Appendix 5 - Site Contamination Risk Report (ES&D)

Preliminary Site Investigation

(Tender Doc -

Contamination Risk Assessment)

Boyer Road Precinct Structural Plan Area

Project No: 9420

Date: 15/11/2024

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1 Introduction

Environmental Service and Design (ES&D) were commissioned their client Homes Dyer to undertake a Preliminary Site Investigation (PSI) on the proposed development at Boyer Road Precinct Structural Plan Area . Stage 1 being the subdivision. The site may have triggered the potentially contaminated land code due to the need to check.

The objective of the PSI was to conduct a site inspection and collate site historical information to determine whether activities have occurred on or near the site which may result in contamination of the land and if so, whether the level of risk will increase with the proposed or future development.

C14.5 Use Standards

For a sensitive use, or a specified use listed in Table C14.1, the Director, or a person approved by the Director for the purpose of this code:

(a) certifies that land is suitable for the intended use; or

(b) certifies a plan to manage contamination and associated risk to human health or the environment, so that the land is suitable for the intended use,

C14.7 Development Standards for Subdivision:

For subdivision of land, the Director, or a person approved by the Director for the purpose of this code:

(a) certifies that the land is suitable for the intended use or development; or

(b) certifies a plan to manage contamination and associated risk to human health or the environment, so that the subdivision does not adversely impact on human health or the environment and is suitable for its intended use or development.

The preliminary site investigation was prepared by Rod Cooper and Assessed/Certified by Richard Evans, CEnvP Site Contamination.

The CSM was used to identify sources and pathways to the receptors. The conclusion of the risk assessment is that there are no sources of contamination on or near the site. The risk is acceptable for the development to occur. There is an old sheep dip on the site, although no contamination was detected the area will be remediated for residential development.

2 Scope of Works

The scope of the preliminary site investigation included:

- Desktop review of the site and surrounding land use history;
- Determination of potential contaminants of concern;
- Field investigations and site visit;
- Consideration of the site's environmental settings;
- Identification of potential human and ecological receptors and consideration of risks to identified receptors;
- Development of a Conceptual Site Model (CSM); and,
- Site sampling plan, sample and dispatch to a NATA Laboratory.
- Preparation of the assessment report.

3 Basis for Assessment

As a State Policy for the purposes of State policies and Procedures Act 1993, the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (NEPM) was the guideline used for the assessment.

The assessment included elements of a Preliminary Environmental Site Assessment as defined in NEPM Schedule B2. NEPM advises that if a thorough preliminary investigation shows a history of non-contaminating activities and there is no other evidence or suspicion of contamination, further investigation is not required (Schedule B2 and Section 2.1).

Even so site samples were taken to show there is no contamination.

4 Information Sources

- (the LIST) Land Information System Tasmania (www.thelist.tas.gov.au), accessed 12/11/2024;
- (GIP) DPIPWE Groundwater Information Poral (hhtp://wrt.tas.gov.au/groundwater-info);
- Brighton Planning Scheme (www.iplan.tas.gov.au), accessed 12/11/2024;
- National Environment Protection (assessment of Site Contamination) Amendment Measure 2013 (no. 1).
- Google Earth Pro, accessed 12/11/2024
- Site visit and interviews.

5 Site Details

5.1 Site Identification

Figure 1 Site location

Figure 2 Proposed Development

5.2 Zoning

The site is currently zoned “Future Urban” (Tasmania Planning Scheme,

Assessment of the Environmental Issues it is noted that the zoning covers some vegetation (outside the project scope that contains rare and endangered vegetation. Figure 4 shows the titles and PI’s of the development scope.

The Boyer Road Precinct Structure Plan area ('the site') is made up of the following titles:

- Boyer Road, Bridgewater (CT 44724/2)
- 170 Boyer Road, Bridgewater (CT 44724/9)
- 31 Cobbs Hill Road, Bridgewater (part of) (CT 152364/2)
- 29 Cobbs Hill Road, Bridgewater (part of) (CT 135574/1)
- 25 Cobbs Hill Road, Bridgewater (part of) (CT 135574/2)
- 50 Boyer Road, Bridgewater (CT 44724/8)

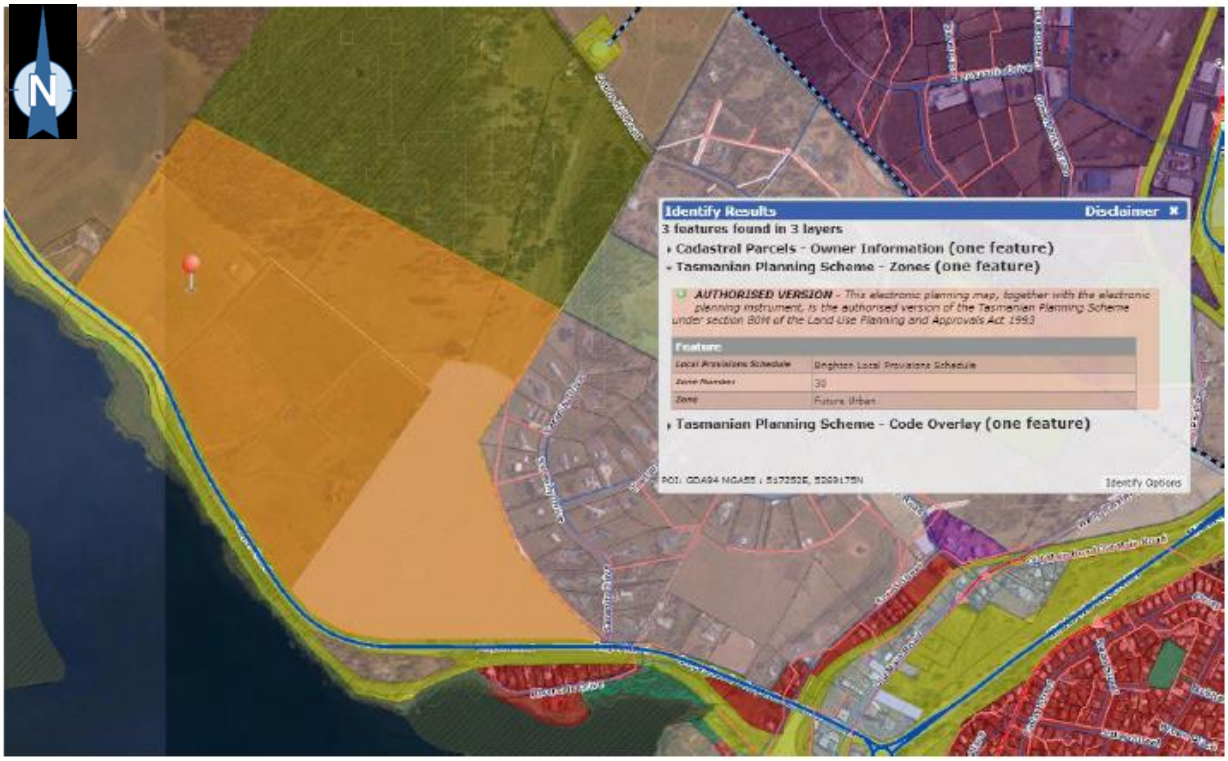


Figure 3: Zoning – Future Urban

6 Site Description

The subject site for "future urban development". The site is essentially rural land that has always been rural land. It is on the banks of the Derwent. Groundwater flows to the Derwent off the site and under the rail and road infrastructure. ASS assessment from thelist confirms there is no acid Sulphate soil onsite. Sampling has confirmed there is no ASS,

Several rural residents are on the site and infrastructure associated into the Derwent River.

7 Geology, Hydrology and Hydrogeology

7.1 Topography

A review of Google Earth indicates a slope up to the north with elevations around 10 m AHD at the southern end of the site and 50 m AHD at the north.

