McMahon EARTH SCIENCE

PRELIMINARY SITE INVESTIGATION

REPORT 2019

LOT 2 BARTONDALE ROAD
TEMORA NSW 2666

JOB NO: 6302

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Report type

Preliminary Site Investigation

Site address

Lot 2 Bartondale Road
Temora NSW 2666

Report number

6302

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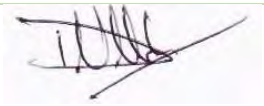
Reviewer	**David McMahon** CEnvP BAppSc SA GradDip WRM MEnvMgmt MALGA MEIANZ MSSA		14/11/2019	0

Executive summary

DM McMahon Pty Ltd (McMahon) conducted a Preliminary Site Investigation (PSI) to assess potential contamination sources on approximately 6.30ha of land located at Lot 2 Bartondale Road Temora NSW, referred to as the site. The site is proposed to support the extension of existing development associated with Temora Airport including residential airpark estate, commercial and tourism uses, and the details of the site and plans have been supplied by Claire Golder of Temora Shire Council on 21 October 2019.

The site research, enquires and inspection were undertaken in accordance with the relevant guidelines, legislation and standards, namely:

- NSW OEH Contaminated sites Guidelines for Consultants Reporting on Contaminated sites (2011).
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55).
- National Environment Protection (Assessment of site Contamination) Measure (NEPM), (2013).

The desktop research and enquiries and subsequent site inspection conducted on 29 October 2019 by McMahon consultants identified the site has formally used as a stock saleyard from at least 1941. The following potential on-site contamination sources from the historical and current land use is as follows:

1. **Livestock activities** associated with sales and stock holding yards.
2. **Vehicle storage & washing** in vehicle parking and loading areas as well as the on-site truck wash infrastructure.
3. **Effluent treatment activities** in yards and the effluent dam.
4. **Hazardous building material** as potential lead paints and other items in the site office building.
5. **Fill material** in the form of a large stockpile and in-situ topsoil from an unknown source.

This PSI assesses the potential contamination risk to human health and/or the environment from historical and current potential contamination sources on the subject site and surrounds and provides recommendations for further assessment and/or investigation.

McMahon offer the following summary of the findings of the PSI:

- The data provided in this report is considered reliable to base the findings of the PSI on.
- The potential contamination sources, pathways and receptors have been identified along with the areas of concern.
- The sampling undertaken returned results below the adopted criteria and as such the risk of gross contamination across the site is low.
- The potential hazardous building material and fill material on site can be managed during development given appropriate controls are put in place as outlined in this PSI.
- Based on the findings of this report the site is assessed to be suitable for the proposed development with low risk to human health and/or the environment.
- If unexpected findings occur during development this office is to be contact for further assessment.

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1.0 Introduction

1.1 Background

At the request of Claire Golder of Temora Shire Council, a Preliminary Site Investigation (PSI) was carried out on the subject site at Lot 2 DP 209557 Bartondale Road Temora NSW. The site is vacant and no longer used for any purpose however has been formerly used as livestock saleyards, truck wash and long-term agricultural purposes. The subject site is at the Development Application (DA) stage for a planning proposal for rezoning. The proposed future land use of the site will be to support the extension of existing development associated with the Temora Airport, including residential airpark estate, commercial and tourism, if the DA proposal is successful. McMahon consultants carried out a site inspection on 29 October 2019 with this report produced thereafter.

1.2 Scope of work

The scope of work included a desktop study, research, enquiries and site inspection of the subject site. The objective of this report, which dictates the scope of work, is to identify any past or present potentially contaminating activities on site or surrounds and to provide a qualitative risk assessment of potential site contamination. This report aims to determine the subject site suitability or otherwise for Development Application (DA) approval regarding future development and the need for further investigation and/or assessment if required. Works were undertaken in accordance with the relevant guidelines, legislation and standards, namely:

- NSW OEH Contaminated sites Guidelines for Consultants Reporting on Contaminated sites (2011).
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55).
- National Environment Protection (Assessment of site Contamination) Measure (NEPM), (2013).

2.0 Site identification

Details of the subject site identification can be seen as follows, **Table 1**.

Table 1: *Site identification*

Identifier	Details
Address	Bartondale Road Temora NSW 2666
Real property description	Lot 2 DP 209557
Centre co-ordinate	547799 6189894 MGA GDA z55
Property size	6.30ha
Owner	Temora Shire Council
Local Government Area	Temora Shire Council
Present use	N/A
Present zoning	Special Activities (Stock and Sale Yards) Large Lot Residential
Proposed zoning	Special Activities (Business Premises, Residential, Tourist and Visitor Accommodation Incidental with Aviation

As follows are maps showing the location of the subject site in relation to the wider locale and the subject site lot boundary, **Figure 1** and **Figure 2**.

Figure 1: *Location of the subject site and wider locale*

Figure 2: *Site location*

3.0 Site history & condition

3.1 Zoning

The current zoning of the site is SP1 Special Activities (Stock and Sale Yards) with surrounding land R5 Large Lot Residential to the north, west and south, and B6 Enterprise Corridor to the east; Temora LEP (2010), **Figure 3**.

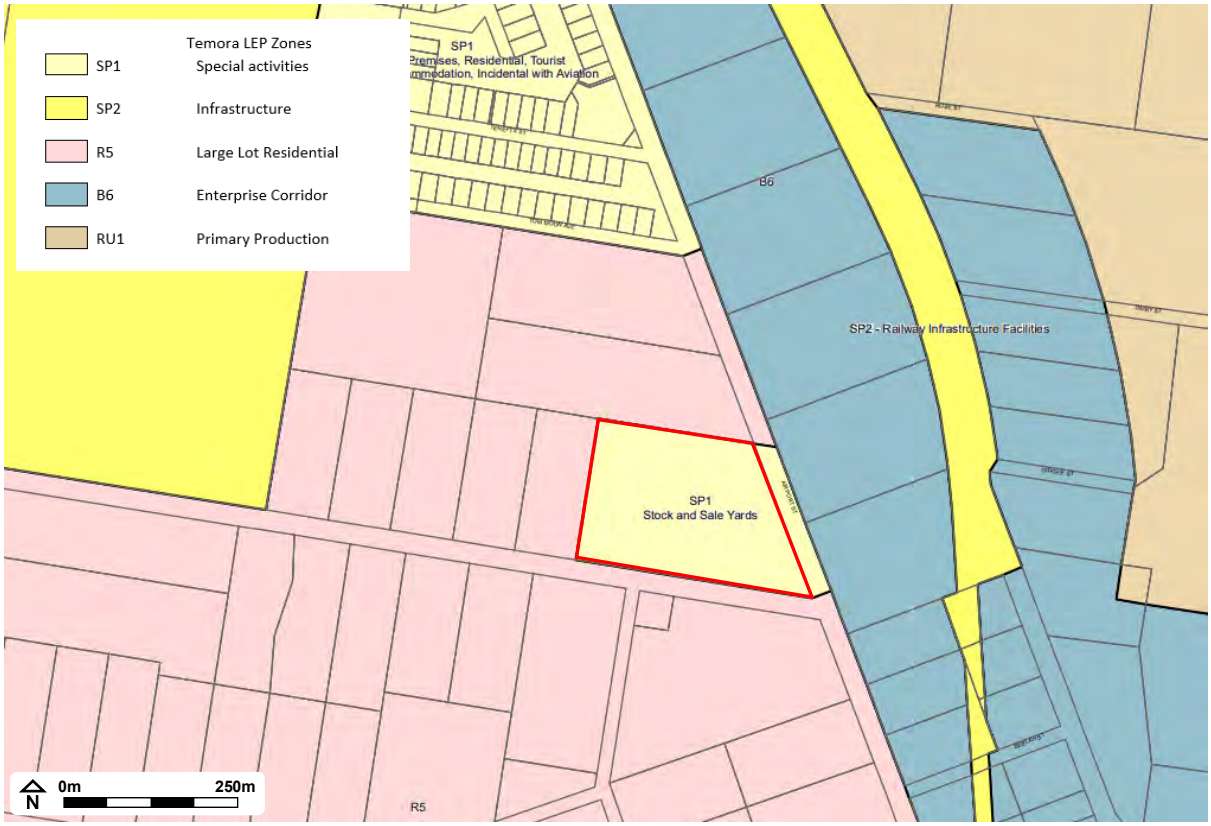

Figure 3: *Zoning map*

3.2 Land use and site history

The site is currently vacant and no longer used for any purpose. However, it has formerly been the site of the Temora saleyards with a truck wash that was active until 1 July 2019.

The National Library of Australia: Trove Database and the Historical Land Records Viewer database was investigated for historical land use, ownership history, previous owner occupations and other notes of interest. A summary of the principal owners from 1888 to 1980 can be seen as follows, **Table 2**. There are some inconsistencies and gaps in the data due to the incomplete nature of historical documents. A copy of the historical records, where obtainable, can be seen in **Attachment A**.

Table 2: *Ownership records*

Year	Lot No.	Owner (Occupation)	Size (acres)	Notes
1888	474	-	40	*"* Por.1060 R.37978 FR Lic&Lse notd16thJuly1904"*
1891	474	-	40	*"B-1877r"*
1894	474	-	40	*"B-1877r"*
1907	474	Charles Starr	40	*"SpL13.8 Gtd Gaz", "26.11.13", "B-1877r"*
1915	474	Charles Starr	40	*"SpL13.8 granted 6az", "26.11.13", "B-1877r"*
1925	474	-	40	-
1941	474	Mr Reg. Jasprizza	40	Proposed future developments to include shearing shed, weather shed, refreshment shed, pig pens, spray dip. Holding capacity to be 12 000 head.
1950	474	Younghusband Ltd.	40	Purchased the Temora saleyards from Mr W. J. Porter.
1953	474	The Farmer & Graziers Co. op. Grain Insurance Agency Co. Ltd.	40	New saleyards officially opened
1957	474	Charles Starr	40	*"DP 209557s", "CP 18.6", "B1877R".*
1964	474	-	40	-
1980	474	The Farmer & Graziers Co. op. Grain Insurance Agency Co. Ltd.	40	*"R. 2673$_{1603R}$"*

3.3 Development controls

EPA records

There are no notices or orders for the subject site or surrounding properties. The site is not declared to be significantly contaminated as defined by the NSW Contaminated Land Management Act (1997). The search results can be seen in **Attachment C**.

Council records

Section 10.7 (2) planning certificates (previously Section 149) was obtained from Council with results relevant to contamination and can be provided upon request. There are no contamination matters prescribed by section 59 (2) of the Contaminated Land Management Act 1997 relevant to the site.

SafeWork NSW records

A SafeWork NSW Hazardous Chemicals on Premises was undertaken for the subject site and returned, the search did not locate any records pertaining to the site, see **Attachment D**.

Services

A Dial Before You Dig Search was undertaken owing to the likelihood of services traversing the site. The following services were found:

- Underground earth wires/low voltage cable to the north east of the site running parallel with the norther site boundary
- A direct buried telecommunication cable runs into the site from Bartondale Road approximately 60m north west from the south eastern corner to a cable joining pit. From the cable joining pit, a direct buried telecommunication cable runs north east (parallel with the western site boundary) for approximately 80m

3.4 Review of aerial photographs

From the research of the available aerial photography (1969 to 2019) the land has been used for livestock sales. Aerial photographs can be seen in the **Attachment B** and a review of the available historical aerial photography is summarised as follows, **Table 3**.

Table 3: *Observations from historical aerial photography*

Year	Site	Surrounding land
1969	The site is the Temora saleyards consisting of yards, small shelters, site office (547913E, 6189787N), large shed (547789E, 6189878N), six holding paddocks and an onsite dam in the north eastern site corner.	Mixed residential land to the north east and South, rural land to the west. Temora Airport to the north west and Temora Racetrack further south. Temora town centre further south east.
1975	No significant changes have taken place on site (Image blurry).	Surrounding land remains relatively similar.
1991	A truck wash (547884E, 6189915N) and a toilet block (547855E, 6189906N) have been built on site. Some stock holding yards have been further divided.	Surrounding land remains relatively similar.
2005	The onsite dam has been divided into two.	Some further residential development has taken place in surrounding areas. Development has taken place at the nearby airport.
2006	No significant changes have taken place on site.	Surrounding land remains relatively similar.
2011	No significant changes have taken place on site.	Surrounding land remains relatively similar.
2013	No significant changes have taken place on site.	Surrounding land remains relatively similar.
2015	No significant changes have taken place on site.	Surrounding land remains relatively similar.
2017	No significant changes have taken place on site.	Surrounding land remains relatively similar.
2019	No significant changes have taken place on site.	Surrounding land remains relatively similar.

3.5 Site inspection

McMahon noted from the site inspection on 29 October 2019, relating to potential contamination:

a) The site is the former Temora saleyards
b) Surrounding land use is mixed commercial/industrial and residential.
c) All former yards and holding paddocks on the site have been cleared, the only infrastructure to remain are a site office, truck wash bay, toilets and a water fill point.
d) A large stockpile of fill was evident at the time of the site inspection. Although not confirmed during this PSI, all fill material was presumed to come from an onsite source.
e) No external sources of contamination were identified during the site visit.
f) A small site office was observed on site, the office was locked at the time of inspection, but the external paint was noted to be a risk of containing lead due to its condition and likely age.

g) Key signage was noted on site including the wash down area ceasing use on 1 July 2019 and the onsite dam labelled as a deep effluent water storage.
h) There was no disturbed vegetation.
i) There were no unusual odours.

4.0 Environmental characteristics of the site and surrounds

A desktop review and investigation of the topography, soil landscape, geology, weather, hydrology and hydrogeology of the subject site has been undertaken and are as follows:

4.1 Topography

The Temora Topographic Map (8429-S) indicates that the site is located at an elevation of approximately 290m AHD. The site landform is classed as flat and slope class is level to very gently inclined**.** The site is part of the Lachlan catchment with Trigalong Creek approximately 1.7km to the west, **Figure 4**.

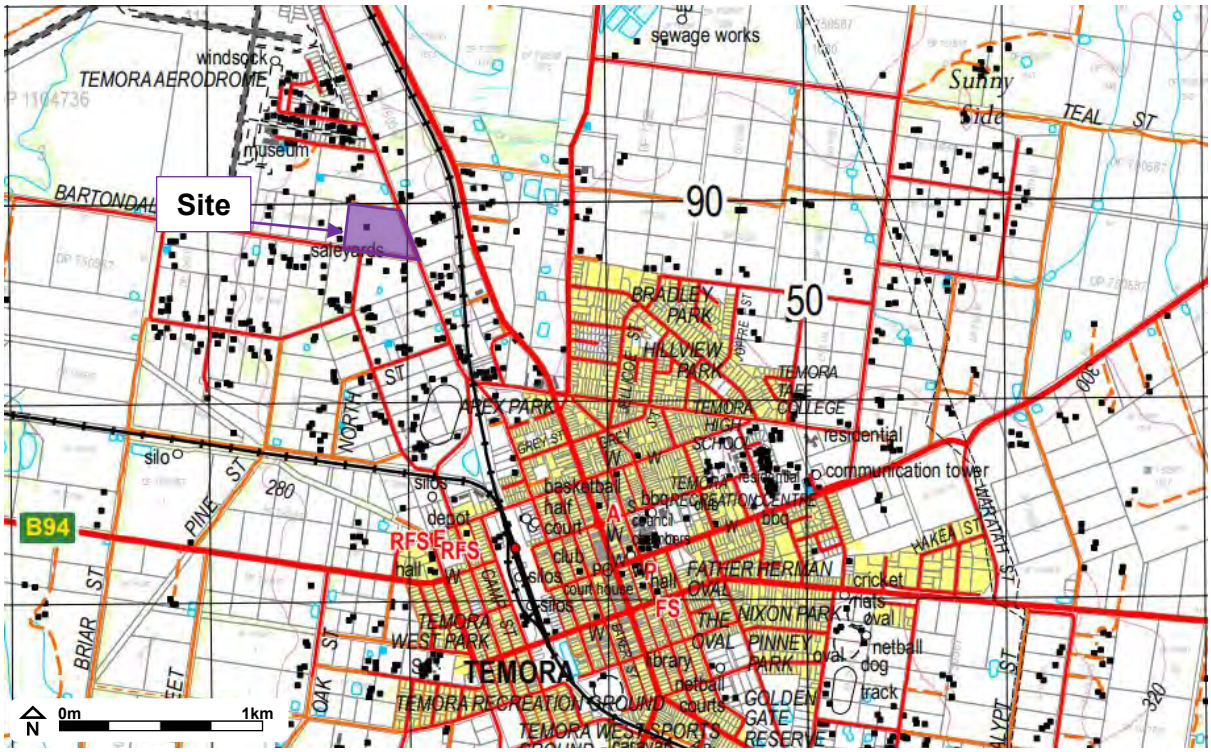

Figure 4: *Site topography*

4.2 Soil landscape

The site lies within the mapping unit wn from the Soil Landscapes of the Cootamundra 1:250 000 Sheet (DECCW, 2010). The map unit pi is described as:

Pi - Pinnacle (Erosional Landscape)

Landscape: 133.25 km^2, undulating low hills and rises formed on Silurian and Ordovician sedimentary rocks. Elevation 260–412 m, local relief 20–60 m, slopes from 3–10% up to <20% in steeper terrain. Partially to extensively cleared mid-high open Eucalypt woodlands.

Soils: very shallow to shallow (<50 cm), well-drained Paralithic Leptic Rudosols (Lithosols) and Acidic Paralithic Orthic Tenosols (Earthy Sands) on mid to upper slopes, crests and along ridgelines. Moderately deep (<100 cm), imperfectly drained Bleached-Mottled Mesotrophic Brown Chromosols (Yellow Podzolic Soils) on sideslopes, and shallow (<50 cm), well-drained gravelly Haplic Magnesic Brown Kurosols on lower slopes.

4.3 Geology

The site lies over soils formed on Ordovician and Silurian-Devonian sedimentary rocks predominantly of the Yiddah and Bronxhome Formations. Parent materials consist of siltstone,

sandstone, shale, chert, minor conglomerate and felsic volcanics. Other minor formations are the Bribbaree, Trigalong and Combaning, with a similar range of parent materials.

