.0	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	86.6	70.0	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	87.6	67.0	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	87.3	70.0	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	81.1	48.0	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	83.6	52.0	122
EP074G: Trihalomethanes (QCLot: 3215111)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	95.0	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	94.3	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	95.7	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	104	60.0	126
EP074G: Trihalomethanes (QCLot: 3217541)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	89.1	66.0	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	79.0	61.0	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	78.7	63.0	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	75.1	60.0	126
EP074H: Naphthalene (QCLot: 3215111)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	103	67.0	129
EP074H: Naphthalene (QCLot: 3217541)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.0	67.0	129
EP075(SIM)A: Phenolic Compounds (QCLot: 3215482)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	90.9	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	99.4	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	107	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	99.6	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	63.1	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	98.9	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.6	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	94.2	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	91.5	70.0	116

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3215482) - continued								
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	111	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	96.9	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	34.9	10.0	57.0
EP075(SIM)A: Phenolic Compounds (QCLot: 3215486)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	109	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	116	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	104	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	108	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	69.9	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	106	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	111	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	113	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	105	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	104	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	56.2	10.0	57.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215482)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	103	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.1	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	95.5	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.3	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	98.8	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	98.3	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.6	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	96.0	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	95.8	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	93.5	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	101	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	94.8	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.3	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	98.2	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215486)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	116	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	112	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	105	73.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215486) - continued								
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	113	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	111	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	109	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	114	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	112	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	103	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	102	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	104	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	102	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	74.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	75.2	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	67.9	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215112)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	90.1	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215481)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	97.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	97.6	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	91.3	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215487)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	90.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	91.2	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	88.5	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217540)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	108	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221188)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221588)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.0	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221858)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	115	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221859)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	89.6	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215112)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.7	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215481)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215481) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	98.3	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.4	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	76.0	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215487)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	94.0	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	89.1	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	84.4	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3217540)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	110	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221188)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	103	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221588)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.2	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221858)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	116	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221859)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.6	68.4	128
EP080: BTEXN (QCLot: 3215112)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.7	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	91.2	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.7	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	91.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.0	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.9	63.0	119
EP080: BTEXN (QCLot: 3217540)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	110	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	109	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	106	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	105	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	108	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	105	63.0	119
EP080: BTEXN (QCLot: 3221188)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	104	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	103	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	103	65.0	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP080: BTEXN (QCLot: 3221188) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	103	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	106	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	63.0	119
EP080: BTEXN (QCLot: 3221588)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	79.0	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.2	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	81.9	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	82.7	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.5	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	105	63.0	119
EP080: BTEXN (QCLot: 3221858)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	116	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	116	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	115	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	113	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	117	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	114	63.0	119
EP080: BTEXN (QCLot: 3221859)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	88.8	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.0	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.1	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	90.5	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.1	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.7	63.0	119
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3215425)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	80.8	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	76.4	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	90.9	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	84.7	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	86.0	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	86.2	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	76.7	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	92.8	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	67.2	40.8	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3215425) - continued								
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	77.8	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	69.3	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	76.0	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	90.0	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	77.2	53.2	128

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3222064)							
ES2029494-002	BH01 0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	90.9	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.6	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	89.0	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	97.9	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	92.0	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.7	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	99.4	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3222065)							
ES2029494-116	TP04 0.4-0.5	EG005T: Arsenic	7440-38-2	50 mg/kg	104	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	88.2	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	94.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	106	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.9	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3222063)							
ES2029494-002	BH01 0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	74.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3222066)							
ES2029494-116	TP04 0.4-0.5	EG035T: Mercury	7439-97-6	5 mg/kg	74.9	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215483)							
ES2029494-002	BH01 0.4-0.5	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.7	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	87.9	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	88.1	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215483) - continued							
ES2029494-002	BH01 0.4-0.5	EP068: Dieldrin	60-57-1	0.5 mg/kg	87.0	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	88.5	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	107	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3215488)							
ES2029494-118	TP05 0.05-0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	108	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	110	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	99.3	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	82.8	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	88.5	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	80.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3215483)							
ES2029494-002	BH01 0.4-0.5	EP068: Diazinon	333-41-5	0.5 mg/kg	91.1	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	78.3	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	77.1	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	76.8	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	93.7	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3215488)							
ES2029494-118	TP05 0.05-0.1	EP068: Diazinon	333-41-5	0.5 mg/kg	85.8	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	84.9	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	76.9	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	75.4	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	72.0	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3215111)							
ES2029494-024	BH04 1.9-2.0	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	85.8	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	97.1	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3217541)							
ES2029368-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	130	70.0	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	124	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3215111)							
ES2029494-024	BH04 1.9-2.0	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	93.2	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3217541)							
ES2029368-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	118	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3215482)							
ES2029494-002	BH01 0.4-0.5	EP075(SIM): Phenol	108-95-2	10 mg/kg	117	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	122	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	86.1	60.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 3215482) - continued							
ES2029494-002	BH01 0.4-0.5	EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	112	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	115	20.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 3215486)							
ES2029494-118	TP05 0.05-0.1	EP075(SIM): Phenol	108-95-2	10 mg/kg	102	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	108	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	70.4	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	96.2	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	77.5	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215482)							
ES2029494-002	BH01 0.4-0.5	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	116	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	115	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3215486)							
ES2029494-118	TP05 0.05-0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215112)							
ES2029494-024	BH04 1.9-2.0	EP080: C6 - C9 Fraction	----	32.5 mg/kg	96.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215481)							
ES2029494-002	BH01 0.4-0.5	EP071: C10 - C14 Fraction	----	523 mg/kg	105	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	92.2	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	110	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3215487)							
ES2029494-118	TP05 0.05-0.1	EP071: C10 - C14 Fraction	----	523 mg/kg	100	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	96.1	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	116	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3217540)							
ES2029368-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	124	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221188)							
ES2029494-002	BH01 0.4-0.5	EP080: C6 - C9 Fraction	----	32.5 mg/kg	95.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221588)							
ES2029494-094	BH11 0.0-0.05	EP080: C6 - C9 Fraction	----	32.5 mg/kg	91.1	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221858)							
ES2029494-145	TP14 0.05-0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	100	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3221859)							
ES2029700-118	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215112)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215112) - continued							
ES2029494-024	BH04 1.9-2.0	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215481)							
ES2029494-002	BH01 0.4-0.5	EP071: >C10 - C16 Fraction	----	860 mg/kg	108	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	98.4	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	92.0	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3215487)							
ES2029494-118	TP05 0.05-0.1	EP071: >C10 - C16 Fraction	----	860 mg/kg	91.8	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	118	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	93.6	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3217540)							
ES2029368-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	116	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221188)							
ES2029494-002	BH01 0.4-0.5	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	94.4	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221588)							
ES2029494-094	BH11 0.0-0.05	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221858)							
ES2029494-145	TP14 0.05-0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3221859)							
ES2029700-118	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	100	70.0	130
EP080: BTEXN (QCLot: 3215112)							
ES2029494-024	BH04 1.9-2.0	EP080: Benzene	71-43-2	2.5 mg/kg	81.2	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	89.2	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	100	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	99.6	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	103	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	77.0	70.0	130
EP080: BTEXN (QCLot: 3217540)							
ES2029368-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	108	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	111	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	112	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	109	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	110	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	89.8	70.0	130
EP080: BTEXN (QCLot: 3221188)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080: BTEXN (QCLot: 3221188) - continued							
ES2029494-002	BH01 0.4-0.5	EP080: Benzene	71-43-2	2.5 mg/kg	87.5	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	89.6	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	92.7	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	92.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.5	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	90.2	70.0	130
EP080: BTEXN (QCLot: 3221588)							
ES2029494-094	BH11 0.0-0.05	EP080: Benzene	71-43-2	2.5 mg/kg	74.5	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	80.4	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.8	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	82.3	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.0	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.2	70.0	130
EP080: BTEXN (QCLot: 3221858)							
ES2029494-145	TP14 0.05-0.1	EP080: Benzene	71-43-2	2.5 mg/kg	96.4	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	95.1	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.4	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	96.0	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	77.3	70.0	130
EP080: BTEXN (QCLot: 3221859)							
ES2029700-118	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	94.5	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	100	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	104	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	101	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	101	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	100	70.0	130
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3215425)							
EM2014407-005	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	70.9	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	66.1	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	79.8	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	77.3	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	77.0	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	61.8	49.0	138

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 3215425) - continued							
EM2014407-005	Anonymous	EP202: Clopyralid	1702-17-6	0.1 mg/kg	66.2	49.0	149

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2029494**	Page	: 1 of 19
Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Telephone	: +61 2 8784 8555
Project	: 20025.76	Date Samples Received	: 21-Aug-2020
Site	: ----	Issue Date	: 01-Sep-2020
Sampler	: MICHAEL WRIGHT	No. of samples received	: 165
Order number	: 20025.76	No. of samples analysed	: 46

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA001: pH in soil using 0.01M CaCl extract						
Soil Glass Jar - Unpreserved						
BH10 7.9-8.0	27-Aug-2020	25-Aug-2020	**2**	----	----	----

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
BH10 7.9-8.0	**18-Aug-2020**	**27-Aug-2020**	25-Aug-2020	×	**27-Aug-2020**	27-Aug-2020	✓
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
BH10 7.9-8.0	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	24-Aug-2020	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010)							
BH10 7.9-8.0	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	21-Sep-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH03 0.4-0.5, BH04 1.9-2.0, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH09 0.2-0.3, BH09 5.2-5.3, BH10 0.4-0.5, BH10 7.9-8.0, BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**----**	----	----	**26-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
BH01 0.4-0.5, BH02 0.0-0.5, BH02 6.9-7.0	**19-Aug-2020**	**----**	----	----	**26-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EA055)							
TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**----**	----	----	**26-Aug-2020**	03-Sep-2020	✓
EA150: Soil Classification based on Particle Size							
Snap Lock Bag (EA150H)							
BH10 7.9-8.0	**18-Aug-2020**	**----**	----	----	**01-Sep-2020**	14-Feb-2021	✓
EA152: Soil Particle Density							
Snap Lock Bag (EA152)							
BH10 7.9-8.0	**18-Aug-2020**	**----**	----	----	**01-Sep-2020**	14-Feb-2021	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
BH10 7.9-8.0	**18-Aug-2020**	**25-Aug-2020**	15-Sep-2020	✓	**25-Aug-2020**	15-Sep-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH03 0.4-0.5, BH04 1.9-2.0, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH09 0.2-0.3, BH09 5.2-5.3, BH10 0.4-0.5, BH10 7.9-8.0, BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**26-Aug-2020**	14-Feb-2021	✓	**27-Aug-2020**	14-Feb-2021	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH01 0.4-0.5, BH02 0.0-0.5, BH02 6.9-7.0	**19-Aug-2020**	**26-Aug-2020**	15-Feb-2021	✓	**27-Aug-2020**	15-Feb-2021	✓
Soil Glass Jar - Unpreserved (EG005T)							
TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**26-Aug-2020**	16-Feb-2021	✓	**27-Aug-2020**	16-Feb-2021	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH03 0.4-0.5, BH04 1.9-2.0, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH09 0.2-0.3, BH09 5.2-5.3, BH10 0.4-0.5, BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**26-Aug-2020**	15-Sep-2020	✓	**28-Aug-2020**	15-Sep-2020	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH01 0.4-0.5, BH02 0.0-0.5, BH02 6.9-7.0	**19-Aug-2020**	**26-Aug-2020**	16-Sep-2020	✓	**28-Aug-2020**	16-Sep-2020	✓
Soil Glass Jar - Unpreserved (EG035T)							
TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**26-Aug-2020**	17-Sep-2020	✓	**28-Aug-2020**	17-Sep-2020	✓
EP003: Total Organic Carbon (TOC) in Soil							
Soil Glass Jar - Unpreserved (EP003)							
BH10 7.9-8.0	**18-Aug-2020**	**27-Aug-2020**	15-Sep-2020	✓	**27-Aug-2020**	15-Sep-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
BH03 0.4-0.5,	BH05 0.0-0.05,	**18-Aug-2020**	**27-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
BH06 0.0-0.05,	BH07 0.0-0.05,							
BH09 0.2-0.3,	BH10 0.4-0.5,							
BH11 0.0-0.05,	HA01 0.0-0.05							
Soil Glass Jar - Unpreserved (EP068)								
BH01 0.4-0.5,	BH02 0.0-0.5	**19-Aug-2020**	**27-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP068)								
TP01 0.05-0.1,	TP02 0.4-0.5,	**20-Aug-2020**	**27-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
TP03 0.0-0.05,	TP03 1.4-1.5,							
TP05 0.05-0.1,	TP06 0.4-0.5,							
TP07 0.0-0.05,	TP08 0.4-0.5,							
TP08 2.2-2.3,	TP09 0.05--0.1,							
TP10 0.4-0.5,	TP10 1.9-2.0,							
TP11 0.05-0.1,	TP12 0.05-0.1,							
TP13 0.0-0.05,	TP14 0.05-0.1,							
TP15 0.05-0.1								
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
BH03 0.4-0.5,	BH05 0.0-0.05,	**18-Aug-2020**	**27-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
BH06 0.0-0.05,	BH07 0.0-0.05,							
BH09 0.2-0.3,	BH10 0.4-0.5,							
BH11 0.0-0.05,	HA01 0.0-0.05							
Soil Glass Jar - Unpreserved (EP068)								
BH01 0.4-0.5,	BH02 0.0-0.5	**19-Aug-2020**	**27-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP068)								
TP01 0.05-0.1,	TP02 0.4-0.5,	**20-Aug-2020**	**27-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
TP03 0.0-0.05,	TP03 1.4-1.5,							
TP05 0.05-0.1,	TP06 0.4-0.5,							
TP07 0.0-0.05,	TP08 0.4-0.5,							
TP08 2.2-2.3,	TP09 0.05--0.1,							
TP10 0.4-0.5,	TP10 1.9-2.0,							
TP11 0.05-0.1,	TP12 0.05-0.1,							
TP13 0.0-0.05,	TP14 0.05-0.1,							
TP15 0.05-0.1								
EP074A: Monocyclic Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP074)								
BH04 1.9-2.0,	BH09 0.2-0.3,	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
BH09 5.2-5.3								
Soil Glass Jar - Unpreserved (EP074)								
BH02 6.9-7.0		**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	25-Aug-2020	✓	**24-Aug-2020**	25-Aug-2020	✓
Soil Glass Jar - Unpreserved (EP074) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	26-Aug-2020	✓	**25-Aug-2020**	26-Aug-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH03 0.4-0.5, BH04 1.9-2.0, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH09 0.2-0.3, BH09 5.2-5.3, BH10 0.4-0.5, BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**27-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH01 0.4-0.5, BH02 0.0-0.5, BH02 6.9-7.0	**19-Aug-2020**	**27-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**27-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH03 0.4-0.5,	BH04 1.9-2.0,	**18-Aug-2020**	**27-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
BH04 6.9-7.0,	BH05 0.0-0.05,							
BH06 0.0-0.05,	BH07 0.0-0.05,							
BH07 5.9-6.0,	BH08 0.0-0.05,							
BH09 0.2-0.3,	BH09 5.2-5.3,							
BH10 0.4-0.5,	BH11 0.0-0.05,							
HA01 0.0-0.05,	QS01							
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH01 0.4-0.5,	BH02 0.0-0.5,	**19-Aug-2020**	**27-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
BH02 6.9-7.0								
Soil Glass Jar - Unpreserved (EP075(SIM))								
TP01 0.05-0.1,	TP02 0.4-0.5,	**20-Aug-2020**	**27-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
TP03 0.0-0.05,	TP03 1.4-1.5,							
TP04 0.4-0.5,	TP05 0.05-0.1,							
TP05 0.4-0.5,	TP06 0.4-0.5,							
TP07 0.0-0.05,	TP08 0.4-0.5,							
TP08 2.2-2.3,	TP09 0.05--0.1,							
TP10 0.4-0.5,	TP10 1.9-2.0,							
TP11 0.05-0.1,	TP12 0.05-0.1,							
TP13 0.0-0.05,	QS07,							
TP13 1.9-2.0,								
TP14 0.05-0.1,	TP15 0.05-0.1,							
TP15 0.4-0.5								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	01-Sep-2020	✓	**24-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH03 0.4-0.5, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH10 0.4-0.5	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**27-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071) BH03 0.4-0.5, BH04 1.9-2.0, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH09 0.2-0.3, BH09 5.2-5.3, BH10 0.4-0.5, BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**27-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	02-Sep-2020	✓	**25-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH01 0.4-0.5, BH02 0.0-0.5	**19-Aug-2020**	**26-Aug-2020**	02-Sep-2020	✓	**27-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071) BH01 0.4-0.5, BH02 0.0-0.5, BH02 6.9-7.0	**19-Aug-2020**	**27-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TRIP SPIKE, TSC	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**27-Aug-2020**	03-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	03-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons - Continued								
TP01 0.05-0.1,	TP02 0.4-0.5,	**20-Aug-2020**	**27-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
TP03 0.0-0.05,	TP03 1.4-1.5,							
TP04 0.4-0.5,	TP05 0.05-0.1,							
TP05 0.4-0.5,	TP06 0.4-0.5,							
TP07 0.0-0.05,	TP08 0.4-0.5,							
TP08 2.2-2.3,	TP09 0.05--0.1,							
TP10 0.4-0.5,	TP10 1.9-2.0,							
TP11 0.05-0.1,	TP12 0.05-0.1,							
TP13 0.0-0.05,	QS07,							
TP13 1.9-2.0,								
TP14 0.05-0.1,	TP15 0.05-0.1,							
TP15 0.4-0.5								