7.2 Surface Water

The nearest major surface water body is the Derwent River at the southern boundary. The subdivision design highlights the series if water features if small dams and creeks down the hill to the river. The surface water system is well developed.

7.3 Regional Geology

The Mineral Resources Tasmania Digital Geological Atlas, 1:25,000 Series, the site is located on Triassic-Jurassic Age with Basic Igneous Rock. The Northers section transitions to Carboniferous-Permian with Sedimentary argillaceous.

7.4 Regional Hydrogeology

Groundwater is likely to flow towards the Derwent River. As the hydrogeology is not complex and contamination was not detected, detailed assessment was not required.

7.5 Acid Sulphate Soils

Review of the LIST (Land Information System Tasmania) shows that the site is north impacted by any form of ASS. Sampling was conducted of site soils (Sample #3) and confirmation that the soil is not ASS.

8 Site History

The following information has been reviewed to determine the historical land use and assess the likelihood of potentially contaminating activities occurring on the site:

- Anecdotal information; and
- Historical aerial photographs
- Worksafe Tasmania Dangerous Goods Registers for the area.

A full historic title search was not deemed necessary after reviewing other documents and conducting interviews. WorkSafe Tasmania Dangerous Goods Records were completed for all properties in the area.

Figure 4 Site (Green) Proximity to the Paper Mill (Red)

8.1 Historical Aerial photography

A review of historical aerial photographs available on the LIST and Google Earth was undertaken to identify any historical potentially contaminating land uses in the area. Photos from 1969, 1970, 1980, 1996 and 2006 are shown in (Figure 5 -Figure -9) below.

Figure 5: Aerial 1969 (Source: TheLIST) Brickworks.

Figure 6: Aerial 1970 (Source: TheLIST) Brickworks

Figure 7: Aerial 1980(Source: TheLIST)

Figure 8: Aerial 1996 (Source: TheLIST)

Figure 9: Aerial 2006 (Source: TheLIST)

9 Site History Summary

The site is currently farm land with farm houses and some bush at the esge of the proposed development. The site has always been farmland, the historic photos were assessed and no features were detected of concern.

There are rare and endangered species nearby. Site visit clarified there were no contamination issues apart from a sheep dip area.

10 Potential Site Contamination

10.1 Onsite contamination

The site was found to not contain contamination. The rail lines are not on or near the site and historic photo's and worksafe documentation indicate no sources on or near the site.

The remains of a sheep dip area was found and the analysis indicates that there is no residual contamination, even so it will require remediation. Sample (#13) was moved to the sheep dip area and no contamination was detected.

10.2 Offsite Sources

There are some commercial based businesses nearby, but nothing that constitutes an offsite source of contamination based on worksafe documentation and observation. 2-4 Cobbs Hill Road is a Council Depot with a UPSS. This was assessed to be too farr away and not up gradient of the site.

11 Site Visit

A site inspection by Environmental Service and Design representatives occurred on the 1st of November 2024. The whole site was assessed and the sample plan was used and samples taken. Ten soil samples (+ Duplicate and Rinsate) were taken across the site from 10 separate hand bore holes, as per the sampling plan except that Sample (#13) was moved to sample the sheep dip area.

12 Results

The results from the soil testing are shown below in Table 1 & 2. All samples had acceptable metals concentrations. OC/OP analysis found no organochlorides or Organophosphates. Acid Sulphate Soil assessment confirmed that there were no ASS.

Project name/number:			25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024	25/10/2024	NEPM
			#1	#6	#7	#3	#8	#10	#11	#12	#13	#14	Residential
													HIL's
Total Metals													
Arsenic	mg/kg	5	8	<5	<5	<5	<5	<5	<5	<5	9	<5	100
Cadmium	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	20
Chromium	mg/kg	2	16	45	32	26	26	24	20	9	14	6	100
Copper	mg/kg	5	5	13	20	9	35	13	16	6	7	8	6000
Lead	mg/kg	5	18	10	15	10	10	10	11	19	27	13	300
Nickel	mg/kg	2	5	20	14	11	20	11	9	4	6	3	400
Zinc	mg/kg	5	51	54	77	52	57	45	47	54	98	37	7400
Total Recoverable Mercury by FIMS													
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	40
Organochlorine Pesticides (OC)													
alpha-BHC	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Hexachlorobenzene (HCB)	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
beta-BHC	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
gamma-BHC - (Lindane)	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
delta-BHC	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Heptachlor	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Aldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Total Chlordane (sum)	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
trans-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
alpha-Endosulfan	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
cis-Chlordane	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
4.4`-DDE	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	10
Endosulfan (sum)	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	270
beta-Endosulfan	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
4.4`-DDD	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulfan sulfate	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
4.4`-DDT	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Endrin ketone	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methoxychlor	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	300
Sum of DDD + DDE + DDT	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	240
Sum of Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6
Organophosphorus Pesticides (OP)													
Dichlorvos	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Demeton-S-methyl	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Monocrotophos	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Dimethoate	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Diazinon	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorpyrifos-methyl	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Parathion-methyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Malathion	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fenthion	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorpyrifos	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Parathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Bromophos-ethyl	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fenamiphos	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Prothiofos	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Ethion	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Carbophenothion	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Azinphos Methyl	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	

Table 1: Soil test results -Metals /OC/OP

Project name/number:			25/10/2024
Analyte grouping/Analyte	Units	LOR	#3
EA003 :pH (field/fox)			
pH (F)	pH Unit	0.1	6.2
pH (Fox)	pH Unit	0.1	2.7
Reaction Rate	Reaction Unit	1	3
EA029-A: pH Measurements			
pH KCl (23A)	pH Unit	0.1	5.4
pH OX (23B)	pH Unit	0.1	3.2
EA029-B: Acidity Trail			
Titratable Actual Acidity (23F)	mole H+ / t	2	11
Titratable Peroxide Acidity (23G)	mole H+ / t	2	12
Titratable Sulfidic Acidity (23H)	mole H+ / t	2	<2
sulfidic - Titratable Actual Acidity (s-23F)	% pyrite S	0.02	<0.020
sulfidic - Titratable Peroxide Acidity (s-23G)	% pyrite S	0.02	0.02
sulfidic - Titratable Sulfidic Acidity (s-23H)	% pyrite S	0.02	<0.020
EA029-C: Sulfur Trail			
KCl Extractable Sulfur (23Ce)	% S	0.02	<0.020
Peroxide Sulfur (23De)	% S	0.02	<0.020
Peroxide Oxidisable Sulfur (23E)	% S	0.02	<0.020
acidity - Peroxide Oxidisable Sulfur (a-23E)	mole H+ / t	10	<10
EA029-D: Calcium Values			
KCl Extractable Calcium (23Vh)	% Ca	0.02	0.115
Peroxide Calcium (23Wh)	% Ca	0.02	0.116
Acid Reacted Calcium (23X)	% Ca	0.02	<0.020
acidity - Acid Reacted Calcium (a-23X)	mole H+ / t	10	<10
sulfidic - Acid Reacted Calcium (s-23X)	% S	0.02	<0.020
EA029-E: Magnesium Values			
KCl Extractable Magnesium (23Sm)	% Mg	0.02	0.043
Peroxide Magnesium (23Tm)	% Mg	0.02	0.045
Acid Reacted Magnesium (23U)	% Mg	0.02	<0.020
Acidity - Acid Reacted Magnesium (a-23U)	mole H+ / t	10	<10
sulfidic - Acid Reacted Magnesium (s-23U)	% S	0.02	<0.020
EA029-H: Acid Base Accounting			
ANC Fineness Factor		0.5	1.5
Net Acidity (sulfur units)	% S	0.02	<0.02
Net Acidity (acidity units)	mole H+ / t	10	11
Liming Rate	kg CaCO3/t	1	<1
Net Acidity excluding ANC (sulfur units)	% S	0.02	<0.02
Net Acidity excluding ANC (acidity units)	mole H+ / t	10	11
Liming Rate excluding ANC	kg CaCO3/t	1	<1

13 QA/QC

	25/10/2024	25/10/2024	QA/Variance
	#14	Duplicate 1	
mg/kg	<5	<5	-
mg/kg	<1	<1	-
mg/kg	6	8	5
mg/kg	8	8	7
mg/kg	13	15	12
mg/kg	3	3	2
mg/kg	37	35	36
mg/kg	<0.1	<0.1	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.2	<0.2	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.2	<0.2	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.2	<0.2	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.2	<0.2	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.2	<0.2	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-
mg/kg	<0.05	<0.05	-

14 Potential Receptors

A final Conceptual Site Model (CSM) (Table 3) was developed after consideration of risks to potential human receptors as outlined below.