4.4 Climate

The average rainfall for Temora is approximately 467.0mm per annum, with the wettest months being November, December, February and June. Temora is characterised by cold winters and hot summers with mean maximum temperatures ranging from 13.8 ºC in July to 34.2 ºC in January and mean minimum temperatures ranging from 1.8 ºC in August to 17.5 ºC in January. The BoM Temora Airport has rainfall records available from 2005 to 2019 and temperature data from 2005 to 2019 and no evaporation information (Bureau of Meteorology, 2019).

4.5 Hydrology

The subject site is part of the Murrumbidgee catchment under the *Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources 2012* with the Lachlan River. Run on water would drain on to the site from the south west via the surrounding low hills. The site run off drains north east into an onsite dam. If surface water were to flow past the dam there it would be likely to flow north east, into a large swamp and inundation area which drains via a natural watercourse into Lake Centenary. The site lies within 400m of a flood prone area. But owing to the height and proximity to the nearest named waterway has not been identified as within the flood planning area shown in the Temora Local Environmental Plan – Flood Planning Map FLD_004B (2010).

Generally, channels in the area are widely spaced forming integrated channel networks of a convergent tributary pattern. Surface water from Lake Centenary exits north east into 3rd order stream, Trigalong Creek. Trigalong Creek runs north east for 18km before converging with 4th order stream Narraburra Creek. Narraburra Creek flows subsequently into Bland Creek, Lake Cowal and Lachlan River.

There is limited run-on water to the subject site from neighbouring blocks owing to the local topography and Council stormwater system, **Figure 5**.

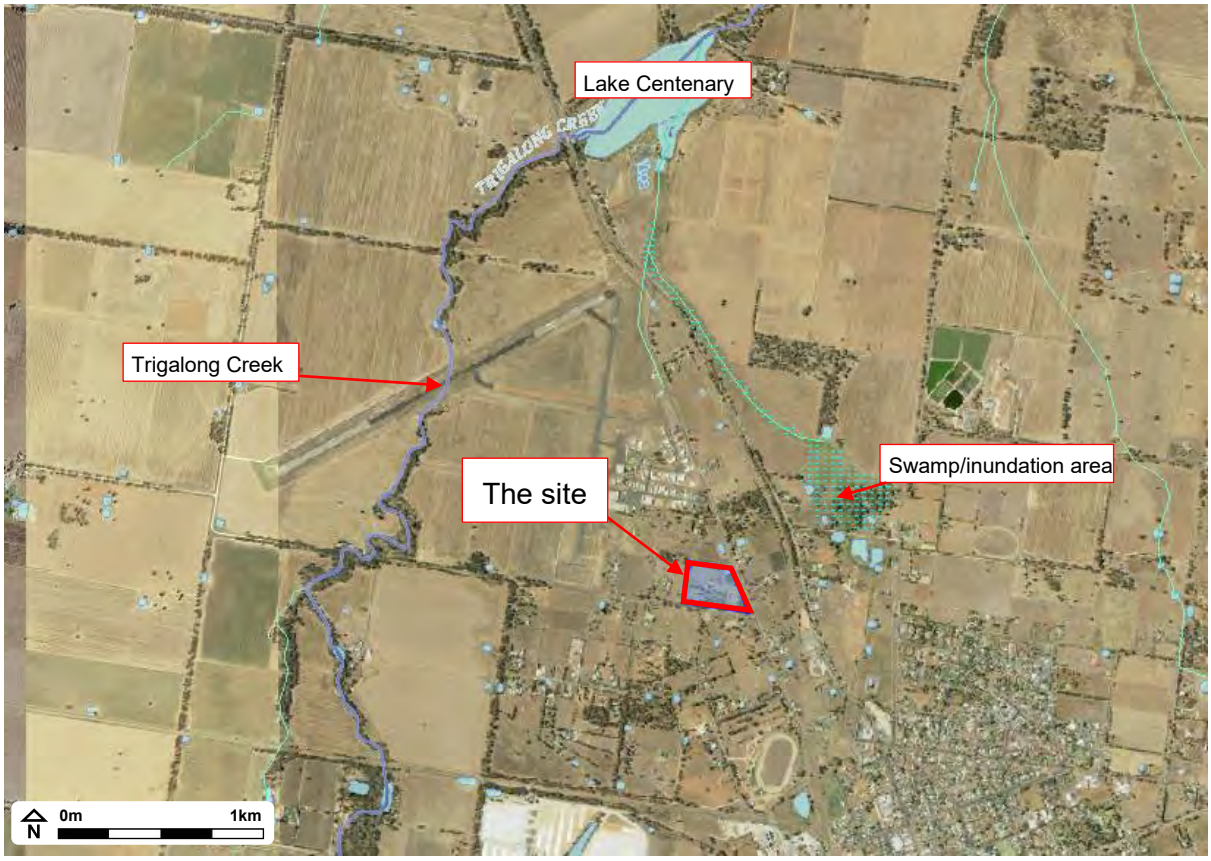

Figure 5: *Site hydrology*

4.6 Hydrogeology

The site lies within the NSW Murray Darling Basin Fractured Rock Groundwater Sources which contains three main regional layers that are not distinct aquifers but represent a gradual layering of water bearing deposits. The Trigalong Formation is the shallowest and most recently deposited of the layer formations, occurring from the ground surface down to around 70 to 100 metres towards the Murrumbidgee River to the south of the site and >30m towards the low rises of the Cocoparra Ranges closer to the subject site.

The shallow water bearing layers in the Trigalong Formation are usually in the first 20 metres of the profile formed from two types of abandoned stream channels, namely the prior streams and ancestral rivers. Prior streams are remnants of older channels, abandoned at some considerable time in the past and ancestral rivers are recently abandoned rivers/streams and often associated with the present river/creek systems. The deposition associated with prior stream systems is the final phase of a long period of fluvial deposition. The fluvio-lacustrine metasediments associated with the Cocoparra Ranges are likely to extend underneath the site and provide a water bearing resource at the contact margin between the alluvium and bedrock.

There are no registered groundwater bores within 500 metres of the site. The locations of groundwater bores at a wider radius can be seen below in **Figure 6**.

Figure 6: *Registered groundwater bores in the wider locale*

The details of the bore construction are shown as follows, measurements taken from the centre of the site **Table 4** (BOM, 2018).

Table 4: *Registered groundwater bores in the wider locale*

Bore ID	Drilled depth (m)	Water bearing zone (m)	Standing water level (m)	Location compared to subject site	AHD	Purpose
GW015089	54.90	12.20-15.20, 46.90-54.80	14.30	2133m SE	298m	Recreational
GW026225	97.50	59.70-63.10, 86.90-97.60	51.80	3245m ENE	279m	Stock/ Irrigation
GW024175	93.00	71.60-71.80, 91.40-91.70	62.50, 47.20	2538m ENE	281m	Stock/ Irrigation

Based on the above information, it is unlikely that groundwater would be encountered within the near surface, however this was not confirmed under this PSI.

5.0 Potential contamination sources

From the site history, research, enquiries and site inspection undertaken, the following assessment has been made regarding potential contamination sources and site characterisation.

There were five potential contamination sources identified on site including:

1. **Livestock activities** associated with sales and stock holding yards
2. **Vehicle storage & washing** in vehicle parking and loading areas as well as the on-site truck wash infrastructure
3. **Effluent treatment activities** in yards and the effluent dam
4. **Hazardous building material** as potential lead paints and other items in the site office building.
5. **Fill material** in the form of a large stockpile and in-situ topsoil from an unknown source

A lack of quantitative data highlights the unknown existence and extent of potential contamination from these sources, therefore further investigation and assessment is required.

5.1 Contaminants of concern

From the site inspection and by reference to the SEPP 55 Guideline (1998) and NSW OEH (2011), the subject site and surrounds has the following potential contamination risk from chemicals associated with the current and historical land use, **Table 5**.

Table 5: *Potential contamination sources*

Industry and source	Type of potential contamination	Associated chemicals/contaminant
Livestock activities	Fuels, metals, pesticides & effluent	Organochlorine pesticides (OCP's), PCBs, Metals, Nutrients
Vehicle storage & washing	Fuels & metals	TRH, BTEXN and metals
Effluent treatment activities	Effluent, pesticides, fuels & metals	OCP's, PCBs, Metals, TRH, BTEXN, Nutrients.
Hazardous building materials	Metals	Lead paints
Fill material	Metals, fuels, pesticides, building material	OCP's, PCBs, Metals, TRH, BTEXN, asbestos

5.2 Potential receptors and exposure pathways

Based on the proposed mixed commercial land use, future site users and potential sources of contamination outlined above, potential receptors from contamination, if present, were considered to comprise of:

- Users of the site from the following:
  - Direct dermal contact and ingestion from contaminated soils, dust, surface water and fibres.
  - Vapour inhalation from subsurface accumulation of volatile contaminants and contaminated soils.
  - Bioaccumulation within and/or to environmental receptors from contaminated soil, water and fibres.
- Workers and maintenance people from the following:
  - Direct dermal contact and ingestion from contaminated soils, dust, surface water and fibres.
  - Vapour inhalation from subsurface accumulation of volatile contaminants and contaminated soils.
- Down gradient residents and ecosystems from the following:
  - Direct dermal contact and ingestion from contaminated soils, dust, surface water and fibres.
  - Bioaccumulation within environmental receptors from contaminated soil, water and fibres.

5.3 Potentially affected media

The following potentially affected media have been considered as part of the initial Conceptual Site Model from the known and potential sources of contamination:

- Surface soils from the identified potential contamination sources.
- Sub soils underneath the subject site, due to potential vertical and horizontal leaching of potential contaminants.
- Surface water adjacent potentially contaminated areas from run off and interflow.

5.4 Data gaps

During the desktop review of the subject site, there were some data gaps identified within the site history, previous reports and relevant information which include the following:

- Historical titles and ownership records, especially those preceding 1988 and post 1980.
- Aerial photography pre 1969.
- Fill material certification.

Data gaps were identified where information did not exist, was not available or had become misplaced over time as well as existing outside the clients recommended scope of work.

It is assessed that these data gaps do not significantly impact the findings of this report.

Based on the above, the available data used for the collation of the site description is deemed suitable and reliable for the purposes of this PSI. Where possible, these data gaps will be addressed in any future contamination investigations conducted on the site.

6.0 Initial Conceptual Site Model

The initial Conceptual Site Model has been developed in accordance with Section 4 of Schedule B2 of the NEPM (2013) and NSW OEH Guidelines for Consultants Reporting on Contaminated sites (2011). Contaminants associated with the identified sources have been derived from the SEPP 55 Guidelines (1998).

Based on the findings of the subject site history, observations and environmental characteristics, it is concluded that there is risk of site contamination from the identified areas of concern including:

1. **Livestock activities** associated with sales and stock holding yards
2. **Vehicle storage & washing** in vehicle parking and loading areas as well as the on-site truck wash infrastructure
3. **Effluent treatment activities** in yards and the effluent dam
4. **Hazardous building material** as potential lead paints and other items in the site office building.
5. **Fill material** in the form of a large stockpile and in-situ topsoil from an unknown source

The potential receptors include future residential site users during occupancy and construction workers during development with the predominant risk being from soil and surface water contact.

7.0 Sampling and analysis plan and sampling methodology

7.1 Data Quality Objectives

The Data Quality Objectives (DQO) of the limited site assessment have been developed to define the type and quality of data to meet the project objectives for the assessment of potential harm to human health and/or the environment from the planned development. DQOs have been identified against the main media of concern for investigation, identified to be soil and soil vapour based on the environmental parameters and potential contamination sources. Potential soil contamination also has the main impact on site suitability due to the abovementioned factors. The DQOs have been developed generally in accordance with the seven step DQO process as outlined in AS 4482.1.2005. The DQOs developed for the investigation can be seen as follows, **Table 6**.

Table 6: *Data Quality Objectives*

DQO	Comment
1. The problem	- Is there potential contamination that will affect the suitability, or otherwise, of the site for the proposed use? -Possible contamination from historical & current activities. -With soil and groundwater access this could cause risk to human health for future site users and workers.
2. The goal of the study	- Is there any potential contamination within the soil and/or groundwater that will pose a risk to current and future receptors. -Is the site suitable for the proposed use. -Does the assessment follow NSW EPA 2011 guidelines. -Does the assessment follow NEPM 2013. -Have human health impacts of contaminant been assessed. -Is there evidence of or potential for contaminant migration off site. -Is a site management strategy required.
3. Information inputs	-Visual and olfactory indications. -Site condition. -Geology, regolith and hydrogeology. -Site history. -Initial conceptual site model.
4. Study boundaries	-Judgemental sampling to be undertaken across entire site area based on likely contaminant distribution.
5. The analytical approach	Analytes chosen in **Table 12** of this report are considered adequate to assess contamination sources based of the historical land use of the site. Criteria for land use is considered adequate based on the proposed development for the site. If exceedances of the adopted criteria are obtained during the analysis, then the site would be considered to pose an unacceptable health risk to future users.
6. Performance and acceptance criteria	***Statistical performance*** There are two key types of decision errors that can occur for the assessment which affect the statistical reliability of the analysis: • Accepting the null hypothesis (false acceptance decision error). The consequences of this is expense of remediation where it is not required. • Rejecting the null hypothesis (false rejection decision error). The consequence of this is risk to human health and/or the environment and liability for future damages and/or remediation costs.

Quality Control

The key decision rules for the SAQP are:

1) Has the analytical data been collected as part of the testing and met the data quality indicators identified in **Section 7.0**? If they have then the data can be used to answer the decision rule/s and the decision statements developed in Step 2. If not, then the need to collect additional data may be required.
2) Do contaminant concentrations exceed the investigation and screening criteria? If not, then the potential contamination does not pose an above low level of risk. Where results exceed the investigation and screening criteria, this may indicate an unacceptable level of risk. Further risk assessment and investigations may be warranted to determine the potential for impacts.

In order to assess the validity of data for decision making, the data has been assessed against a set of data quality indicators based on the following parameters**;** precision, accuracy, representativeness, completeness and comparability.

It can be seen that the more extreme consequence from decision errors resides with potential impact on health and/or the environment. Therefore, a conservative approach has been adopted to minimise the likelihood of this decision error. In addition to the above the following predetermined data quality indicators have been adopted;

- Precision: A quantitative measure of the reproducibility of data;
- Accuracy: A quantitative measure of the proximity of reported data to the calculated correct value;
- Representativeness: A quantitative measure of the confidence that data is representative of its respective media;
- Completeness: A measurement of the amount of useable data from data collection; and
- Comparability: A quantitative measure of the confidence that data may be considered to be similar for each sampling/analysis activity.

Site acceptance criteria

The site acceptance criteria are specifically derived in accordance to:

- The collection of samples in a systematic and stratified pattern with 95% confidence hotspot detection.
- The samples will not be composited so as the direct reading of contaminant levels will be found from each sample point on which an appropriate decision can be based off.
- Determining the 95% upper confidence limit (UCL) of the arithmetic average concentration.
- If contaminants levels exceed the adopted criteria further investigation will be considered.

7. Obtaining data	-Sampling plan proposed in accordance to NSW EPA 1995. -6 topsoil samples taken in the stockyards area -3 topsoil samples taken in the stock holding areas -5 topsoil samples taken in the truck parking and loading areas -2 topsoil samples taken in the truck wash area -2 topsoil samples taken in the onsite dam area -1 duplicate to be taken for QA/QC purposes

7.2 Sampling objectives

The nature and extent of potential contamination needs to be defined, if significant contamination is present on site it is recommended that further investigation and/or assessment be undertaken to assess risk and provide sufficient scope for remediation if required. Further sampling should be undertaken following remediation, if required, on the areas of concern to validate the removal area from the contamination sources. It is recommended the following sampling objectives are used to assess the level and extent of contamination of the subject site, **Table 7**.

Table 7: *Sampling objectives*

Sampling objective	Comments
Assess Contamination in Soil	Assess soil as per the adopted sampling pattern and strategy and if soils are above adopted investigation and screening criteria, further assessment may be required.
Assess Contamination in Groundwater	If soil assessment indicates gross contamination on site, groundwater investigation may be required.
Assess Contamination in Surface Water	If soil and/or groundwater contamination indicate gross contamination on site, surface water investigation may be required.
Assess Contamination in Air / Vapour	PID screening to be undertaken for as part of the assessment. Health Screening Levels as outlined in the screening criteria will be adopted as part of the assessment.
Assess Contamination Dust	Assess soil against the adopted Health Screening Level outlined in the screening criteria if required.

7.3 Sampling pattern and strategy

The sampling pattern and strategy should allow for and dictate the extent of potential contamination for suitable delineation. As such, a sampling pattern and strategy devised on site history, land uses, aerial imagery, site inspection, database search and applicable sampling design guidelines, contaminants of concern and areas of concern is utilised. The requirements of NEPM (2013), NSW OEH (2011) and NSW EPA (1995) guidelines are also to be considered when compiling the sampling pattern and strategy. A sampling and analysis quality plan were developed by reference to AS 4482.1-2005. As follows is a description of the sampling pattern and strategy used, **Tables 8** and **9**.