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	01-Sep-2020	✓	**24-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH03 0.4-0.5, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH10 0.4-0.5	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**27-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH03 0.4-0.5, BH04 1.9-2.0, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH09 0.2-0.3, BH09 5.2-5.3, BH10 0.4-0.5, BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**27-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	02-Sep-2020	✓	**25-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
BH01 0.4-0.5, BH02 0.0-0.5	**19-Aug-2020**	**26-Aug-2020**	02-Sep-2020	✓	**27-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
BH01 0.4-0.5, BH02 0.0-0.5, BH02 6.9-7.0	**19-Aug-2020**	**27-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
TRIP BLANK, TRIP SPIKE, TSC	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**27-Aug-2020**	03-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080)							
TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	03-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP071)							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued							
TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**27-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	06-Oct-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BH04 1.9-2.0, BH09 0.2-0.3, BH09 5.2-5.3	**18-Aug-2020**	**24-Aug-2020**	01-Sep-2020	✓	**24-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH03 0.4-0.5, BH04 6.9-7.0, BH05 0.0-0.05, BH06 0.0-0.05, BH07 0.0-0.05, BH07 5.9-6.0, BH08 0.0-0.05, BH10 0.4-0.5	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**27-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH11 0.0-0.05, HA01 0.0-0.05, QS01	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	01-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH02 6.9-7.0	**19-Aug-2020**	**25-Aug-2020**	02-Sep-2020	✓	**25-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) BH01 0.4-0.5, BH02 0.0-0.5	**19-Aug-2020**	**26-Aug-2020**	02-Sep-2020	✓	**27-Aug-2020**	02-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) TRIP BLANK, TRIP SPIKE, TSC	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**27-Aug-2020**	03-Sep-2020	✓
Soil Glass Jar - Unpreserved (EP080) TP01 0.05-0.1, TP02 0.4-0.5, TP03 0.0-0.05, TP03 1.4-1.5, TP04 0.4-0.5, TP05 0.05-0.1, TP05 0.4-0.5, TP06 0.4-0.5, TP07 0.0-0.05, TP08 0.4-0.5, TP08 2.2-2.3, TP09 0.05--0.1, TP10 0.4-0.5, TP10 1.9-2.0, TP11 0.05-0.1, TP12 0.05-0.1, TP13 0.0-0.05, QS07, TP13 1.9-2.0, TP14 0.05-0.1, TP15 0.05-0.1, TP15 0.4-0.5	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**28-Aug-2020**	03-Sep-2020	✓
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202) BH03 0.4-0.5, BH05 0.0-0.05, BH08 0.0-0.05, BH09 0.2-0.3	**18-Aug-2020**	**26-Aug-2020**	01-Sep-2020	✓	**26-Aug-2020**	05-Oct-2020	✓
Soil Glass Jar - Unpreserved (EP202) TP01 0.05-0.1, TP06 0.4-0.5, TP07 0.0-0.05, TP15 0.05-0.1	**20-Aug-2020**	**26-Aug-2020**	03-Sep-2020	✓	**26-Aug-2020**	05-Oct-2020	✓

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation

Matrix: **SOLID**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples							
Snap Lock Bag - ACM/Asbestos Grab Bag (EA200)							
ACM05, ACM06, ACM07	**20-Aug-2020**	**----**	----	----	**24-Aug-2020**	16-Feb-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	4	27	**14.81**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	6	40	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	10	88	**11.36**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	2	8	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	88	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	7	**28.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations on Alkaline Soils	ED006	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Method Blanks (MB) - Continued							
TRH Volatiles/BTEX	EP080	6	88	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	7	**28.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	88	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	7	**28.57**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Exchangeable Cations on Alkaline Soils	ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP003	SOIL	In house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO2) is automatically measured by infra-red detector.
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260 Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Asbestos Identification in Bulk Solids	EA200	SOLID	In house: Referenced to AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Higginson 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Higginson method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody seal intact? Yes / No / N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Cooling Method: Ice / Ice Pack / None
ORDER NUMBER: 20025.76			Random Sample Temperature on Receipt: 5.1 °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other Comment:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com			
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com			
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 21/08/20	KP DATE/TIME: 21-8-2020 1255	DATE/TIME:	P Tan DATE/TIME: 21/8/2020 7:30

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP020)	EP202					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	BH01 0.0-0.05	19 /08/2020	Soil	Jar	1	✓								
2	0.4-0.5	/08/2020	Soil	Jar	1									Analysis to follow
3	0.9-1.0	/08/2020	Soil	Jar	1									
4	1.4-2.0	/08/2020	Soil	Jar	1									
5	1.9-3.0	/08/2020	Soil	Jar	1									
6	BH02 0.0-0.05	/08/2020	Soil	Jar	1									
7	0.4-0.5	/08/2020	Soil	Jar	1									
8	0.9-1.0	/08/2020	Soil	Jar	1									
9	1.9-2.0	/08/2020	Soil	Jar	1									
10	2.4-3.0	/08/2020	Soil	Jar	1									
11	3.9-4.0	/08/2020	Soil	Jar	1									
12	4.4-5.0	/08/2020	Soil	Jar	1									
13	5.9-6.0	/08/2020	Soil	Jar	1									
14	6.9-7.0	/08/2020	Soil	Jar	1									
				TOTAL										

Environmental Division
Sydney
Work Order Reference
ES2029494

Telephone : +61-2-8784 8555

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No / N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20		Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER: 20025.76		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 (7)	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other comments:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146	RELINQUISHED BY:	RECEIVED BY: KD
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020 1255
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com; michael@cavvanba.com		RELINQUISHED BY:	RECEIVED BY: P Tran
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com		DATE/TIME:	DATE/TIME: 21/8/2020 7:30pm
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:			

ALS USE	SAMPLE DETAILS: MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP074)	EP202					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
15	BH02 7.9-8.0	19 /08/2020	Soil	Jar	1									
16	↓ 8.9-9.0	19 /08/2020	Soil	Jar	1									
17	BH03 0.0-0.05	18 /08/2020	Soil	Jar	1									
18	↓ 0.4-0.5	/08/2020	Soil	Jar	1									
19	0.9-1.0	/08/2020	Soil	Jar	1	\	\		\					
20	↓ 1.9-2.0	↓ /08/2020	Soil	Jar	1									
21	BH04 0.0-0.05	18 /08/2020	Soil	Jar	1									
22	↓ 0.4-0.5	/08/2020	Soil	Jar	1									
23	0.9-1.0	/08/2020	Soil	Jar	1									
24	1.9-2.0	/08/2020	Soil	Jar	1									
25	2.9-3.0	/08/2020	Soil	Jar	1	\		\						
26	3.9-4.0	/08/2020	Soil	Jar	1									
27	4.9-5.0	/08/2020	Soil	Jar	1									
28	↓ 5.9-6.0	↓ /08/2020	Soil	Jar	1									
				TOTAL										

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

CHAIN OF CUSTODY

ALS Laboratory, please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20		Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 20025.76		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other comments:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	RELINQUISHED BY:	RECEIVED BY: KD 1255
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com; michael@cavvanba.com		DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com		RELINQUISHED BY:	RECEIVED BY: P. Tran
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		DATE/TIME:	DATE/TIME: 21/8/2020 7:30 PM

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs & (EP074)	EP202							
29	BH04 6.9-7.0	18/08/2020	Soil	Jar	1	\										Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
30	7.9-8.0	18/08/2020	Soil	Jar	1											
31	8.9-9.0	19/08/2020	Soil	Jar	1											
32	BH05 0.0-0.05	18/08/2020	Soil	Jar	1											
33	0.4-0.5	/08/2020	Soil	Jar	1	\	\		\							
34	0.9-1.0	/08/2020	Soil	Jar	1											
35	1.9-2.0	/08/2020	Soil	Jar	1											
36	2.4-3.0	19/08/2020	Soil	Jar	1											
37	3.9-4.0	/08/2020	Soil	Jar	1											
38	4.9-5.0	/08/2020	Soil	Jar	1											
39	5.9-6.0	/08/2020	Soil	Jar	1											
40	6.9-7.0	/08/2020	Soil	Jar	1											
41	7.9-8.0	/08/2020	Soil	Jar	1											
42	8.9-9.0	/08/2020	Soil	Jar	1											
				TOTAL												

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

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g Ultra Trace Organics) ✱ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE: Newcastle	
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20
ORDER NUMBER: 20025.76	
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com	
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 (11)

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Freeze / frozen ice bricks present upon Receipt: Yes No N/A
Random Sample Temperature on Receipt: °C
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 21/08/20	DATE/TIME: 21-8-20 12:55	DATE/TIME	DATE/TIME: 21/8/2020 7:39