Future workers involved in the construction of the development were considered in the preliminary CSM, along with subsurface workers and future commercial/industrial site users.

Table 3: Final Conceptual Site Model

Contamination Source	COPC	Pathway	Receptor
Acid sulphate Soil	• Soluble Heavy Metals • Acid	**Dermal and runoff to the environment. Likelihood – low** **Based on the topsoil sampled there is no contaminants of concern**	• EcoSystem • Future users • Construction / subsurface workers
Sheep Dip	Heavy metals As, Cu. • Chemicals OC/OP	**Dermal and runoff to the environment. Soil and groundwater.** **No Contamination Detected** **No contamination detected; likelihood low.**	• EcoSystem • Future users • Construction / subsurface workers
Other Chemical Contamination	• Metals • OC/OP	**Dermal and runoff to the environment. Soil and groundwater.** **No Contamination Detected** **No contamination detected; likelihood low.**	• EcoSystem • Future users • Construction / subsurface workers

15 Soil Sampling

Figure 10 Sample Plan

16 Environmental Impacts

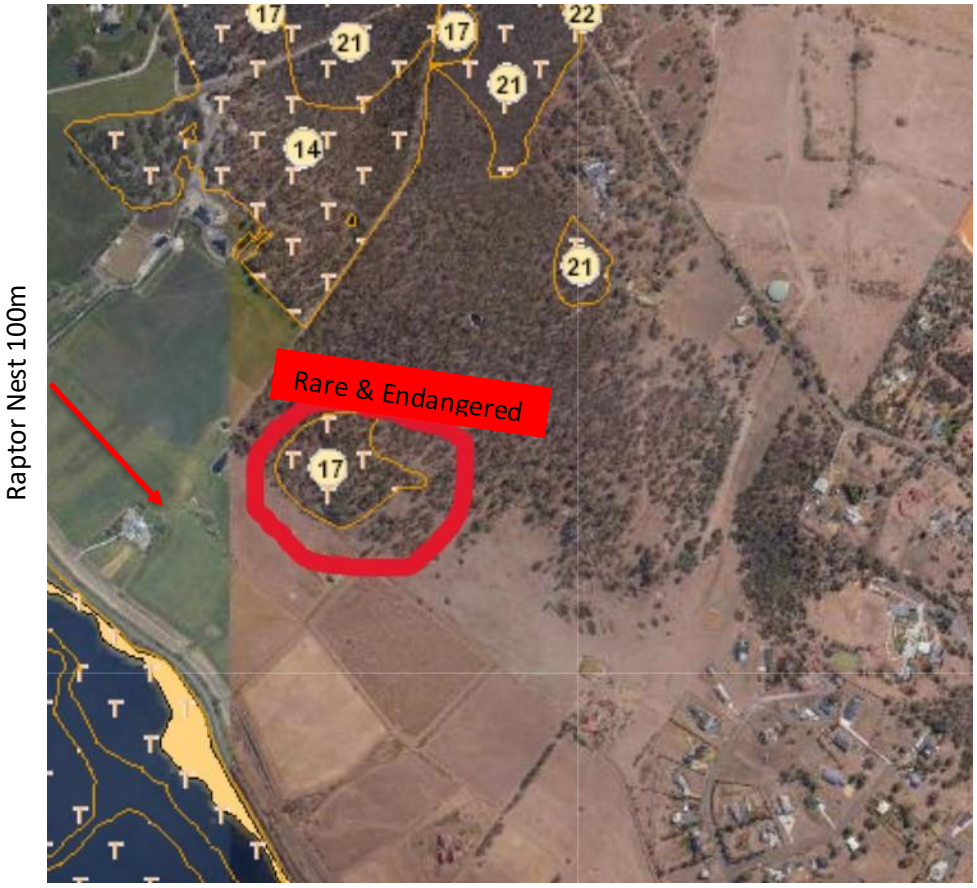


Figure 11 Ecological impacts

17 Conclusions and Recommendations

Environmental Service and Design (ES&D) were commissioned by their client, Homes Dyer, to conduct a Preliminary Site Investigation for the proposed subdivision at Boyer Road Precinct Structural Plan Area .

The results of the preliminary site investigation, based on the site history, soil sampling and desktop assessment. The preliminary site investigation was prepared by Rod Cooper and Assessed/Certified by Richard Evans, CEnvP Site Contamination.

The CSM was used to identify sources and pathways to the receptors. The conclusion of the risk assessment is that there are no sources of contamination on or near the site. The risk is acceptable for the development to occur. There is an old sheep dip on the site, although no contamination was detected the area will be remediated for residential development.

Yours sincerely,

_____

Rod Cooper BSc.,

Principal Consultant ES&D

References

AS 2870 - 2011 Residential Slabs and Footings

Department of Primary Industries, Parks, Water and Environment (DPIPWE) Groundwater Information Access Portal: http://wrt.tas.gov.au/groundwater-info/

EVERARD, J.L. and CALVER, C.R. (compilers) 2006. Digital Geological Atlas 1:25 000 Scale Series. Sheet 3846. Wynyard. Mineral Resources Tasmania.

Land Information System Tasmania (the List): www.thelist.tas.gov.au

National Environmental Protection (Assessment of Site Contamination) Measure, *Guideline on the Investigation Levels for Soil and Groundwater*, Schedule B (1), (1999) as amended 2013

Appendices

Appendix 1 – NATA Certified Results

Appendix 2 – WST Data

CERTIFICATE OF ANALYSIS

Work Order	: **EM2418841**	Page	: 1 of 14
Client	: **ENVIRONMENTAL SERVICE AND DESIGN PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: John Gorrie	Contact	: Hannah White
Address	: 74 Minna Road Heybridge	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: Boyer Road Precinct	Date Samples Received	: 30-Oct-2024 11:35
Order number	: ----	Date Analysis Commenced	: 07-Nov-2024
C-O-C number	: ----	Issue Date	: 15-Nov-2024 15:08
Sampler	: John Gorrie		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 16		
No. of samples analysed	: 12		