Table 8: *Sampling pattern*

Four types of sampling pattern	N/A	Applied	Notes
1) **Judgemental sampling pattern** **-Sample points chosen on the basis of the investigator's knowledge of probable distribution of the site.** **- utilises site history and field observations.**		✓	Samples collected in a judgemental pattern based areas of planned development.
2) **Random sampling pattern** **A random number generator determines the sampling points (not recommended in contaminated site investigations).**	✓	-	-
3) **Systematic sampling pattern** **-Sample points are selected at regular and even intervals** **- Statistically unbiased once the initial sample point is chosen at random.**	✓	-	-
4) **Stratified sampling pattern** **-The subject site is divided into sub-areas based on:** **Geological and geographical features, nature of contamination, former usage pattern of the site, intended future use of the sub area, and other relevant factors.** **- Each sub area can then be treated as individual sites with different sampling patterns and sampling densities.** **- Suited to large sites with complex contaminant distributions.**	-	✓	Site divided into sub areas based on contamination sources in each area

Table 9: *Sampling strategy*

Option	Sampling objective	Comments
A)	Judgemental and stratified sampling used	Sampling topsoil/fill
B)	Number of samples required for determining the average concentration (validation sampling only)	N/A
C)	Field screening of sampling for volatiles and solvents	PID used on initial samples including duplicates
D)	Number of samples required for determining the proportion and distribution of contamination	N/A as judgmental sampling
E)	Determining the 95% upper confidence limit (UCL) of the arithmetic average concentration	May be used if above screening/investigation criteria found
F)	Determining the proportion of the contaminated area	From sampling plan

The sampling strategy includes dividing the site into five management units namely:

- Holding yards associated with **livestock activities** (samples H1 to H3).
- Stock yards associated with **livestock activities** (samples Y1 to Y6).
- Truck parking areas associated with **vehicle storage and washing** (samples T1 to T5)
- Wash down area associated with **vehicle storage and washing** (samples W1 and W2).
- Dam area associated with **vehicle storage and washing** (samples D1 and D2).

By reference to the sampling strategy and management units the following sampling locations can be seen, **Figure 7**.

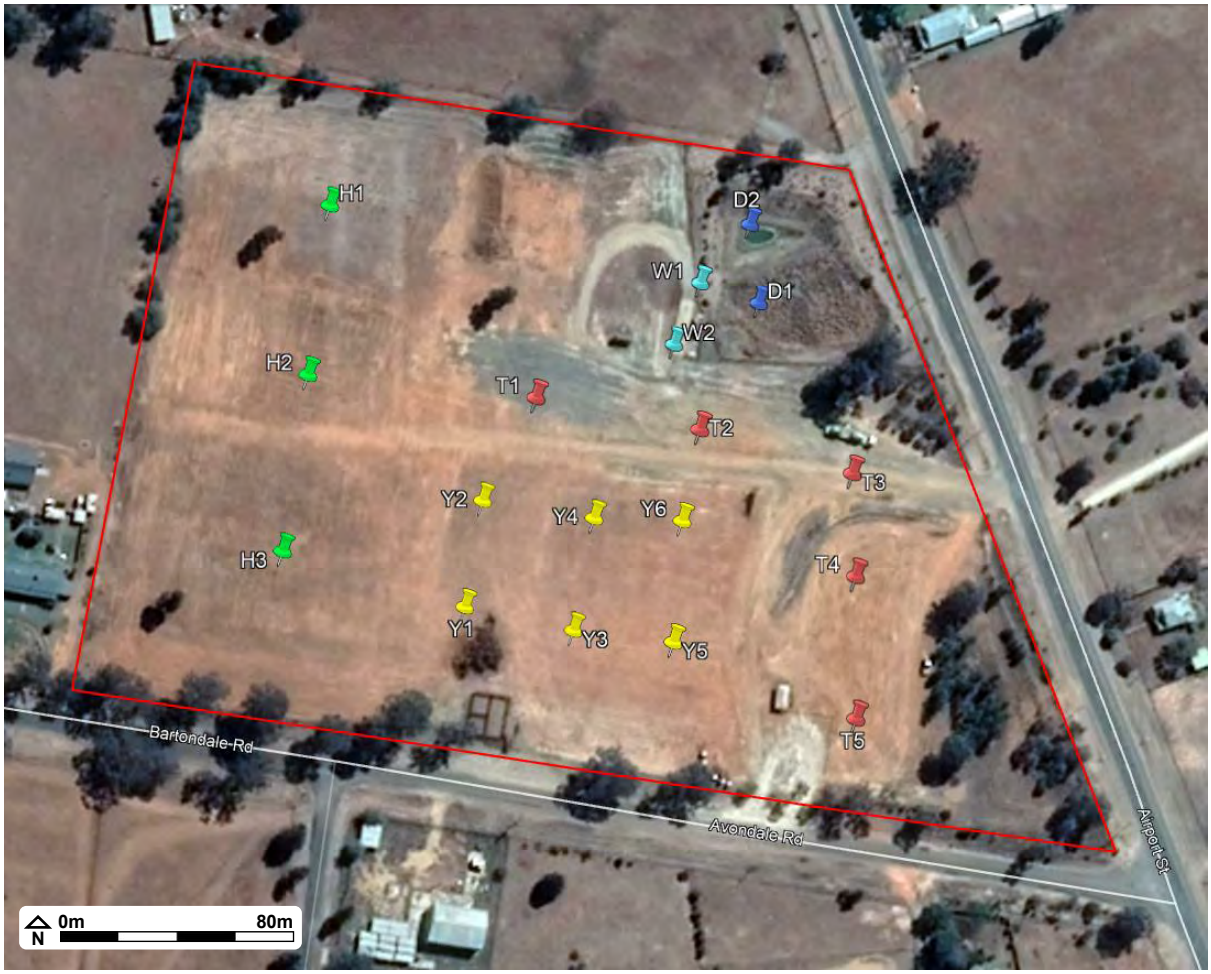

Figure 7: *Sampling locations*

7.4 Sampling methods and procedures

Sampling depth was predominantly determined prior to sampling works as the vertical extent of the contamination sources was assessed with a maximum depth of soil investigation across the site to 0.5m. The nature and pathways of potential on-site contaminants warranted the maximum 0.5m soil investigation depth, owing to the transport mechanism being top down from leaks and spills. Vapour intrusion and direct soil contact poses the most significant contamination risk to human health during occupancy from on-site and off-site sources and the investigated depth of 0.5m is considered adequate for this assessment.

Excavation of soils was undertaken with using a 100mm hand auger. A stainless-steel spade collected sample material from the 100mm auger and placed in their respective containers. Samples were taken from the underlying soil with equipment decontaminated in-between samples. Equipment was also decontaminated between each sample point. The preparation of a site-specific safety plan was prepared proceeding sampling works. Soil sampling and soil descriptions were undertaken by reference to:

- AS 4482.1:2005 - Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds.
- AS 4482.2:1999 - Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances; and
- 1726:2017 – Geotechnical site investigations.

A PhoCheck Tiger photoionization detector (PID) with a 10.6eV gas discharge lamp was used for PID screening on the initial sampling program on 9 September 2019. The 10.6 eV lamp is assessed to be appropriate for VOCs screening (BTEX) and is recommended to be used unless compounds that require an 11.7 eV lamp dominate the emissions scenario, RAE Systems (2016). The PID was calibrated to a known concentration (98ppm) of iso-butylene gas, **Attachment F**.

Prior to screening locations for the presence of VOCs, the PID pump and its sample train are submitted to a leak detection test undertaken by a suitably qualified person. The pump itself runs the leak detection test upon start-up with minimal guidance from personnel. Between soil and groundwater bore screening points, fresh air sampling of the probe and sample train was undertaken to ensure representative samples are obtained from each sample point. If concentrations in the fresh air sampling are elevated above background ambient levels, then the equipment should be cleaned, or new equipment used. In this case the fresh air sampling and equipment calibration are assessed to be suitable for use.

7.5 Field work

As follows is a summary of the field work, **Table 10**.

Table 10: *Field sampling*

Sampling media	Location Area of Environmental Concern	Depth
Surface soil	18 x locations	0.0m (min) – 0.5m (max)
Subsurface soil	Not applicable	N/A
Groundwater	Not applicable	N/A
Air (Vapour Intrusion)	PID screening on surface soil	0.0 – 0.5m
Surface water	Not applicable	N/A
Sediment	Not applicable	N/A
Dust	Not applicable	N/A

7.6 Field observations

A summary of the field observations can be seen as follows, **Table 11**. Bore logs can be seen in **Attachment E**.

Table 11: *Field observations*

Sampling media	Observations
Soil/fill	Soil was generally brownish red silty clays topped with gravel in areas of vehicular traffic. Soils within the dam locations were darker grey and black clays of high organic matter.
Groundwater	No groundwater observed to the excavated depth of 0.5m.
Air (Vapour Intrusion)	PID readings were uniform across the site with the highest reading of 0.4ppm. All PID readings are assessed to be that of background levels.
Surface water	N/A
Sediment	N/A
Dust	N/A

7.7 Analytes for samples

The following analytes are selected for analysis based on a general broad suite of potential contaminants, **Table 12**.

Table 12: *Analytes for samples*

Material	Guidelines	Analytes
Soil – Yards and holding areas	NEPM 2013 - Soil	-Analysis for, heavy metals, PCBs, OCPs & Nutrients. -PID screening. -Visual inspection for bonded ACM fragments.
Soil – Truck parking and wash areas	NEPM 2013 - Soil	-Analysis for TRH, BTEXN & heavy metals. -PID screening. -Visual inspection for bonded ACM fragments.
Soil – Onsite dam	NEPM 2013 - Soil	-Analysis for VOCs, TRH, BTEXN, heavy metals, PCBs, OCPs, OPPs & PAHs. -PID screening. -Visual inspection for bonded ACM fragments.

7.8 Field screening

A PhoCheck Tiger VOC (PID) with a 10.6eV gas discharge lamp was used for field screening for sampling undertaken on 25 March 2019. The 10.6 eV lamp is assessed to be appropriate for solvent screening as the BTEXN chemicals have ionization energy lower than that of the lamp, RAE Systems (2016). The PID was calibrated to a known concentration (98ppm) of isobutylene gas, **Attachment F**.

Prior to screening locations for the presence of VOCs, the PID pump and its sample train were submitted to a leak detection test undertaken by a suitably qualified person. The pump itself runs the leak detection test upon start-up with minimal guidance from personnel. Between soil screening points, fresh air sampling of the probe and sample train was undertaken so that a representative sample could be obtained. If concentrations in the fresh air sampling are elevated above background ambient levels, then the equipment should be cleaned, or new equipment used. In this case the fresh air sampling and equipment calibration are assessed to be suitable for use.

The methodology for soil sampling and soil PID screening is as follows:

- Discrete soil samples were extracted off the auger using a stainless-steel spade and/or disposable nitrile gloves and placed in zip lock bags for screening for volatile organic compounds (VOCs) using the PID.
- The soil samples were placed in zip lock bags leaving one half to one third empty. The bag and its contents were shaken to mix the soil with the air in the headspace. The PID probe was then poked through the bag and the VOC concentration was measured. All samples were screened typically within five minutes of sampling.

8.0 Field quality assurance and quality control (QA/QC)

The following Quality Assurances and Quality Control (QA/QC) procedures are recommended during field works, **Table 13**.

Table 13: *Field QA/QC procedures*

Field QA/QC	
Sampling team	David McMahon – Team leader Zach Bradley – Environmental consultant & asbestos assessor Liam Nilsen - Technician
Decontamination procedures between sampling events	-Removal of soils adhering to the sampling device by brush or knife. -Washing of the sampling devices thoroughly in a Decon 90 solution. -Rinsing the sampling device in potable water.
Sampling receptacles	Glass jar with Teflon lined lid and/or sealed plastic bag
Preservation technique	Esky and ice bricks
Withholding period	7 days maximum
Laboratory used	ALS Sydney
Bore logs for each sample	Documented and attached to subsequent report (**Attachment E**)
Chain of Custody	Documented and attached to subsequent report (**Attachment G**)
Sample splitting techniques	Sample splitting was utilised for this investigation
Duplicate frequency	- One for every 20 field samples (company procedure) - One intra-laboratory duplicate taken for soil analysis.
Field blank results	Not utilised as limited sampling. Lack of filed blank results is assessed to not unduly impact the findings of this report.
Background sample results	Not utilised as limited sampling. Lack of background sampling is assessed to not unduly impact the findings of this report.
Rinsate sample results	Not utilised as limited sampling. Lack of a rinsate sampling is assessed to not unduly impact the findings of this report.
Laboratory prepared trip spike results	Not utilised as limited sampling. Lack of a trip spike is assessed to not unduly impact the findings of this report.
Trip blank results	Not utilised as limited sampling. Lack of a trip blank is assessed to not unduly impact the findings of this report.
Instrument calibration certificate	PID calibration certificate attached (**Attachment F**)

9.0 Laboratory QA/QC

The following laboratory Quality Assurances and Quality Control (QA/QC) procedures are to be adopted, **Table 14**.

Table 14: *Laboratory QA/QC*

Laboratory Quality Assurance & Quality Control (QA/QC)	
Accreditation	NATA 6649
Signed Chain of Custody forms	Laboratory Chain of Custody obtained and attached to subsequent report (**Attachment G**).
Record of holding times & comparison with method specifications	Sample Receipt Notification obtained and attached to subsequent report (**Attachment G**).
Analytical methods used	- QCI report - QA/QC compliance assessment to assist with quality review obtained and attached to subsequent report (**Attachment G**).
Description of surrogates and spikes used	-Certificate of Analysis obtained and attached to subsequent report (**Attachment G**). -Quality Control report obtained and attached to subsequent report (**Attachment G**).

10.0 QA/QC data evaluation

Data Quality Indicators (DQI) are typically developed to provide goals for the quality of data required to sufficiently meet the site-specific objectives of an investigation. Precision, accuracy, representativeness, comparability and completeness (PARCC), are all indicators of data quality. The DQIs for the soil and soil vapour investigation were reviewed following the compilation of the report. The DQIs used to assess the PARCC parameters for this investigation are as follows, **Table 15**.

Table 15: *Data Quality Indicators*

DQI	Comment
Precision	- Standard operating practices (SOPs) appropriate and complied with. - Laboratory and field duplicates utilised - Calculation of RPD between sample and duplicate where applicable
Accuracy	- Methodology and procedures appropriate and complied with. - Standard operating practices (SOPs) appropriate and complied with. - Analysis of soil sample duplicate - Limited available bias opportunity
Representativeness	- Appropriate media and locations investigated. - All samples analysed according to sampling plan - Appropriate collection, storage and preservation techniques - Sample homogeneity - Samples representative of wider medium
Comparability	- Use of appropriate techniques for PID screening. - Repeated standard operating practices on each sample point - Uniform sample sizes, container and weather conditions - Analysis undertaken in single laboratory - Uniform analysis methods
Completeness	- Surface and subsoil investigated. - All samples and locations PID screened. - Standard operating practices (SOPs) appropriate and complied with. - Experienced and qualified samplers. - Sample documentation complete - Holding times complied with

One sample (D) was taken for intra-laboratory duplicate testing (Y4). The intra-laboratory analysis returned identical results for volatiles (TRH and BTEXN) and metals returned a maximum Relative Percentage Difference (RPD) of ~12% which is well below the adopted limit of 30%. With these conditions considered, the data was considered fit for purpose.

The QA/QC criteria and DQOs have been evaluated and the relevant sampling and analysis requirements have been met.

11.0 Basis for assessment criteria

The following are to be used for the future investigation as per the Tier 1 Assessment Criteria. Health Investigation Level (HIL) A is recommended to be applied for the subject site which is defined as: Residential with garden/accessible soil. The subject site is currently a cleared lot pending development for the residential airpark estate, commercial and tourism.

11.1 Soil

NEPM (2013) Health Based Investigation Levels (HILs A)

HILs are Tier 1 risk based generic assessment criteria used for the assessment of potential risks to human health from chronic exposure to contaminants in soil. They are intentionally conservative and based on a reasonable worst-case scenario for generic land use settings including Residential (HILs A/B), Open Space / Recreational (HILs C) and Commercial Industrial (HILs D).

- HILs A soil assessment criteria are adopted based on the proposed land use.

NEPM (2013) Management Limits for TPH fractions F1-F4 in soil (MLs)

Management limits are relevant for sites where spills and leaks of petroleum compounds may have occurred. They are applicable as screening levels following evaluation of human health and ecological risks and risks to groundwater resources.

- Management limits for commercial/industrial sites are adopted based on the proposed land use.

11.2 Vapour

NEPM (2013) Health Screening Levels (HSLs A)

HSLs are Tier 1 risk based generic assessment criteria used for the assessment of potential risks to human health from chronic inhalation exposure of petroleum vapours emanating off petroleum contaminated soils (Vapour Risk). They are intentionally conservative and based on a reasonable worst-case scenario for generic soil types, contamination depth and land use settings including Residential (HSLs A/B), Open Space / Recreational (HSLs C) and Commercial Industrial (HSLs D).

- HSLs A are adopted based on the proposed land use. HSLs for clayey soil should be adopted based on the soil type encountered across the site.
- Field screening using a PID was undertaken with readings of less than 10ppm being regarded as negligible.

11.3 Ecological

NEPM (2013) Ecological Investigation Levels (EILs)

The EILs methodology was developed to protect soil process and biota as well as terrestrial invertebrates and vertebrates. The EILs provided in Tables 1B(4) and 1B(5) of the NEPM (2013) are generic while the Added Contaminant Limits (ACLs) presented in Tables 1B(1), 1B(2) and 1B(3) consider soil specific conditions. EILs and ACLs apply to the top 2m of the soil and can be adapted for three land use settings including: Areas of ecological significance; Urban residential and public open space; and Commercial and industrial.

For the purpose of this assessment, the conservative EILs and ACLs have been adopted as Tier 1 criteria and in the case of exceedances of such a site-specific Tier 2 assessment will be considered with site specific conditions. In the case of nickel, zinc and naphthalene the soil conditions should been taken into account with a conservative cation exchange capacity of 10 and pH of 6.0 to be adopted. In the case of chromium III, the soil conditions have been taken into account with a clay content of 10% adopted. It is assumed that the total chromium

analysis conducted as part of this DSI is chromium III as it is difficult to differentiate between chromium VI and chromium III in tests, US EPA (1998).

EILs and ACLs for urban residential/public open space are considered for the proposed site conditions for the land use and potential landscaped areas as part of future development and have been deemed as warranted on the following basis:

- The future developed site could have areas of vegetation or landscaping.
- The nearby drainages and associated floodplain is a potential offsite sensitive ecological receptor.

NEPM (2013) Ecological Screening Levels (ESLs)

ESLs for hydrocarbons, solvents and benzo(a)pyrene in soil are a generic criterion developed for assessing risk to terrestrial ecosystems. ESLs provided in Table 1B(6) of the NEPM (2013) apply to fine and coarse textured soils and are applicable to the top 2m of the soil. ESLs can be applied to three land use settings including: Areas of ecological significance; urban residential and public open space; and Commercial and industrial.