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)			Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EPA)	
43	BH06 0.0-0.05	18 /08/2020	Soil	Jar	1	\	\		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
44	0.4-0.5	/08/2020	Soil	Jar	1				
45	0.9-1.0	/08/2020	Soil	Jar	1				
46	1.9-2.0	/08/2020	Soil	Jar	1				
47	2.4-3.0	/08/2020	Soil	Jar	1				
48	3.9-4.0	/08/2020	Soil	Jar	1				
49	4.9-5.0	/08/2020	Soil	Jar	1				
50	5.9-6.0	/08/2020	Soil	Jar	1				
51	6.9-7.0	19 /08/2020	Soil	Jar	1				
52	7.9-8.0	19 /08/2020	Soil	Jar	1				
53	8.9-9.0	19 /08/2020	Soil	Jar	1				
54	BH07 0.0-0.05	18 /08/2020	Soil	Jar	1				
55	0.4-0.5	/08/2020	Soil	Jar	1	\	\		
56	0.9-1.0	/08/2020	Soil	Jar	1				
				TOTAL					

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ✻ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
OFFICE: Newcastle	
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20
ORDER NUMBER: 20025.76	
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com; michael@cavvanba.com	
Email Invoice to (will default to PM if no other addresses are listed): roo@cavvanba.com	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No N/A
Free ice / frozen ice bricks present upon receipt? Yes No N/A
Random Sample Temperature on Receipt: °C
Other comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020 12:55 KP	DATE/TIME:	DATE/TIME: 21/8/2020 7:30

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	8 Mets (EP074)	EP202							
57	BH07 1.9-2.0	19/08/2020	Soil	Jar	1											Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
58	2.9-3.0	/08/2020	Soil	Jar	1											
59	3.9-4.0	/08/2020	Soil	Jar	1											
60	4.9-5.0	/08/2020	Soil	Jar	1											
61	5.9-6.0	/08/2020	Soil	Jar	1											
62	6.9-7.0	/08/2020	Soil	Jar	1											
63	7.9-8.0	19/08/2020	Soil	Jar	1											
64	8.9-9.0	19/08/2020	Soil	Jar	1											
65	BH08 0.0-0.05	18/08/2020	Soil	Jar	1											
66	0.4-0.5	/08/2020	Soil	Jar	1											
67	0.9-1.0	/08/2020	Soil	Jar	1											
68	1.4-2.0	/08/2020	Soil	Jar	1											
69	2.9-3.0	/08/2020	Soil	Jar	1											
70	BH09 0.1-0.2	19/08/2020	Soil	Jar	1											
				TOTAL												

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e g Ultra Trace Organics)	✱ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No / N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20		Free ice / frozen ice blocks present upon receipt? Yes / No / N/A
ORDER NUMBER: 20025.76		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 (5) 6 7 OF: 1 2 3 4 5 6 (7)	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other comments:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146	RELINQUISHED BY:	RECEIVED BY: KP
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020 12:55
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com		RELINQUISHED BY:	RECEIVED BY: T. Tran
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com		DATE/TIME	DATE/TIME: 21/8/2020 7:39
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:			

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP071)	EP202							
71	BH09 0.2-0.3	18 /08/2020	Soil	Jar	1											Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
72	0.4-0.5	/08/2020	Soil	Jar	1											
73	0.9-1.0	/08/2020	Soil	Jar	1											
74	1.9-2.0	/08/2020	Soil	Jar	1											
75	2.9-3.0	/08/2020	Soil	Jar	1											
76	3.9-4.0	/08/2020	Soil	Jar	1											
77	4.9-5.0	/08/2020	Soil	Jar	1											
78	5.2-5.3	/08/2020	Soil	Jar	1											
79	5.4-6.0	/08/2020	Soil	Jar	1											
80	6.9-7.0	/08/2020	Soil	Jar	1											
81	7.9-8.0	/08/2020	Soil	Jar	1											
82	8.9-9.0	19 /08/2020	Soil	Jar	1											
83	BH10 0.0-0.5	18 /08/2020	Soil	Jar	1											
84	0.4-0.5	18 /08/2020	Soil	Jar	1											
				TOTAL												

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

ALS

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: Cavvanba Consulting

OFFICE: Newcastle

PROJECT: 20025.76

ORDER NUMBER: 20025.76

PROJECT MANAGER: Drew Wood

CONTACT PH: 0403 689 755

SAMPLER: Michael Wright

SAMPLER MOBILE: 0434 376 146

COC emailed to ALS? (YES / NO)

EDD FORMAT (or default):

Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com

Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g Ultra Trace Organics)

☒ Standard TAT (List due date):

☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: SY/159/20

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 (11)

RELINQUISHED BY:

DATE/TIME: 21/08/20

RECEIVED BY: KP 12:55

DATE/TIME: 21-8-2020

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY: P. Tran

DATE/TIME: 21/8/2020 7:40

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comment:

ALS USE LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP074)	R22-NEPM screen-CEC-AH (incl TOC, Fe, particle sizing)	EP202			Additional Information (Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc)
85	BH10 0.9-1.0	18/08/2020	Soil	Jar	1								
86	1.9-2.0	/08/2020	Soil	Jar	1								
87	2.9-3.0	/08/2020	Soil	Jar	1								
88	3.9-4.0	/08/2020	Soil	Jar	1								
89	4.9-5.0	/08/2020	Soil	Jar	1								
90	5.9-6.0	/08/2020	Soil	Jar	1								
91	6.9-7.0	/08/2020	Soil	Jar	1								
92	7.9-8.0	/08/2020	Soil	Jar	1								
93	8.9-9.0	19/08/2020	Soil	Jar +ziplock	2				\				
94	BH11 0.0-0.05	18/08/2020	Soil	Jar +trip	1								
95	0.4-0.5	/08/2020	Soil	Jar	1	\	\						
96	0.9-1.0	/08/2020	Soil	Jar	1								
97	1.9-2.0	/08/2020	Soil	Jar	1								
98	2.9-3.0	/08/2020	Soil	Jar	1								
				TOTAL									

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)

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

CHAIN OF CUSTODY

ALS Laboratory, please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	☒ Standard TAT (List due date)	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20		Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 20025.76		COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755	DF: 1 2 3 4 5 6	Other comment:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	RELINQUISHED BY:	RECEIVED BY:
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com		DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020 12:55
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com		RELINQUISHED BY:	RECEIVED BY:
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:		DATE/TIME:	DATE/TIME: 21/8/2020 7:30 hr

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).										Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP074)	EP202							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
99	BH11 3.9-4.0	18/08/2020	Soil	Jar	1											
100	4.9-5.0	/08/2020	Soil	Jar	1											
101	5.9-6.0	/08/2020	Soil	Jar	1											
102	6.9-7.0	/08/2020	Soil	Jar	1											
103	7.9-8.0	/08/2020	Soil	Jar	1											
104	HA01 0.0-0.05	/08/2020	Soil	Jar	1											
105	0.4-0.5	/08/2020	Soil	Jar	1	\	\									
106	TP01 0.05-0.1	20/08/2020	Soil	Jar	1											
107	0.4-0.5	/08/2020	Soil	Jar + ziplock	2	\	\		\							
108	1.4-1.5	/08/2020	Soil	Jar	1											
109	TP02 0.0-0.05	/08/2020	Soil	Received Labelled as TP01 - 1.9-2.0 Jar + ziplock	2											
110	0.4-0.5	/08/2020	Soil	Jar	1	\	\									
111	1.4-1.5	/08/2020	Soil	Jar	1											
112	TP03 0.05-0.05	/08/2020	Soil	Jar + ziplock	2	\	\									

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

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ✱ Standard TAT (List due date). ☐ Non Standard or urgent TAT (List due date):
OFFICE: Newcastle	
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20
ORDER NUMBER: 20025.76	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 (1) DF: 1 2 3 4 5 6 7 (1)
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 589 755
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com	
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com	
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020 12:55	DATE/TIME:	DATE/TIME: 21/8/2020 7:39

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comment:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)												Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EA074)	EP202									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
113	TP07 0.4-0.5	20 /08/2020	Soil	Jar	1													
114	↓ 1.4-1.5	/08/2020	Soil	Jar	1													
115	TP04 0.0-0.05	/08/2020	Soil	Jar + Ziplock	2	/	/											
116	↓ 0.4-0.5	/08/2020	Soil	Jar	1													
117	↓ 1.9-2.0	/08/2020	Soil	Jar	1	/												
118	TP05 0.05-0.1	/08/2020	Soil	Jar	1													
119	↓ 0.4-0.5	/08/2020	Soil	Jar + Ziplock	2	/	/											
120	↓ 1.9-2.0	/08/2020	Soil	Jar	1	X												
121	TP06 0.0-0.05	/08/2020	Soil	Jar	1													
122	↓ 0.4-0.5	/08/2020	Soil	Jar + Ziplock	2													
123	↓ 1.9-2.0	/08/2020	Soil	Jar + Ziplock	2	/	/		/									
124	TP07 0.0-0.05	/08/2020	Soil	Jar	1													
125	↓ 0.4-0.5	/08/2020	Soil	Jar + Ziplock	2	/	/		/									
126	↓ 1.9-2.0	/08/2020	Soil	Jar	1													
					1													
				TOTAL														

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

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✱ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle			Custody Seal Intact? Yes No N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 20025.76		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146	RELINQUISHED BY:	RECEIVED BY: KP 1255
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com		RELINQUISHED BY: DATE/TIME:	RECEIVED BY: P. Tm DATE/TIME: 21/8/2020 7:30
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE: LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP074)	EP202					Additional Information: Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
127	TP08 0.05-0.1	20/08/2020	Soil	Jar + 2 ziploc	2									
128	0.4-0.5	/08/2020	Soil	Jar + 2 ziploc	2	\	\							
129	0.9-1.0	/08/2020	Soil	Jar	1									
130	2.2-2.3	/08/2020	Soil	Jar	1	\	\							
131	TP09 0.0-0.05	/08/2020	Soil	Received Jar + Ziplock	2	labelled	\ as	TP09_0.05-0.1						
132	0.4-0.5	/08/2020	Soil	Jar	1									
133	1.[illegible]	/08/2020	Soil	Jar	1									
134	TP10 0.0-0.05	/08/2020	Soil	Jar + Ziploc	2									
135	0.4-0.5	/08/2020	Soil	Jar	1	\	\							
136	1.9-2.0	/08/2020	Soil	Jar	1	\	\							
137	TP11 0.05-0.1	/08/2020	Soil	Jar + Ziploc	2	\	\							
138	0.4-0.5	/08/2020	Soil	Jar	1									
139	1.4-1.5	/08/2020	Soil	Jar	1									
140	TP[illegible] 0.05-0.1	/08/2020	Soil	Jar + Ziploc	2	\	\							
				TOTAL										

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

CHAIN OF CUSTODY

ALS Laboratory please tick →

CLIENT: Cavvanba Consulting
OFFICE: Newcastle
PROJECT: 20025.76
ORDER NUMBER: 20025.76
PROJECT MANAGER: Drew Wood — CONTACT PH: 0403 689 755
SAMPLER: Michael Wright — SAMPLER MOBILE: 0434 376 146
COC emailed to ALS? (YES / NO) — EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)
✠ Standard TAT (List due date):
☐ Non Standard or urgent TAT (List due date):
ALS QUOTE NO.: [illegible]18 SY/154/20

COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 (19) OF: 1 2 3 4 5 6 7 (18)

RELINQUISHED BY: Michael Wright — DATE/TIME: 21/08/20
RECEIVED BY: [signature] 12:55 — DATE/TIME: 21-8-2020
RELINQUISHED BY: — DATE/TIME:
RECEIVED BY: [signature] — DATE/TIME: 21/8/2020 7:3?

FOR LABORATORY USE ONLY (Circle)
Custody Seal Intact? Yes No
Free ice / frozen ice bricks present upon receipt? Yes No
Random Sample Temperature on Receipt: °C
Other comment:

ALS USE LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-17	VOCS (EP074)	P22-NEAM Suite, CEC, pH, EC, TOC, Fe, particle size	EP202				Additional Information
141	TP12 0.4-0.5	20-08-20	Soil	Jar	1									
142	TP13 0.0-0.05	↓	↓	Jar + Ziplock	2	\	\							
143	↓ 0.4-0.5	↓	↓	Jar	1									
144	↓ 1.9-2.0	↓	↓	↓	1	\								
145	TP14 0.05-0.1	↓	↓	Jar + Ziplock	2	\	\							
146	0.4-0.5	↓	↓	Jar	1									
147	↓ 1.9-2.0	↓	↓	↓ + Ziplock	2									
148	TP15 0.05-0.1	↓	↓	Jar + Ziplock	2	\	\		\	\				
149	↓ 0.4-0.5	↓	↓	Jar	1	\								
150	↓ 1.4-1.5	↓	↓	↓	1									
151	QS01	18-08-20	↓	↓	1	\								
–	QS02	↓	↓	↓		\								Please send QS02, QS04, QS06, QS08 to Eurofins MGT
152	QS03	↓	↓	↓										
–	QS04	↓	↓	↓	↓									

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

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✠ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N
PROJECT: 20025.76	ALS QUOTE NO.: [illegible] 54/159/20	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 (1V) OF: 1 2 3 4 5 6 (1E)	Free ice / frozen ice bricks present upon receipt? Yes No N
ORDER NUMBER: 20025.76			Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other comment:
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com			
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com			
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Michael Wright	KO 12:55		[illegible] TMV
DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020	DATE/TIME:	DATE/TIME: 21/8/2020 7:34 PM

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)						Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-12	VOCs (EP070)	TRH (BTEX)	Asbestos (EA200B) EPA02		
153	QS05	20-08-20	Soil	Jar	1							
-	QS06	↓	↓	↓	↓							
154	QS07					/						
-	QS08					/						
155	Trip blank								/			
156	Trip spike								/			
157	ACM 01	20-08-20	Asbestos	Ziplock	1					/		
158	ACM 02									/		
159	ACM 03									/		
160	ACM 04									/		
161	ACM 05									/		
162	ACM 06									/		
163	ACM 07	↓	↓	↓	↓					/		
164	TSC											
[illegible]	[illegible]				[illegible]							