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, unless the sampling was conducted by ALS. 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*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract 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.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- ASS: EA029 (SPOCAS): Analysis is performed as per the Acid Sulfate Soils Laboratory Methods Guidelines (2004), 4969.12-2009 Analysis of Acid Sulphate Soil and the updated National Acid Sulfate Soils Guidance: National acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT (2018)
- ASS: EA029 (SPOCAS): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA029 (SPOCAS): Excess ANC not required because pH OX less than 6.5.
- ASS: EA029 (SPOCAS): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from kg/t dry weight to kg/m3 in-situ soil, multiply reported results x wet bulk density of soil in t/m3.
- ASS: EA003 (NATA Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	#1	#3	#6	#7	#8
			Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EM2418841-001	EM2418841-003	EM2418841-006	EM2418841-007	EM2418841-008
				Result	Result	Result	Result	Result
EA003 :pH (field/fox)								
pH (F)	----	0.1	pH Unit	----	**6.2**	----	----	----
pH (Fox)	----	0.1	pH Unit	----	**2.7**	----	----	----
Reaction Rate	----	1	Reaction Unit	----	**3**	----	----	----
EA029-A: pH Measurements								
pH KCl (23A)	----	0.1	pH Unit	----	**5.4**	----	----	----
pH OX (23B)	----	0.1	pH Unit	----	**3.2**	----	----	----
EA029-B: Acidity Trail								
Titratable Actual Acidity (23F)	----	2	mole H+ / t	----	**11**	----	----	----
Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	----	**12**	----	----	----
Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	----	<2	----	----	----
sulfidic - Titratable Actual Acidity (s-23F)	----	0.020	% pyrite S	----	<0.020	----	----	----
sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.020	% pyrite S	----	**0.020**	----	----	----
sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.020	% pyrite S	----	<0.020	----	----	----
EA029-C: Sulfur Trail								
KCl Extractable Sulfur (23Ce)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Sulfur (23De)	----	0.020	% S	----	<0.020	----	----	----
Peroxide Oxidisable Sulfur (23E)	----	0.020	% S	----	<0.020	----	----	----
acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	----	<10	----	----	----
EA029-D: Calcium Values								
KCl Extractable Calcium (23Vh)	----	0.020	% Ca	----	**0.115**	----	----	----
Peroxide Calcium (23Wh)	----	0.020	% Ca	----	**0.116**	----	----	----
Acid Reacted Calcium (23X)	----	0.020	% Ca	----	<0.020	----	----	----
acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Calcium (s-23X)	----	0.020	% S	----	<0.020	----	----	----
EA029-E: Magnesium Values								
KCl Extractable Magnesium (23Sm)	----	0.020	% Mg	----	**0.043**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	#1	#3	#6	#7	#8
			Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EM2418841-001	EM2418841-003	EM2418841-006	EM2418841-007	EM2418841-008
				Result	Result	Result	Result	Result
EA029-E: Magnesium Values - Continued								
Peroxide Magnesium (23Tm)	----	0.020	% Mg	----	**0.045**	----	----	----
Acid Reacted Magnesium (23U)	----	0.020	% Mg	----	<0.020	----	----	----
Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	----	<10	----	----	----
sulfidic - Acid Reacted Magnesium (s-23U)	----	0.020	% S	----	<0.020	----	----	----
EA029-H: Acid Base Accounting								
ANC Fineness Factor	----	0.5	-	----	**1.5**	----	----	----
Net Acidity (sulfur units)	----	0.02	% S	----	<0.02	----	----	----
Net Acidity (acidity units)	----	10	mole H+ / t	----	**11**	----	----	----
Liming Rate	----	1	kg CaCO3/t	----	<1	----	----	----
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	<0.02	----	----	----
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	**11**	----	----	----
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	<1	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**13.3**	**9.9**	**11.6**	**18.3**	**14.3**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	**16**	**26**	**45**	**32**	**26**
Copper	7440-50-8	5	mg/kg	**5**	**9**	**13**	**20**	**35**
Lead	7439-92-1	5	mg/kg	**18**	**10**	**10**	**15**	**10**
Nickel	7440-02-0	2	mg/kg	**5**	**11**	**20**	**14**	**20**
Zinc	7440-66-6	5	mg/kg	**51**	**52**	**54**	**77**	**57**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	#1	#3	#6	#7	#8
				Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2418841-001	EM2418841-003	EM2418841-006	EM2418841-007	EM2418841-008
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	#1	#3	#6	#7	#8
			Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EM2418841-001	EM2418841-003	EM2418841-006	EM2418841-007	EM2418841-008
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**111**	**113**	**105**	**110**	**117**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**119**	**120**	**98.9**	**114**	**123**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	#10	#11	#12	#13	#14
			Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EM2418841-010	EM2418841-011	EM2418841-012	EM2418841-013	EM2418841-014
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**10.7**	**10.7**	**11.6**	**16.5**	**9.4**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	**9**	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	**24**	**20**	**9**	**14**	**6**
Copper	7440-50-8	5	mg/kg	**13**	**16**	**6**	**7**	**8**
Lead	7439-92-1	5	mg/kg	**10**	**11**	**19**	**27**	**13**
Nickel	7440-02-0	2	mg/kg	**11**	**9**	**4**	**6**	**3**
Zinc	7440-66-6	5	mg/kg	**45**	**47**	**54**	**98**	**37**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<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 - (Lindane)	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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	#10	#11	#12	#13	#14
				Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit		EM2418841-010	EM2418841-011	EM2418841-012	EM2418841-013	EM2418841-014
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	#10	#11	#12	#13	#14
			Sampling date / time	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00	25-Oct-2024 00:00
Compound	CAS Number	LOR	Unit	EM2418841-010	EM2418841-011	EM2418841-012	EM2418841-013	EM2418841-014
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**107**	**110**	**109**	**102**	**101**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**114**	**118**	**118**	**104**	**98.3**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Duplicate 1	----	----	----	----
				Sampling date / time	25-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2418841-015	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**10.4**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		**8**	----	----	----	----
Copper	7440-50-8	5	mg/kg		**8**	----	----	----	----
Lead	7439-92-1	5	mg/kg		**15**	----	----	----	----
Nickel	7440-02-0	2	mg/kg		**3**	----	----	----	----
Zinc	7440-66-6	5	mg/kg		**35**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Duplicate 1	----	----	----	----
				Sampling date / time	25-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2418841-015	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Duplicate 1	----	----	----	----
				Sampling date / time	25-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM2418841-015	--------	--------	--------	--------
					Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**94.2**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**96.9**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate	----	----	----	----
			Sampling date / time	25-Oct-2024 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM2418841-016	--------	--------	--------	--------
				Result	----	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	62	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	40	139

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry / Biology).

(SOIL) EA003 :pH (field/fox)

(SOIL) EA029-D: Calcium Values

(SOIL) EA029-E: Magnesium Values

(SOIL) EA029-F: Excess Acid Neutralising Capacity

(SOIL) EA029-H: Acid Base Accounting

(SOIL) EA029-G: Retained Acidity

(SOIL) EA029-A: pH Measurements

(SOIL) EA029-C: Sulfur Trail

(SOIL) EA029-B: Acidity Trail

QUALITY CONTROL REPORT

Work Order	: **EM2418841**	Page	: 1 of 11
Client	: **ENVIRONMENTAL SERVICE AND DESIGN PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: John Gorrie	Contact	: Hannah White
Address	: 74 Minna Road Heybridge	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: ----	Telephone	: +61-3-8549 9600
Project	: Boyer Road Precinct	Date Samples Received	: 30-Oct-2024
Order number	: ----	Date Analysis Commenced	: 07-Nov-2024
C-O-C number	: ----	Issue Date	: 15-Nov-2024
Sampler	: John Gorrie		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 16		
No. of samples analysed	: 12		

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, unless the sampling was conducted by ALS. 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*
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Jarwis Nheu	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 6180626)									
EM2418841-001	#1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	15	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	5	5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	18	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	51	51	0.0	0% - 50%
EM2418841-014	#14	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	8	7	12.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	12	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	36	0.0	No Limit
EA003 :pH (field/fox) (QC Lot: 6173243)									
EB2438166-002	Anonymous	EA003: pH (F)	----	0.1	pH Unit	3.7	3.8	0.0	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	2.0	2.1	0.0	0% - 20%
EB2438261-008	Anonymous	EA003: pH (F)	----	0.1	pH Unit	7.9	8.0	1.5	0% - 20%
		EA003: pH (Fox)	----	0.1	pH Unit	6.1	6.0	0.0	0% - 20%
EA029-A: pH Measurements (QC Lot: 6188116)									