ESLs for urban residential and public open space were considered for the proposed site conditions and potential landscaped areas as part of future development and have been deemed as warranted on the following basis:

- The future developed site will have areas of vegetation or landscaping.
- The nearby drainages and associated water runoff are a potential offsite ecological receptor.

11.4 Groundwater

NEPM Groundwater Investigation Levels (GILs)

GILs are adopted from the Australian Drinking Water Guidelines and the Australia New Zealand Guidelines for Fresh and Marine Water Quality (2018). They are not acceptance criteria, rather they are used to trigger further consideration of groundwater contamination when GILs are exceeded.

- Drinking Water GILs area not relevant owing to the depth to groundwater in the locale and on-site town water supply bore.

NEPM Groundwater Health Screening Levels (GHSLs D)

GHSLs are Tier 1 risk based generic assessment criteria used for the assessment of potential risks to human health from chronic inhalation exposure to petroleum vapours emanating off petroleum contaminated groundwater (Vapour Risk). They are intentionally conservative and based on a reasonable worst-case scenario for generic soil types, contamination depth and land use settings including Residential (GHSLs A/B), Open Space / Recreational (GHSLs C) and Commercial Industrial (GHSLs D).

- GHSLs are not relevant owing to the depth to groundwater in the locale and on-site town water supply bore.

11.5 Asbestos in soil assessment criteria

NEPM Asbestos Health Screening Levels (HSLs A)

Health screening levels for asbestos was warranted due to the possibility of asbestos in the stockpiled soil, the following criteria were used from the NEPM (2013) Table 7: Health Screening Levels for Asbestos in Soils:

- 0.01% for non-friable (bonded) ACM.
- 0.001% for friable asbestos.
- No visible asbestos material to be found in surface soils.

12.0 Results

A summary of the laboratory analysis from the sampling is as follows:

- Metals are below the laboratory Limits of Reporting (LOR) and/or the adopted criteria except for Zinc at sample point D1 which is above the ACLs. Based on the low value ecological setting of the site and isolated location of the sample D1, McMahon assesses this to be low risk and requires no further assessment.
- Organochlorine and organophosphate pesticides are below the LOR and the adopted criteria.
- PCBs are below LOR and/or the adopted criteria.
- VOCs are below LOR and the adopted criteria.
- BTEXN are below LOR and the adopted criteria.
- TRH F1 and F2 are below the LOR and the adopted criteria.
- TRH F3 and F4 are below the LOR and/or the adopted criteria.
- No bonded ACM fragments visually were observed on site or in any of the samples

A tabular summary of results for the fill and subsoil can be seen as follows, **Table 16** and **17**. A copy of the laboratory reports can be found in **Attachment G**.

Table 16: *Results*

Parameter	Criteria	Unit	Y1	Y2	Y3	Y4	Y5	Y6	H1	H2	H3
			0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5
Arsenic	100[A]/100[C]/ 100[D]	mg/kg	8	9	9	6	7	<5	9	7	9
Cadmium	20[A]	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	-	mg/kg	19	21	20	27	23	22	25	21	35
Copper	6000[A]/190[C]	mg/kg	14	15	10	11	10	9	11	10	12
Lead	300[A]/1100[C]	mg/kg	9	10	9	8	8	8	12	8	10
Nickel	400[A]/170[C]	mg/kg	7	8	6	8	7	5	7	6	7
Zinc	7400[A]/400[C]	mg/kg	53	270	27	19	21	16	20	26	22
Mercury	40[A]	mg/kg	-	-	-	-	-	-	-	-	-
DDT+DDE+DDD	240[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin and dieldrin	6[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	50[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	270[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	10[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	6[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HCB	10[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	300[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	160[A]	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PCBs	1[A]	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	480[B]/105[E]	mg/kg	-	-	-	-	-	-	-	-	-
Ethylbenzene	NL[B]/125[E]	mg/kg	-	-	-	-	-	-	-	-	-
Xylenes	110[B]/45[E]	mg/kg	-	-	-	-	-	-	-	-	-
Naphthalene	5[B]/170[D]	mg/kg	-	-	-	-	-	-	-	-	-
Benzene	0.7[B]/65[E]	mg/kg	-	-	-	-	-	-	-	-	-
F1	50[B]/180[E]/ 800[F]	mg/kg	-	-	-	-	-	-	-	-	-
F2	208[B]/120[E]/1 000[F]	mg/kg	-	-	-	-	-	-	-	-	-

Table 17: *Results (continued)*

Parameter	Criteria	Unit	T1	T2	T3	T4	T5	W1	W2	D1	D2	D
			0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.0-0.2	0.0-0.2	0.0-0.2	0.0-0.3	0.0-0.3	-
Arsenic	100[A]/100[C]/ 100[D]	mg/kg	14	9	9	9	<5	6	5	6	14	6
Cadmium	20[A]	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	-	mg/kg	17	16	15	20	26	17	15	32	22	26
Copper	6000[A]/190[C]	mg/kg	15	18	18	44	12	37	40	84	60	13
Lead	300[A]/1100[C]	mg/kg	7	8	7	9	13	14	6	10	12	9
Nickel	400[A]/170[C]	mg/kg	7	10	10	30	6	7	8	15	24	9
Zinc	7400[A]/400[C]	mg/kg	19	77	41	18	18	284	138	622	230	21
Mercury	40[A]	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
DDT+DDE+DDD	240[A]	mg/kg	-	-	-	-	-	-	-	<0.05	<0.08	<0.05
Aldrin and dieldrin	6[A]	mg/kg	-	-	-	-	-	-	-	<0.05	<0.08	<0.05
Chlordane	50[A]	mg/kg	-	-	-	-	-	-	-	<0.05	<0.08	<0.05
Endosulfan	270[A]	mg/kg	-	-	-	-	-	-	-	<0.05	<0.15	<0.05
Endrin	10[A]	mg/kg	-	-	-	-	-	-	-	<0.06	<0.25	<0.05
Heptachlor	6[A]	mg/kg	-	-	-	-	-	-	-	<0.06	<0.25	<0.05
HCB	10[A]	mg/kg	-	-	-	-	-	-	-	<0.06	<0.25	<0.05
Methoxychlor	300[A]	mg/kg	-	-	-	-	-	-	-	<0.3	<1.0	<0.2
Chlorpyrifos	160[A]	mg/kg	-	-	-	-	-	-	-	<0.06	<0.25	<0.05
PCBs	1[A]	mg/kg	-	-	-	-	-	-	-	<0.1	<0.2	<0.1
Toluene	480[B]/105[E]	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Ethylbenzene	NL[B]/125[E]	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Xylenes	110[B]/45[E]	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
Naphthalene	5[B]/170[D]	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1	-
Benzene	0.7[B]/65[E]	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-
F1	50[B]/180[E]/ 800[F]	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
F2	208[B]/120[E]/1 000[F]	mg/kg	<50	<50	<50	<50	<50	<50	<50	<60	<50	-

A - NEPM 2013. Table 1A(1) HILs for soil contaminants: Residential A.
B - NEPM 2013. Table 1A(3) Soil HSLs for vapour intrusion (mg/kg): Residential A - 0m to 1m clay soil. (NL = Non-Limiting)
C - NEPM 2013. Table 1B(1-4) ACLs: Urban residential/public open space C. CEC of 10 and pH 6.0 assumed.
D – NEPM 2013. Table 1B(5) EILs: Urban residential/public open space C.
E – NEPM 2013. Table 1B(6) ESLs: Recreational/open space C. Fine soil texture.
F – NEPM 2013. Table 1B(7) MLs: Residential, parkland and public open space. Fine soil texture

13.0 Site characterisation

From the site history, environmental setting and site inspection undertaken, the following assessment has been made regarding potential contamination sources and site characterisation.

There were five potential contamination sources identified on site including livestock activities, vehicle storage & washing, effluent treatment activities, hazardous building material and fill material. The nature of these sources is described further below.

1. **Livestock activities** include the storage and sale of livestock on the site as the Temora saleyards. The soil sampling returned below criteria and LOR results indicating low risk of gross contamination from these activities.

2. **Vehicle storage & washing** was identified to take place in livestock loading areas, truck parking areas and the truck wash bay. The soil sampling returned below criteria and LOR results indicating low risk of gross contamination from these activities.

3. **Effluent treatment activities** are associated with the onsite storage dam and includes any runoff water from the site and the associated contaminants. The soil sampling returned below criteria and LOR results indicating low risk of gross contamination from these activities.

4. **Hazardous building materials** were not investigated a part of the scope of works from this report. A pink external paint was identified to be suspect for lead concentrations on the onsite office. The office internals were inaccessible at the time of inspection. McMahon recommends Temora Shire Council is required to conduct an investigation for hazardous building material prior to demolition and development. McMahon assess that this can be managed during development.

5. **Fill material** was identified in the form of a large stockpile towards the northern site border and topsoil across the site. No odour, stained/deleterious material or vegetative impacts were observed to be associated with fill material. McMahon had been given no information regarding the origin of the topsoils. McMahon recommends testing and classification of fill material onsite prior to any re-use or disposal. McMahon assess that this can be managed during development.

Soil sampling and analysis was undertaken in proposed development areas, the results of the analysis indicated all contaminant concentrations are below the adopted criteria. As such, McMahon assess the risk of gross contamination across the site to be low. McMahon assesses that no further investigation is required, however if unexpected findings occur during development this office is to be contact for further assessment.

There were no identified off-site sources of potential contamination or pathways that would pose an above low level of risk to human health and environmental receptors on site from the proposed development.

14.0 Conclusions and recommendations

The Preliminary Site Investigation has been undertaken in accordance with the relevant guidelines, legislation and standards, namely:

- NSW OEH Contaminated sites Guidelines for Consultants Reporting on Contaminated sites (2011);
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55); and
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM), (2013).

McMahon offer the following summary of the findings of the PSI:

- The data provided in this report is considered reliable to base the findings of the PSI on.
- The potential contamination sources, pathways and receptors have been identified along with the areas of concern.
- The sampling undertaken returned results below the adopted criteria and as such the risk of gross contamination across the site is low.
- The potential hazardous building material and fill material on site can be managed during development given appropriate controls are put in place as outlined in this PSI.
- Based on the findings of this report the site is assessed to be suitable for the proposed development with low risk to human health and/or the environment.
- If unexpected findings occur during development this office is to be contact for further assessment.

15.0 Disclaimer

The information contained in this report has been extracted from field and laboratory sources believed to be reliable and accurate. DM McMahon Pty Ltd nor the Certified site Contamination Specialist assume any responsibility for the misinterpretation of information supplied in this report. The accuracy and reliability of recommendations identified in this report need to be evaluated with due care according to individual circumstances. It should be noted that the recommendations and findings in this report are based solely upon the said site location and the ground level conditions at the time of testing. The results of the said investigations undertaken are an overall representation of the conditions encountered. The properties of the soil within the location may change due to variations in ground conditions outside of the tested area. The author has no control or liability over site variability that may warrant further investigation that may lead to significant design changes.

Temporal and spatial limitations to the CSM and recommendations of this report apply, if a change of land use is noted between the time of writing this report and the proposed development then further assessment may need to be carried out.

16.0 Notice of Copyright

17.0 References

Andersson K and McNamara M, 2010, Soil Landscapes of the Cootamundra 1:250,000 Sheet, NSW Department of Environment, Climate Change and Water, Sydney.

Bureau of Meteorology (BOM), Australian Groundwater Explorer. Data accessed 8/11/2019. http://www.bom.gov.au/water/groundwater/explorer/map.shtml.

Bureau of Meteorology (BOM), Climate statistics for Australian Locations. Data accessed 8/11/2019. http://www.bom.gov.au/climate/averages/tables/cw_075041_All.shtml

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National Environment Protection (Assessment of site Contamination) Measure (NEPM), 2013.

NSW Land Registry Services. Historical Land Records Viewer [Images]. Data accessed 8/11/2019. Retrieved from http://hlrv.nswlrs.com.au/pixel.htm

NSW OEH (2011) Contaminated sites Guidelines for Consultants Reporting on Contaminated sites.

New South Wales Environmental Protection Agency (1998). DUAP/EPA Managing Land Contamination: Planning Guidelines, SEPP55-Remediation of Land, 1998. Crown Copyright.

New South Wales Government (2018). State Environmental Planning Policy No 55—Remediation of Land. New South Wales Government.

Standards Australia AS 4482.1: 2005, Guide to the sampling and investigation of potentially contaminated soil – Non-volatile and semi-volatile compounds.

Standards Australia AS 4482.2: 1999, Guide to the sampling and investigation of potentially contaminated soil - Volatile substances.

18.0 Attachments

Attachments proceeding this document:

Attachments	Details
A. Historical records	18 pages
B. Aerial photographs	11 pages
C. EPA search results	3 pages
D. SafeWork search results	1 page
E. Bore logs	2 pages
F. PID calibration certificate	1 page
G. Laboratory reports 6302	38 pages

McMahon EARTH SCIENCE

DOCUMENT ATTACHMENTS

REPORT 6302

DM McMahon Pty Ltd
6 Jones Street, (PO Box 6118)
Wagga Wagga NSW 2650

t (02) 6931 0510
www.dmmcmahon.com.au

Attachment A : *Historical records*

1891


SECOND EDITI
PARISH OF BUND
COUNTY OF
COOTAMUNDR LAND
Note:- All charting around Temora to be done
PARISH
Special
Area
The Area within
the boundaries edged
are recommended
TEMORA
Special
Residential
Special
RESUMED
PARISH OF THANOWRING
CREEK

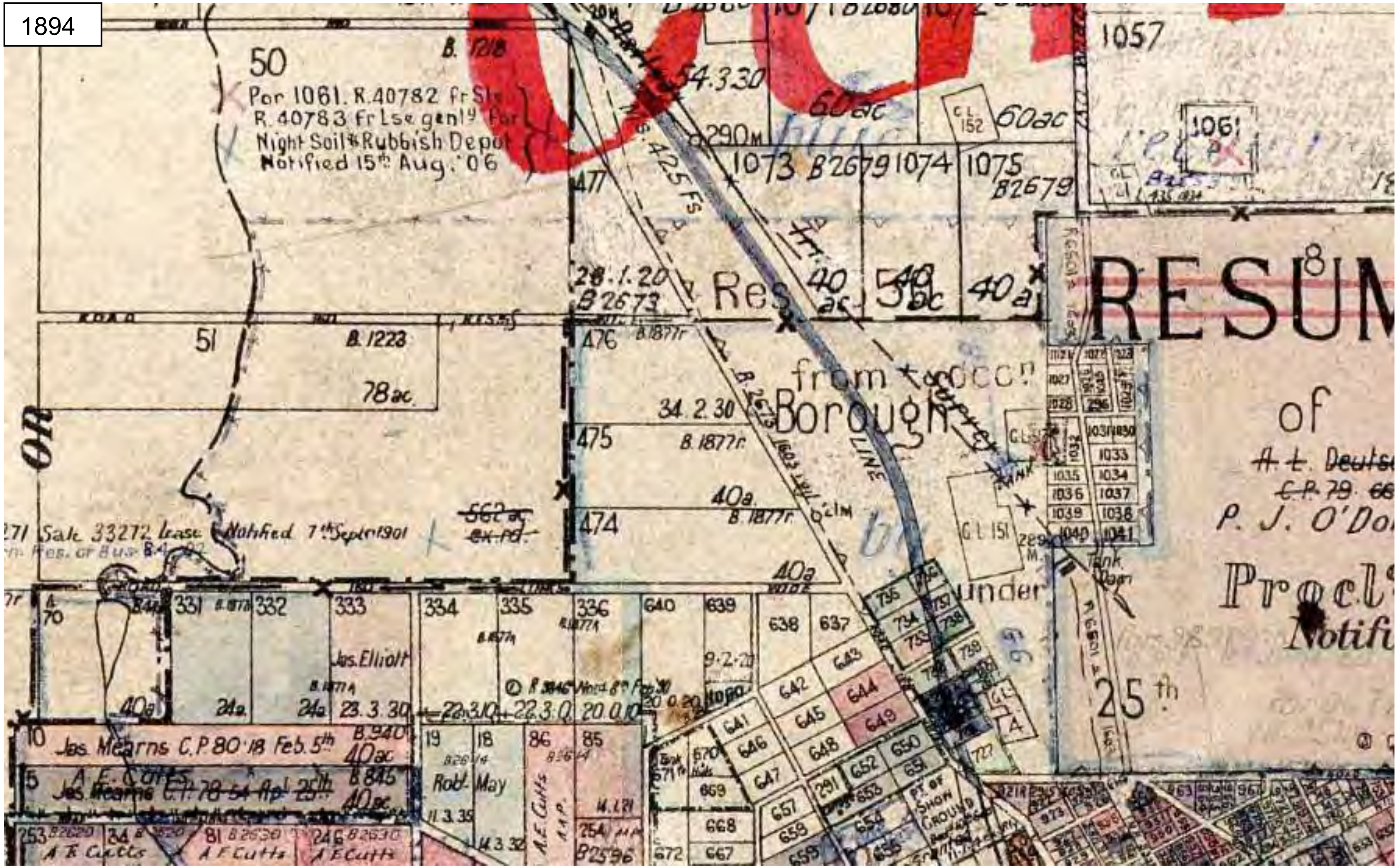
1891

Proclaimed
RESUME
Temora
Boundary
Part
of
by
Survey
Municipal
A. L. Deutscher
Procl^d
Notified