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2030032**	Page	: 1 of 21
Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Contact	: Brenda Hong
Address	: NEWCASTLE	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 6685 7811	Telephone	: +61 2 8784 8555
Project	: 20025.76	Date Samples Received	: 26-Aug-2020 16:26
Order number	: 20025.76	Date Analysis Commenced	: 28-Aug-2020
C-O-C number	: ----	Issue Date	: 02-Sep-2020 14:16
Sampler	: MICHAEL WRIGHT		
Site	: ----		
Quote number	: SY/159/20		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP131A: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP075(SIM): Particular sample required dilution due to sample matrix interferences. LOR values have been adjusted accordingly.
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	W1	W2	W3	MW01	MW02
				Client sampling date / time	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-001	ES2030032-002	ES2030032-003	ES2030032-004	ES2030032-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.005**
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		**0.001**	**0.041**	**0.007**	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	**0.013**
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	**0.003**
Zinc	7440-66-6	0.005	mg/L		<0.005	**0.012**	**0.021**	**0.018**	**0.005**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		----	----	----	----	<5
Isopropylbenzene	98-82-8	5	µg/L		----	----	----	----	<5
n-Propylbenzene	103-65-1	5	µg/L		----	----	----	----	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	----	----	----	<5
sec-Butylbenzene	135-98-8	5	µg/L		----	----	----	----	**10**
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	----	----	----	<5
tert-Butylbenzene	98-06-6	5	µg/L		----	----	----	----	<5
p-Isopropyltoluene	99-87-6	5	µg/L		----	----	----	----	<5
n-Butylbenzene	104-51-8	5	µg/L		----	----	----	----	<5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	----	----	----	<50
2-Butanone (MEK)	78-93-3	50	µg/L		----	----	----	----	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	----	----	----	<50
2-Hexanone (MBK)	591-78-6	50	µg/L		----	----	----	----	<50
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	----	----	----	<5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	----	----	----	<5
1.2-Dichloropropane	78-87-5	5	µg/L		----	----	----	----	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	----	----	----	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	----	----	----	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	----	----	----	<5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	----	----	----	<50

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	W1	W2	W3	MW01	MW02
				Client sampling date / time	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-001	ES2030032-002	ES2030032-003	ES2030032-004	ES2030032-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	50	µg/L		----	----	----	----	<50
Vinyl chloride	75-01-4	50	µg/L		----	----	----	----	<50
Bromomethane	74-83-9	50	µg/L		----	----	----	----	<50
Chloroethane	75-00-3	50	µg/L		----	----	----	----	<50
Trichlorofluoromethane	75-69-4	50	µg/L		----	----	----	----	<50
1.1-Dichloroethene	75-35-4	5	µg/L		----	----	----	----	<5
Iodomethane	74-88-4	5	µg/L		----	----	----	----	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	----	----	----	<5
1.1-Dichloroethane	75-34-3	5	µg/L		----	----	----	----	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	----	----	----	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	----	----	----	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		----	----	----	----	<5
Carbon Tetrachloride	56-23-5	5	µg/L		----	----	----	----	<5
1.2-Dichloroethane	107-06-2	5	µg/L		----	----	----	----	<5
Trichloroethene	79-01-6	5	µg/L		----	----	----	----	<5
Dibromomethane	74-95-3	5	µg/L		----	----	----	----	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	----	----	----	<5
1.3-Dichloropropane	142-28-9	5	µg/L		----	----	----	----	<5
Tetrachloroethene	127-18-4	5	µg/L		----	----	----	----	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	----	----	----	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	----	----	----	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	----	----	----	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	----	----	----	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	----	----	----	<5
Pentachloroethane	76-01-7	5	µg/L		----	----	----	----	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	----	----	----	<5
Hexachlorobutadiene	87-68-3	5	µg/L		----	----	----	----	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	----	----	----	<5
Bromobenzene	108-86-1	5	µg/L		----	----	----	----	<5
2-Chlorotoluene	95-49-8	5	µg/L		----	----	----	----	<5
4-Chlorotoluene	106-43-4	5	µg/L		----	----	----	----	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	----	----	----	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	----	----	----	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	----	----	----	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	W1	W2	W3	MW01	MW02
				Client sampling date / time	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-001	ES2030032-002	ES2030032-003	ES2030032-004	ES2030032-005
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	----	----	----	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	----	----	----	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	----	----	----	<5
Bromodichloromethane	75-27-4	5	µg/L		----	----	----	----	<5
Dibromochloromethane	124-48-1	5	µg/L		----	----	----	----	<5
Bromoform	75-25-2	5	µg/L		----	----	----	----	<5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<9.5
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<9.5
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	**28.9**
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<4.8

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	W1	W2	W3	MW01	MW02
				Client sampling date / time	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-001	ES2030032-002	ES2030032-003	ES2030032-004	ES2030032-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<4.8
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	**28.9**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<2.4
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	**40**
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	**170**	**23300**
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	**540**	**47000**
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	**1220**
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	**710**	**71500**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	**130**
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	**130**
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	**280**	**40700**
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	**460**	**31500**
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	**350**
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	**740**	**72600**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	**280**	**40700**
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		----	----	----	<0.010	----
alpha-BHC	319-84-6	0.010	µg/L		----	----	----	<0.010	----
beta-BHC	319-85-7	0.010	µg/L		----	----	----	<0.010	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	W1	W2	W3	MW01	MW02
				Client sampling date / time	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-001	ES2030032-002	ES2030032-003	ES2030032-004	ES2030032-005
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
delta-BHC	319-86-8	0.010	µg/L		----	----	----	<0.010	----
4.4`-DDD	72-54-8	0.010	µg/L		----	----	----	<0.010	----
4.4`-DDE	72-55-9	0.010	µg/L		----	----	----	<0.010	----
4.4`-DDT	50-29-3	0.010	µg/L		----	----	----	<0.010	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.010	µg/L		----	----	----	<0.010	----
Dieldrin	60-57-1	0.010	µg/L		----	----	----	<0.010	----
alpha-Endosulfan	959-98-8	0.010	µg/L		----	----	----	<0.010	----
beta-Endosulfan	33213-65-9	0.010	µg/L		----	----	----	<0.010	----
Endosulfan sulfate	1031-07-8	0.010	µg/L		----	----	----	<0.010	----
^ Endosulfan (sum)	115-29-7	0.010	µg/L		----	----	----	<0.010	----
Endrin	72-20-8	0.010	µg/L		----	----	----	<0.010	----
Endrin aldehyde	7421-93-4	0.010	µg/L		----	----	----	<0.010	----
Endrin ketone	53494-70-5	0.010	µg/L		----	----	----	<0.010	----
Heptachlor	76-44-8	0.005	µg/L		----	----	----	<0.005	----
Heptachlor epoxide	1024-57-3	0.010	µg/L		----	----	----	<0.010	----
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		----	----	----	<0.010	----
gamma-BHC	58-89-9	0.010	µg/L		----	----	----	<0.010	----
Methoxychlor	72-43-5	0.010	µg/L		----	----	----	<0.010	----
cis-Chlordane	5103-71-9	0.010	µg/L		----	----	----	<0.010	----
trans-Chlordane	5103-74-2	0.010	µg/L		----	----	----	<0.010	----
^ Total Chlordane (sum)	----	0.010	µg/L		----	----	----	<0.010	----
Oxychlordane	27304-13-8	0.010	µg/L		----	----	----	<0.010	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.010	µg/L		----	----	----	<0.010	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	----	----	----	122
Toluene-D8	2037-26-5	5	%		----	----	----	----	127
4-Bromofluorobenzene	460-00-4	5	%		----	----	----	----	122
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		22.1	19.9	26.5	18.9	23.3
2-Chlorophenol-D4	93951-73-6	1.0	%		50.1	44.6	60.6	40.5	45.4
2.4.6-Tribromophenol	118-79-6	1.0	%		47.0	51.0	57.7	63.2	42.0
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		64.1	57.6	72.7	63.4	63.3

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	W1	W2	W3	MW01	MW02
				Client sampling date / time	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-001	ES2030032-002	ES2030032-003	ES2030032-004	ES2030032-005
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	1.0	%		**76.2**	**74.3**	**73.2**	**68.6**	**70.7**
4-Terphenyl-d14	1718-51-0	1.0	%		**72.1**	**81.9**	**73.1**	**71.8**	**76.6**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**111**	**111**	**110**	**111**	**114**
Toluene-D8	2037-26-5	2	%		**121**	**123**	**120**	**120**	**123**
4-Bromofluorobenzene	460-00-4	2	%		**117**	**122**	**119**	**121**	**128**
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		**----**	**----**	**----**	**71.0**	**----**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW03	MW04	MW05	MW06	MW07
				Client sampling date / time	25-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00	26-Aug-2020 00:00	26-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-006	ES2030032-007	ES2030032-008	ES2030032-009	ES2030032-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	**0.005**	**0.001**	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		**0.001**	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	<0.001	**0.002**	<0.001
Zinc	7440-66-6	0.005	mg/L		**0.033**	**0.020**	**0.046**	**0.020**	**0.014**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		----	<5	<5	<5	<5
Isopropylbenzene	98-82-8	5	µg/L		----	<5	<5	<5	<5
n-Propylbenzene	103-65-1	5	µg/L		----	<5	<5	<5	<5
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		----	<5	<5	<5	<5
sec-Butylbenzene	135-98-8	5	µg/L		----	<5	<5	<5	<5
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		----	<5	<5	<5	<5
tert-Butylbenzene	98-06-6	5	µg/L		----	<5	<5	<5	<5
p-Isopropyltoluene	99-87-6	5	µg/L		----	<5	<5	<5	<5
n-Butylbenzene	104-51-8	5	µg/L		----	<5	<5	<5	<5
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		----	<50	<50	<50	<50
2-Butanone (MEK)	78-93-3	50	µg/L		----	<50	<50	<50	<50
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		----	<50	<50	<50	<50
2-Hexanone (MBK)	591-78-6	50	µg/L		----	<50	<50	<50	<50
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		----	<5	<5	<5	<5
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		----	<5	<5	<5	<5
1.2-Dichloropropane	78-87-5	5	µg/L		----	<5	<5	<5	<5
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		----	<5	<5	<5	<5
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		----	<5	<5	<5	<5
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		----	<5	<5	<5	<5
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		----	<50	<50	<50	<50