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA029-A: pH Measurements (QC Lot: 6188116) - continued									
EM2418841-003	#3	EA029: pH KCl (23A)	----	0.1	pH Unit	5.4	5.4	0.0	0% - 20%
		EA029: pH OX (23B)	----	0.1	pH Unit	3.2	3.2	0.0	0% - 20%
EA029-B: Acidity Trail (QC Lot: 6188116)									
EM2418841-003	#3	EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	0.020	0.020	0.0	No Limit
		EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	<0.020	0.0	No Limit
		EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	11	11	0.0	No Limit
		EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	12	13	0.0	No Limit
		EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	<2	0.0	No Limit
EA029-C: Sulfur Trail (QC Lot: 6188116)									
EM2418841-003	#3	EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-D: Calcium Values (QC Lot: 6188116)									
EM2418841-003	#3	EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	0.115	0.108	6.3	No Limit
		EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	0.116	0.114	1.6	No Limit
		EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-E: Magnesium Values (QC Lot: 6188116)									
EM2418841-003	#3	EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	0.043	0.042	3.4	No Limit
		EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	0.045	0.044	2.4	No Limit
		EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	<0.020	0.0	No Limit
		EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	<0.020	0.0	No Limit
		EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	<10	0.0	No Limit
EA029-H: Acid Base Accounting (QC Lot: 6188116)									
EM2418841-003	#3	EA029: ANC Fineness Factor	----	0.5	-	1.5	1.5	0.0	No Limit
		EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	<0.02	0.0	No Limit
		EA029: Liming Rate	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	<1	0.0	No Limit
		EA029: Net Acidity (acidity units)	----	10	mole H+ / t	11	11	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EA029-H: Acid Base Accounting (QC Lot: 6188116) - continued									
EM2418841-003	#3	EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	11	11	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 6175084)									
EM2418841-001	#1	EA055: Moisture Content	----	0.1 (1.0)*	%	13.3	12.4	6.7	0% - 50%
EM2418841-015	Duplicate 1	EA055: Moisture Content	----	0.1 (1.0)*	%	10.4	10.9	4.6	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6180625)									
EM2418841-001	#1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EM2418841-014	#14	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6170630)									
EM2418841-001	#1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2418841-015	Duplicate 1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 6170630) - continued									
EM2418841-015	Duplicate 1	EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6170630)									
EM2418841-001	#1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EM2418841-015	Duplicate 1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 6170630) - continued									
EM2418841-015	Duplicate 1	EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020T: Total Metals by ICP-MS (QC Lot: 6184126)									
EM2418841-016	Rinsate	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EM2419119-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.019	0.019	0.0	0% - 50%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.006	0.008	28.1	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 6182183)									
EM2418841-016	Rinsate	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EM2419473-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (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 Sample (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 (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6180626)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	123 mg/kg	101	70.0	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.23 mg/kg	67.9	50.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	20.2 mg/kg	113	70.0	130
EG005T: Copper	7440-50-8	5	mg/kg	<5	55.9 mg/kg	97.5	70.0	130
EG005T: Lead	7439-92-1	5	mg/kg	<5	62.4 mg/kg	92.9	70.0	130
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.4 mg/kg	102	70.0	130
EG005T: Zinc	7440-66-6	5	mg/kg	<5	162 mg/kg	77.6	70.0	130
EA029-A: pH Measurements (QCLot: 6188116)								
EA029: pH KCl (23A)	----	0.1	pH Unit	<0.1	4.7 pH Unit	99.4	70.0	130
EA029: pH OX (23B)	----	0.1	pH Unit	<0.1	4.5 pH Unit	104	70.0	130
EA029-B: Acidity Trail (QCLot: 6188116)								
EA029: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	23.5 mole H+ / t	106	70.0	130
EA029: Titratable Peroxide Acidity (23G)	----	2	mole H+ / t	<2	46.5 mole H+ / t	93.6	70.0	130
EA029: Titratable Sulfidic Acidity (23H)	----	2	mole H+ / t	<2	----	----	----	----
EA029: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Peroxide Acidity (s-23G)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029: sulfidic - Titratable Sulfidic Acidity (s-23H)	----	0.02	% pyrite S	<0.020	----	----	----	----
EA029-C: Sulfur Trail (QCLot: 6188116)								
EA029: KCl Extractable Sulfur (23Ce)	----	0.02	% S	<0.020	0.04 % S	99.2	70.0	130
EA029: Peroxide Sulfur (23De)	----	0.02	% S	<0.020	0.105 % S	89.5	70.0	130
EA029: Peroxide Oxidisable Sulfur (23E)	----	0.02	% S	<0.020	----	----	----	----
EA029: acidity - Peroxide Oxidisable Sulfur (a-23E)	----	10	mole H+ / t	<10	----	----	----	----
EA029-D: Calcium Values (QCLot: 6188116)								
EA029: KCl Extractable Calcium (23Vh)	----	0.02	% Ca	<0.020	0.108 % Ca	98.8	70.0	130
EA029: Peroxide Calcium (23Wh)	----	0.02	% Ca	<0.020	0.1 % Ca	103	70.0	130
EA029: Acid Reacted Calcium (23X)	----	0.02	% Ca	<0.020	----	----	----	----
EA029: acidity - Acid Reacted Calcium (a-23X)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Calcium (s-23X)	----	0.02	% S	<0.020	----	----	----	----
EA029-E: Magnesium Values (QCLot: 6188116)								
EA029: KCl Extractable Magnesium (23Sm)	----	0.02	% Mg	<0.020	0.086 % Mg	86.4	70.0	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA029-E: Magnesium Values (QCLot: 6188116) - continued								
EA029: Peroxide Magnesium (23Tm)	----	0.02	% Mg	<0.020	0.089 % Mg	103	70.0	130
EA029: Acid Reacted Magnesium (23U)	----	0.02	% Mg	<0.020	----	----	----	----
EA029: Acidity - Acid Reacted Magnesium (a-23U)	----	10	mole H+ / t	<10	----	----	----	----
EA029: sulfidic - Acid Reacted Magnesium (s-23U)	----	0.02	% S	<0.020	----	----	----	----
EA029-H: Acid Base Accounting (QCLot: 6188116)								
EA029: ANC Fineness Factor	----	0.5	-	<0.5	----	----	----	----
EA029: Net Acidity (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate	----	1	kg CaCO3/t	<1	----	----	----	----
EA029: Net Acidity excluding ANC (sulfur units)	----	0.02	% S	<0.02	----	----	----	----
EA029: Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	<10	----	----	----	----
EA029: Liming Rate excluding ANC	----	1	kg CaCO3/t	<1	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6180625)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.64 mg/kg	102	69.0	128
EP068A: Organochlorine Pesticides (OC) (QCLot: 6170630)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	71.8	126
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	72.2	125
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	108	70.0	124
EP068: gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	69.1	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.2	125
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	107	66.6	122
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	68.8	123
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	106	67.2	124
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	66.0	126
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	70.2	126
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	72.1	124
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	68.0	122
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	68.9	124
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	110	55.8	130
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	108	67.9	124
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	72.0	127
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	66.3	131
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	62.4	131
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	101	55.4	130

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068A: Organochlorine Pesticides (OC) (QCLot: 6170630) - continued								
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	68.8	128
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	101	55.5	132
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6170630)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	117	65.6	127
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	63.0	129
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	128	10.0	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	112	58.3	128
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	106	69.0	122
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	106	68.0	122
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	108	59.6	124
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	112	63.8	128
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	71.1	124
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	67.4	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	108	57.9	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.2	123
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	106	59.8	123
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	65.4	127
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	108	52.1	128
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.2	122
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	63.2	124
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	65.9	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	107	43.1	131

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 6184126)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	104	89.2	110
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	88.4	86.4	115
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	89.0	112
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.5	88.3	111
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	101	88.3	112
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.6	88.8	113
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	103	90.0	115
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6182183)								