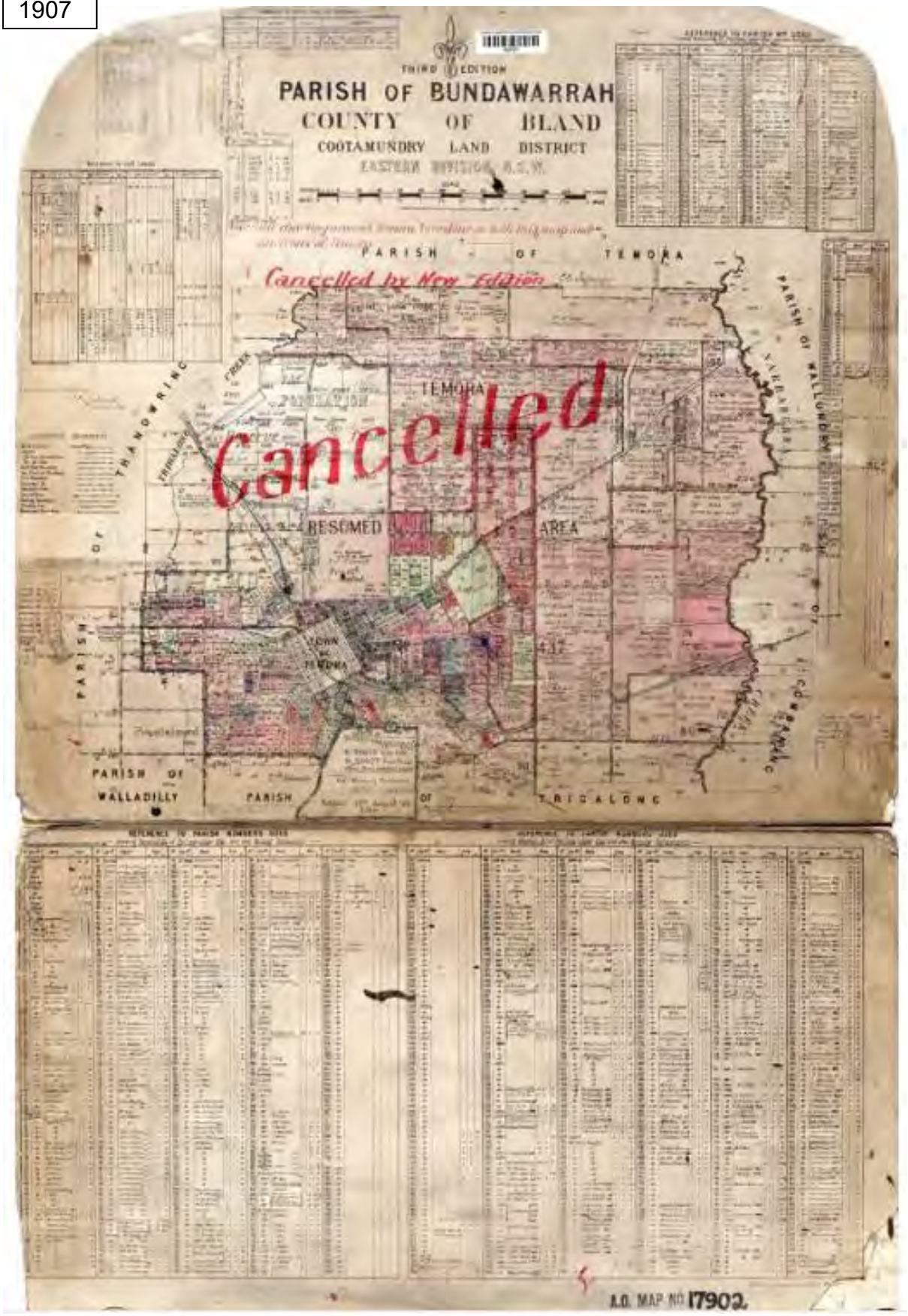
1894


PARISH OF BUNDAWARRAH
COUNTY OF BLAND
LAND DISTRICT of TEMORA
EASTERN DIVISION N.S.W.
SCALE
PARISH OF TEMORA
PARISH OF WALLENDBEEN
PARISH OF COMBARING
PARISH OF TRIGALONG
PARISH OF WALLADILLY
CANCELLED
A.O. MAP NO. 17903

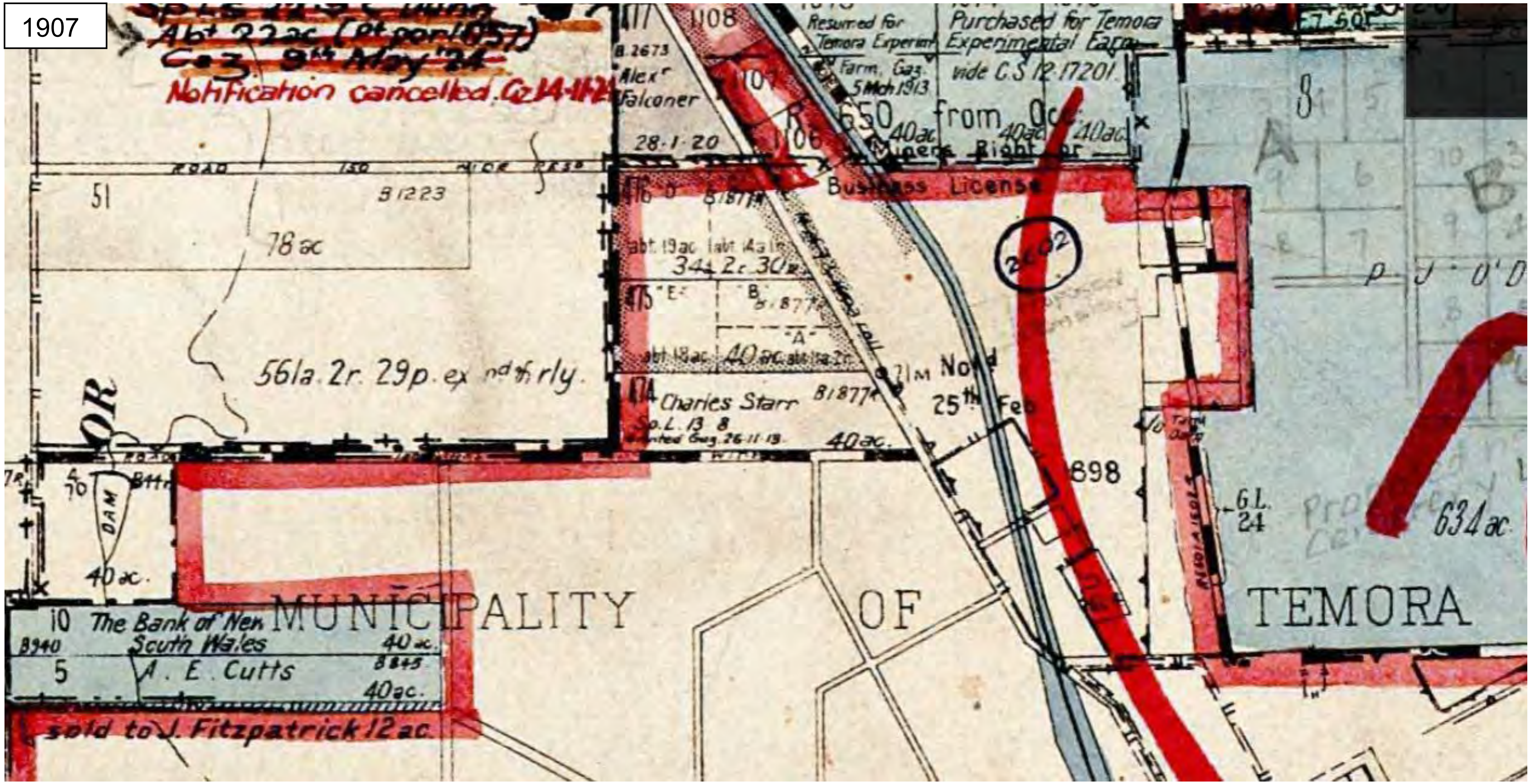
1894


50
B. 1218
Por 1061. R.40782 fr Sle
R.40783 fr Lse genl[y] for
Night Soil & Rubbish Depot
Notified 15th Aug. '06
54.3.30
60ac
60ac
290M
1057
1061
1073 B2679 1074 1075
B2679
477
425 Fs
28.1.20
B2673
Res
40 ac
40 ac
40 a
RESUM
of
P. J. O'Do
Procl
Notifi
25th
51
B.1223
78ac.
476 B.1877r
34.2.30
from occn
Borough
475
B.1877r
40a.
B.1877r
474
LINE
562 ac
ex. rd.
Sale 33272 lease Notified 7th Sept 1901
40a
under
G.L.151
331
332
333
334
335
336
640
639
638
637
Jas. Elliott
9.2.20
642
643
644
645
649
641
646
647
648
650
651
652
653
657
658
654
Pt of Show Ground
40a
24a
24a 23.3.30
22.3.10
22.3.0
20.0.10
10 Jas. Mearns C.P. 80 18 Feb. 5th
40ac
B.845
Jas. Mearns C.P. 78 54 Ap. 25th
40ac
19
18
86
85
Robt. May
A.E. Cutts
A. E. Cutts
253
34
81
246
A E Cutts
A F Cutts
A E Cutts
254
B2596
669
668
667
672
OR

1907

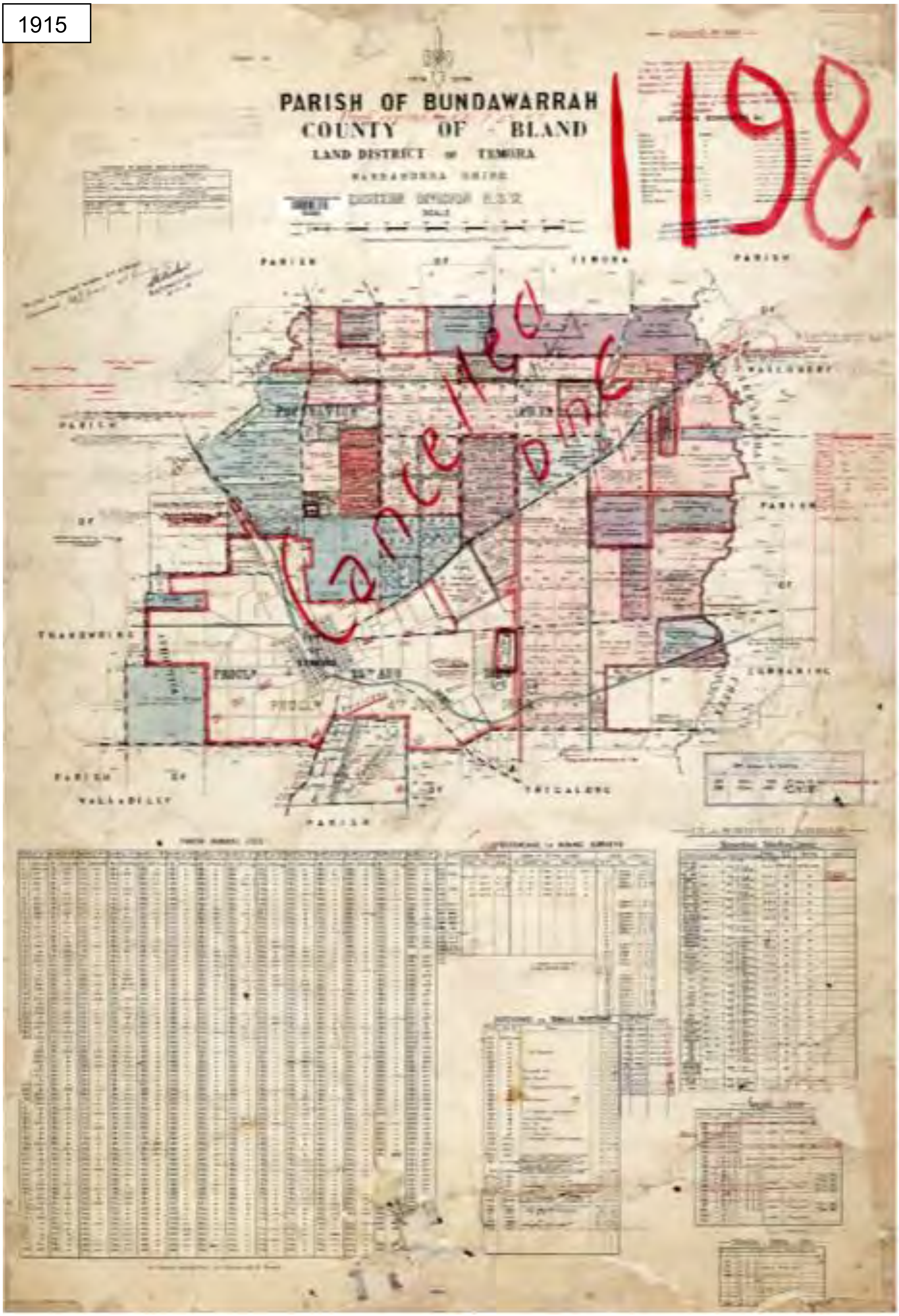

THIRD EDITION
PARISH OF BUNDAWARRAH
COUNTY OF BLAND
COOTAMUNDRY LAND DISTRICT
EASTERN DIVISION, N.S.W.
PARISH OF TEMORA
Cancelled by New Edition
Cancelled
TEMORA
RESUMED AREA
PARISH OF THANOWRING
PARISH OF WALLUNDRY
PARISH OF WALLADILLY
PARISH OF TRIGALONG
A.O. MAP NO 17902.

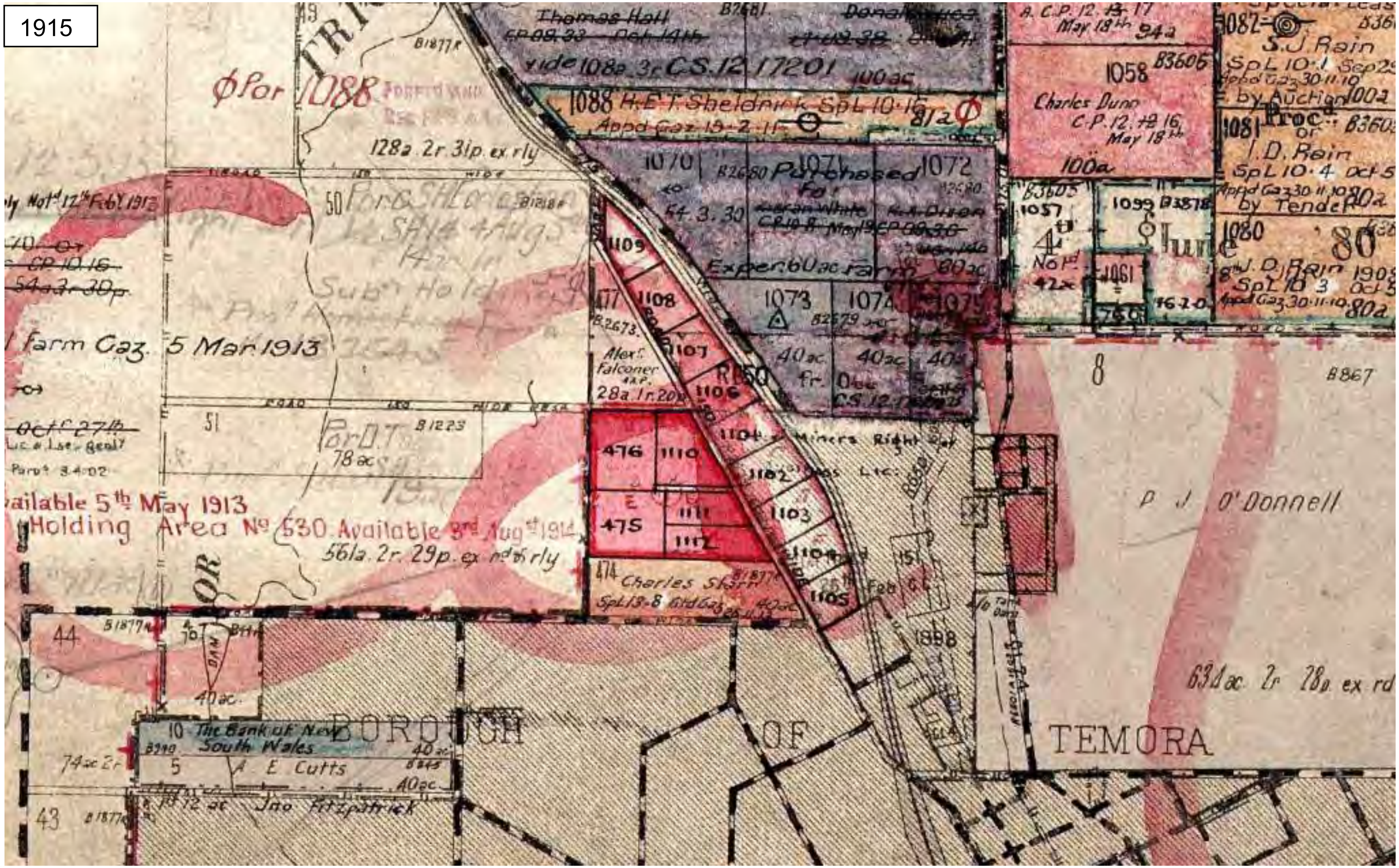
1907



Abt 22ac (Pt por 1957)
Notification cancelled
Alexr Falconer
28.1.20
B.2673
Resumed for Temora Experim. Farm, Gaz. 5 Mch 1913
Purchased for Temora Experimental Farm vide C.S 12.17201
from Oct
40ac
Miners Right
Business License
1108
1107
1106
650
51
B1223
78 ac
ROAD
561a. 2r. 29p. ex rd & rly.
34a 2r 30p
Charles Starr
B1877
40 ac.
2602
898
Nov
25th Feb
G.L. 24
634 ac
TEMORA
MUNICIPALITY
OF
DAM
40 ac.
10
The Bank of New South Wales
B940
5
A. E. Cutts
B845
40ac.
sold to J. Fitzpatrick 12 ac