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW03	MW04	MW05	MW06	MW07
				Client sampling date / time	25-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00	26-Aug-2020 00:00	26-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-006	ES2030032-007	ES2030032-008	ES2030032-009	ES2030032-010
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	50	µg/L		----	<50	<50	<50	<50
Vinyl chloride	75-01-4	50	µg/L		----	<50	<50	<50	<50
Bromomethane	74-83-9	50	µg/L		----	<50	<50	<50	<50
Chloroethane	75-00-3	50	µg/L		----	<50	<50	<50	<50
Trichlorofluoromethane	75-69-4	50	µg/L		----	<50	<50	<50	<50
1.1-Dichloroethene	75-35-4	5	µg/L		----	<5	<5	<5	<5
Iodomethane	74-88-4	5	µg/L		----	<5	<5	<5	<5
trans-1.2-Dichloroethene	156-60-5	5	µg/L		----	<5	<5	<5	<5
1.1-Dichloroethane	75-34-3	5	µg/L		----	<5	<5	<5	<5
cis-1.2-Dichloroethene	156-59-2	5	µg/L		----	<5	<5	<5	<5
1.1.1-Trichloroethane	71-55-6	5	µg/L		----	<5	<5	<5	<5
1.1-Dichloropropylene	563-58-6	5	µg/L		----	<5	<5	<5	<5
Carbon Tetrachloride	56-23-5	5	µg/L		----	<5	<5	<5	<5
1.2-Dichloroethane	107-06-2	5	µg/L		----	<5	<5	<5	<5
Trichloroethene	79-01-6	5	µg/L		----	<5	<5	<5	<5
Dibromomethane	74-95-3	5	µg/L		----	<5	<5	<5	<5
1.1.2-Trichloroethane	79-00-5	5	µg/L		----	<5	<5	<5	<5
1.3-Dichloropropane	142-28-9	5	µg/L		----	<5	<5	<5	<5
Tetrachloroethene	127-18-4	5	µg/L		----	<5	<5	<5	<5
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		----	<5	<5	<5	<5
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		----	<5	<5	<5	<5
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		----	<5	<5	<5	<5
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		----	<5	<5	<5	<5
1.2.3-Trichloropropane	96-18-4	5	µg/L		----	<5	<5	<5	<5
Pentachloroethane	76-01-7	5	µg/L		----	<5	<5	<5	<5
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		----	<5	<5	<5	<5
Hexachlorobutadiene	87-68-3	5	µg/L		----	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		----	<5	<5	<5	<5
Bromobenzene	108-86-1	5	µg/L		----	<5	<5	<5	<5
2-Chlorotoluene	95-49-8	5	µg/L		----	<5	<5	<5	<5
4-Chlorotoluene	106-43-4	5	µg/L		----	<5	<5	<5	<5
1.3-Dichlorobenzene	541-73-1	5	µg/L		----	<5	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L		----	<5	<5	<5	<5
1.2-Dichlorobenzene	95-50-1	5	µg/L		----	<5	<5	<5	<5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW03	MW04	MW05	MW06	MW07
				Client sampling date / time	25-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00	26-Aug-2020 00:00	26-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-006	ES2030032-007	ES2030032-008	ES2030032-009	ES2030032-010
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		----	<5	<5	<5	<5
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		----	<5	<5	<5	<5
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		----	<5	<5	<5	<5
Bromodichloromethane	75-27-4	5	µg/L		----	<5	<5	<5	<5
Dibromochloromethane	124-48-1	5	µg/L		----	<5	<5	<5	<5
Bromoform	75-25-2	5	µg/L		----	<5	<5	<5	<5
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW03	MW04	MW05	MW06	MW07
				Client sampling date / time	25-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00	26-Aug-2020 00:00	26-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-006	ES2030032-007	ES2030032-008	ES2030032-009	ES2030032-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	**330**	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	**1990**	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	**2320**	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	**700**	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	**1670**	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	**2370**	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	**700**	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		----	<0.010	----	<0.010	<0.010
alpha-BHC	319-84-6	0.010	µg/L		----	<0.010	----	<0.010	<0.010
beta-BHC	319-85-7	0.010	µg/L		----	<0.010	----	<0.010	<0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW03	MW04	MW05	MW06	MW07
				Client sampling date / time	25-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00	26-Aug-2020 00:00	26-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-006	ES2030032-007	ES2030032-008	ES2030032-009	ES2030032-010
					Result	Result	Result	Result	Result
EP131A: Organochlorine Pesticides - Continued									
delta-BHC	319-86-8	0.010	µg/L		----	<0.010	----	<0.010	<0.010
4.4`-DDD	72-54-8	0.010	µg/L		----	<0.010	----	<0.010	<0.010
4.4`-DDE	72-55-9	0.010	µg/L		----	<0.010	----	<0.010	<0.010
4.4`-DDT	50-29-3	0.010	µg/L		----	<0.010	----	<0.010	<0.010
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Dieldrin	60-57-1	0.010	µg/L		----	<0.010	----	<0.010	<0.010
alpha-Endosulfan	959-98-8	0.010	µg/L		----	<0.010	----	<0.010	<0.010
beta-Endosulfan	33213-65-9	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Endosulfan sulfate	1031-07-8	0.010	µg/L		----	<0.010	----	<0.010	<0.010
^ Endosulfan (sum)	115-29-7	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Endrin	72-20-8	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Endrin aldehyde	7421-93-4	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Endrin ketone	53494-70-5	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Heptachlor	76-44-8	0.005	µg/L		----	<0.005	----	<0.005	<0.005
Heptachlor epoxide	1024-57-3	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		----	<0.010	----	<0.010	<0.010
gamma-BHC	58-89-9	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Methoxychlor	72-43-5	0.010	µg/L		----	<0.010	----	<0.010	<0.010
cis-Chlordane	5103-71-9	0.010	µg/L		----	<0.010	----	<0.010	<0.010
trans-Chlordane	5103-74-2	0.010	µg/L		----	<0.010	----	<0.010	<0.010
^ Total Chlordane (sum)	----	0.010	µg/L		----	<0.010	----	<0.010	<0.010
Oxychlordane	27304-13-8	0.010	µg/L		----	<0.010	----	<0.010	<0.010
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.010	µg/L		----	<0.010	----	<0.010	<0.010
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		----	106	108	106	108
Toluene-D8	2037-26-5	5	%		----	119	124	123	124
4-Bromofluorobenzene	460-00-4	5	%		----	117	119	118	118
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		19.0	27.9	20.5	22.9	25.2
2-Chlorophenol-D4	93951-73-6	1.0	%		41.9	61.7	44.9	49.7	55.4
2.4.6-Tribromophenol	118-79-6	1.0	%		53.9	66.0	55.4	82.1	66.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		53.4	77.0	60.3	60.4	67.4

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW03	MW04	MW05	MW06	MW07
				Client sampling date / time	25-Aug-2020 00:00	25-Aug-2020 00:00	25-Aug-2020 00:00	26-Aug-2020 00:00	26-Aug-2020 00:00
Compound	CAS Number	LOR	Unit		ES2030032-006	ES2030032-007	ES2030032-008	ES2030032-009	ES2030032-010
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	1.0	%		**63.5**	**77.3**	**69.9**	**74.3**	**76.6**
4-Terphenyl-d14	1718-51-0	1.0	%		**68.4**	**78.2**	**73.8**	**70.5**	**88.2**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**102**	**99.8**	**103**	**99.8**	**103**
Toluene-D8	2037-26-5	2	%		**118**	**115**	**121**	**120**	**121**
4-Bromofluorobenzene	460-00-4	2	%		**125**	**122**	**126**	**126**	**127**
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		**----**	**86.1**	**----**	**87.9**	**92.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW08	QW01	TRIP BLANK	TRI SPIKE	----
				Client sampling date / time	26-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2030032-011	ES2030032-012	ES2030032-013	ES2030032-014	--------
					Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L		**0.001**	**0.007**	----	----	----
Copper	7440-50-8	0.001	mg/L		**0.001**	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L		**0.002**	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	**0.016**	----	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	5	µg/L		<5	----	----	----	----
Isopropylbenzene	98-82-8	5	µg/L		<5	----	----	----	----
n-Propylbenzene	103-65-1	5	µg/L		<5	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	5	µg/L		<5	----	----	----	----
sec-Butylbenzene	135-98-8	5	µg/L		<5	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	5	µg/L		<5	----	----	----	----
tert-Butylbenzene	98-06-6	5	µg/L		<5	----	----	----	----
p-Isopropyltoluene	99-87-6	5	µg/L		<5	----	----	----	----
n-Butylbenzene	104-51-8	5	µg/L		<5	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	50	µg/L		<50	----	----	----	----
2-Butanone (MEK)	78-93-3	50	µg/L		<50	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L		<50	----	----	----	----
2-Hexanone (MBK)	591-78-6	50	µg/L		<50	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	5	µg/L		<5	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	5	µg/L		<5	----	----	----	----
1.2-Dichloropropane	78-87-5	5	µg/L		<5	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L		<5	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L		<5	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L		<5	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	50	µg/L		<50	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW08	QW01	TRIP BLANK	TRI SPIKE	----
				Client sampling date / time	26-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2030032-011	ES2030032-012	ES2030032-013	ES2030032-014	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Chloromethane	74-87-3	50	µg/L		<50	----	----	----	----
Vinyl chloride	75-01-4	50	µg/L		<50	----	----	----	----
Bromomethane	74-83-9	50	µg/L		<50	----	----	----	----
Chloroethane	75-00-3	50	µg/L		<50	----	----	----	----
Trichlorofluoromethane	75-69-4	50	µg/L		<50	----	----	----	----
1.1-Dichloroethene	75-35-4	5	µg/L		<5	----	----	----	----
Iodomethane	74-88-4	5	µg/L		<5	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	5	µg/L		<5	----	----	----	----
1.1-Dichloroethane	75-34-3	5	µg/L		<5	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	5	µg/L		<5	----	----	----	----
1.1.1-Trichloroethane	71-55-6	5	µg/L		<5	----	----	----	----
1.1-Dichloropropylene	563-58-6	5	µg/L		<5	----	----	----	----
Carbon Tetrachloride	56-23-5	5	µg/L		<5	----	----	----	----
1.2-Dichloroethane	107-06-2	5	µg/L		<5	----	----	----	----
Trichloroethene	79-01-6	5	µg/L		<5	----	----	----	----
Dibromomethane	74-95-3	5	µg/L		<5	----	----	----	----
1.1.2-Trichloroethane	79-00-5	5	µg/L		<5	----	----	----	----
1.3-Dichloropropane	142-28-9	5	µg/L		<5	----	----	----	----
Tetrachloroethene	127-18-4	5	µg/L		<5	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L		<5	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L		<5	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L		<5	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L		<5	----	----	----	----
1.2.3-Trichloropropane	96-18-4	5	µg/L		<5	----	----	----	----
Pentachloroethane	76-01-7	5	µg/L		<5	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L		<5	----	----	----	----
Hexachlorobutadiene	87-68-3	5	µg/L		<5	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	5	µg/L		<5	----	----	----	----
Bromobenzene	108-86-1	5	µg/L		<5	----	----	----	----
2-Chlorotoluene	95-49-8	5	µg/L		<5	----	----	----	----
4-Chlorotoluene	106-43-4	5	µg/L		<5	----	----	----	----
1.3-Dichlorobenzene	541-73-1	5	µg/L		<5	----	----	----	----
1.4-Dichlorobenzene	106-46-7	5	µg/L		<5	----	----	----	----
1.2-Dichlorobenzene	95-50-1	5	µg/L		<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW08	QW01	TRIP BLANK	TRI SPIKE	----
				Client sampling date / time	26-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2030032-011	ES2030032-012	ES2030032-013	ES2030032-014	--------
					Result	Result	Result	Result	----
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.4-Trichlorobenzene	120-82-1	5	µg/L		<5	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	5	µg/L		<5	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		<5	----	----	----	----
Bromodichloromethane	75-27-4	5	µg/L		<5	----	----	----	----
Dibromochloromethane	124-48-1	5	µg/L		<5	----	----	----	----
Bromoform	75-25-2	5	µg/L		<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	1.0	µg/L		<1.0	<1.0	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L		<1.0	<1.0	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L		<1.0	<1.0	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L		<2.0	<2.0	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L		<1.0	<1.0	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L		<1.0	<1.0	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L		<1.0	<1.0	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L		<1.0	<1.0	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L		<2.0	<2.0	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L		<1.0	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L		<1.0	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L		<1.0	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L		<1.0	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L		<1.0	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L		<1.0	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L		<1.0	<1.0	----	----	----
Benz(a)anthracene	56-55-3	1.0	µg/L		<1.0	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW08	QW01	TRIP BLANK	TRI SPIKE	----
				Client sampling date / time	26-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2030032-011	ES2030032-012	ES2030032-013	ES2030032-014	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L		<1.0	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L		<1.0	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L		<1.0	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L		<0.5	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	----	----
C10 - C14 Fraction	----	50	µg/L		<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L		<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	**16**	----
Toluene	108-88-3	2	µg/L		<2	<2	<2	**16**	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	**16**	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	**16**	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	**17**	----
^ Total Xylenes	----	2	µg/L		<2	<2	<2	**33**	----
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	**81**	----
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	**16**	----
EP131A: Organochlorine Pesticides									
Aldrin	309-00-2	0.010	µg/L		<0.010	----	----	----	----
alpha-BHC	319-84-6	0.010	µg/L		<0.010	----	----	----	----
beta-BHC	319-85-7	0.010	µg/L		<0.010	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW08	QW01	TRIP BLANK	TRI SPIKE	----
				Client sampling date / time	26-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2030032-011	ES2030032-012	ES2030032-013	ES2030032-014	--------
					Result	Result	Result	Result	----
EP131A: Organochlorine Pesticides - Continued									
delta-BHC	319-86-8	0.010	µg/L		<0.010	----	----	----	----
4.4`-DDD	72-54-8	0.010	µg/L		<0.010	----	----	----	----
4.4`-DDE	72-55-9	0.010	µg/L		<0.010	----	----	----	----
4.4`-DDT	50-29-3	0.010	µg/L		<0.010	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.010	µg/L		<0.010	----	----	----	----
Dieldrin	60-57-1	0.010	µg/L		<0.010	----	----	----	----
alpha-Endosulfan	959-98-8	0.010	µg/L		<0.010	----	----	----	----
beta-Endosulfan	33213-65-9	0.010	µg/L		<0.010	----	----	----	----
Endosulfan sulfate	1031-07-8	0.010	µg/L		<0.010	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.010	µg/L		<0.010	----	----	----	----
Endrin	72-20-8	0.010	µg/L		<0.010	----	----	----	----
Endrin aldehyde	7421-93-4	0.010	µg/L		<0.010	----	----	----	----
Endrin ketone	53494-70-5	0.010	µg/L		<0.010	----	----	----	----
Heptachlor	76-44-8	0.005	µg/L		<0.005	----	----	----	----
Heptachlor epoxide	1024-57-3	0.010	µg/L		<0.010	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.010	µg/L		<0.010	----	----	----	----
gamma-BHC	58-89-9	0.010	µg/L		<0.010	----	----	----	----
Methoxychlor	72-43-5	0.010	µg/L		<0.010	----	----	----	----
cis-Chlordane	5103-71-9	0.010	µg/L		<0.010	----	----	----	----
trans-Chlordane	5103-74-2	0.010	µg/L		<0.010	----	----	----	----
^ Total Chlordane (sum)	----	0.010	µg/L		<0.010	----	----	----	----
Oxychlordane	27304-13-8	0.010	µg/L		<0.010	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.010	µg/L		<0.010	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	5	%		**106**	----	----	----	----
Toluene-D8	2037-26-5	5	%		**120**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%		**115**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		**23.4**	**18.3**	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		**52.5**	**39.5**	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%		**50.6**	**54.5**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		**65.8**	**58.6**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	MW08	QW01	TRIP BLANK	TRI SPIKE	----
				Client sampling date / time	26-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	24-Aug-2020 00:00	----
Compound	CAS Number	LOR	Unit		ES2030032-011	ES2030032-012	ES2030032-013	ES2030032-014	--------
					Result	Result	Result	Result	----
EP075(SIM)T: PAH Surrogates - Continued									
Anthracene-d10	1719-06-8	1.0	%		**69.1**	**66.6**	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		**70.8**	**73.0**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**99.8**	**115**	**97.8**	**102**	----
Toluene-D8	2037-26-5	2	%		**116**	**117**	**118**	**121**	----
4-Bromofluorobenzene	460-00-4	2	%		**123**	**115**	**124**	**127**	----
EP131S: OC Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.010	%		**94.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128
EP131S: OC Pesticide Surrogate			
Dibromo-DDE	21655-73-2	14	166