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6182183) - continued								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	90.3	73.4	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	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 6180626)							
EM2418841-003	#3	EG005T: Arsenic	7440-38-2	50 mg/kg	102	78.0	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	79.7	116
		EG005T: Chromium	7440-47-3	50 mg/kg	99.9	79.0	121
		EG005T: Copper	7440-50-8	250 mg/kg	103	80.0	120
		EG005T: Lead	7439-92-1	250 mg/kg	99.4	80.0	120
		EG005T: Nickel	7440-02-0	50 mg/kg	99.5	78.0	120
		EG005T: Zinc	7440-66-6	250 mg/kg	94.5	80.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6180625)							
EM2418841-003	#3	EG035T: Mercury	7439-97-6	0.5 mg/kg	111	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 6170630)							
EM2418841-003	#3	EP068: gamma-BHC - (Lindane)	58-89-9	0.5 mg/kg	105	51.4	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	101	49.1	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	103	38.4	135
		EP068: Dieldrin	60-57-1	0.5 mg/kg	108	58.4	136
		EP068: Endrin	72-20-8	0.5 mg/kg	120	33.0	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	90.5	20.0	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 6170630)							
EM2418841-003	#3	EP068: Diazinon	333-41-5	0.5 mg/kg	104	65.1	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	106	56.3	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	102	55.0	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	101	55.1	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	85.9	43.8	128

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 6184126)							
EM2418841-016	Rinsate	EG020A-T: Arsenic	7440-38-2	1 mg/L	100	82.0	123

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG020T: Total Metals by ICP-MS (QCLot: 6184126) - continued							
EM2418841-016	Rinsate	EG020A-T: Cadmium	7440-43-9	0.25 mg/L	88.0	81.8	123
		EG020A-T: Chromium	7440-47-3	1 mg/L	103	78.9	119
		EG020A-T: Copper	7440-50-8	1 mg/L	99.5	80.4	118
		EG020A-T: Lead	7439-92-1	1 mg/L	105	80.5	121
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.1	80.0	118
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.2	74.0	120
EG035T: Total Recoverable Mercury by FIMS (QCLot: 6182183)							
EM2419303-007	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	85.9	70.0	130

23821

TASMANIA

File No. M 357.

DEPARTMENT OF MINES, TASMANIA

NAME OR SUBJECT: MET. WATER BOARD

ADDRESS: BRIDGEWATER

Formerly SOUTHER REGIONAL WATER SUPPLY

(S 304)

Doc 17/5235

Department of Mines

Tasmania

Date 22 / 5 / 1963.

MEMORNANDUM

For the Director of Mines, Hobart.
From the Inspector of Explosives, Hobart.

Record of Inspection of Installation

Premises of: S.R.W.S. Bridgewater.

Known as:

Oil Company: Caltex.

Date of Approval: 18/4/63.

Date of inspection: 21/5/63.

Finding: ~~Unsuitable~~) Suitable) for licensing

Pump Outfit ~~Package Storage Area~~:

Variation from Approval:

Application Form: Left with occupier/~~Forwarded herewith~~.

Amount of Fee advised: Yes/~~No~~

.....

INSPECTOR OF EXPLOSIVES

(Regulation 78)

FORM 5

TASMANIA

Inflammable Liquids Act 1929 No. 973

Fee, £1

Granted to Caltex Oil (Aust) Pty Ltd.,

63 Salamanca Place,

HOBART.

Approval of Site and Construction of Premises for Keeping Inflammable Liquids or Dangerous Commodities or the Alteration thereof.

Approval for the * ~~site and construction~~ * alteration of the site and construction as shown on the approved plans and specifications of a * ~~package storage area~~ * tank for the undermentioned inflammable liquids and dangerous commodities, subject to the provisions of the *Inflammable Liquids Act* 1929, and regulations being observed and subject to the undermentioned special conditions, situate at Metropolitan Water Commission, Bridgewater.

This approval is valid only for one year from the date of issue.

Date of issue 18th April, 1963.

Chief Inspector of Explosives.

Inspector of Explosives.

Inflammable liquid: Class A 1,000 Gallons.

Class B Gallons.

Dangerous commodities:

SPECIAL CONDITIONS.

Relocate 1 x 1,000 gallon underground tank and single manual pump.

* Strike out if inapplicable.

65252

CALTEX OIL (AUSTRALIA) PTY. LIMITED
INC. IN N.S.W.

63 SALAMANCA PLACE - - - - - - - - - HOBART, TASMANIA
BOX 172 C, G.P.O. HOBART - PHONE: B 2761 - TELEGRAMS: 'CALTEX'

In reply please quote: AJW.BS

17th April 1963.

The Director,
Department of Mines,
Box 124B G.P.O.,
HOBART.

Dear Sir,

We enclose plans and application fee (£1/-/-), requesting approval to re-locate one single manual pump and install 1000-gallon tank for the Metropolitan Water Commission (formerly known as S.R.W.S.), Bridgewater.

Yours very truly,

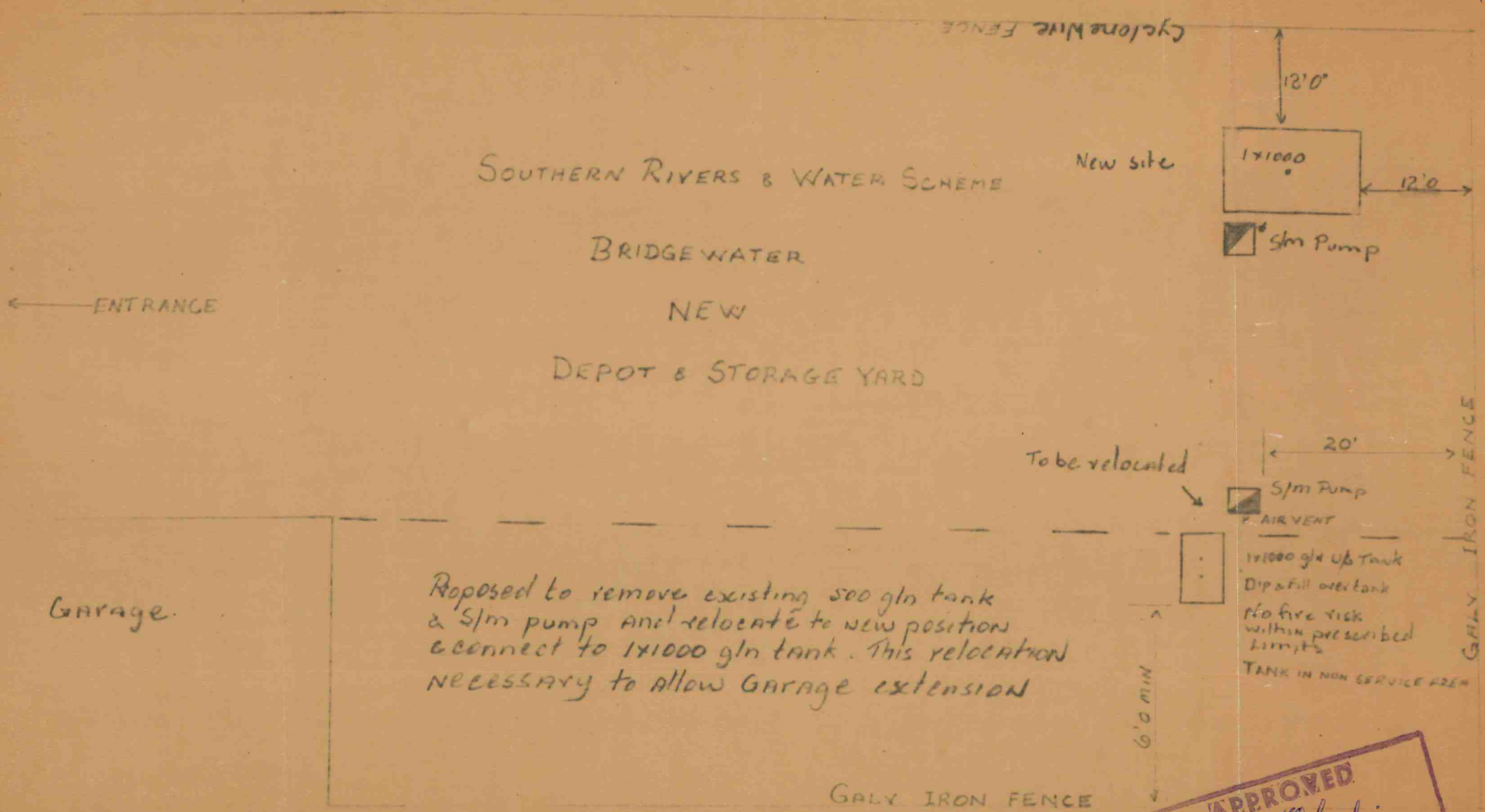
CALTEX OIL (AUST) PTY. LIMITED

S.H. Gregg

S.H. Gregg
Manager.