1915

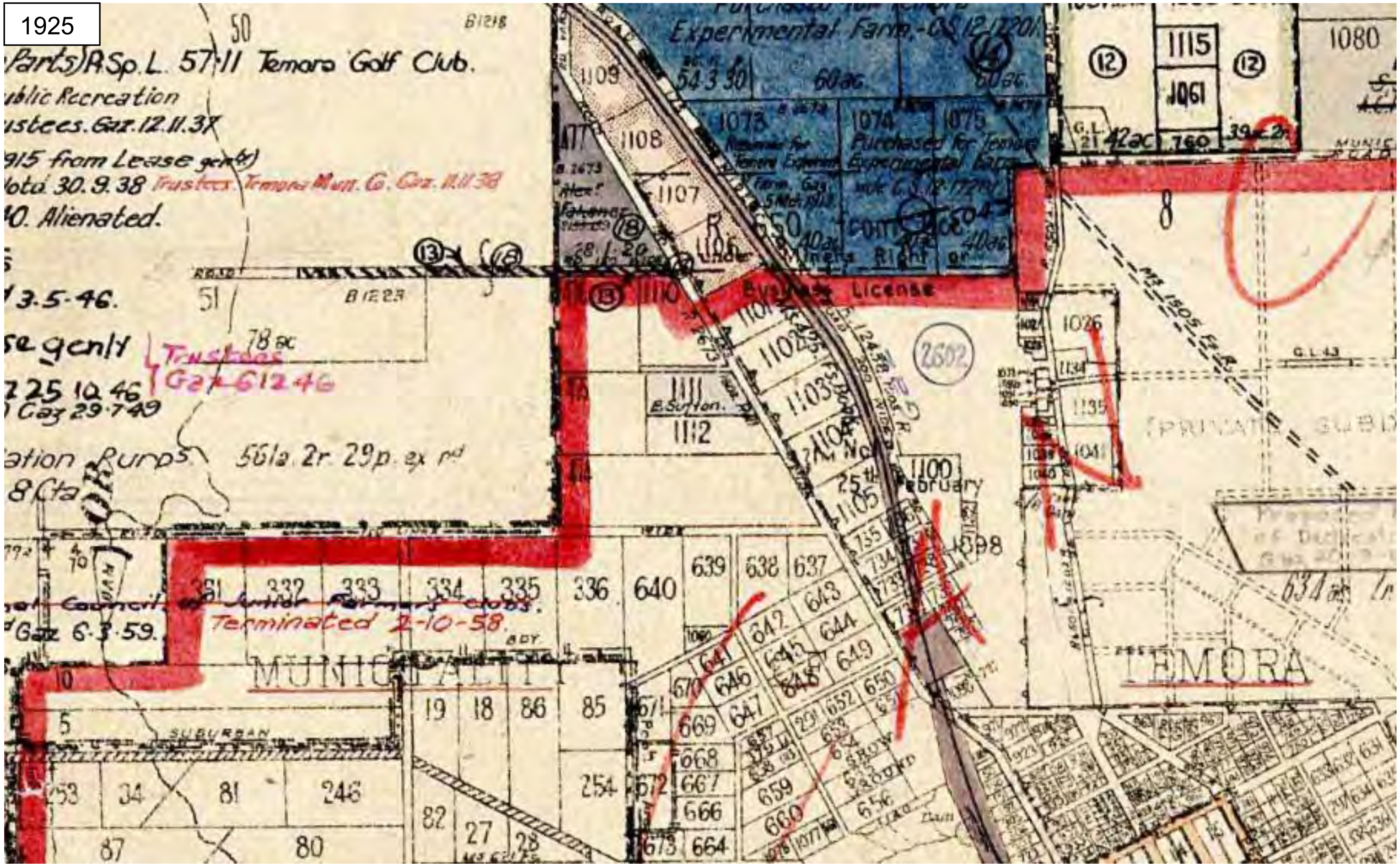

PARISH OF BUNDAWARRAH
COUNTY OF BLAND
LAND DISTRICT OF TEMORA
1198
Cancelled


1915
ϕ for 1088
128a. 2r. 31p. ex. rly
vide 108a. 3r. C.S.12.17201
100ac
1088 R.E.T. Sheldrick Sp.L. 10.16
812a ϕ
1058
Charles Dunn
C.P. 12.18.16 May 18th
100a
S.J. Rain
I.D. Rain
1070
1071
1072
Purchased
1073
1074
1075
1057
1099
1061
1080
farm Gaz. 5 Mar. 1913
51
Por. D.T.
78 ac
Alex. Falconer
28a. 1r. 20p
1109
1108
1107
1106
1104
1102
1103
1110
476
475
1111
1112
1105
Miners Right
8
B867
P. J. O'Donnell
ailable 5th May 1913
Holding Area No 530. Available 3rd Aug 1914
561a. 2r. 29p. ex. rd & rly
474 Charles Starr
44
40ac.
10 The Bank of New South Wales
40ac
5 A. E. Cutts
40ac
74ac 2r
43
Jno Fitzpatrick
BOROUGH OF TEMORA
1888
634ac. 2r. 28p. ex rd

1925

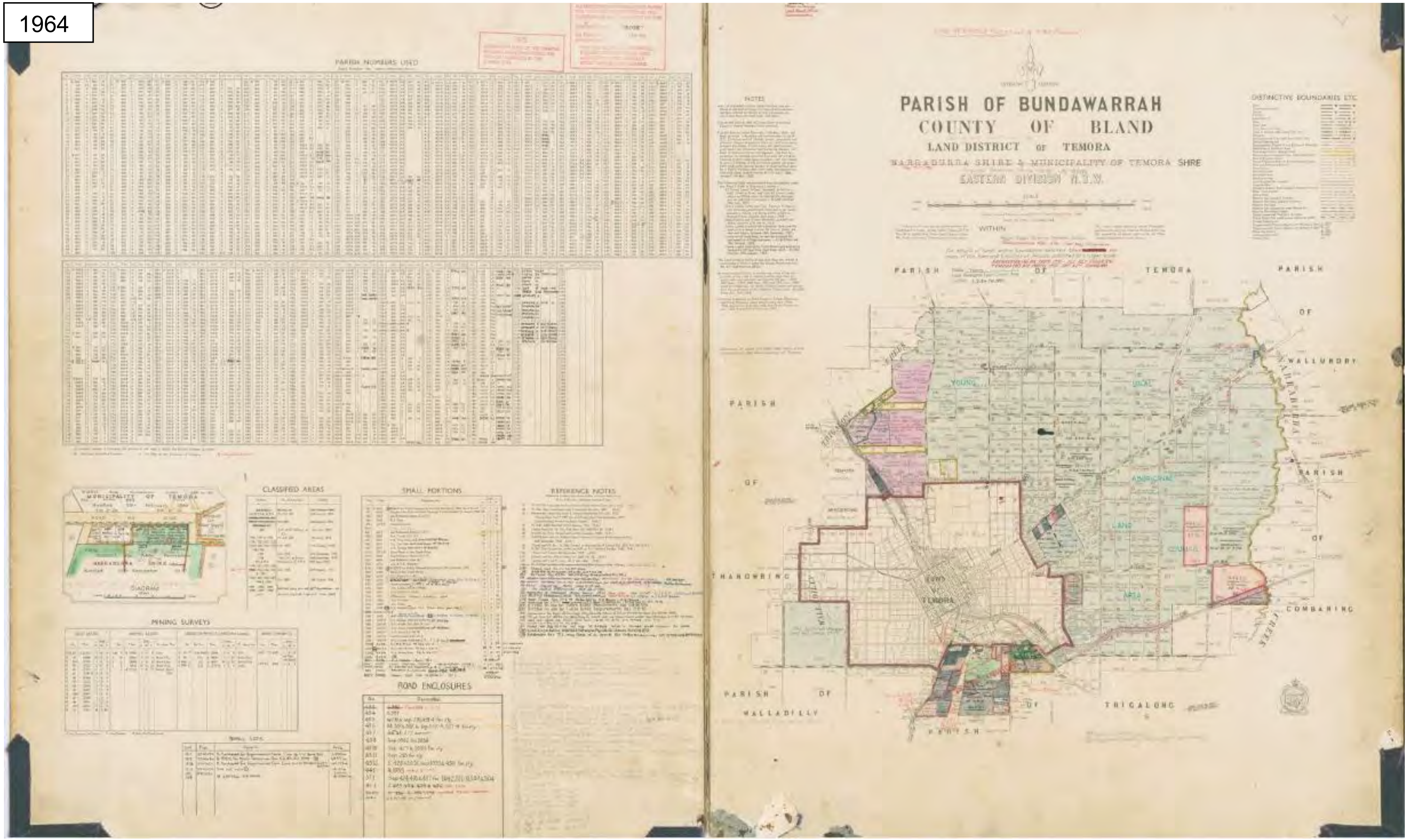

PARISH OF TEMORA
TRIGALONG
Cancelled 23 5 66
PARISH OF BUNDAWARRAH
COUNTY OF BLAND
LAND DISTRICT OF TEMORA
EASTERN DIVISION N.S.W.
SCALE

1925



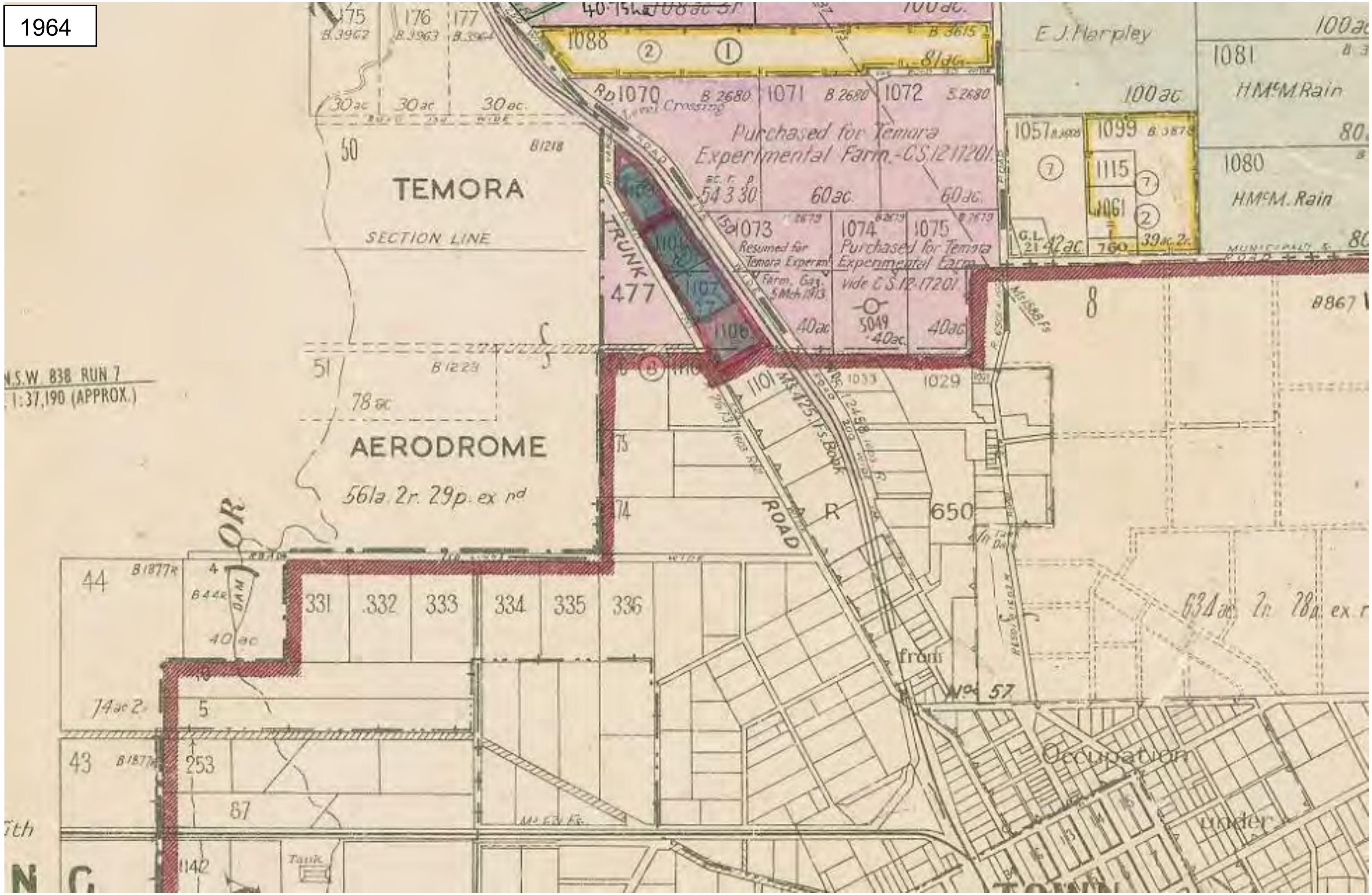
R.Sp.L. 57-11 Temora Golf Club.
Public Recreation
Trustees. Gaz. 12.11.37
Experimental Farm, - C.S. 12/1220
Purchased for Temora Experimental Farm
Business License
Trustees Temora Mun. C. Gaz. 11.11.38
Alienated.
Trustees Gaz 6.12.46
Terminated 2-10-58
February
MUNICIPALITY
TEMORA
SUBURBAN
B. Sutton.
56la. 2r. 29p. ex rd

1964



PARISH OF BUNDAWARRAH
COUNTY OF BLAND
LAND DISTRICT OF TEMORA
EASTERN DIVISION N.S.W.
NOTES
DISTINCTIVE BOUNDARIES ETC.
PARISH NUMBERS USED
CLASSIFIED AREAS
SMALL PORTIONS
REFERENCE NOTES
MINING SURVEYS
ROAD ENCLOSURES
DIAGRAM
PARISH OF TEMORA
PARISH OF WALLUNDRY
PARISH OF COMBARING
PARISH OF THANOWRING
PARISH OF WALLADILLY
PARISH OF TRIGALONG
TEMORA

1964



TEMORA
SECTION LINE
AERODROME
561a. 2r. 29p. ex rd
78 ac
TRUNK
477
ROAD
Purchased for Temora Experimental Farm.-C.S.12 17201.
Resumed for Temora Experim' Farm. Gaz. 5 Mch 1913
Purchased for Temora Experimental Farm vide C.S.12 17201
Level Crossing
E.J.Harpley
H.McM.Rain
H.McM. Rain
N.S.W. 838 RUN 7
1:37,190 (APPROX.)
1088
1070
1071
1072
1073
1074
1075
1081
1080
1057
1099
1115
1061
1101
1029
650
5049
331
332
333
334
335
336
44
43
50
51
253
87
8
Tank
DAM
40 ac
60 ac
100 ac
634 ac. 2r. 28p. ex. r
No 57
Occupation
under
TOWN

West Wyalong Advocate, Monday 16 May 1941 p.1

TEMORA SALEYARDS

PURCHASED BY MR. REG. JASPRIZZA

Extensive Improvements

Mr. Reg. Jasprizza, who has recently purchased the sole ownership of the Temora saleyards, has already started on a programme of replacement and improvement, which will make the Temora saleyards on a par with the best in the country. Included in the programme, which is already being carried out, are the following alterations:—

Erection of modern shearing shed with four stand electric plant and suitable pens, yards, and weather shed.

Erection and installation of latest spray dip.

Erection of refreshment room and offices for selling agents.

Pig pens to be extended to handle over twice as many pigs as at present and to be roofed. All pig pens to be concreted.

Water to be extended to yards and paddocks.

All yards to be renovated and cordles made to facilitate penning of small lots of fat stock.

The above improvements will be a boon to all users of the yards. The capacity of the yards without overcrowding will be 12,000 sheep or 400 cattle, 200 horses, 500 pigs in special pig pens.

The yards will be leased by the Associated Selling Agents, and ample space will be available for the display of all stock yarded. It is hoped that the owner's enterprise will be rewarded by solid support from the stock owners.

The Forbes Advocate, Friday 31 January 1947 p.12

TEMORA SHEEP SALE

Record Yarding

Winchcombe Carson, Ltd., Forbes, and Lucas & Murphy, Temora, agents in conjunction, report having held a very successful sale of fat and store sheep at Temora saleyards on January 23. 18,750 sheep were yarded (a record for Temora), and of this number 15,080 were sold at auction (a record).

Quotations.—Fats: Prime lightweight lambs, 26/5 to 32/6; prime heavyweight lambs, 33/ to 42/10; Merino wethers, 26/1 to 35/1; Merino ewes (trade), 15/ to 20/7; canners, 5/2 to 10/3.

Stores: 304 Mer. M.S., 12 mths. old, good quality, 29/; 350 Mer. ewes, 4 and 5 yrs., dry, nice quality, shorn Aug., 22/7; 360 Mer. wethers, 1 mark, 2 yrs., shorn Oct., fair condition, 25/9; 600 Mer. M.S., 1 mark, 11 mths. old, shorn Oct., fair condition, 25/7; 440 X M.S., 1 mark, 9 mths. old, shorn December, light condition, 22/2; 500 B.L. X ewe lambs, 1 mark, shorn Dec., 9 mths. old, light condition, 26/7; 400 wether portion 24/; 620 B.L. X M.S., 1 mark, 6-8 months old, unshorn, nice quality, 27/.

The West Wyalong Advocate, Monday 13 February 1950 p. 1

Younghusband Limited Open New Branch Office at Temora

Younghusband Ltd., Head Office, 94 King Street, Melbourne, announced today that they have purchased the stock and Station agency and Temora saleyards from Mr. W. J. Porter.

Regular monthly stock sales will be held at Temora saleyards. Clearing sales will be conducted and particulars of land and stock for private sale are available.

The directors of Younghusband Ltd. trust that with their numerous branches throughout Victoria and the Riverina, the opening of their Temora branch will be of great benefit to farmers and graziers in the Temora district, and that they will merit a fair share of the stock, land and wool business of the Temora district.

Younghusbands added that they have commenced business in Temora and that the Temora branch will henceforth be managed by Mr. Bob Webster, who has ben associated with W. J. Porter for a number of years. This branch, the firm added, will be associated with the Wagga branch of Younghusband Ltd.

The Daily Advertiser (Wagga Wagga), Monday 26 October 1953 p.2

New saleyards at Temora

To cater for increased stock sales a Temora, the new saleyards erected by th Farmers and Graziers Co-op Co. Ltd. wer officially opened on Friday by Mr. G. D Bassett, M.L.C.

The new yards, which adjoins the aerodrome, will supplement the existing yards built by other stock selling companies. There are no municipal yards in Temora.

More than 1000 people attended the opening, which was carried out by Mr. Bassett in the absence of the Member for Temora (Mr. D. Dickson).

The saleyards on the Barmedman Road were put up at considerable expense, and will be used for regular monthly stock sales.