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2030032**	Page	: 1 of 11
Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Contact	: Brenda Hong
Address	: NEWCASTLE	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 6685 7811	Telephone	: +61 2 8784 8555
Project	: 20025.76	Date Samples Received	: 26-Aug-2020
Order number	: 20025.76	Date Analysis Commenced	: 28-Aug-2020
C-O-C number	: ----	Issue Date	: 02-Sep-2020
Sampler	: MICHAEL WRIGHT		
Site	: ----		
Quote number	: SY/159/20		
No. of samples received	: 14		
No. of samples analysed	: 14		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3225990)									
ES2029959-003	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0002	0.0003	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.024	0.00	No Limit
ES2029946-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0004	0.0004	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.072	0.071	2.06	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.155	0.159	2.46	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3225993)									
ES2030032-010	MW07	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.014	0.012	21.1	No Limit
ES2030038-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.0001	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3225993) - continued									
ES2030038-002	Anonymous	EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.014	0.014	0.00	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3225992)									
ES2030032-002	W2	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES2030032-010	MW07	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	10	14	28.3	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	<50	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	<5	0.00	No Limit

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 3224207) - continued									
ES2030032-005	MW02	EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 3224207)									
ES2030032-005	MW02	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3224206)									
ES2030032-011	MW08	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2030032-005	MW02	EP080: C6 - C9 Fraction	----	20	µg/L	40	70	61.2	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3224206)									

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3224206) - continued									
ES2030032-011	MW08	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2030032-005	MW02	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	130	200	44.4	No Limit
EP080: BTEXN (QC Lot: 3224206)									
ES2030032-011	MW08	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES2030032-005	MW02	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3225990)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.7	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.4	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.8	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.2	81.0	117
EG020F: Dissolved Metals by ICP-MS (QCLot: 3225993)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.6	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	100	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	97.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.8	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.7	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 3225992)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	99.9	83.0	105
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 3224207)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	112	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	113	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	109	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	114	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	110	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	107	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	112	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	114	65.0	123
EP074B: Oxygenated Compounds (QCLot: 3224207)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	119	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	95.3	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	128	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	111	65.0	137
EP074C: Sulfonated Compounds (QCLot: 3224207)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	90.5	72.8	127

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074D: Fumigants (QCLot: 3224207)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	104	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	111	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	108	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	107	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	108	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 3224207)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	81.5	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	92.0	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	85.4	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	83.6	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	93.8	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	93.9	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	95.4	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	72.3	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	98.6	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	98.2	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	104	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	110	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	106	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	99.6	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	111	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	106	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	108	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	112	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	93.5	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	98.8	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	98.5	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	124	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	118	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	119	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	117	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	101	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	93.1	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3224207)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	107	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	103	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	109	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	112	73.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 3224207) - continued								
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	107	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	108	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	106	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	93.3	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	95.3	67.0	123
EP074G: Trihalomethanes (QCLot: 3224207)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	102	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	94.0	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	99.0	73.5	126
EP075(SIM)A: Phenolic Compounds (QCLot: 3224062)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	36.1	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	74.8	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	74.5	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	64.8	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	75.4	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	73.7	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	68.1	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	74.6	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	71.2	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	70.3	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	71.2	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	37.0	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3224062)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	73.6	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	74.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	75.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	81.3	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	68.6	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	87.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	88.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	78.8	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	83.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	97.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	67.2	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	78.8	63.3	117

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3224062) - continued								
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	81.0	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	80.5	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	80.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3224063)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	65.9	55.8	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	77.3	71.6	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	61.5	56.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3224206)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	114	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3224063)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	67.2	57.9	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	76.0	62.5	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	92.9	61.5	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3224206)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	112	75.0	127
EP080: BTEXN (QCLot: 3224206)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	99.2	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	106	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	106	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	106	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	107	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.8	70.0	120
EP131A: Organochlorine Pesticides (QCLot: 3224058)								
EP131A: Aldrin	309-00-2	0.01	µg/L	<0.010	1.1 µg/L	104	34.0	145
EP131A: alpha-BHC	319-84-6	0.01	µg/L	<0.010	1.1 µg/L	107	27.2	131
EP131A: beta-BHC	319-85-7	0.01	µg/L	<0.010	1.1 µg/L	94.8	28.6	133
EP131A: delta-BHC	319-86-8	0.01	µg/L	<0.010	1.1 µg/L	64.3	36.0	131
EP131A: 4.4`-DDD	72-54-8	0.01	µg/L	<0.010	1.1 µg/L	114	36.0	142
EP131A: 4.4`-DDE	72-55-9	0.01	µg/L	<0.010	1.1 µg/L	78.7	30.4	112
EP131A: 4.4`-DDT	50-29-3	0.01	µg/L	<0.010	1.1 µg/L	68.3	29.5	142
EP131A: Dieldrin	60-57-1	0.01	µg/L	<0.010	1.1 µg/L	101	28.1	122
EP131A: alpha-Endosulfan	959-98-8	0.01	µg/L	<0.010	1.1 µg/L	56.9	34.0	119
EP131A: beta-Endosulfan	33213-65-9	0.01	µg/L	<0.010	1.1 µg/L	97.2	31.6	128
EP131A: Endosulfan sulfate	1031-07-8	0.01	µg/L	<0.010	1.1 µg/L	104	35.0	159
EP131A: Endrin	72-20-8	0.01	µg/L	<0.010	1.1 µg/L	75.9	21.5	165
EP131A: Endosulfan (sum)	115-29-7	0.01	µg/L	<0.010	----	----	----	----
EP131A: Endrin aldehyde	7421-93-4	0.01	µg/L	<0.010	1.1 µg/L	89.2	22.7	123

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP131A: Organochlorine Pesticides (QCLot: 3224058) - continued								
EP131A: Endrin ketone	53494-70-5	0.01	µg/L	<0.010	1.1 µg/L	82.5	16.3	144
EP131A: Heptachlor	76-44-8	0.005	µg/L	<0.005	1.1 µg/L	118	33.0	160
EP131A: Heptachlor epoxide	1024-57-3	0.01	µg/L	<0.010	1.1 µg/L	48.0	33.0	117
EP131A: Hexachlorobenzene (HCB)	118-74-1	0.01	µg/L	<0.010	1.1 µg/L	105	23.6	126
EP131A: gamma-BHC	58-89-9	0.01	µg/L	<0.010	1.1 µg/L	59.7	28.7	134
EP131A: Methoxychlor	72-43-5	0.01	µg/L	<0.010	1.1 µg/L	99.7	29.5	150
EP131A: cis-Chlordane	5103-71-9	0.01	µg/L	<0.010	1.1 µg/L	70.4	27.0	116
EP131A: trans-Chlordane	5103-74-2	0.01	µg/L	<0.010	1.1 µg/L	106	31.2	119
EP131A: Total Chlordane (sum)	----	0.01	µg/L	<0.010	----	----	----	----
EP131A: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.01	µg/L	<0.010	----	----	----	----

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3225990)							
ES2029946-005	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	94.7	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	98.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	94.8	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	93.5	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	94.7	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	94.1	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.0	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 3225993)							
ES2030032-008	MW05	EG020A-F: Arsenic	7440-38-2	1 mg/L	97.1	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	99.3	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	97.1	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	94.4	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	97.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	98.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3225992)							
ES2030032-001	W1	EG035F: Mercury	7439-97-6	0.01 mg/L	95.1	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 3224207)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074E: Halogenated Aliphatic Compounds (QCLot: 3224207) - continued							
ES2030032-005	MW02	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	90.9	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	109	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 3224207)							
ES2030032-005	MW02	EP074: Chlorobenzene	108-90-7	25 µg/L	114	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3224206)							
ES2030032-005	MW02	EP080: C6 - C9 Fraction	----	325 µg/L	112	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3224206)							
ES2030032-005	MW02	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	86.6	70.0	130
EP080: BTEXN (QCLot: 3224206)							
ES2030032-005	MW02	EP080: Benzene	71-43-2	25 µg/L	91.0	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	101	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	107	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	108	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	110	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	100	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2030032**	Page	: 1 of 8
Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Telephone	: +61 2 8784 8555
Project	: 20025.76	Date Samples Received	: 26-Aug-2020
Site	: ----	Issue Date	: 02-Sep-2020
Sampler	: MICHAEL WRIGHT	No. of samples received	: 14
Order number	: 20025.76	No. of samples analysed	: 14

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Organochlorine Pesticides (Ultra-trace)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	0	13	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Organochlorine Pesticides (Ultra-trace)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	0	13	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / ***Container*** / Client Sample ID(s)	***Sample Date***	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	***Date analysed***	*Due for analysis*	*Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
W1, W2, W3, QW01	**24-Aug-2020**	**----**	----	----	**28-Aug-2020**	20-Feb-2021	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**----**	----	----	**28-Aug-2020**	21-Feb-2021	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)							
MW06, MW07, MW08	**26-Aug-2020**	**----**	----	----	**28-Aug-2020**	22-Feb-2021	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
W1, W2, W3, QW01	**24-Aug-2020**	**----**	----	----	**28-Aug-2020**	21-Sep-2020	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**----**	----	----	**28-Aug-2020**	22-Sep-2020	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)							
MW06, MW07, MW08	**26-Aug-2020**	**----**	----	----	**28-Aug-2020**	23-Sep-2020	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074)							
MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP074B: Oxygenated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074)							
MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP074C: Sulfonated Compounds							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074)							
MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP074D: Fumigants							
Amber VOC Vial - Sulfuric Acid (EP074)							
MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074)							
MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP074F: Halogenated Aromatic Compounds							
Amber VOC Vial - Sulfuric Acid (EP074) MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP074G: Trihalomethanes							
Amber VOC Vial - Sulfuric Acid (EP074) MW02, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP074) MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM)) W1, W2, W3, QW01	**24-Aug-2020**	**31-Aug-2020**	31-Aug-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**31-Aug-2020**	01-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW06, MW07, MW08	**26-Aug-2020**	**31-Aug-2020**	02-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) W1, W2, W3, QW01	**24-Aug-2020**	**31-Aug-2020**	31-Aug-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**31-Aug-2020**	01-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) MW06, MW07, MW08	**26-Aug-2020**	**31-Aug-2020**	02-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) W1, W2, W3, QW01	**24-Aug-2020**	**31-Aug-2020**	31-Aug-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP071) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**31-Aug-2020**	01-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP071) MW06, MW07, MW08	**26-Aug-2020**	**31-Aug-2020**	02-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) W1, W2, W3, QW01, TRIP BLANK	**24-Aug-2020**	**01-Sep-2020**	07-Sep-2020	✓	**01-Sep-2020**	07-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) W1, W2, W3, QW01	**24-Aug-2020**	**31-Aug-2020**	31-Aug-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP071) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**31-Aug-2020**	01-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP071) MW06, MW07, MW08	**26-Aug-2020**	**31-Aug-2020**	02-Sep-2020	✓	**01-Sep-2020**	10-Oct-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) W1, W2, W3, QW01, TRIP BLANK	**24-Aug-2020**	**01-Sep-2020**	07-Sep-2020	✓	**01-Sep-2020**	07-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) W1, W2, W3, QW01, TRIP BLANK, TRI SPIKE	**24-Aug-2020**	**01-Sep-2020**	07-Sep-2020	✓	**01-Sep-2020**	07-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW01, MW02, MW03, MW04, MW05	**25-Aug-2020**	**01-Sep-2020**	08-Sep-2020	✓	**01-Sep-2020**	08-Sep-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080) MW06, MW07, MW08	**26-Aug-2020**	**01-Sep-2020**	09-Sep-2020	✓	**01-Sep-2020**	09-Sep-2020	✓
EP131A: Organochlorine Pesticides							
Amber Glass Bottle - Unpreserved (EP131A) MW01, MW04	**25-Aug-2020**	**28-Aug-2020**	01-Sep-2020	✓	**28-Aug-2020**	07-Oct-2020	✓
Amber Glass Bottle - Unpreserved (EP131A) MW06, MW07, MW08	**26-Aug-2020**	**28-Aug-2020**	02-Sep-2020	✓	**28-Aug-2020**	07-Oct-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Mercury by FIMS	EG035F	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	36	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	0	6	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	13	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	36	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Organochlorine Pesticides (Ultra-trace)	EP131A	0	6	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	13	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	12	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
Volatile Organic Compounds	EP074	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Organochlorine Pesticides (Ultra-trace)	EP131A	WATER	In house: Referenced to USEPA Method 3640 (GPC cleanup),3620 (Florisil), 8081/8082 (GC/µECD/uECD). This method is compliant with NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Sep. Funnel Extraction of Liquids (Ultra-trace pesticides.)	ORG14-UTP	WATER	In house: Referenced to USEPA 3510 Samples are extracted into dichloromethane, concentrated and exchanged into an apporpriate solvent for GPC and florisil cleanup as required. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2030032**