Encls.

Sketch No.



CALTEX OIL (AUSTRALIA) PTY. LIMITED

PLACE HOBART

DISTRICT TASMANIA

21595

£1 —

18/4/63

APPROVED

Inspector of Explosives

18 APR 1963

Subject S R W S. BRIDGEWATER

Sketch No.

DATE 30/5/60 Revised 17/4/63.

DRAWN BY

SCALE Meas as shown

P120

Department of Mines

Tasmania

Date 15 JUL 1960

MEMORANDUM

For the Director of Mines, Hobart.
From the Inspector of Explosives Hobart.

Record of Inspection of Installation

Premises of: Southern Regional Water Scheme (SRWS) Bridgewater.

Known as:

Oil Company: Caltex.

Date of Approval 31 May 60.

Date of Inspection 14-7-60.

Finding ~~Unsuitable~~ Suitable for Licensing

Pump Outfit ~~Package Storage Area~~:

Variation from Approval:

Application Form: Left with occupier/~~Forwarded herewith~~

Amount of Fee advised: Yes/~~No~~

H. Deas.

INSPECTOR OF EXPLOSIVES

Caltex Oil (Aust) P/L
Hobart.

31 MAY 1960

Dear Sir,

INFLAMMABLE LIQUIDS ACT, 1929

Permission is hereby granted for the following installation provided that it be in accordance with the approved drawings and that the requirements of the above Act and Regulations be complied with:-

On the premises of: Southern Rivers & Water Scheme. Bridgewater.

Kerbside Pumps: One single manual

Underground Tanks: 1 x 500. gallons
x gallons

Other Tanks:

Package Storage Area x gallons/feet
x gallons/feet

Other Installations:

Please advise when the installation is completed.

Yours faithfully,

(J. G. Symons)
DIRECTOR OF MINES
AND
CHIEF INSPECTOR OF EXPLOSIVES.

Stencil No. 011

x Insert name of owner or proprietor of premises

x I RIVERS AND WATER SUPPLY COMMISSION

x Postal Address

x 174 Liverpool St.

hereby agree to CALTEX OIL (AUST.) PTY. LTD.

x Number and type of pump/s

x installating One Pump/s

x Number and Capacity of tanks

x and 500 Gallon Underground tank/s

x Address of premises

x at my premises situated at Cotts Hill Road Bridgewater

RIVERS AND WATER SUPPLY COMMISSION

Signed pp W Callahan

Date 27-4-60

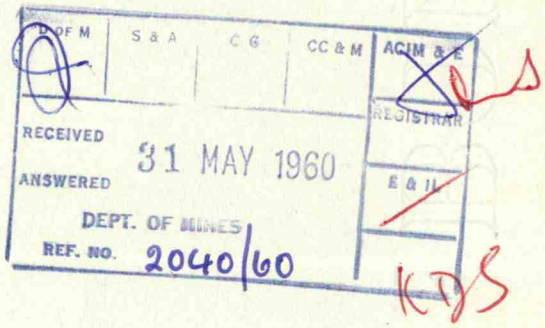
To the Chief Inspector of Explosives,
P.O. Box 177E,
HOBART.
Tasmania.

CALTEX OIL (AUSTRALIA) PTY. LIMITED

INC. IN N.S.W.

63 SALAMANCA PLACE - - - - - - - - - HOBART, TASMANIA
BOX 172 C. G.P.O. HOBART - PHONE: B 2761 - TELEGRAMS: 'CALTEX'

In reply please quote: AJW.ALG



May 30, 1960.

Director,
Department of Mines and Explosives,
Box 177E, G.P.O.
HOBART.

Dear Sir,

We attach plans requesting approval to relocate the present 1 x 500 gallon tank and S/M pump installed at the S.R.W.S. Bridgewater to new site on Cobbs Hill Road, Bridgewater.

Yours very truly,

CALTEX OIL (AUSTRALIA) PTY. LIMITED.

H. M. Bateman

H.M. Bateman,
District Manager.

Encl. 4/6.

CALTEX OIL (AUSTRALIA) PTY. LIMITED

PLACE HOBART

DISTRICT TASMANIA

Sketch No.

DATE 30/5/60

DRAWN BY A.S.J.

SCALE MEANS AS SHOWN

Subject S R W S BRIDGEWATER

SOUTHERN RIVERS & WATER SCHEME

BRIDGEWATER

NEW

DEPOT & STORAGE YARD

GALV IRON FENCE

← ENTRANCE

20'

S/m Pump

AIR VENT

1-500 g/n U/g Tank

Dip & Fill over tank

No fire risk within prescribed Limits

TANK IN NON SERVICE AREA

GALV IRON FENCE

6'0 MIN

GALV IRON FENCE

APPROVED

Inspector of Explosives

31 MAY 1960

Form H.

FOR OFFICE USE ONLY

			Initials
Correspondence: P120	Licence No.	2869	
	Certificate of Registration		
	Receipt No.	9090	
	Amount of Cash Received	£1-5-0	
	Date Received	23/7/57	

3/57

MEMORANDUM

Department of Mines,
Hobart, 1 JUL 1957

Please note that your Licence / Certificate of Registration, under the provisions of the Inflammable Liquids Act 1929 in respect of the storage of Petrol, Kerosene, or Carbide of Calcium, expired on the 30th June last.

If you desire the registration renewed, please fill in the form of application hereunder, and return it to me with the prescribed fee.

Any person keeping Inflammable Liquid, except in Licensed or Registered Premises, is liable to a penalty of Fifty Pounds (£50).

J. G. SYMONS,
Director of Mines.

P.W. Dept.
Davey St
Hobart.

DOFM | S&A | C G | CC&M | ACIM & E | REGISTRAR | E & IL
RECEIVED 23 JUL 1957
ANSWERED
DEPT. OF MINES
REF. NO.

THE INFLAMMABLE LIQUIDS ACT 1929

APPLICATION FOR RENEWAL

I, Public Works Dept of Hobart
hereby apply to have the registration of my premises, situate at Bridgewater.
renewed under the provisions of the Inflammable Liquids Act 1929 in respect to the storage of mineral spirit and forward herewith the fee.

REGISTERED QUANTITIES

Fee Paid £1/5/-
Mineral Spirit 2500 gallons
Mineral Oil ~ gallons
Carbide of Calcium ~ lbs.

* Strike out which does not apply.

QUANTITIES TO BE REGISTERED
(To be filled in)

Mineral Spirit 5-00 gallons
Mineral Oil ..... gallons
Carbide of Calcium ..... lbs.

Signature: *Mr. / *~~Mrs.~~ / *~~Miss~~ HYDRAULIC ENGINEER

Date of Application 11 JUL 1957

Mineral Spirit relates to Petrols, &c., with a flash point of 73°F. or less.
Mineral Oil relates to Kerosene, &c., with a flash point of above 73°F. and less than 150°F.
In the case of Petrol Pumps, please furnish particulars of tanks installed and in use.