Messrs. R. Doolin and T. Bray, company directors, travelled from Sydney with Mr. Bassett, company managing director, to be present.

Mayor of Temora (Ald. P. J. Meagher) and Narrburra Shire Council president (Cr. D. W. Edis) congratulated the company in its initiative in building the yards.

Ald. Meagher said he felt sure the company would not regret its decision to build the yards in Temora, which was a particularly solid sto centre.

At the first sale, 7500 she drawn from all parts of t district, were offered.

Competition for all clas of sheep was very strong, a although the yarding in qu ity was not as good as e pected, practically a to clearance was effected.

Sydney, Melbourne, Go burn and Wagga buyers w represented, together wi agents from a large area far north as Young a south to Albury.

Local district buyers su mented the huge cro watching the sale.

SUNDAY SCHOO ANNIVERSARY

The Land (Sydney), Friday 30 October 1953 p.17

Opening Of New Saleyards In Temora by F.&G.

By Our Special Representative

MANAGING Director of Farmers and Graziers' Co-op. Co. Ltd. (Mr. G. D. Bassett) opened the company's new saleyards at Temora last Friday before a crowd of 1,000 district farmers and buyers.

Mr. Bassett said that the Temora district had tremendous potentialities as a fat lamb raising area.

The Mayor of Temora (Mr. Peter Meagher), the president of Narraburra Shire, and the chairman of the Northern Riverina County Council (Mr. D. W. Eddy) complimented F. and G. on its initiative in establishing its own saleyards at Temora.

Sales of sheep, cattle and pigs are expected to be held monthly in the new saleyards.

The saleyards were designed by Mr. Gordon Ridgway, chief branch inspector for the company.

For Friday's initial sale there was a yarding of 8,000, of which 7,000 were disposed of to a good attendance of buyers.

The yarding, which included 3,000 sucker lambs, was generally in good condition.

Top price of the sale was 74/- for sucker lambs on account of Messrs. O. J. and E. J. McCauley (Temora).

Shorn wethers made 56/- to 64/-, others from 50/- to 60/-.

Rams made from 47/6 to 60/-, others to 35/-. Cutters from 25/- to 35/-.

Merino wethers, four years off, Sept. shorn, made to 45/-, others to 35/11.

Corriedale ewes, 1 and 2 years off, October shorn, made 50/-. Merino ewes, 5 years, October shorn, made 30/-. Corriedale ewe lambs made 60/6, and the wether portion 50/-.

BIG CROWD.—Part of the big crowd of more than 1,000 district farmers and buyers who attended the opening sale of F. & G.'s new saleyards at Temora last week. The saleyards were designed by Mr. Gordon Ridgway, chief branch inspector for the company. Monthly sales of sheep, cattle and pigs are planned.

★ HAPPY OFFICIALS.—Two officials of F. & G. at the new saleyards opening were, from left to right, Messrs. S. W. Clark, manager of Temora branch; and G. Bassett, the managing director. They are talking happily with the Mayor of Temora (Mr. Peter Meagher), who complimented the company on its initiative. ★

RECORD ASPARAGUS

West Wyalong Advocate, Monday 22 February 1954 p.5

Shire to Secure Saleyards Plan

The Bland Shire Council, on the motion of Crs. J. L. Stewart and A. Kelly, decided at its last meeting to procure a copy of the plan of the saleyards erected at Temora by the Farmers and Graziers' Co.

Cr. Stewart said these yards were excellent ones, and had been erected at comparatively small cost.

Attachment B : *Aerial photographs*


1969


1975


1991


2005
Google Earth
Image © 2019 Maxar Technologies
N
200 m


2006
Google Earth
Image © 2018 Maxar Technologies
N
200 m


2011
Google Earth
Image © 2019 Maxar Technologies
N
200 m


2012
Google Earth
Image © 2019 Maxar Technologies
N
200 m


2013
Google Earth
Image © 2018 Maxar Technologies
N
200 m


2015
Google Earth
Image © 2019 Maxar Technologies
N
200 m


2017
Google Earth
Image © 2019 Maxar Technologies
N
200 m


2019
Google Earth
Image © 2019 CNES / Airbus
N
200 m

Attachment C : *EPA search results*

Your search for: **General Search** with the following criteria

Suburb - Temora

returned 13 results

Export to excel

1 of 1 Pages

Search Again

Number	Name	Location	Type	Status	Issued date
1053	HANSON CONSTRUCTION MATERIALS PTY LTD	3 INDUSTRIAL AVENUE , TEMORA, NSW 2666	POEO licence	No longer in force	21 Mar 2000
1033636	HANSON CONSTRUCTION MATERIALS PTY LTD	3 INDUSTRIAL AVENUE , TEMORA, NSW 2666	s.58 Licence Variation	Issued	03 Mar 2004
1057727	HANSON CONSTRUCTION MATERIALS PTY LTD	3 INDUSTRIAL AVENUE , TEMORA, NSW 2666	s.58 Licence Variation	Issued	28 Mar 2006
2523	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	POEO licence	Issued	31 Mar 2000
1003600	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	04 Jan 2001
1004468	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	13 May 2002
1024348	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	11 Jun 2003
1029458	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	21 Aug 2003
1040731	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	24 Sep 2004
1046587	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	09 Jun 2005
1060723	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	19 Jun 2006
1075837	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	12 Jul 2007
1512654	TEMORA SHIRE COUNCIL	TEAL STREET, TEMORA, NSW 2666	s.58 Licence Variation	Issued	18 Jun 2013

23 October 2019

Search results

Your search for: LGA: Temora Shire Council

Matched 1 notice relating to 1 site.

Search Again | Refine Search

Suburb	Address	Site Name	Notices related to this site
TEMORA	98-100 Hoskins STREET	Woolworths Caltex Temora	1 current

Page 1 of 1

23 October 2019

TEMORA	Woolworths Caltex Temora	98-100 Hoskins STREET	Service Station	Under preliminary investigation order	-34.44324584	147.5318667

Attachment D : *Safework search results*

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D19/211341

7 November 2019

Mr David McMahon
DM McMahon Pty Ltd
PO Box 6118
WAGGA WAGGA NSW 2650

Dear Mr McMahon

RE SITE: Lot2 DP 209557 Bartondale Rd, Temora NSW 2666

I refer to your site search request received by SafeWork NSW on 24 October 2019 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.auw

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

Attachment E : *Bore logs*

McMahon EARTH SCIENCE

AS1726:2017 Bore Log Page 1 of 2

Job No:	6302	**Landform:**	Flat
Client:	Temora Shire Council	**Slope:**	Level
Site:	Old Temora Saleyards	**etation/Surface:**	Soil, grass, gravel.
Date:	29.10.19	**Logged By:**	ZB

Sheet: 'Geotech Field Sheet_rev2'

Sampling Method: AS1289.1.2.1-1998: cl. [ ] 6.5.1 - Hand Excavated [X] 6.5.2 - Hand Auger [ ] 6.5.3 - Power Auger [ ] 6.5.4 - Machine Excavated Other:_____

Site Identity	Sample	Co-ordinates MGA GDA94 z55	Depth to Top of Layer (m)	Depth to Bottom of Layer (m)	Classification (AS1726:2017 Table 9 & 10)	Soil Name (BLOCK LETTERS)	Grain Size (Fine / Coarse)	Primary Colour	Mottle Colour	Plasticity	Consistency (Cohesive soils)	Relative Density (Non-cohesive)	Moisture	Soil Origin	Comments (Coarse Fragments, Size, %, Structure (Zoning, Defects, Cementing etc.))
W1	W1	547891E, 6189922N	0.0	0.2	GC	Clay Gravel	C	+B	-	L	S	-	D	FILL	Blue stone gravel, CF(<60MM, 60%)
W2	W2	547882E, 6189901N	0.0	0.2	CH	Silty Clay	C/F	B	-	M	F	-	D	FILL	Trace sand, CF(<60MM, 60%)
T1	-	547835E	0.0	0.1	GC	Clay Gravel	C	B	-	L	S	-	D	FILL	Blue stone gravel, CF(<60MM, 60%)
	T1	6189883N	0.1	0.2	CL	Gravel Clay	C/F	B	-	M	F	-	D	FILL	CF(<20MM, 20%)
T2	-	547891E	0.0	0.1	GC	Clay Gravel	C	B	-	L	S	-	D	FILL	Blue stone gravel, CF(<60MM, 60%)
	T2	6189872N	0.1	0.2	CL	Gravel Clay	C/F	B	-	M	F	-	D	FILL	CF(<20MM, 20%)
T3	-	547943E	0.0	0.1	GC	Clay Gravel	C	B	-	L	S	-	D	FILL	Blue stone gravel, CF(<60MM, 60%)
	T3	6189857N	0.1	0.2	CL	Gravel Clay	C/F	B	-	M	F	-	D	FILL	CF(<20MM, 20%)
T4	-	547944E	0.0	0.1	GC	Clay Gravel	C	B	-	L	S	-	D	FILL	Blue stone gravel, CF(<60MM, 60%)
	T4	6189822N	0.1	0.2	CL	Gravel Clay	C/F	B	-	M	F	-	D	FILL	CF(<20MM, 20%)
T5	T5	547944E, 6189774N	0.0	0.2	CH	Silty Clay	F	BR	-	M	St	-	D	FILL	-
Y1	Y1	547811E, 6189812N	0.0	0.5	CH	Silty Clay	F	+B	-	M	F	-	D	FILL	-
Y2	Y2	547817E, 6189848N	0.0	0.5	CH	Silty Clay	F	BR	-	M	St	-	D	FILL	-
Y3	Y3	547848E, 6189804N	0.0	0.5	CH	Silty Clay	C/F	BR	-	M	F	-	D	FILL	CF(<50MM, 40%)

McMahon EARTH SCIENCE

AS1726:2017 Bore Log Page _2_ of _2_

Job No:	6302	**Landform:**	Flat
Client:	Temora Shire Council	**Slope:**	Level
Site:	Old Temora Saleyards	**etation/Surface:**	Soil, grass, gravel.
Date:	29.10.19	**Logged By:**	ZB

Sheet: 'Geotech Field Sheet_rev2'

Sampling Method: AS1289.1.2.1-1998: cl. [ ] 6.5.1 - Hand Excavated [X] 6.5.2 - Hand Auger [ ] 6.5.3 - Power Auger [ ] 6.5.4 - Machine Excavated Other:_____

Site Identity	Sample	Co-ordinates MGA GDA94 z55	Depth to Top of Layer (m)	Depth to Bottom of Layer (m)	Classification (AS1726:2017 Table 9 & 10)	Soil Name (BLOCK LETTERS)	Grain Size (Fine / Coarse)	Primary Colour	Mottle Colour	Plasticity	Consistency (Cohesive soils)	Relative Density (Non-cohesive)	Moisture	Soil Origin	Comments (Coarse Fragments, Size, %, Structure (Zoning, Defects, Cementing etc.))
Y4	Y4	547855E, 6189842N	0.0	0.5	CH	Silty Clay	F	BR	-	M	St	-	D	FILL	DUPLICATED
Y5	Y5	547882E, 6189800N	0.0	0.5	CH	Silty Clay	F	BR	-	M	St	-	D	FILL	-
Y6	Y6	547885E, 6189841N	0.0	0.5	CH	Silty Clay	F	BR	-	M	St	-	D	FILL	-
H1	H1	547764E, 6189949N	0.0	0.5	CH	Silty Clay	F	+B	-	M	F	-	D	FILL	-
H2	H2	547757E, 6189891N	0.0	0.5	CH	Silty Clay	F	+B	-	M	F	-	D	FILL	-
H3	H3	547749E, 6189831N	0.0	0.5	CH	Silty Clay	F	+B	-	M	F	-	D	FILL	-
D1	D1	547911E, 6189915N	0.0	0.3	PT	Peat	F	Bl,B	-	M	St	-	W	Alluvial	-
D2	D2	547908E, 6189942N	0.0	0.3	OH	Silty Clay	F	G,Bl	-	M	VSt	-	D	Alluvial	-

Attachment F : *PID calibration certificate*

09/2019

Landfill Gas Detector

Instrument	**GEM2000**
Serial No.	**GM13360**
Sensors	**CH4,CO2,O2,H2S,CO**

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Pump	Operation	✓	
	Filter	✓	
	Flow	✓	
	Valves, Diaphragm	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	CH4	✓	
	CO2	✓	
	O2	✓	
	H2S	✓	
	CO	✓	
Alarms	Settings	✓	
Software	Version		
Datalogger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle Lot No	Instrument Reading
O2		20.9% Vol O2		Fresh Air	20.8% O2
CH4		60% CH4	NATA	SY244	59.8% CH4
CO2		40% CO2	NATA	SY244	39.7% CO2
CO		95ppm CO	NATA	SY174	98ppm CO
H2S		25ppm H2S	NATA	SY174	26ppm H2S

Calibration Done By: Sarah Lian

Sarah Lian

Calibration date: 3/09/2019

Next calibration due: 1/03/2020

Attachment G : *Laboratory reports 6302*

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1935731**	Page	: 1 of 13
Client	: **DM MCMAHON PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Zach Bradley	Contact	: Customer Services ES
Address	: 6 JONES ST Wagga Wagga NSW, AUSTRALIA 2650	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 0269310511	Telephone	: +61-2-8784 8555
Project	: Temora Saleyards	Date Samples Received	: 30-Oct-2019 11:45
Order number	: 6302	Date Analysis Commenced	: 31-Oct-2019
C-O-C number	: ----	Issue Date	: 06-Nov-2019 19:12
Sampler	: Zach Bradley		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 19		
No. of samples analysed	: 19		

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*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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.

- EP071: LOR of sample raised due to the high moisture content present.
- EP071: Results of sample D2 have been confirmed by re-extraction and re-analysis.
- EP068: LOR for sample raised due to the high amount of moisture present.
- EP068: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP066 : Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Y1	Y2	Y3	Y4	Y5
			Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1935731-001	ES1935731-002	ES1935731-003	ES1935731-004	ES1935731-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	2.5	1.5	1.7	3.0	1.7
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	9	9	6	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	19	21	20	27	23
Copper	7440-50-8	5	mg/kg	14	15	10	11	10
Lead	7439-92-1	5	mg/kg	9	10	9	8	8
Nickel	7440-02-0	2	mg/kg	7	8	6	8	7
Zinc	7440-66-6	5	mg/kg	53	270	27	19	21
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Y1	Y2	Y3	Y4	Y5
			Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1935731-001	ES1935731-002	ES1935731-003	ES1935731-004	ES1935731-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
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
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	**112**	**95.4**	**129**	**122**	**116**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**108**	**105**	**109**	**120**	**113**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**70.2**	**76.0**	**70.6**	**86.4**	**68.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Y6	H1	H2	H3	T1
			Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1935731-006	ES1935731-007	ES1935731-008	ES1935731-009	ES1935731-010
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	----	----	----	----	1.3
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	2.9	2.5	1.5	2.0	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	9	7	9	14
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	22	25	21	35	17
Copper	7440-50-8	5	mg/kg	9	11	10	12	15
Lead	7439-92-1	5	mg/kg	8	12	8	10	7
Nickel	7440-02-0	2	mg/kg	5	7	6	7	7
Zinc	7440-66-6	5	mg/kg	16	20	26	22	19
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<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	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Y6	H1	H2	H3	T1
			Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1935731-006	ES1935731-007	ES1935731-008	ES1935731-009	ES1935731-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----
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	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	----	----	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	----	----	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	----	<100
C29 - C36 Fraction	----	100	mg/kg	----	----	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	----	<50

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Y6	H1	H2	H3	T1
				Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1935731-006	ES1935731-007	ES1935731-008	ES1935731-009	ES1935731-010
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		----	----	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	----	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		----	----	----	----	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		----	----	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		----	----	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	----	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		----	----	----	----	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		----	----	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**115**	**121**	**109**	**116**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**101**	**102**	**126**	**122**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**62.3**	**81.4**	**126**	**125**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	**119**
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	**117**
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	**120**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T2	T3	T4	T5	W1
			Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit	ES1935731-011	ES1935731-012	ES1935731-013	ES1935731-014	ES1935731-015
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	1.3	1.5	5.4	2.5	1.4
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	9	9	<5	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	16	15	20	26	17
Copper	7440-50-8	5	mg/kg	18	18	44	12	37
Lead	7439-92-1	5	mg/kg	8	7	9	13	14
Nickel	7440-02-0	2	mg/kg	10	10	30	6	7
Zinc	7440-66-6	5	mg/kg	77	41	18	18	284
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
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	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<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
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T2	T3	T4	T5	W1
				Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00
Compound	CAS Number	LOR	Unit		ES1935731-011	ES1935731-012	ES1935731-013	ES1935731-014	ES1935731-015
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ **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
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**113**	**124**	**114**	**114**	**119**
Toluene-D8	2037-26-5	0.2	%		**109**	**126**	**117**	**117**	**117**
4-Bromofluorobenzene	460-00-4	0.2	%		**108**	**124**	**114**	**116**	**116**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	W2	D1	D2	D	----
			Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit	ES1935731-016	ES1935731-017	ES1935731-018	ES1935731-019	--------
				Result	Result	Result	Result	----
EA055: Moisture Content								
Moisture Content	----	1.0	%	**3.0**	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	**79.3**	**3.2**	**2.4**	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**5**	**6**	**14**	**6**	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg	**15**	**32**	**22**	**26**	----
Copper	7440-50-8	5	mg/kg	**40**	**84**	**60**	**13**	----
Lead	7439-92-1	5	mg/kg	**6**	**10**	**12**	**9**	----
Nickel	7440-02-0	2	mg/kg	**8**	**15**	**24**	**9**	----
Zinc	7440-66-6	5	mg/kg	**138**	**622**	**230**	**21**	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.2	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.08	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
Endrin	72-20-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.06	<0.25	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	<0.15	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	W2	D1	D2	D	----
				Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1935731-016	ES1935731-017	ES1935731-018	ES1935731-019	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.3	<1.0	<0.2	----	
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.3	<1.0	<0.2	----	
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	<0.08	<0.05	----	
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	<0.05	<0.08	<0.05	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.3	<1.0	<0.2	----	
Dimethoate	60-51-5	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Diazinon	333-41-5	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.3	<1.0	<0.2	----	
Malathion	121-75-5	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Fenthion	55-38-9	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Parathion	56-38-2	0.2	mg/kg	----	<0.3	<1.0	<0.2	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Ethion	563-12-2	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.06	<0.25	<0.05	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----	
C10 - C14 Fraction	----	50	mg/kg	<50	<60	<50	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	<110	**310**	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	**380**	**830**	----	----	
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	**380**	**1140**	----	----	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	W2	D1	D2	D	----
				Client sampling date / time	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	29-Oct-2019 00:00	----
Compound	CAS Number	LOR	Unit		ES1935731-016	ES1935731-017	ES1935731-018	ES1935731-019	--------
					Result	Result	Result	Result	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<60	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	**380**	**790**	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	**220**	**750**	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	**600**	**1540**	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<60	<50	----	----
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	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<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	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**75.4**	**78.3**	**105**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**89.6**	**132**	**118**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**67.4**	**107**	**70.2**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**120**	**77.6**	**113**	----	----
Toluene-D8	2037-26-5	0.2	%		**121**	**79.4**	**98.0**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**115**	**78.2**	**108**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
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