Client	: **CAVVANBA CONSULTING**	Laboratory	: Environmental Division Sydney
Contact	: MR DREW WOOD	Contact	: Brenda Hong
Address	: NEWCASTLE	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: drew@cavvanba.com	E-mail	: Brenda.Hong@ALSGlobal.com
Telephone	: +61 02 6685 7811	Telephone	: +61 2 8784 8555
Facsimile	: +61 02 6685 5083	Facsimile	: +61-2-8784 8500
Project	: 20025.76	Page	: 1 of 3
Order number	: 20025.76	Quote number	: ES2020CAVCON0008 (SY/159/20)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: MICHAEL WRIGHT		

Dates

Date Samples Received	: 26-Aug-2020 16:26	Issue Date	: 27-Aug-2020
Client Requested Due Date	: 02-Sep-2020	Scheduled Reporting Date	: **02-Sep-2020**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 0.8'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 14 / 14

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Sample QW02 have been forwarded to EUROFINS.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EP074 (water) minus BTEXN Volatile Organic Compounds (minus BTEXN)	WATER - EP080 BTEXN	WATER - EP131A Ultra Trace Organochlorine Pesticides	WATER - W-18 TRH(C6 - C9)/BTEXN	WATER - W-27 TRH/BTEXN/PAH/Phenols/8 Metals
ES2030032-001	24-Aug-2020 00:00	W1					✓
ES2030032-002	24-Aug-2020 00:00	W2					✓
ES2030032-003	24-Aug-2020 00:00	W3					✓
ES2030032-004	25-Aug-2020 00:00	MW01			✓		✓
ES2030032-005	25-Aug-2020 00:00	MW02	✓				✓
ES2030032-006	25-Aug-2020 00:00	MW03					✓
ES2030032-007	25-Aug-2020 00:00	MW04	✓		✓		✓
ES2030032-008	25-Aug-2020 00:00	MW05	✓				✓
ES2030032-009	26-Aug-2020 00:00	MW06	✓		✓		✓
ES2030032-010	26-Aug-2020 00:00	MW07	✓		✓		✓
ES2030032-011	26-Aug-2020 00:00	MW08	✓		✓		✓
ES2030032-012	24-Aug-2020 00:00	QW01					✓
ES2030032-013	24-Aug-2020 00:00	TRIP BLANK				✓	
ES2030032-014	24-Aug-2020 00:00	TRI SPIKE		✓			

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE		
- A4 - AU Tax Invoice (INV)	Email	inbox@cavvanba.com
DREW WOOD		
- *AU Certificate of Analysis - NATA (COA)	Email	drew@cavvanba.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	drew@cavvanba.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	drew@cavvanba.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	drew@cavvanba.com
- Chain of Custody (CoC) (COC)	Email	drew@cavvanba.com
- EDI Format - ENMRG (ENMRG)	Email	drew@cavvanba.com
- EDI Format - ESDAT (ESDAT)	Email	drew@cavvanba.com
MICHAEL WRIGHT		
- *AU Certificate of Analysis - NATA (COA)	Email	michael@cavvanba.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	michael@cavvanba.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	michael@cavvanba.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	michael@cavvanba.com
- Chain of Custody (CoC) (COC)	Email	michael@cavvanba.com
- EDI Format - ENMRG (ENMRG)	Email	michael@cavvanba.com
- EDI Format - ESDAT (ESDAT)	Email	michael@cavvanba.com
ROB MCLELLAND		
- A4 - AU Tax Invoice (INV)	Email	rob@cavvanba.com

CHAIN OF CUSTODY

ALS Laboratory: please tick →

UPDATED COC

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	⊗ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 20025.76		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other comment: -0.8
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 375 146		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com			
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 26/08/20	AC 4:25pm DATE/TIME: 26/8/2020	DATE/TIME:	Helen DATE/TIME: 27.8.2020 11:50am

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	W-27	OCPs (Ultra Trace)	VOCs (EP074)	TRH / BTEXN					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	W1	24/08/2020	Water	Stored Lab / Split WO		/								Analysis to
2	W2	/08/2020	Water	Stored By / Date: Eurofins		/								follow
3	W3	/08/2020	Water	Received By / Date: Eurofins		/								
4	MW01	25 /08/2020	Water	Transported By / Courier:		/	/							
5	MW02	/08/2020	Water	Received By / Internal Sh		/		/						
6	MW03	/08/2020	Water			/								
7	MW04	/08/2020	Water			/	/	/						
8	MW05	/08/2020	Water			/		/						
9	MW06	26 /08/2020	Water			/	/	/						
10	MW07	/08/2020	Water			/	/	/						
11	MW08	/08/2020	Water			/	/	/						
12	QW01	24 /08/2020	Water			/								Please send
	QW02	/08/2020	Water			/								QW02 to
13, 14	Turbia-L/THSpike	/08/2020	Water		2				/					Eurofins Mgt

Environmental Division Sydney
Work Order Reference
ES2030032

Telephone : 61-2-8784 8555

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

Cavvanba Consulting
1 / 66 Centennial Cct
Byron Bay
NSW 2481

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Drew Wood**

Report **739869-S**
Project name 20025.75
Received Date Aug 24, 2020

Client Sample ID			**QS02**	**QS08**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S20-Au39217**	**S20-Au39220**
Date Sampled			**Aug 18, 2020**	**Aug 20, 2020**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	83	< 50
TRH C29-C36	50	mg/kg	80	< 50
TRH C10-C36 (Total)	50	mg/kg	163	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	114	70
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	140	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	140	< 100
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			QS02	QS08
Sample Matrix			Soil	Soil
Eurofins Sample No.			S20-Au39217	S20-Au39220
Date Sampled			Aug 18, 2020	Aug 20, 2020
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99	98
p-Terphenyl-d14 (surr.)	1	%	97	95
Phenols (Halogenated)				
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1
Phenols (non-Halogenated)				
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2
2-Nitrophenol	1	mg/kg	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4
4-Nitrophenol	5	mg/kg	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20
Phenol-d6 (surr.)	1	%	72	77
Heavy Metals				
Arsenic	2	mg/kg	66	8.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	18	25
Copper	5	mg/kg	310	51
Lead	5	mg/kg	280	3700
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	26	20
Zinc	5	mg/kg	56	250
% Moisture	1	%	19	31

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

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	Aug 27, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Aug 27, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 27, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 27, 2020	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Aug 27, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Aug 27, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Aug 27, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Aug 27, 2020	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Aug 25, 2020	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Cavvanba Consulting
Address: 1 / 66 Centennial Cct
Byron Bay
NSW 2481

Project Name: 20025.75

Order No.:
Report #: 739869
Phone: 02 6685 7811
Fax: 02 6685 5083

Received: Aug 24, 2020 11:45 AM
Due: Aug 31, 2020
Priority: 5 Day
Contact Name: Drew Wood

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						HOLD	Moisture Set	Eurofins Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Newcastle Laboratory								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QS02	Aug 18, 2020		Soil	S20-Au39217		X	X
2	QS04	Aug 18, 2020		Soil	S20-Au39218	X		
3	QS06	Aug 20, 2020		Soil	S20-Au39219	X		
4	QS08	Aug 20, 2020		Soil	S20-Au39220		X	X
Test Counts						2	2	2

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.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram | **mg/L:** milligrams per litre | **ug/L:** micrograms per litre

ppm: Parts per million | **ppb:** Parts per billion | **%:** Percentage

org/100mL: Organisms per 100 millilitres | **NTU:** Nephelometric Turbidity Units | **MPN/100mL:** Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - 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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
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.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. 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.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. 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 - 1999 NEPM Fractions							
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	
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	
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							
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							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	99			70-130	Pass	
TRH C10-C14	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	112			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	106			70-130	Pass	
Xylenes - Total*	%	104			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	121			70-130	Pass	
TRH C6-C10	%	99			70-130	Pass	
TRH >C10-C16	%	74			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	78			70-130	Pass	
Acenaphthylene	%	76			70-130	Pass	
Anthracene	%	81			70-130	Pass	
Benz(a)anthracene	%	79			70-130	Pass	
Benzo(a)pyrene	%	77			70-130	Pass	
Benzo(b&j)fluoranthene	%	91			70-130	Pass	
Benzo(g.h.i)perylene	%	78			70-130	Pass	
Benzo(k)fluoranthene	%	84			70-130	Pass	
Chrysene	%	81			70-130	Pass	
Dibenz(a.h)anthracene	%	80			70-130	Pass	
Fluoranthene	%	82			70-130	Pass	
Fluorene	%	79			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	87			70-130	Pass	
Naphthalene	%	73			70-130	Pass	
Phenanthrene	%	84			70-130	Pass	
Pyrene	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	W20-Au35867	NCP	%	72			70-130	Pass	
TRH C10-C14	S20-Au29280	NCP	%	93			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S20-Au34997	NCP	%	84			70-130	Pass	
Toluene	W20-Au35867	NCP	%	81			70-130	Pass	
Ethylbenzene	S20-Au34997	NCP	%	72			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
m&p-Xylenes	S20-Au34997	NCP	%	83			70-130	Pass	
o-Xylene	S20-Au34997	NCP	%	83			70-130	Pass	
Xylenes - Total*	S20-Au34997	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S20-Au34997	NCP	%	86			70-130	Pass	
TRH C6-C10	W20-Au35867	NCP	%	75			70-130	Pass	
TRH >C10-C16	S20-Au29280	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	W20-Au35867	NCP	%	85			70-130	Pass	
Acenaphthylene	W20-Au35867	NCP	%	86			70-130	Pass	
Anthracene	W20-Au35867	NCP	%	89			70-130	Pass	
Benz(a)anthracene	W20-Au35867	NCP	%	87			70-130	Pass	
Benzo(a)pyrene	S20-Au45898	NCP	%	78			70-130	Pass	
Benzo(b&j)fluoranthene	W20-Au35867	NCP	%	88			70-130	Pass	
Benzo(g.h.i)perylene	S20-Au45898	NCP	%	74			70-130	Pass	
Benzo(k)fluoranthene	W20-Au35867	NCP	%	81			70-130	Pass	
Chrysene	S20-Au45898	NCP	%	91			70-130	Pass	
Dibenz(a.h)anthracene	W20-Au35867	NCP	%	77			70-130	Pass	
Fluoranthene	W20-Au35867	NCP	%	83			70-130	Pass	
Fluorene	W20-Au35867	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	W20-Au35867	NCP	%	75			70-130	Pass	
Naphthalene	W20-Au35867	NCP	%	79			70-130	Pass	
Phenanthrene	W20-Au35867	NCP	%	89			70-130	Pass	
Pyrene	W20-Au35867	NCP	%	83			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S20-Au34996	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S20-Au29447	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S20-Au29447	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S20-Au29447	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S20-Au34996	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S20-Au34996	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S20-Au34996	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S20-Au34996	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S20-Au34996	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S20-Au34996	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S20-Au34996	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S20-Au34996	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S20-Au29447	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S20-Au29447	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S20-Au29447	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S20-Au37729	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S20-Au37729	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S20-Au37729	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S20-Au37729	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S20-Au37729	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S20-Au37729	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S20-Au37729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S20-Au37729	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S20-Au37729	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S20-Au37729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S20-Au37729	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S20-Au37729	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S20-Au37729	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S20-Au37729	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S20-Au40940	NCP	%	7.8	5.9	28	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S20-Au39220	CP	mg/kg	8.3	14	52	30%	Fail	Q15
Cadmium	S20-Au39220	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S20-Au39220	CP	mg/kg	25	26	6.0	30%	Pass	
Copper	S20-Au39220	CP	mg/kg	51	80	45	30%	Fail	Q15
Lead	S20-Au39220	CP	mg/kg	3700	2300	44	30%	Fail	Q02
Mercury	S20-Au39220	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S20-Au39220	CP	mg/kg	20	24	18	30%	Pass	
Zinc	S20-Au39220	CP	mg/kg	250	300	18	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
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
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
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

Asim Khan	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)

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.

eurofins | Environment Testing

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Site # 1254 & 14271

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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

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NATA # 1261
Site # 23736

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4/52 Industrial Drive
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Phone : +61 2 4968 8448

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Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	Cavvanba Consulting
Contact name:	Drew Wood
Project name:	20025.75
Project ID:	Not provided
Turnaround time:	5 Day
Date/Time received	Aug 24, 2020 11:45 AM
Eurofins reference	739869

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 13.2 degrees Celsius.
✓	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.
X	Split sample sent to requested external lab.
X	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:

Asim Khan on phone : or by email: AsimKhan@eurofins.com

Results will be delivered electronically via email to Drew Wood - drew@cavvanba.com.