Total number of underground tanks on premises	Capacity of each tank	Number of tanks in use

District Inspector's recommendation:

Note.—Cheques, postal notes, or money-orders should be made payable to the Director of Mines. If bank notes are forwarded by post, the letter should be registered. Stamps will not be accepted in payment.

21964—M1157...95(14)

For Mines Dept with above

2093

8396
-12/6
20/5/57

R.20

TASMANIA

Department of Mines, Magazines, and Explosives, Hobart

FORM C

(Regulation 147)

The Inflammable Liquids Act 1929

Application for Licence for Underground Tank

1. Applicant's full name Southern Regional Water Supply.
2. Applicant's calling or occupation P.W.D.
3. Applicant's postal address Bridgewater.
4. Date of installation August 1955
5. Situation of store to be licensed Parking Yard.
6. Name of municipality, town, or township within which, or within 5 miles of which, the store is situated Bridgewater (mun. of Brighton)
7. Total quantity (in gallons) of mineral spirit (petrol, &c.) to be stored 500
8. Number of tanks to be installed one
9. Total number of tanks installed one
10. Is tank or pump inside any building? no
11. If so, state construction of building? —
12. How near is the nearest protected works? —
13. Have you provided approved fire-extinguishers? yes.
14. Is each depot so situated as not to be within 50 feet of any fire, forge, furnace, explosive, highly inflammable substance, or other source of danger? no
15. Is each tank at least 2 feet underground? yes
16. Are all tank vents clear above building, or 12 feet above ground where in the open? yes
17. Has your installation been approved by an inspector? yes
18. Has the necessary authority for the installation been obtained from the municipal council? yes
19. Name of maker of tank and pump CALTEX
20. Capacity of tank 500 gals
21. Are all junctions of electric wires in gas tight junction-boxes? no wires
22. Are all switches and fuses a safe distance from pump? yes
23. Have you attached approved notices, "No smoking—Stop your Engine," to pump-heads? yes

I declare that the above statements and answers are true to the best of my knowledge and belief.

SRWS

Signed [signature]

Resident Engineer

Dated this seventeenth day of MAY, 1957.

(This application, with a HALF YEAR fee of 12/6 to be forwarded to Director of Mines, Hobart)

8923

20 August, 1954

Don't forget vouchers.

manual 100

Dear Sir,

Permission is granted for the installation of a single manual Caltex pump with one 500-gallon underground tank at the premises of the Public Works Department, at Bridgewater, conditionally that the outfit is sited in accordance with the submitted sketch and is installed to conform with the provisions of the Inflammable Liquids Act.

Please advise when the installation is completed

Yours faithfully

DB

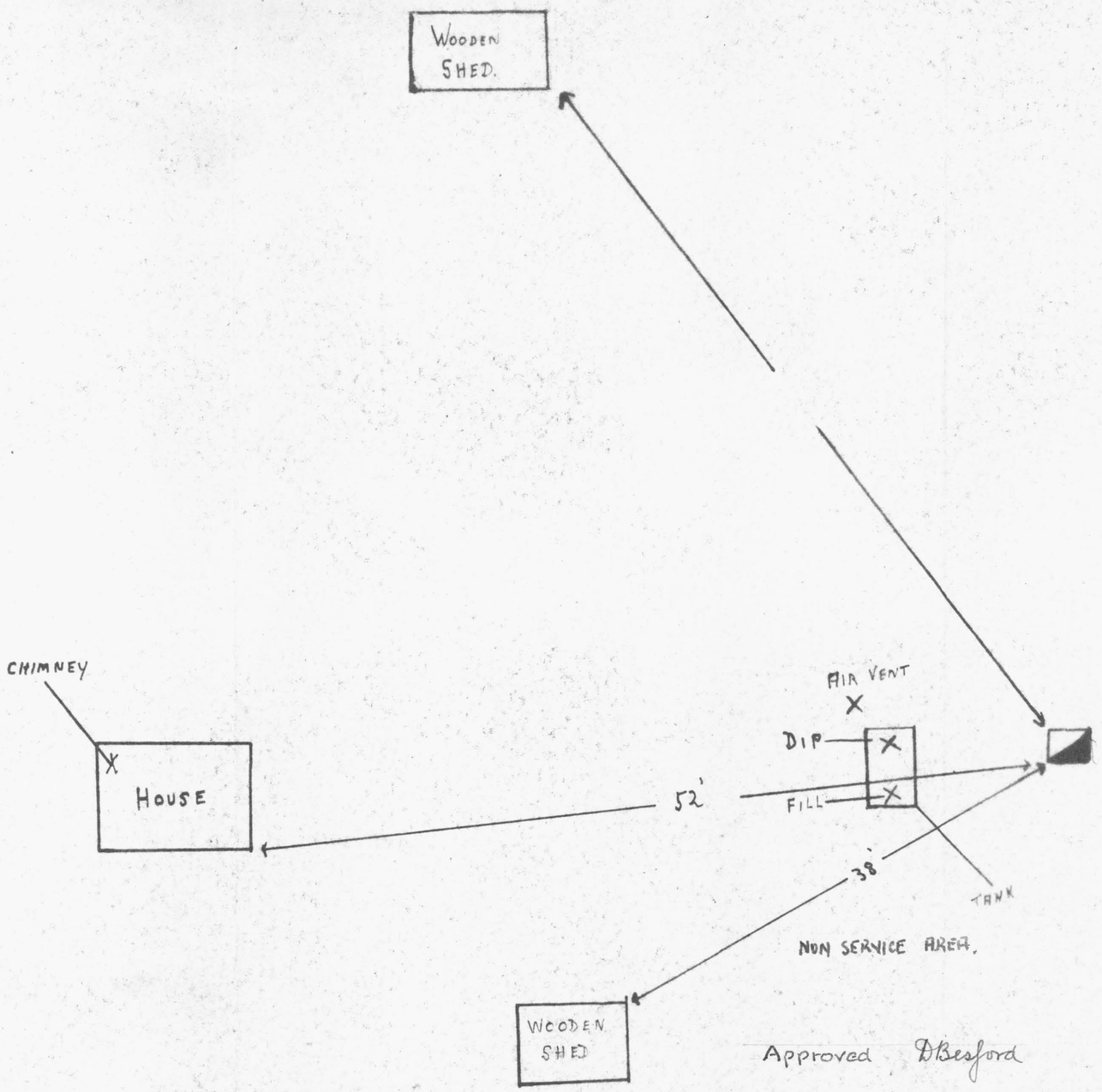
INSPECTOR OF EXPLOSIVES

Request £ year fee 12/6
15.5.57

The Manager
Caltex Oil Aust., Pty., Ltd.,
63 Salamanca Place
HOBART

Schedule

1. INSTALL SINGLE MANUAL PUMP COUPLED TO 1 X 500 gall TANK
2. FILL AND DIP BOTH OVER TANK
3. STANDARD COVER BOX ON DIP + FILL
4. NO FIRE RISK WITHIN 50'
5. PUMP INSTALLED ON RAISED CONCRETE ISLAND



CALTEX Oil (AUST) PTY. LTD.	
P.W.D. BRIDGEWATER	
SCALE	1" = 10'
DATE	11-8-54
DRAWN By	R.L.B

Approved D Besford

Inspector of Explosives

19/8/54

MAIN HIGHWAY

Search Results (Names Associated With Site)

Site ID: 1455

Address: 2-4 Cobbs Hill Rd
Bridgewater 7030

File Number: M357

Held By: Workplace Standards Tasmania

File From: 1954 ***To:*** 1963

Location Status: Confirmed

PID: 7834374

Comments: Depot and storage yard. Address supplied by Council.

Names Associated With Site:

Metropolitan Water Board
Southern Regional Water Supply
Public Works Department
Caltex

UST/s