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1935731**	Page	: 1 of 14
Client	: **DM MCMAHON PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Zach Bradley	Contact	: Customer Services ES
Address	: 6 JONES ST Wagga Wagga NSW, AUSTRALIA 2650	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 0269310511	Telephone	: +61-2-8784 8555
Project	: Temora Saleyards	Date Samples Received	: 30-Oct-2019
Order number	: 6302	Date Analysis Commenced	: 31-Oct-2019
C-O-C number	: ----	Issue Date	: 06-Nov-2019
Sampler	: Zach Bradley		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 19		
No. of samples analysed	: 19		

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*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by 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: 2675688)									
ES1934326-092	Anonymous	EG005T: Copper	7440-50-8	5	mg/kg	15	15	0.00	No Limit
ES1934326-092	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	9	52.8	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	13	19.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	73	46	45.4	0% - 50%
ES1935724-013	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	10	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	8	18.1	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	16	12.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	13	13.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	43	50	15.2	0% - 50%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2675690)									
ES1935731-010	T1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	17	17	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	16	8.58	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	16	8.12	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	7	7	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	19	19	0.00	No Limit
ES1935880-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	8	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	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: 2675690) - continued									
ES1935880-001	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	14	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	23	23	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	62	63	0.00	0% - 50%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2681252)									
ES1934326-059	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	13	12	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	38	43	13.1	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	114	128	12.3	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	126	130	3.26	0% - 20%
ES1935852-003	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2675692)									
ES1935413-038	Anonymous	EA055: Moisture Content	----	0.1	%	10.2	10.4	1.92	0% - 50%
ES1935731-003	Y3	EA055: Moisture Content	----	0.1	%	1.7	1.8	6.31	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2675693)									
ES1935731-012	T3	EA055: Moisture Content	----	0.1	%	1.5	1.7	8.00	No Limit
ES1935880-004	Anonymous	EA055: Moisture Content	----	0.1	%	11.9	12.8	7.16	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2681263)									
ES1935753-001	Anonymous	EA055: Moisture Content	----	0.1	%	39.2	42.5	8.06	0% - 20%
ES1935976-005	Anonymous	EA055: Moisture Content	----	0.1	%	2.7	2.6	0.00	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2675689)									
ES1934326-092	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1935724-013	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2674471)									
EW1904688-010	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EW1904688-003	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2674482)									
ES1935745-013	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1935745-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2674470)									
EW1904688-010	Anonymous	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: 2674470) - continued									
EW1904688-010	Anonymous	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
EW1904688-003	Anonymous	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: 2674470) - continued									
EW1904688-003	Anonymous	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2674483)									
ES1935745-013	Anonymous	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
ES1935745-002	Anonymous	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

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: 2674483) - continued									
ES1935745-002	Anonymous	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
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2674470)									
EW1904688-010	Anonymous	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
EW1904688-003	Anonymous	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

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: 2674470) - continued									
EW1904688-003	Anonymous	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
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2674483)									
ES1935745-013	Anonymous	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
ES1935745-002	Anonymous	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

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: 2674483) - continued									
ES1935745-002	Anonymous	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
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2674251)									
ES1935731-010	T1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1935745-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2674481)									
ES1935745-013	Anonymous	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
ES1935745-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	110	100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2674251)									
ES1935731-010	T1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1935745-003	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: 2674481)									
ES1935745-013	Anonymous	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
ES1935745-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	120	130	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: BTEXN (QC Lot: 2674251)									
ES1935731-010	T1	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
ES1935745-003	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

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: 2675688)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.2	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	93.2	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	100	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	100	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	104	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	109	80.0	122
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2675690)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	91.8	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.5	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	101	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.9	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	100.0	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	105	80.0	122
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2681252)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	116	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	108	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	106	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	108	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	110	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	113	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	113	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2675689)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	81.4	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2674471)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	107	62.0	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2674482)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	94.0	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2674470)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	67.0	119

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: 2674470) - continued								
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	100	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	85.8	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	81.6	54.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2674483)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.3	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	79.2	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.6	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	64.0	122

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: 2674483) - continued								
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	79.4	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2674470)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.4	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.5	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	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	95.2	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	87.2	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	85.4	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.8	41.0	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2674483)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	89.9	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	80.7	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	78.2	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.9	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.7	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.7	68.0	120

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
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2674483) - continued								
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	76.5	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	61.6	41.0	123
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2674251)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	108	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2674481)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	94.9	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	93.0	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	95.5	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2674251)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	107	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2674481)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	92.0	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	105	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	75.8	63.0	131
EP080: BTEXN (QCLot: 2674251)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	108	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	100	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	99.5	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.2	63.0	119

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: 2675688)							
ES1934326-092	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.4	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	99.0	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	90.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	99.8	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	99.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.9	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*
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2675690)							
ES1935880-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	90.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	100	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	98.6	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	98.6	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: 2681252)							
ES1934326-059	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	108	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	108	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	101	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	103	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2675689)							
ES1934326-092	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	88.4	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2674471)							
EW1904688-003	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	101	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2674482)							
ES1935745-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	100.0	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2674470)							
EW1904688-003	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	116	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	109	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	118	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	101	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	89.8	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	87.5	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2674483)							
ES1935745-002	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	89.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	92.4	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	88.9	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	89.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	84.6	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	83.1	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2674470)							
EW1904688-003	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	115	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
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2674470) - continued							
EW1904688-003	Anonymous	EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	99.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	90.6	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	92.7	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	85.8	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2674483)							
ES1935745-002	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	105	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	83.1	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	82.2	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	78.4	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	105	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2674251)							
ES1935731-010	T1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	108	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2674481)							
ES1935745-002	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	108	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	117	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	114	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2674251)							
ES1935731-010	T1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	107	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2674481)							
ES1935745-002	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	98.6	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	111	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	107	52.0	132
EP080: BTEXN (QCLot: 2674251)							
ES1935731-010	T1	EP080: Benzene	71-43-2	2.5 mg/kg	101	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	103	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	99.0	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	98.5	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	84.9	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1935731**	Page	: 1 of 6
Client	: **DM MCMAHON PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Zach Bradley	Telephone	: +61-2-8784 8555
Project	: Temora Saleyards	Date Samples Received	: 30-Oct-2019
Site	: ----	Issue Date	: 06-Nov-2019
Sampler	: Zach Bradley	No. of samples received	: 19
Order number	: 6302	No. of samples analysed	: 19

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **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							
Soil Glass Jar - Unpreserved (EA055)							
T1, T2, T3, T4, T5, W1, W2	**29-Oct-2019**	**----**	----	----	**31-Oct-2019**	12-Nov-2019	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
D	**29-Oct-2019**	**----**	----	----	**04-Nov-2019**	12-Nov-2019	✓
Soil Glass Jar - Unpreserved (EA055)							
Y1, Y2, Y3, Y4, Y5, Y6, H1, H2, H3, D1, D2	**29-Oct-2019**	**----**	----	----	**31-Oct-2019**	12-Nov-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
D	**29-Oct-2019**	**04-Nov-2019**	26-Apr-2020	✓	**04-Nov-2019**	26-Apr-2020	✓
Soil Glass Jar - Unpreserved (EG005T)							
Y1, Y2, Y3, Y4, Y5, Y6, H1, H2, H3, T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**31-Oct-2019**	26-Apr-2020	✓	**31-Oct-2019**	26-Apr-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
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**31-Oct-2019**	26-Nov-2019	✓	**01-Nov-2019**	26-Nov-2019	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
Y1, Y2, Y3, Y4, Y5, Y6, H1, H2, H3	**29-Oct-2019**	**01-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	11-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP066)							
D1, D2, D	**29-Oct-2019**	**02-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Dec-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
Y1, Y2, Y3, Y4, Y5, Y6, H1, H2, H3	**29-Oct-2019**	**01-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	11-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP068)							
D1, D2, D	**29-Oct-2019**	**02-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Dec-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
Y1, Y2, Y3, Y4, Y5, Y6, H1, H2, H3	**29-Oct-2019**	**01-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	11-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP068)							
D1, D2, D	**29-Oct-2019**	**02-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Dec-2019	✓

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 (EP071)							
T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**02-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP080)							
T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**31-Oct-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Nov-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**02-Nov-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Dec-2019	✓
Soil Glass Jar - Unpreserved (EP080)							
T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**31-Oct-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Nov-2019	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
T1, T2, T3, T4, T5, W1, W2, D1, D2	**29-Oct-2019**	**31-Oct-2019**	12-Nov-2019	✓	**04-Nov-2019**	12-Nov-2019	✓

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)							
Moisture Content	EA055	6	60	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	4	30	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	7	60	**11.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Pesticides by GCMS	EP068	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	30	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**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
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 (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
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 (2013) 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 (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D 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 (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
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 (2013) Schedule B(3) (Method 202)
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

McMahon EARTH SCIENCE

DM McMahon Pty Ltd
PO Box 6218
6 Jones St, Wagga Wagga NSW 2650
Ph: (02) 69 310 510

Turnaround Requirements: ☑ Standard TAT ☐ Non Standard or Urgent TAT (List Due Date):

Relinquished by:	Zach Bradley
Date:	29/10/2019
Signature:	
Received by:	FADI
Date:	
Signature:	30/10/19 11:45
Relinquished by:	
Date:	
Signature:	
Received by:	
Date:	
Signature:	

Analysing Laboratory:	ALS -Sydney
Project:	Temora Saleyards
Order No.:	6302
Project Manager:	Zach Bradley
Contact Ph:	(02) 69 310 510
Sampling Officer:	Z.Bradley
Report Format:	Default
Email Reports to:	admin@dmmcmahon.com.a
cc:	zach@dmmcmahon.com.au
Email Invoice to:	admin@dmmcmahon.com.a
Lab Comments:	

For Laboratory Use Only (Circle)

Custody Seal Intact	Yes	No	N/A
Free ice / Frozen ice bricks present upon sample	Yes		N/A
Random sample temp on receipt:			°C
Other comments:			

QUOTE NO.: EN / 222 / 18

COC SEQUENCE NUMBER

COC: 1 2 3 4 5 6 7 8
OF: 1 2 3 4 5 6 7 8

LAB USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED including filtration (where metals are required, specify Total or Dissolved)								Additional Information
LAB ID	SAMPLE ID	DATE/TIME	MATRIX (ref below)	TYPE & PRESERVATIVE (see codes below)	TOTAL CONTAINERS	S - 1	S - 13	S - 5						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	Y1	29/10/2019	Soil	Glass Jar	1	X	X							
2	Y2	29/10/2019	Soil	Glass Jar	1	X	X							
3	Y3	29/10/2019	Soil	Glass Jar	1	X	X							
4	Y4	29/10/2019	Soil	Glass Jar	1	X	X							
5	Y5	29/10/2019	Soil	Glass Jar	1	X	X							
6	Y6	29/10/2019	Soil	Glass Jar	1	X	X							
7	H1	29/10/2019	Soil	Glass Jar	1	X	X							
8	H2	29/10/2019	Soil	Glass Jar	1	X	X							
9	H3	29/10/2019	Soil	Glass Jar	1	X	X							
10	T1	29/10/2019	Soil	Glass Jar	1			X						
				TOTAL	10									

Environmental Division
Sydney
Work Order Reference
ES1935731

Telephone : + 61-2-8784 8555

Matrix
W- Water; S - Soil;
Sed - Sediment; Sl - Sludge;
A - Air; D - Dust.

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

McMahon EARTH SCIENCE

DM McMahon Pty Ltd
PO Box 6118
6 Jones St, Wagga Wagga NSW 2650
Ph: (02) 69 310 510

Turnaround Requirements: ☑ Standard TAT ☐ Non Standard or Urgent TAT (List Due Date):

Analysing Laboratory: ALS -Sydney
Project: Temora Saleyards
Order No.: 6302
Project Manager: Zach Bradley
Contact Ph: (02) 69 310 510
Sampling Officer: Z.Bradley
Report Format: Default
Email Reports to: admin@dmmcmahon.com.a
cc: zach@dmmcmahon.com.au
Email Invoice to: admin@dmmcmahon.com.a

For Laboratory Use Only (Circle)
Custody Seal Intact? Yes No N/A
Freeze/Frozen ice bricks present upon sample Yes No N/A
Random sample temp on receipt: °C
Other comments:

QUOTE NO.: EN / 222 / 18

COC SEQUENCE NUMBER
COC: 1 2 3 4 5 6 7 8
OF: 1 2 3 4 5 6 7 8

Relinquished by: Zach Bradley
Date: 29/10/2019
Signature:

Received by:
Date:
Signature: 30/10/19 11:45

Relinquished by:
Date:
Signature:

Received by:
Date:
Signature:

Lab Comments:

LAB USE	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED (including suites) (where metals are required, specify Total or Dissolved)								Additional Information
LAB ID	SAMPLE ID	DATE/TIME	MATRIX (ref below)	TYPE & PRESERVATIVE (see codes below)	TOTAL CONTAINERS	S - 1	S - 13	S - 5						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
11	T2	29/10/2019	Soil	Glass Jar	1			X						
12	T3	29/10/2019	Soil	Glass Jar	1			X						
13	T4	29/10/2019	Soil	Glass Jar	1			X						
14	T5	29/10/2019	Soil	Glass Jar	1			X						
15	W1	29/10/2019	Soil	Glass Jar	1			X						
16	W2	29/10/2019	Soil	Glass Jar	1			X						
17	D1	29/10/2019	Soil	Glass Jar	1	X	X	X						
18	D2	29/10/2019	Soil	Glass Jar	1	X	X	X						
19	D	29/10/2019	Soil	Glass Jar	1	X	X							
				TOTAL	9									

Matrix
W- Water; S - Soil;
Sed - Sediment; Sl - Sludge;
A - Air; D - Dust.

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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1935731**

Client	: **DM MCMAHON PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Zach Bradley	Contact	: Customer Services ES
Address	: 6 JONES ST Wagga Wagga NSW, AUSTRALIA 2650	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: admin@dmmcmahon.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: 0269310511	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: Temora Saleyards	Page	: 1 of 3
Order number	: 6302	Quote number	: EB2017DMMCMA0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Zach Bradley		

Dates

Date Samples Received	: 30-Oct-2019 11:45	Issue Date	: 30-Oct-2019
Client Requested Due Date	: 06-Nov-2019	Scheduled Reporting Date	: **06-Nov-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 18.4'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 19 / 19

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
- **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.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- 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: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-01 7 Metals (incl. Digestion)	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-13 OC/OP/PCB
ES1935731-001	29-Oct-2019 00:00	Y1	✓	✓		✓
ES1935731-002	29-Oct-2019 00:00	Y2	✓	✓		✓
ES1935731-003	29-Oct-2019 00:00	Y3	✓	✓		✓
ES1935731-004	29-Oct-2019 00:00	Y4	✓	✓		✓
ES1935731-005	29-Oct-2019 00:00	Y5	✓	✓		✓
ES1935731-006	29-Oct-2019 00:00	Y6	✓	✓		✓
ES1935731-007	29-Oct-2019 00:00	H1	✓	✓		✓
ES1935731-008	29-Oct-2019 00:00	H2	✓	✓		✓
ES1935731-009	29-Oct-2019 00:00	H3	✓	✓		✓
ES1935731-010	29-Oct-2019 00:00	T1	✓		✓	
ES1935731-011	29-Oct-2019 00:00	T2	✓		✓	
ES1935731-012	29-Oct-2019 00:00	T3	✓		✓	
ES1935731-013	29-Oct-2019 00:00	T4	✓		✓	
ES1935731-014	29-Oct-2019 00:00	T5	✓		✓	
ES1935731-015	29-Oct-2019 00:00	W1	✓		✓	
ES1935731-016	29-Oct-2019 00:00	W2	✓		✓	
ES1935731-017	29-Oct-2019 00:00	D1	✓	✓	✓	✓
ES1935731-018	29-Oct-2019 00:00	D2	✓	✓	✓	✓
ES1935731-019	29-Oct-2019 00:00	D	✓	✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ZACH

- *AU Certificate of Analysis - NATA (COA)	Email	zach@dmmcmahon.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	zach@dmmcmahon.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	zach@dmmcmahon.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	zach@dmmcmahon.com.au
- Chain of Custody (CoC) (COC)	Email	zach@dmmcmahon.com.au
- EDI Format - ENMRG (ENMRG)	Email	zach@dmmcmahon.com.au
- EDI Format - XTab (XTAB)	Email	zach@dmmcmahon.com.au

Zach Bradley

- *AU Certificate of Analysis - NATA (COA)	Email	admin@dmmcmahon.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	admin@dmmcmahon.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	admin@dmmcmahon.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	admin@dmmcmahon.com.au
- A4 - AU Tax Invoice (INV)	Email	admin@dmmcmahon.com.au
- Chain of Custody (CoC) (COC)	Email	admin@dmmcmahon.com.au
- EDI Format - ENMRG (ENMRG)	Email	admin@dmmcmahon.com.au
- EDI Format - XTab (XTAB)	Email	admin@dmmcmahon.com.au