Note: A copy of these results will also be delivered to the general Cavvanba Consulting email address.

eurofins | Environment Testing

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

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IANZ # 1327

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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Cavvanba Consulting
Address: 1 / 66 Centennial Cct
Byron Bay
NSW 2481

Project Name: 20025.75

Order No.:
Report #: 739869
Phone: 02 6685 7811
Fax: 02 6685 5083

Received: Aug 24, 2020 11:45 AM
Due: Aug 31, 2020
Priority: 5 Day
Contact Name: Drew Wood

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						HOLD	Moisture Set	Eurofins Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Newcastle Laboratory								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QS02	Aug 18, 2020		Soil	S20-Au39217		X	X
2	QS04	Aug 18, 2020		Soil	S20-Au39218	X		
3	QS06	Aug 20, 2020		Soil	S20-Au39219	X		
4	QS08	Aug 20, 2020		Soil	S20-Au39220		X	X
Test Counts						2	2	2

ALS

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: Cavvanba Consulting

OFFICE: Newcastle

PROJECT: 20025.76

ORDER NUMBER: 20025.76

PROJECT MANAGER: Drew Wood

SAMPLER: Michael Wright

COC emailed to ALS? (YES / NO)

Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com

Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

☒ Standard TAT (List due date):

☐ Non Standard or urgent TAT (List due date):

ALS QUOTE NO.: S[redacted]18 SY/159/20

CONTACT PH: 0403 689 755

SAMPLER MOBILE: 0434 376 146

EDD FORMAT (or default):

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7 (18)

OF: 1 2 3 4 5 6 7 (18)

RELINQUISHED BY: *Michael Wright*

DATE/TIME: 21/08/20

RECEIVED BY: KV 1255

DATE/TIME: 21-8-2020

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY:

DATE/TIME: 21/8/2020 9:30

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No
Free ice / frozen ice bricks present upon receipt?	Yes	No
Random Sample Temperature on Receipt:		°C
Other comment:		

ALS USE: LAB ID	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W): SAMPLE ID	DATE / TIME	MATRIX	CONTAINER INFORMATION: TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-27	S-17	VOCs (EPO7M)	P22-NEPM list	Additional Information
141	TP12 0.4-0.5	20-08-20	Soil	Jar						
142	TP13 0.0-0.05	↓	↓	Jar	1					
143	0.4-0.5			Jar + Ziplock	2	\	\			
144	↓ 1.9-2.0			Jar	1					
145	TP14 0.05-0.1			↓	1	\				
146	0.4-0.5			Jar + Ziplock	2	\	\			
147	↓ 1.9-2.0			Jar	1					
148	TP15 0.05-0.1			↓ + Ziplock	2					
149	0.4-0.5			Jar + Ziplock	2	\	\	\	\	
150	↓ 1.4-1.5			Jar	1	\				
151	QS01	18-08-20								
–	QS02					\				
152	QS03					\				
–	QS04	↓	↓	↓	↓					

Analysis required including SUITES (NB. Suite Codes must be listed to attract suite price). Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). Other handwritten analysis headings: CEC, pH, EC, TOC, Particle size; EP204.

Additional Information: Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

Please send QS02, QS04, QS06, QS08 to Eurofins MGT

#739869

Kathy N 24/8

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

CHAIN OF CUSTODY

ALS Laboratory Please tick →

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS: ✱ Standard TAT (List due date):
OFFICE: Newcastle	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):
PROJECT: 20025.76	ALS QUOTE NO.: ~~Submitted~~ EQ/159/20
ORDER NUMBER: 20025.76	COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7 (1) OF: 1 2 3 4 5 6 7 (1)
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):
Email Reports to (will default to PM if no other addresses are listed)	drew@cavvanba.com, michael@cavvanba.com
Email Invoice to (will default to PM if no other addresses are listed)	rob@cavvanba.com

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N
Free ice / frozen ice bricks present upon receipt?	Yes	No	N
Random Sample Temperature on Receipt:		°C	
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Michael Wright	KD 1255		
DATE/TIME: 21/08/20	DATE/TIME: 21-8-2020	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)				Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S 27	S 12	VOCs (EP080)	TRH/BTEXN	Asbestos (EA200) 2 Areas
153	QS05	20-08-20	Soil	Jar	1					
-	QS06									
154	QS07									
-	QS08									
155	Trip blank									
156	Trip spike									
157	ACM 01	20-08-20	Asbestos	Ziplock						
158	ACM 02									
159	ACM 03									
160	ACM 04									
161	ACM 05									
162	ACM 06									
163	ACM 07									
164	TSC									
165	HOLD									

Water Container Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide/Cd Preserved, S = Sodium Hydroxide Preserved Plastic, AG = Amber Glass Unpreserved, AP = Airfreight unpreserved Plastic, V = VOA Vial HCl Preserved, VB = VOA Vial Sodium Bisulphate Preserved, VS = VOA Vial Sulfuric Preserved, AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass, H = HCl preserved Plastic, HS = HCl preserved Speciation bottle, SP = Sulfuric Preserved Plastic, Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottles, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag

Cavvanba Consulting
1 / 66 Centennial Cct
Byron Bay
NSW 2481

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Drew Wood**

Report **740831-W**
Project name 20025.76
Received Date Aug 28, 2020

Client Sample ID			**QW02**
Sample Matrix			**Water**
Eurofins Sample No.			**S20-Au48454**
Date Sampled			**Aug 24, 2020**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	79
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001

Client Sample ID			QW02
Sample Matrix			Water
Eurofins Sample No.			S20-Au48454
Date Sampled			Aug 24, 2020
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	INT
p-Terphenyl-d14 (surr.)	1	%	96
Phenols (Halogenated)			
2-Chlorophenol	0.003	mg/L	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03
Dinoseb	0.1	mg/L	< 0.1
Phenol	0.003	mg/L	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1
Phenol-d6 (surr.)	1	%	INT
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0002	mg/L	< 0.0002
Chromium (filtered)	0.001	mg/L	0.007
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	0.005	mg/L	0.018

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

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	Aug 31, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Aug 31, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 31, 2020	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Aug 31, 2020	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Aug 31, 2020	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Aug 31, 2020	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Aug 31, 2020	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8 filtered	Sydney	Aug 31, 2020	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins | Environment Testing

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IANZ # 1290

Company Name: Cavvanba Consulting
Address: 1 / 66 Centennial Cct
Byron Bay
NSW 2481

Project Name: 20025.76

Order No.:
Report #: 740831
Phone: 02 6685 7811
Fax: 02 6685 5083

Received: Aug 28, 2020 4:30 PM
Due: Sep 4, 2020
Priority: 5 Day
Contact Name: Drew Wood

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						Eurofins Suite B7A (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
Newcastle Laboratory						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	QW02	Aug 24, 2020		Water	S20-Au48454	X
Test Counts						1

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.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - 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.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
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.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

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. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. 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.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. 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 - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	89			70-130	Pass	
TRH C10-C14	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	86			70-130	Pass	
Ethylbenzene	%	88			70-130	Pass	
m&p-Xylenes	%	84			70-130	Pass	
o-Xylene	%	88			70-130	Pass	
Xylenes - Total*	%	85			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	92			70-130	Pass	
TRH C6-C10	%	89			70-130	Pass	
TRH >C10-C16	%	110			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	117			70-130	Pass	
Acenaphthylene	%	115			70-130	Pass	
Anthracene	%	120			70-130	Pass	
Benz(a)anthracene	%	108			70-130	Pass	
Benzo(a)pyrene	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	%	104			70-130	Pass	
Benzo(g.h.i)perylene	%	123			70-130	Pass	
Benzo(k)fluoranthene	%	117			70-130	Pass	
Chrysene	%	120			70-130	Pass	
Dibenz(a.h)anthracene	%	103			70-130	Pass	
Fluoranthene	%	107			70-130	Pass	
Fluorene	%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	108			70-130	Pass	
Naphthalene	%	108			70-130	Pass	
Phenanthrene	%	121			70-130	Pass	
Pyrene	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	86			30-130	Pass	
2.4-Dichlorophenol	%	112			30-130	Pass	
2.4.5-Trichlorophenol	%	102			30-130	Pass	
2.4.6-Trichlorophenol	%	91			30-130	Pass	
2.6-Dichlorophenol	%	108			30-130	Pass	
4-Chloro-3-methylphenol	%	98			30-130	Pass	
Pentachlorophenol	%	106			30-130	Pass	
Tetrachlorophenols - Total	%	103			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	121			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	75			30-130	Pass	
2-Methylphenol (o-Cresol)	%	111			30-130	Pass	
2-Nitrophenol	%	128			30-130	Pass	
2.4-Dimethylphenol	%	96			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	104			30-130	Pass	
Dinoseb	%	129			30-130	Pass	
Phenol	%	71			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	99			80-120	Pass	
Cadmium (filtered)	%	101			80-120	Pass	
Chromium (filtered)	%	95			80-120	Pass	
Copper (filtered)	%	96			80-120	Pass	
Lead (filtered)	%	98			80-120	Pass	
Mercury (filtered)	%	97			80-120	Pass	
Nickel (filtered)	%	96			80-120	Pass	
Zinc (filtered)	%	95			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S20-Au48693	NCP	%	92			70-130	Pass	
TRH C10-C14	S20-Au48454	CP	%	90			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S20-Au48693	NCP	%	100			70-130	Pass	
Toluene	S20-Au48693	NCP	%	95			70-130	Pass	
Ethylbenzene	S20-Au48693	NCP	%	98			70-130	Pass	
m&p-Xylenes	S20-Au48693	NCP	%	89			70-130	Pass	
o-Xylene	S20-Au48693	NCP	%	96			70-130	Pass	
Xylenes - Total*	S20-Au48693	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S20-Au48693	NCP	%	106			70-130	Pass	
TRH C6-C10	S20-Au48693	NCP	%	90			70-130	Pass	
TRH >C10-C16	S20-Au48454	CP	%	72			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S20-Au48698	NCP	%	118			75-125	Pass	
Cadmium (filtered)	S20-Au48698	NCP	%	96			75-125	Pass	
Chromium (filtered)	S20-Au48698	NCP	%	85			75-125	Pass	
Copper (filtered)	S20-Au48698	NCP	%	75			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)	S20-Au48698	NCP	%	76			75-125	Pass	
Mercury (filtered)	S20-Au48698	NCP	%	79			75-125	Pass	
Nickel (filtered)	S20-Au48698	NCP	%	76			75-125	Pass	
Zinc (filtered)	S20-Au48550	NCP	%	82			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S20-Au48690	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S20-Au48520	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S20-Au48520	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S20-Au48520	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S20-Au48690	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S20-Au48690	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S20-Au48690	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S20-Au48690	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S20-Au48690	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S20-Au48690	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S20-Au48690	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S20-Au48690	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S20-Au48520	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S20-Au48520	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S20-Au48520	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S20-Au48454	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S20-Au48454	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S20-Au48454	CP	mg/L	0.007	0.007	2.0	30%	Pass	
Copper (filtered)	S20-Au48454	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S20-Au48454	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S20-Au48454	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S20-Au48454	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S20-Au48454	CP	mg/L	0.018	0.037	68	30%	Fail	Q15

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
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
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

Asim Khan	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)

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.

eurofins | Environment Testing

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Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	Cavvanba Consulting
Contact name:	Drew Wood
Project name:	20025.76
Project ID:	Not provided
Turnaround time:	5 Day
Date/Time received	Aug 28, 2020 4:30 PM
Eurofins reference	740831

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 10.4 degrees Celsius.
✓	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.
X	Split sample sent to requested external lab.
X	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:

Asim Khan on phone : or by email: AsimKhan@eurofins.com

Results will be delivered electronically via email to Drew Wood - drew@cavvanba.com.

Note: A copy of these results will also be delivered to the general Cavvanba Consulting email address.

eurofins | Environment Testing

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

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Phone : +64 9 526 45 51
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43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: Cavvanba Consulting
Address: 1 / 66 Centennial Cct
Byron Bay
NSW 2481

Project Name: 20025.76

Order No.:
Report #: 740831
Phone: 02 6685 7811
Fax: 02 6685 5083

Received: Aug 28, 2020 4:30 PM
Due: Sep 4, 2020
Priority: 5 Day
Contact Name: Drew Wood

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						Eurofins Suite B7A (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
Perth Laboratory - NATA Site # 23736						
Newcastle Laboratory						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	QW02	Aug 24, 2020		Water	S20-Au48454	X
Test Counts						1

CHAIN OF CUSTODY

ALS Laboratory please tick →

UPDATED COC

CLIENT: Cavvanba Consulting	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	✱ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)
OFFICE: Newcastle		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: 20025.76	ALS QUOTE NO.: SY/159/20	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: 20025.76		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Drew Wood	CONTACT PH: 0403 689 755		Other comment: -0.8
SAMPLER: Michael Wright	SAMPLER MOBILE: 0434 376 146		
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): drew@cavvanba.com, michael@cavvanba.com			
Email Invoice to (will default to PM if no other addresses are listed): rob@cavvanba.com			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 26/08/20	AC 4 25pm DATE/TIME: 26/8/2020	DATE/TIME:	Helen DATE/TIME: 27.8.2020 11.50

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)				Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	W-27	OCPs (Ultra Trace)	VOCs (EP074)	TRH / BTEXN	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
1	MW1	24/08/2020	Water			/				Analysis to follow
2	MW2	/08/2020	Water			/				
3	MW3	/08/2020	Water			/	✱			
4	MW01	25 /08/2020	Water			/	/			
5	MW02	/08/2020	Water			/		/		
6	MW03	/08/2020	Water			/				
7	MW04	/08/2020	Water			/	/	/		
8	MW05	/08/2020	Water			/		/		
9	MW06	26 /08/2020	Water			/	/	/		
10	MW07	/08/2020	Water			/	/	/		
11	MW08	/08/2020	Water			/	/	/		
12	QMW01	24 /08/2020	Water			/				Please send QMW02 to Eurofins MGT
	QMW02	/08/2020	Water			/				
B#14	Trip blank / TRIP Spike	/08/2020	Water		2				/	

Environmental Division Sydney
Work Order Reference
ES2030032

Telephone: 61-2-8784 8555

28/8 #740831

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag