# Attachment 3

Environmental Site Assessment

**Atma** *Environmental*
*ATF Atma Unit Trust ABN 25 256 491 913*

# *DETAILED ENVIRONMENTAL SITE ASSESSMENT: 360-438 POINT COOK RD, POINT COOK, VIC.*

*Prepared for:*

*Lincoln Heath Estates Pty Ltd*
*(c/o Australand)*
*Level 9, 484 St Kilda Road*
*Melbourne, Vic 3004*

*Project Ref.: 1209 Point Cook*
*Date: 15 December 2014*

ACLCA
MEMBER: Australian Contaminated Land Consultants Association

*56 William Street, Abbotsford, VIC. 3067*
*Telephone: (03) 9429 6955 Fax: (03) 9429 5911 Web: www.atmaenvironmental.com*

## Report Finalisation & Distribution

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PROJECT MANAGER:

Glenn Berry, Principal Environmental Consultant

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Glenn Berry, Principal Environmental Consultant



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*56 William Street, Abbotsford VIC. 3121 Telephone: **(03) 9429 6955** Fax: (03) 9429 5911 Mobile: 0412 000 445*
*Web: www.atmaenvironmental.com*

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# 1 EXECUTIVE SUMMARY

The site (Lot T PS521564V) consists of 43.32 ha and is situated in an urban fringe area approximately 22 km southwest of Melbourne. The land is currently zoned Urban Growth Zone and situated in the Lincoln Heath South PSP; proposed for residential development. Under Schedule 15 to the Urban Growth Zone applications to use or develop the land for a sensitive use (including residential) must be accompanied by a further environmental site assessment by a suitably qualified professional - which in this case takes account of previous assessment works completed for the Lincoln Heath site (identified as Lots 1 and 2 on PS325664K) in July 2002 (Atma Environmental report #134 "*Environmental Site Assessment: Cnr. Sneydes & Point Cook Roads, Point Cook, Victoria*".

To address the above requirement Atma Environmental has completed a further more detailed assessment of the soil and groundwater conditions at the site with respect to sensitive land uses and potential groundwater impacts of/on the development area. This has included a site detailed historical review, inspection of the site, and intrusive soil and groundwater sampling investigations with updated assessment of the results against current land use criteria.

The site is currently used for cropping purposes (fallow in part), and has been since at least 1945. The subject site was part of larger holding (known as Lincoln Heath), until recently comprising land to the immediate north and west up. A former homestead and shedding area was located within that adjacent area, however, that area is not co-incident with the site under investigation.

The site historical review confirms that the only past land uses within 360-438 Point Cook Road have been agricultural. No former buildings or areas of occupation such as work areas, sheds, livestock dips, dwellings are identified within the site boundary. No former mining, quarrying, landfilling, or other commercial/industrial uses of the land have occurred. Inspection of the site indicates that site use has not altered since completion of site sampling in 2001. The land is not considered to be 'potentially contaminated land' and an environmental audit of the site is not required in accordance with Ministerial Direction No. 1.

To confirm the suitability of the site for sensitive uses a further detailed assessment of the site was carried out by a program of soil and groundwater investigation. Sampling of soils at seven representative locations with lab analysis for metals, OCPs and OPPs (contaminants associated with agricultural practice), indicated that soils meet Ecological Investigation Levels applicable for standard residential and urban parkland settings; and that no soil results exceed human health investigation or screening levels, also applicable for standard residential settings. We conclude that the land can be considered suitable for sensitive uses.

Assessment of groundwater conditions in the Lincoln Heath site suggest that Segment C groundwater is expected at depths of between 3 and 9 m below ground level. Impacts on the proposed development (as may be due to shallow groundwater or contamination) are not

anticipated. Contamination assessment of the groundwater carried out on the Lincoln Heath site closer to potential contaminant source areas failed to identify groundwater contamination impacts. No suspected sources of groundwater contamination are present on Lot T. Groundwater concentrations of certain intrinsic background parameters (such as TDS) limit the desirability of groundwater use for livestock watering and/or primary contact recreational use.

Inspection of the site identified possible small areas of tipped material. It is recommended that care be taken during site development to appropriately manage any undisclosed rubbish or fill found. No further site contamination investigation is considered warranted.

# 2 INTRODUCTION

Atma Environmental Pty Ltd is a member of the Australian Contaminated Land Consultants Association (ACLCA). This report has been prepared and approved by Mr. Glenn Berry, Principal Environmental Consultant for Atma Environmental. Mr. Berry, B.Sc. (Specialisation in Geology) has some 29 years contaminated land experience and is a Certified Environmental Practitioner (*CEnvP*) under an initiative of the Environment Institute of Australia and New Zealand (EIANZ). The *CEnvP* is Australasia's first certification scheme for general environmental practice, and one of the first in the world. The development of *CEnvP* was supported by the Australian Government Department of the Environment and Heritage.

## *2.1 Purpose*

Pursuant to Schedule 15 of the Urban Growth Zone, the purpose of this report is to:

- Document the findings of a further detailed assessment of potential contaminants on the subject land;
- Provide advice on whether the environmental condition of the land is suitable for the proposed use and whether an environmental audit of all, or any part of it is recommended having regard to the Potentially Contaminated Land General Practice Note, June 2005 (DSE);
- Provide further detailed assessment of surface and subsurface water conditions; and
- Provide remediation actions for any potentially contaminated land.

## *2.2 Limitations and Exceptions of Assessment*

The historical review consists of a records review and a site visit. Soil testing was based on good practice and relevant guidelines. This report describes the work undertaken and has been compiled for the use of Lincoln Heath Estates Pty Ltd, the Metropolitan Planning Authority and its agents. Its conclusions are only valid for the purpose for which it was requested. The site investigation has not included a detailed review of hazardous materials or other controlled

substances such as asbestos.

It is valid only when it is in original form and any person other than Lincoln Heath Estates Pty Ltd, the Metropolitan Planning Authority and its agents who rely on the report without specific reference to and permission from Atma Environmental Pty Ltd do so at their own risk.

While every care has been taken in the compilation of this report, to the extent that its conclusions are based on the analysis of the data made available by your organisation or by a third party, no responsibility or liability is accepted for consequences arising from either errors or omissions in that data, or from factors or data which were not made available to Atma Environmental Pty Ltd or which Atma Environmental Pty Ltd could not ascertain by reasonable inquiry in the ordinary course of its investigation.

Environmental site assessments document property conditions at the time they are conducted. These conditions may change over time.

### *2.3 Limiting Conditions and Methodology*

The methodology used in preparation of this report follows generally acceptable guidelines and practices found in Australia such as National Environment Protection Council (NEPC), *'National Environment Protection (Assessment of Site Contamination) Amendment Measure (No. 1)', 2013* and relevant parts of Australian Standard AS 4482.1 - 2005, *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*.

AS4482.1 only gives recommendation on the minimum number of grid locations for areas smaller than 5 hectares. The site at Point Cook is considerably bigger covering an area of approximately 44 ha. A grid spacing of 250 m was considered reasonable for a site of this area, given the results of the site historical review and absence of potentially contaminating past land uses. In total seven soil sampling locations and three off-site groundwater investigation locations were utilised for this investigation.

## 3 SITE DESCRIPTION

### *3.1 Location and Legal Description*

The subject property is located approximately 600 m south of Sneydes Road at 360-438 Point Cook Road, Point Cook, Victoria. The site lies approximately 22 km southwest of the Melbourne city-centre in the City of Wyndham. Figure 1 shows a location map for the site. The Melway reference for the site is 207-K11.

The legal description of the property under investigation is given as Lot T PS 521564. The historical titles are given in Appendix A.

### *3.2 Site and Vicinity Characteristics*

The site is situated in a former agricultural area, now urban fringe development land. Pastoral / agricultural land is present to the south and east of the site, while the land to the north and west is currently being developed for residential use.

The site is bordered to the eastern side by Point Cook Road. While most land use to the east remains agricultural a large contractor's yard is noted opposite the site over Point Cook Road. There are wetlands located to the southwest, approximately 300 m distant. Port Phillip Bay lies 3.4 km to the south of the site.

The property consists of one lot, which covers a total area of 43.32 Hectares; and is broadly rectangular with dimensions of approximately 600 m x 600 m. The topography of the site is relatively flat, with a slight south-facing aspect. Figure 2 shows the main site features.

### *3.3 Site Improvements*

The site contains no buildings, other above ground structures, or roadways. No dams or water infrastructure is noted on the site. The boundary is fenced.

### *3.4 Current and Past Uses of the Property*

The northern part of the site is currently being used for hay cropping purposes. The southern part of the land appears to be fallow.

A review of historical aerial photographs and an interview with the former lessee of the site confirmed that from at least 1945 onwards the site had been used for both running sheep and growing crops. Land use prior to 1945 is also presumed to have also been pastoral /agricultural. There is no evidence of past mining, industrial or commercial usage of the site.

'*Potentially contaminated land*' is defined under Ministerial Direction No.1 as "land used or known to have been used for a) industry, b) mining, or c) the storage of chemical, gas, wastes or liquid fuel (if not ancillary to another use of the land)". The site does not meet this definition. Consequently, an environmental audit of the site with respect to the proposed sensitive use is not required.

# 4 RECORDS REVIEW

## *4.1 Standard Environmental Record Sources*

In conducting a site assessment, numerous standard record sources were reviewed in connection with the property, to help identify recognised environmental conditions in association with the property. Some records reviewed not only pertain to the property under investigation, but also to properties within a minimum search distance, to help assess the likelihood of problems from migrating contaminants or hazardous substances. A minimum search distance of 1 km has been used when reviewing these standard environmental record sources.

The following sources have been checked in conducting this site assessment:

- Priority Sites Register (EPA Victoria website).
- List of Issued Certificates & Statements of Environmental Audit (EPA Victoria website)

A review of these sources indicates that there are no sites from the Priority List within the search distance. There are no Certificates or Statements of Environmental Audit issued within the minimum search distance. This suggests that the land within this area does not generally exhibit significant levels of contamination that could restrict the potentially beneficial uses of the land. There are no petroleum service stations adjacent to the site. The nearest service station is approximately 200 m north of the Sneydes Road/Point Cook Road intersection.

## *4.2 Physical Setting Sources*

The site geology has been determined from the Geological Survey of Victorian 1:63360 scale map sheet Melbourne SJ55-1 (1974). The land at the site is shown to be Quaternary (Recent) aged Newer Volcanics. This consists of a thin veneer of windblown brown silt and clayey silt (loess) over olivine basalt, olivine labradorite basalt, dark to light grey, coarsely vesicular, minor interbedded silty sand and baked soils. No major faults are shown to exist across the site. The elevation of the site is approximately 20 m above sea level. The closest topographic feature is George Hill located approximately 500m southeast of the site.

Review of the *Visualising Victoria's Groundwater* website suggests that groundwater may be expected at depths of less than 5 m in the vicinity of the site and this is consistent with the presence of wetlands southwest of the site. The Department of Natural Resources and Environment Victorian Groundwater Beneficial Use map series indicates that the upper aquifer is likely to contain 3,501 – 13,000 mg/L total dissolved solids placing the groundwater in Segment 'C'. Under Segment C the following Beneficial Uses of Groundwater are protected:

- Stock Watering;
- Industrial Water Use

- Primary Contact Recreation; and
- Buildings & Structures

The anticipated direction of groundwater flow below the site is towards the south to southwest.

### *4.3 Review of Other Historical Information Sources*

**Aerial Photographs**

Examination of aerial photographs from 1945, 1960, 1968, 1972, 1984 and 1991 was undertaken to confirm the past site history. A number of these are presented on Figure 3 (1968), Figure 4 (1972), Figure 5 (1984) and Figure 6 (1991). The background image for Figure 2 shows the site as it exists currently (dated 7 November 2014).

Aerial photography prior to 1942 was unavailable. The 1945 aerial photograph for the site shows a drain running northwest to southeast across the site's northeast corner. The site is evidently a part of a larger holding encompassing the new subdivisions to the north and west of the subject site. The homestead area for this larger holding lies approximately 250 m away from the site's north western corner. The subject site use is agricultural. Nearby wetlands that are present in later photos appear to have been drained and farmed in this photograph. The site usage appears to involve both cropping and grazing.

The 1960 aerial photograph shows the drain running northwest to southeast across the NE site corner. The subject site use is agricultural. The old homestead, shearing shed and associated sheds are still present off site to northwest. Wetlands at the southern boundary of the property are no longer being drained, and are farmed. There is a dam on the east boundary of the site near the northeast site corner.

The 1968 aerial photograph shows the drain running northwest to southeast across the site. The subject site use is for cropping, although the southern portion is fallow. A north-south running farm track is clearly evident. The old homestead, shearing shed and associated sheds are still present off site to the northwest. The dam on the northeast corner of the site is still present.

The 1972 aerial photograph shows the drain running northwest to southeast across the site. Site use is agricultural. The off-site homestead, shearing shed and associated sheds are still present. The dam on the northeast corner of the site is still present.

The 1984 aerial photograph shows the drain running northwest to southeast across the site. The dam at the far east end of the drain on the north side appears to have been backfilled. Site use is clearly cropping. There are no buildings. The old homestead, shearing shed and associated sheds are still present.

The 1991 aerial photograph shows the drain running northwest to southeast across the site. Site

use is agricultural. The old homestead, shearing shed and associated sheds to the northwest off site are still present

The aerial photography review confirms that the only discernible past land use has been agricultural (grazing or cropping), with no former buildings located within the area under investigation.

**Land Titles**

The property had been in the ownership of the Bellin family since the crown grants, vol. 8242 fol. 659 and vol. 8669 fol. 261, were established in 1958 and 1965, respectively. Land titles (vol. 10129 fol. 895 [lot 1] and vol. 10129 fol. 896 [lot2]) were purchased from the Bellin family in 1997 and 1996. Lot 1 was purchased by Lyndenhill Pty Ltd and Lot 2 by Leenfield Pty Ltd. It is understood that the land has been owned by Australand, or related entity since 2002. Copies of the land titles reviewed can be seen in Appendix A.

# 5 SITE RECONNAISSANCE

Atma Environmental previously conducted a site reconnaissance as part of Atma Environmental's investigations at the site on 9/11/01 as part of previous assessment of a wider packet of land incorporating the subject site. Inspection of the site at that time focused upon the homestead area located off site to the northwest of the subject site. Observations made of the former homestead area included: a large amount of 'junk', empty and partly empty oil drums, farm machinery, several old storage tanks, numerous above ground fuel tanks, shearing shed, machinery shed, and a livestock drenching area. The homestead area was not located on Lot T.

The area of the subject site was observed to be open farmland and absent of any structures or dams, however, the dam on the eastern end of the drainage ditch (noted from aerial photos) was still evident as a grown over depression.

**Interviews**

The lessee of the site in 2001, Kevin Bellin, and his father were interviewed during the site reconnaissance visit. Mr Bellin senior also confirmed that the dam at the east end of the drain running across the site has never been backfilled, but after it had been emptied it had been allowed to grow over with grass.

**Virtual Inspection**

Inspection of the current site condition was accomplished utilising high resolution aerial imagery available from NearMap Pty Ltd dating to 7 November 2014. The relevant imagery is used on Figure 2.

This inspection identifies the current use as being hay cropping over the northern portion with the southern portion lying fallow. The aforementioned dam at the eastern end of the former site drainage appears over grown. Care should be taken during development to appropriately manage any undisclosed waste or fill potentially deposited in this location. Likewise there appears to be a small deposit of paddock dumped soil near the southwestern site corner.

There are no subsequent uses or site contamination issues evident since completion of the site sampling in 2001 requiring further investigation.

# 6 SOIL ASSESSMENT

The site history and inspection suggests that the site soil and groundwater is unlikely to be contaminated. Investigation of the site was completed to provide quantifiable soil data demonstrating this and considered the following soil contaminants:

- Organochlorine and organophosphorus pesticides (OCPs and OPPs), associated with the site's past agricultural usage; and
- Heavy Metals, associated with fertiliser impurities, herbicides, fungicides and insecticides.

The site and directly adjoining land (comprising the wider Lincoln Heath located north and west of the subject site, extending up to Sneydes Rd) was originally investigated in 2001 by Atma Environmental. The results of the investigation were presented in our report "*Environmental Site Assessment: Cnr. Sneydes & Point Cook Roads, Point Cook, Victoria",* dated July 2002. For the purposes of this investigation a subset of the previous testing results are utilised and assessed against current land use criteria.

## *6.1 Site Investigation Methodology*

Environmental sampling of unconsolidated sediments was undertaken by surface sampling with a spade. Test pits and boreholes were used to target areas of concern located off site within the former homestead area. In addition to these target samples, a grid of 40 locations was sampled across the site at the surface only, with grid sample locations being spaced at 250 m intervals. Seven of these grid ('G-') samples are located within the present subject site area. The grid was devised on the office computer and later downloaded onto the field GPS allowing for accurate positioning of sample locations.

Grid soil samples are numbered by the grid number followed by the relevant depth or range of depths from which the sample was collected (e.g.: Sample "G01/0.5" is from test pit 1 at 0.5 m below ground level). Grid sample locations are shown in Figure 2.

Soil sampling work was conducted on the 9th and 10th November 2001.

Due to the presence of an off-site tip site, a sheep dip and hydrocarbons in the soil it was decided to investigate the environmental condition of the groundwater beneath the larger site. Three groundwater investigation wells were installed on 7th November and sampled on 12th November 2001. Further information on the installation and sampling of the groundwater monitoring wells is available in Section 8 of this report.

Atma Environmental utilised Quality Assurance, sampling and equipment decontamination procedures based on AS4482.1-1997 for the investigation. Copies of Atma's internal QA procedures are provided in Appendix B.

### *6.2 Sampling and Analysis Plan*

Grid-based samples over the site composited and were tested for Organochloride Pesticides (OCPs) while some were tested for Organophosphate (OPPs) also. Selected discrete samples from the grid were tested for sulphate and pH. All discreet samples from the grid locations were tested for a suite of metals.

The compositing of soil samples submitted for analysis has been performed according to the schedule given in Table A.

Table A. Sample Compositing Schedule.

| Composite ID: | Constituent Samples: |
|---|---|
| COMP O: | G19/0.15, G20/0.15, G25/0.15, G26/0.15 |
| COMP R: | G31/0.15, G32/0.15, G37/0.15, G38/0.15 |
| COMP S: | G33/0.15, G34/0.15, G35/0.15, G36/0.15 |
| | |

Where composite sample analytical results exceeded modified ecological investigation levels, discrete sub-samples comprising the composite sample were tested.

Groundwater samples were tested for heavy metals, TRH, BTEX, OCPs, OPPs, total dissolved solids (TDS), pH, hardness, cations, anions, nitrate, nitrite and a semi-volatile/volatile analysis. Information on sampling method is found in the Groundwater Assessment section of this report.

## *6.3 Comparative Criteria*

**Soil**

To provide comment on the degree of site contamination and its potential risk to human health and terrestrial ecosystems, analytical results are compared to Ecological Investigation and Screening Levels (EILs and ESLs, respectively) and Health-based Investigation and Screening Levels (HILs) found in the *"National Environment Protection (Assessment of Site Contamination) Measure 1999, Amendment 2013 (No. 1)"* (NEPM, 2013). Analytical results may also be compared to CRC CARE Technical Report No. 10 ('Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater' Friebel & Nadebaum, 2011).

For purposes of this assessment, the land use scenario considered relevant for assessment of the site is 'Residential' (on the basis of the existing proposed use and zoning).

Generic EILs have been developed for selected metals (i.e. copper, chromium, nickel and zinc) by deriving Added Contaminant Limits (ACLs) using values for Australian standard reference soil of 10 meq/100 g for Cation Exchange Capacity (CEC), 6.0 units for pH ($CaCl_2$) and a conservative clay content of 1%, and by using the NEPM (2013) pre-set Ambient Background Concentrations (ABCs) for low traffic areas in Victoria. Where relevant, EILs for aged contaminants (applicable for contamination which has been present in soil for at least two years) have been used.

Table 1 (appended following text) indicates the ecological and human health investigation/screening levels adopted for this site assessment.

NEPM 'A' setting land uses include standard residential with garden / accessible soil, with home produce contributing up to 10 % of vegetable and fruit intake. This category includes preschools, day care centres, primary schools etc. Where the contaminant concentrations exceed the relevant HIL, further investigations should be carried out to determine if the concentrations present actually pose a health risk. Depending on the future land use of the site, HILs for 'A' setting land uses may not be the appropriate comparative soil criteria (e.g. high density, or 'D' setting HILs may be more appropriate).

**Groundwater**

Groundwater sample results are compared to the criteria devised for the protection of the various Beneficial Uses of groundwater for Segment C groundwater specified earlier. These comparative criteria are set out in Table 2.

# 7 SOIL ASSESSMENT RESULTS

## *7.1 Soil Auguring Results*

The typical soil profile can be characterised as a thin layer of wind-blown silt and clayey silt, overlying a more plastic clay also brown, but mottled red to orange at some locations, which in turn overlies a layer of calcite and weathered basalt. This geology is classified as Quaternary (recent age) Newer Volcanics. Appendix C contains soil logs prepared from the field investigation work.

## *7.2 Sample Analysis Results and Discussion*

Appendix E includes the Chain of Custody documentation used for delivery of the samples to the lab and the full NATA certified lab reports.

**Composite Sample Results**

Three four-part composite samples relating to the site were created. Each of these composite samples were tested for OCP's and for OPP's. All of the OCP and OPP analyses of these composite samples returned non-detectable results. Further site investigation of agricultural pesticides against ecological or human health considerations is not considered warranted.

**Heavy Metals**

Concentrations of chrome, manganese and vanadium are elevated, however, these are associated with the basaltic geology of the region. No EILs are set for manganese and vanadium, although detected in the samples tested. Chrome, manganese and vanadium may occur naturally at high levels in this area as a result of the weathering of local underlying basalt. The local basalt is characterised as olivine basalt and olivine labradorite basalt of the Quaternary Newer Volcanics. The Australian Institute of Metallurgy lists within their reference book 'Field Geologist's Manual', the average naturally occurring levels of Mn and V within basalt as 2,200 and 250 ppm respectively. Manganese and vanadium concentrations returned for this site were below these naturally occurring levels.

All heavy metal results are below the NEPM 2013 'A' HIL or adopted EIL levels for standard residential land-use and urban parklands. Further site investigation of metal contaminants against ecological or human health considerations is not considered warranted.

# 8 GROUNDWATER ASSESSMENT

## *8.1 Background Information*

The Victorian EPA has prepared a State Environmental Protection Policy, or SEPP (Groundwaters of Victoria) to address this aspect of the environment. The SEPP is applied by segmenting the groundwater environment according to the background level of total dissolved solids, or TDS. The lower the TDS is, the more beneficial uses are protected. While the EPA has the right to make the final determination as to which segment the groundwater belongs, based on the measured concentration of TDS in the local groundwater (4,700 to 4,900 mg/L), it appears to belong to Segment C and thus beneficial uses to be protected under the policy include:

- Maintenance of ecosystems;
- Stock watering;
- Industrial water use;
- Primary contact recreation; and
- Buildings and structures.

To conduct the groundwater investigation a Bore Construction Licence was obtained from Southern Rural Water Authority for three wells. The License is given in Appendix D along with copies of Atma Environmental Well Installation Records.

## *8.2 Groundwater Investigation Method*

For the Lincoln Heath site assessment a total of three groundwater monitoring wells were drilled and installed on 7th November 2001. MW-1 and MW-3 were installed within the former homestead and sheds area while MW-2 was installed in the southwest corner of the site adjacent to a rubbish tip. There are no former sheds or rubbish tips on Lot T.

All wells were constructed using truck mounted drilling rigs to advance bores for installation of the monitoring wells. Solid augers were used on soils until the bedrock was reached upon which the down-hole hammer was used to breakdown the basalt. The 100 mm boreholes were drilled completely to the final termination depth then completed as 50 mm diameter monitoring wells. All wells were installed with three metre screens.

Following completion of well installations, MW-1 and MW3 were developed by Whaler™ purge pump while MW-2 was purged using a disposable bailer due to vehicle inaccessibility. All wells were allowed to stabilise for one week prior to sampling. Each well was also purged prior to actual sample collection, this time all using the purge pump. This pump was decontaminated between bores to avoid possible cross contamination.

Dedicated bailers were used on 12th November 2001 and on 20th August 2002 to sample wells

MW-1 to MW-3, with care taken to minimise volatilisation of contaminants in the retrieved samples. Water samples were tested by MGT, a NATA endorsed lab, for heavy metals, TRH, BTEX, OCPs, OPPs, total dissolved solids (TDS), pH, hardness, cations, anions, nitrate and nitrite. All wells were also analysed for volatile and semi-volatile organics.

### *8.3 Groundwater Investigation Observations*

Silty Clays and Clays above basalt coming in at a depth of between 2.5 – 3.3 m were encountered during the drilling of the monitoring wells. The water table was found within the basalt at around 8 metres below ground level (m bgl) in MW-1 and MW-3 central within the site while MW-2 in the southwest corner has groundwater at around 2.5 m bgl within sandy clay. Flow direction is considered to be south/southeast towards Port Phillip Bay and in concert with the site topography, however, an elevation survey was not undertaken to confirm this.

No odours or hydrocarbon sheens were noted during sampling of the wells. MW1 and MW3 produced abundant amounts of very clear water while MW2 produced similar volumes of slightly turbid water, attributed to the screened interval comprising sandy clay. Water levels were taken on 12 November 2001 and on 18 August 2002.

| *Well* | *Screened Interval* | *Screened In* | *Casing Stick-up* | *Water Level bgl (12/11/01)* | *Water Level bgl (19/08/02)* |
|---|---|---|---|---|---|
| **MW1** | 7.0-10.0m | Basalt | 0.54m | 8.26m | 8.51m |
| **MW2** | 3.0-6.0m | Sandy Clay | 0.76m | 2.45m | 2.87m |
| **MW3** | 7.0-10.0m | Basalt | 0.60m | 8.52m | 8.74m |

(*bgl* = means 'below ground level')

The groundwater observations suggest groundwater will not have an impact on the site development due to presence of a shallow water table.

### *8.4 Groundwater Sample Results and Discussion*

Table 2 summarises the analytical work conducted on the water samples. Groundwater sample results are compared to the Protection of Freshwater Ecosystems and Livestock Watering criteria referred to in the ANZECC publication A.W.Q.G., (January 2000). Results are also compared to criteria provided by the National Health and Medical Research Council (NHMRC) 2008 levels, which are health based for Primary Contact Recreational use of groundwater.

**Inorganic Constituents**

Samples from over the site showed a trend of high chloride and sodium levels, being between

2,400 and 2,700 mg/L, and 1,600 and 1,700 mg/L, respectively. These are considered typical of south eastern Australian groundwater's. TDS values are in the range of 4,700 to 4,900 mg/L placing the groundwater in Segment C, as expected from the records review. The pH over the site is from 7.2 to 7.5 and hardness varied from 600 to 780 mg/L.

**Chemical Parameters**

The following classes of chemical contamination and metals are not detected above quantification limits in any of the groundwater samples tested:

- Antimony - Arsenic - Beryllium - Cadmium - Chromium - Cobalt
- Lead - Mercury - Molybdenum - Nickel - Selenium - Tin
- Vanadium - BTEX- TRH - OCPs - OPPs - Nitrate
- Nitrite

Of the metal parameters tested only copper, manganese and zinc were at levels detectable to the laboratory. Completion of a secondary round of sampling in August 2002 showed non-detectable concentrations of copper and zinc and either non-detectable, or much lower concentrations of manganese vs the initial sampling round; all of which were below criteria adopted for the assessment of fresh water ecosystems, livestock watering and primary contact recreational uses.

The variation in results that has appeared is considered due to stabilising of the groundwater conditions after installation of the monitoring wells.

The similarity in first round metal concentrations between bores suggests the results are indicative of regional background levels and therefore representative of the groundwater below 360-438 Point Cook Rd.

Assessment of the groundwater physical parameters such as TDS, hardness and sodium are consistent with the relevant groundwater segment and are not indicative of groundwater pollution, albeit not desirable for the protected uses livestock watering and primary contact recreational.

Other chemical compounds such as PCBs, phenols, cresols, cyanide, etc. are not indicated by the site history and were not tested for.

# 9 QUALITY ASSURANCE

Atma Environmental collected blind duplicate and split samples. Appendix C provides the procedures used in collecting the soil duplicate and split samples. Results of the primary and duplicate samples are compared against their relative percent differences, or RPDs (the difference in results divided by the mean of the two results x 100). The sample RPDs are given below.

Table B. QA/QC Sample RPDs.

| Analytical Parameter: | Results G33/0.15 (mg/kg) 10/11/01 - MGT | Results, DUPG2 (mg/kg) 10/11/01 - MGT | RPD: |
|---|---|---|---|
| As | 8.1 | 8.5 | 4.8 |
| Cr | 53 | 52 | 1.9 |
| Cu | 12 | 12 | 0.0 |
| Ni | 16 | 15 | 6.5 |
| Zn | 31 | 30 | 3.3 |

| Analytical Parameter: | Results MW3 (mg/L) 12/11/01 - MGT | Results, DUP1 (mg/L) 12/11/01 - MGT | RPD: |
|---|---|---|---|
| Sn | <0.005 | <0.005 | Effectively 0 |
| As | <0.002 | <0.002 | Effectively 0 |
| Be | <0.002 | <0.002 | Effectively 0 |
| Cd | <0.002 | <0.002 | Effectively 0 |
| Cr | <0.005 | <0.005 | Effectively 0 |
| Co | <0.005 | <0.005 | Effectively 0 |
| Cu | 0.026 | 0.025 | 3.9 |
| Pb | <0.005 | <0.005 | Effectively 0 |
| Mn | 0.031 | 0.029 | 6.7 |
| Hg | <0.001 | <0.001 | Effectively 0 |
| Mo | <0.005 | <0.005 | Effectively 0 |
| Ni | <0.005 | <0.005 | Effectively 0 |
| Se | <0.002 | <0.002 | Effectively 0 |
| Sn | <0.005 | <0.005 | Effectively 0 |
| V | <0.005 | <0.005 | Effectively 0 |

The MGT data is generally reproducible as shown by the RPDs above. The primary laboratory's internal QA duplicates had acceptable RPD's and spike recoveries (between 89 and 108 %) across all parameters tested for. The laboratory also performed "method blanks" on clean matrices and found no detectable contaminants.

Five field split samples (paired to sample collected outside the area of investigation) were forwarded to WSL Laboratories for analysis of five selected heavy metals and some assorted TPH and OCP testing. WSL are also a NATA certified laboratory. The primary samples were tested at MGT for the same analytes. Comparing the primary and secondary laboratories analytical result produces generally good RPD values. Several of these are based on quite low values and do not necessarily indicate laboratory errors.

Because the SAP called for use of a spade for collection of readily trimmed bulk soil samples, an equipment decontamination rinsate sample was not collected. With regards to background samples, the majority of samples taken were in the natural soil of the area, therefore no background samples were considered necessary.

Atma Environmental logged all samples on a Sample Master List, as they were collected. In this fashion, any suspected incidence of cross contamination could be tracked down by looking at the

order in which samples had been collected. There are no suspected incidences of cross contamination in the soil sample data.

# 10 CONCLUSIONS AND RECOMMENDATIONS

The site, consisting of 43.32 ha is situated in an urban fringe area approximately 22 km southwest of Melbourne. The site is currently used for cropping purposes (fallow in part), and has been since at least 1945. The subject site was part of larger holding, being a part of the Lincoln Heath site, located to the immediate north and west up. A former homestead and shedding area was located within that adjacent area, however, that area is not co-incident with the site under investigation.

The site historical review confirms that the only past land uses within 360-438 Point Cook Road have been agricultural. No former buildings or areas of occupation such as work areas, sheds, livestock dips, dwellings are identified within the site boundary. No former mining, quarrying, landfilling, or other commercial/industrial uses of the land have occurred. Inspection of the site indicates that site use has not altered since completion of site sampling in 2001. The land is not considered to be 'potentially contaminated land' and an environmental audit of the site is not required in accordance with Ministerial Direction No. 1.

To confirm the suitability of the site for sensitive uses a further detailed assessment of the site was carried out by a program of soil and groundwater investigation. Sampling of soils at seven representative locations with lab analysis for metals, OCPs and OPPs (contaminants associated with agricultural practice), indicated that soils meet Ecological Investigation Levels applicable for standard residential and urban parkland settings; and that no soil results exceed human health investigation or screening levels, also applicable for standard residential settings. We conclude that the land is considered suitable for sensitive uses.

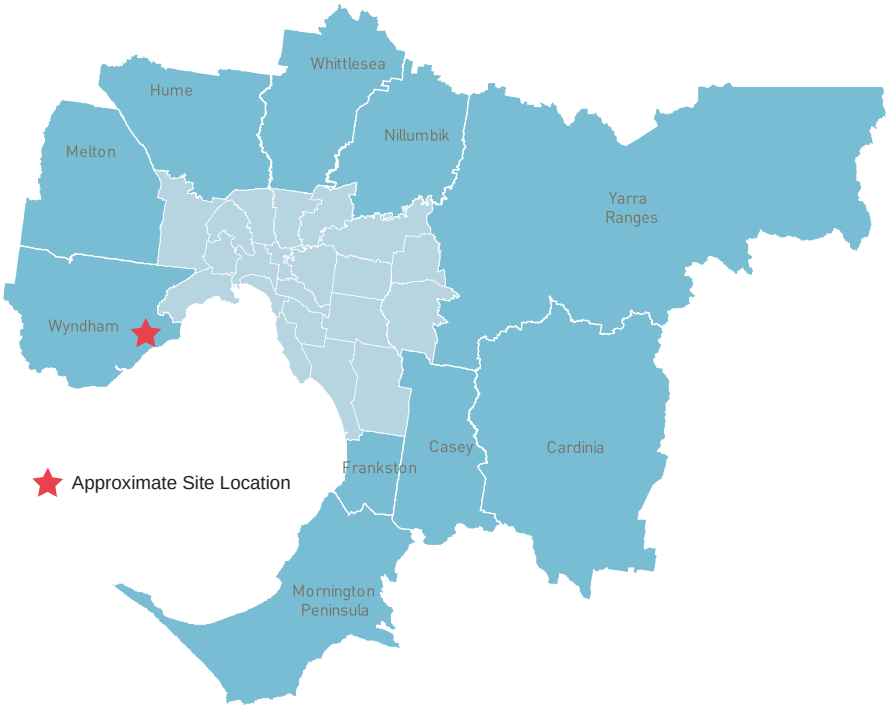
Assessment of groundwater conditions suggest that Segment C groundwater is expected at depths of between 3 and 9 m below ground level. Impacts on the proposed development as may be due to shallow groundwater or contamination are not anticipated. Contamination assessment of the groundwater carried out on Lincoln Heath site closer to potential contaminant source areas failed to identify groundwater contamination impacts. No suspected sources of groundwater contamination are present on Lot T. Groundwater concentrations of certain intrinsic background parameters (such as TDS) limit the desirability of groundwater use for livestock watering and/or primary contact recreational use.

Inspection of the site identified possible small areas of tipped material. Care should be taken during site development to appropriately manage any undisclosed rubbish or fill found.




Scale:

0 200 400 800 1200 m


**Atma** *Environmental*

Client: australand

Project: #1209 Point Cook - DSI

Drawn by: GRB Dated: 13/12/2014 Status: Final

***Figure 1. Site Location***


Background Image: NearMap 7 Nov 2014.

Atma *Environmental*

Client: australand

Project: #1209 Point Cook - DSI

Drawn by: GRB Dated: 13/12/2014 Status: Final

***Figure 2. Sample Locations***

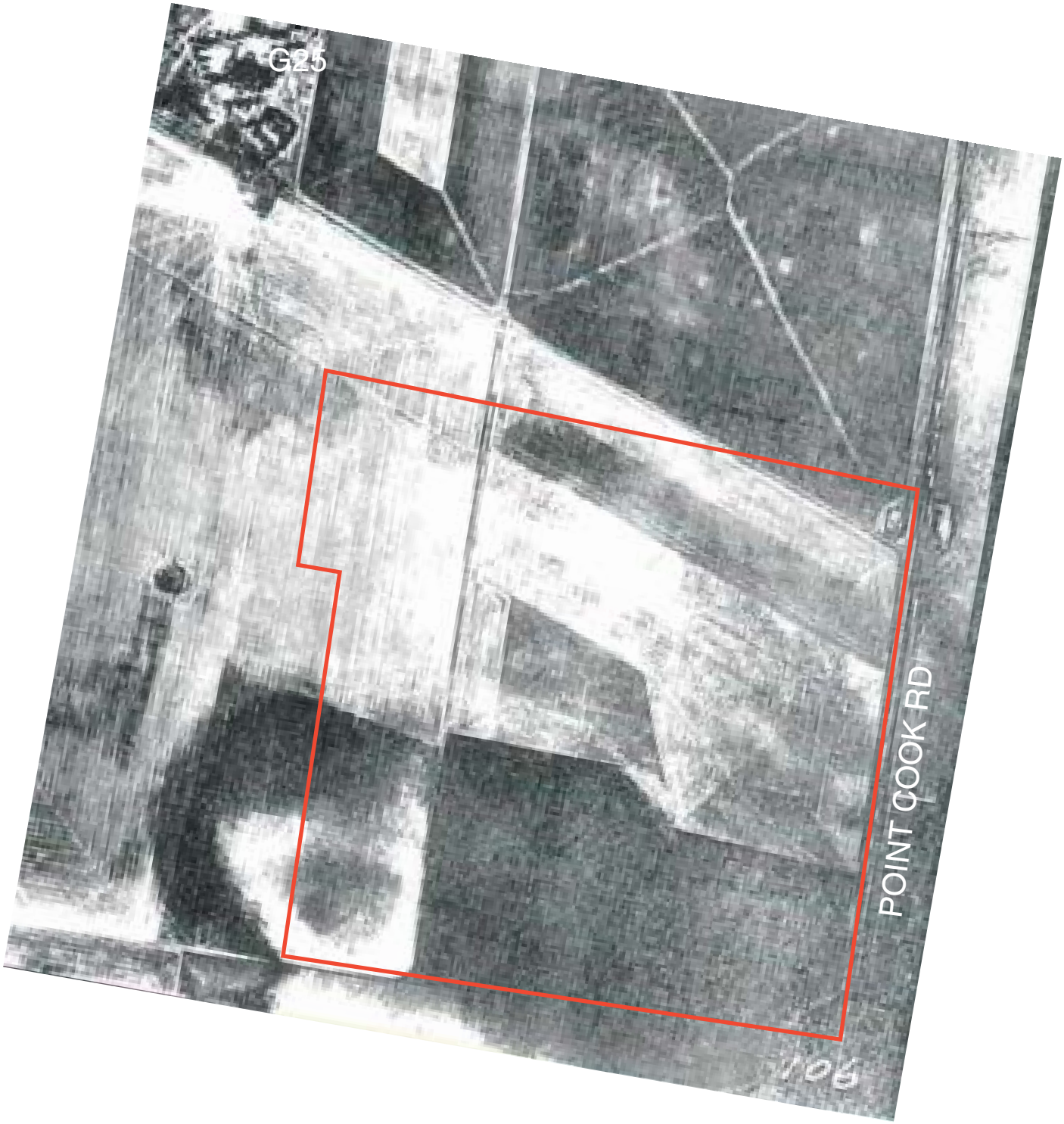
Investigation Area

Soil Sampling Location

Approximate Scale:

0 50 100 200 300 m

N




Investigation Area

N

Atma *Environmental*

Client: australand

Project: #1209 Point Cook - DSI

Drawn by: GRB Dated: 13/12/2014 Status: Final

***Figure 3. Aerial Photograph 1968***


Investigation Area

N

Atma *Environmental*

Client: australand

Project: #1209 Point Cook - DSI

Drawn by: GRB Dated: 13/12/2014 Status: Final

***Figure 4. Aerial Photograph 1972***


Investigation Area

N

**Atma** *Environmental*

Client: australand

Project: #1209 Point Cook - DSI

Drawn by: GRB Dated: 13/12/2014 Status: Final

***Figure 5. Aerial Photograph 1984***


Investigation Area

N

Atma *Environmental*

Client:

Project: #1209 Point Cook - DSI

Drawn by: GRB Dated: 13/12/2014 Status: Final

***Figure 6. Aerial Photograph 1991***

**Table 1. Analytical Summary - Soil**

PROJECT: #1209 POINT COOK

Atma Environmental

| Sample No. | Laboratory | Date Sampled | Antimony (Sn) | Arsenic (As) | Beryllium (Be) | Cadmium (Cd) | Chromium (Cr) | Cobalt (Co) | Copper (Cu) | Lead (Pb) | Manganese (Mn) | Mercury (Hg) | Molybdenum (Mo) | Nickel (Ni) | Selenium (Se) | Tin (Sn) | Vanadium (V) | Zinc (Zn) | OCPs | OPPs | Sulphate | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G25/0.15 | MGT | 10/11/2001 | <10 | 9.9 | <2 | <0.5 | 81 | 12 | 13 | 14 | 340 | <0.1 | <10 | 19 | <2 | <10 | 120 | 33 | | | | |
| G32/0.15 | MGT | 10/11/2001 | <10 | 7.0 | <2 | <0.5 | 44 | 7.7 | 11 | 10 | 270 | <0.1 | <10 | 14 | <2 | <10 | 62 | 27 | | | | |
| G33/0.15 | MGT | 10/11/2001 | <10 | 8.1 | <2 | <0.5 | 53 | 10 | 12 | 12 | 310 | <0.1 | <10 | 16 | <2 | <10 | 74 | 31 | | | | |
| G34/0.15 | MGT | 10/11/2001 | <10 | 9.1 | <2 | <0.5 | 96 | 18 | 15 | 13 | 670 | <0.1 | <10 | 30 | <2 | <10 | 91 | 40 | | | | 7.15 |
| G35/0.15 | MGT | 10/11/2001 | <10 | 6.9 | <2 | <0.5 | 40 | 9.2 | 11 | 12 | 300 | <0.1 | <10 | 15 | <2 | <10 | 57 | 28 | | | | |
| G36/0.15 | MGT | 10/11/2001 | <10 | 8.4 | <2 | <0.5 | 59 | 19 | 18 | 12 | 690 | <0.1 | <10 | 28 | <2 | <10 | 56 | 36 | | | <20 | |
| G37/0.15 | MGT | 10/11/2001 | <10 | 5.6 | <2 | <0.5 | 36 | 6.9 | 13 | 9.9 | 210 | <0.1 | <10 | 16 | <2 | <10 | 40 | 29 | | | 20 | 7.28 |
| COMP O | MGT | 10/11/2001 | | | | | | | | | | | | | | | | | N.D. | N.D. | | |
| COMP R | MGT | 10/11/2001 | | | | | | | | | | | | | | | | | N.D. | N.D. | | |
| COMP S | MGT | 10/11/2001 | | | | | | | | | | | | | | | | | N.D. | N.D. | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **NEPM 2013 EILs Resid/Parkland:** | | | **40** | **100** | **n/a** | **n/a** | **410** | **n/a** | **200** | **1100** | **n/a** | **n/a** | **n/a** | **170** | **n/a** | **n/a** | **n/a** | **440** | **180[&]** | **vary** | **n/a** | **n/a** |
| **NEPM 2013 'A' HILs:** | | | **n/a** | **100** | **OC** | **20** | **100^** | **100** | **6000** | **300** | **3800** | **40^^** | **n/a** | **400** | **200** | **n/a** | **n/a** | **7400** | **vary** | **vary** | **n/a** | **n/a** |

^ Cr VI criterion

^^ Inorganic Mercury criterion

**Bold** type exceeds NEPM EIL or HIL criteria

[&] OCP criterion is for DDT

n/a Means Not Available.

Blank space indicates no test performed

**Table 2. Analytical Summary - Groundwater**

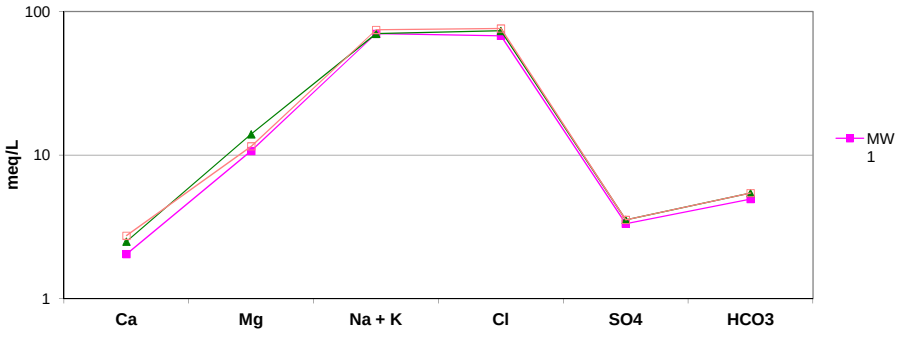
PROJECT: 1209 POINT COOK

Atma Environmental

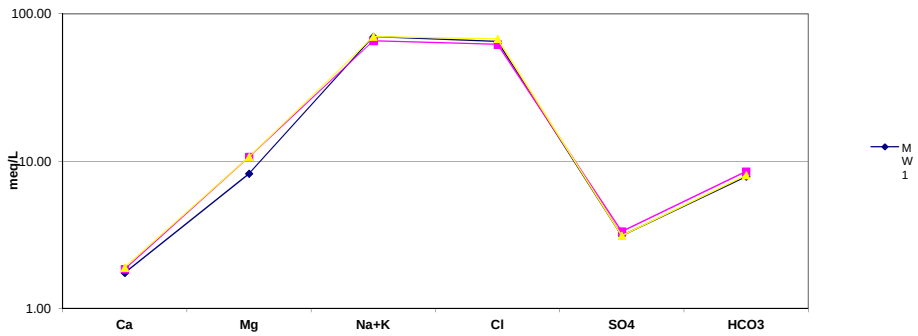
| Water Sample ID: | MW-1 | MW-1 | MW-2 | MW-2 | MW-3 | DUP1 | MW-3 | SPLIT MW3 | ANZECC 2000 Aquatic Ecosystems (Freshwaters) | ANZECC 2000 Livestock Water | NHMRC 2008 Primary Contact Recreation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Laboratory: | MGT | MGT | MGT | MGT | MGT | MGT | MGT | ALS | | | |
| Date: | 12/11/2001 | 20/08/2002 | 12/11/2002 | 20/08/2002 | 12/11/2001 | 12/11/2001 | 20/08/2002 | 20/08/2002 | | | |
| **Analysis:** | (mg/L) | (mg/L) | (mg/L) | (mg/L) | (mg/L) | (mg/L) | (mg/L) | (mg/L) | **(mg/L)** | **(mg/L)** | **(mg/L)** |
| Antimony (Sn) | <0.005 | <0.05 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | | 0.009 | n/a | n/a |
| Arsenic (As) | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.001 | 0.013 ($As^{V}$) | 0.500 | 0.007 |
| Beryllium (Be) | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | | 0.00013 | n/a | n/a |
| Cadmium (Cd) | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | | 0.0002 | 0.050 | 0.002 |
| Chromium (Cr) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | | n/a | 1.000 | n/a |
| Cobalt (Co) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | | 0.0028 | 1.000 | n/a |
| Copper (Cu) | **0.026** | <0.005 | **0.026** | <0.005 | **0.026** | **0.025** | <0.005 | **0.002** | 0.0014 | 0.400 | 2.0 |
| Lead (Pb) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | | 0.0034 | 0.100 | 0.01 |
| Manganese (Mn) | 0.033 | <0.005 | 0.030 | 0.070 | 0.031 | 0.029 | <0.005 | <0.001 | 1.900 | n/a | 0.500 |
| Mercury (Hg) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | 0.0006 | 0.002 | 0.001 |
| Molybdenum (Mo) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | | n/a | 0.150 | 0.050 |
| Nickel (Ni) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | | 0.011 | 1.00 | 0.020 |
| Selenium (Se) | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | 0.020 | | 0.011 | 0.020 | 0.010 |
| Tin (Sn) | <0.005 | <0.05 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | | 0.003 | n/a | n/a |
| Vanadium (V) | <0.005 | <0.05 | <0.005 | <0.05 | <0.005 | <0.005 | <0.05 | | 0.006 | n/a | n/a |
| Zinc (Zn) | **0.041** | <0.005 | **0.027** | <0.005 | **0.029** | **0.029** | <0.005 | <0.001 | 0.008 | 20.0 | n/a |
| Chloride | 2400 | 2300 | 2600 | 2200 | 2700 | 2700 | 2400 | | n/a | n/a | n/a |
| Sulphate | 160 | 150 | 170 | 160 | 170 | | 150 | | n/a | 1,000 | 500 |
| Bicarbonate | 500 | 480 | 550 | 520 | 550 | | 490 | | n/a | n/a | n/a |
| Carbonate | <0.05 | <0.5 | <0.05 | <0.5 | <0.05 | | <0.5 | | n/a | n/a | n/a |
| TDS | **4800** | **5100** | **4900** | **5000** | **4700** | **5000** | **4900** | | n/a | 2,000 | n/a |
| pH | 7.4 | 7.7 | 7.2 | 7.6 | 7.5 | | 7.7 | | n/a | n/a | n/a |
| Hardness | **600** | | **780** | | **680** | | | | n/a | n/a | 500 |
| EC | | 7700 | | 7500 | | | 7700 | | n/a | 280 | n/a |
| BTEX | <0.001 | | <0.001 | | <0.001 | | | | varies | n/a | 0.010 (benzene) |
| TRHs | ND | | ND | | ND | | | | n/a | n/a | no film/odour |
| OCPs | ND | | ND | | ND | | | | varies | n/a | 0.001-1.0 |
| OPPs | ND | | ND | | ND | | | | varies | n/a | n/a |
| Calcium | 41 | 35 | 50 | 37 | 55 | | 38 | | n/a | 1,000 | n/a |
| Magnesium | 130 | 100 | 170 | 130 | 140 | | 130 | | n/a | n/a | n/a |
| Potassium | 19 | 15 | 17 | 14 | 19 | | 19 | | n/a | n/a | n/a |
| Sodium | **1600** | **1600** | **1600** | **1500** | **1700** | | **1600** | | n/a | n/a | 300 |
| Nitrate | <0.05 | | <0.05 | | <0.05 | | | | 0.158 | 90.3 | 11.29 |
| Nitrite | <0.05 | | <0.05 | | <0.05 | | | | n/a | 9.12 | 0.912 |
| Qualitative Semi-volatile Scan | ND | | ND | | ND | | | | n/a | n/a | n/a |
| Qualitative Volatile Scan | ND | | ND | | ND | | | | n/a | n/a | n/a |

ND means not detectable; n/a mean no criterion available.

**Schoeller Plot - November 2001**




**Schoeller Plot - August 2002**



# APPENDIX A

## *Certificates of Land Title*

# Planning Property Report

from www.dtpli.vic.gov.au/planning on 13 December 2014 10:58 PM

**Address:** 360-438 POINT COOK ROAD POINT COOK 3030
**Lot and Plan Number:** Lot T PS521564
**Local Government (Council):** WYNDHAM **Council Property Number:** 140684
**Directory Reference:** Melway 207 K11

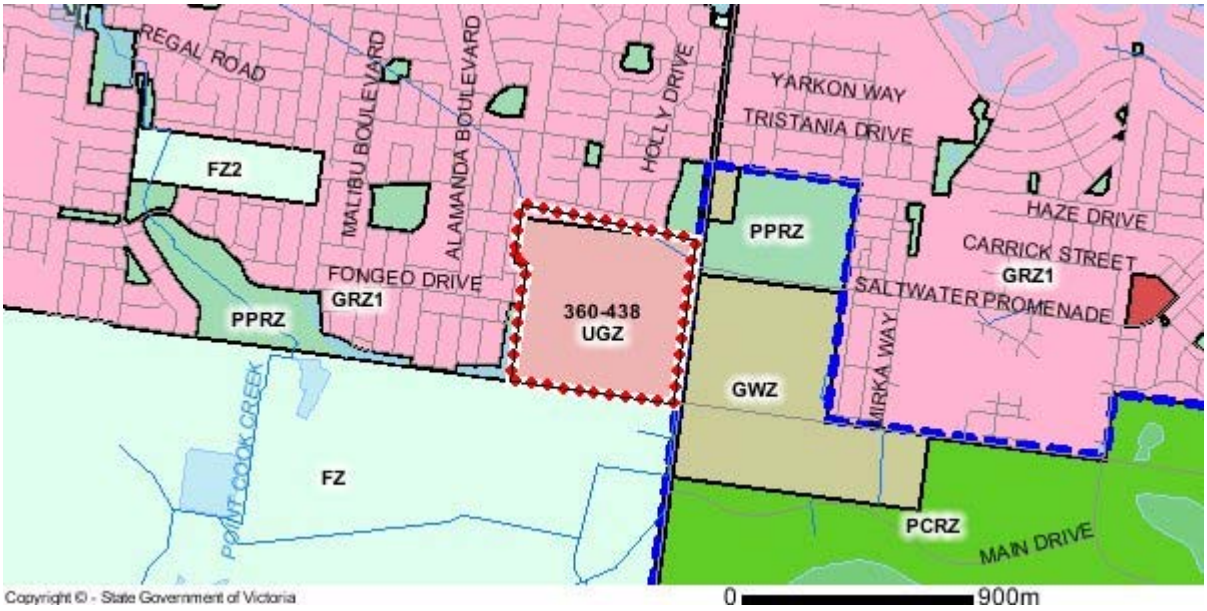
**This land is in an area added to the Urban Growth Boundary after 2005.**
**It may be subject to the Growth Area Infrastructure Contribution.**

For more information about this contribution go to the Growth Areas Authority website.

See next page for planning information

## Planning Zones

GENERAL RESIDENTIAL ZONE - SCHEDULE 1 (GRZ1)
SCHEDULE TO THE GENERAL RESIDENTIAL ZONE - SCHEDULE 1
URBAN GROWTH ZONE (UGZ)



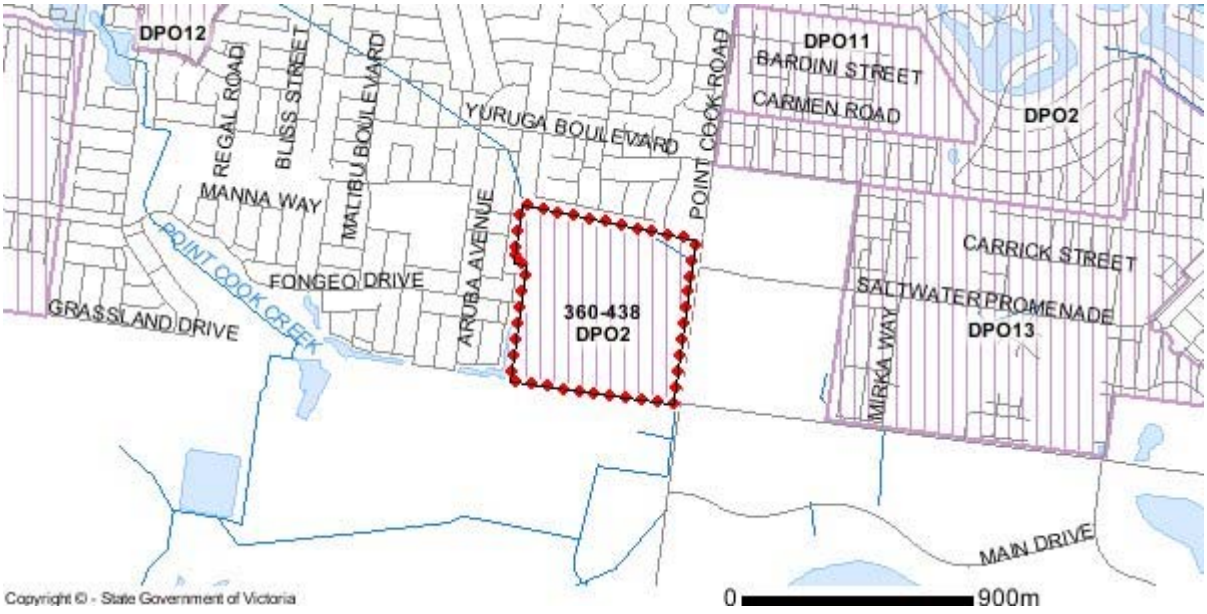

Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

### Zones Legend

- ACZ - Activity Centre
- B1Z - Commercial 1
- B2Z - Commercial 1
- B3Z - Commercial 2
- B4Z - Commercial 2
- B5Z - Commercial 1
- C1Z - Commercial 1
- C2Z - Commercial 2
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
- GWAZ - Green Wedge A
- GWZ - Green Wedge
- IN1Z - Industrial 1
- IN2Z - Industrial 2
- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
- NRZ - Neighbourhood Residential
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- PZ - Port
- R1Z - General Residential
- R2Z - General Residential
- R3Z - General Residential
- RAZ - Rural Activity
- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
- RDZ2 - Road - Category 2
- RGZ - Residential Growth
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

## Planning Overlay

DEVELOPMENT PLAN OVERLAY (DPO)
DEVELOPMENT PLAN OVERLAY - SCHEDULE 2 (DPO2)




### Overlays Legend

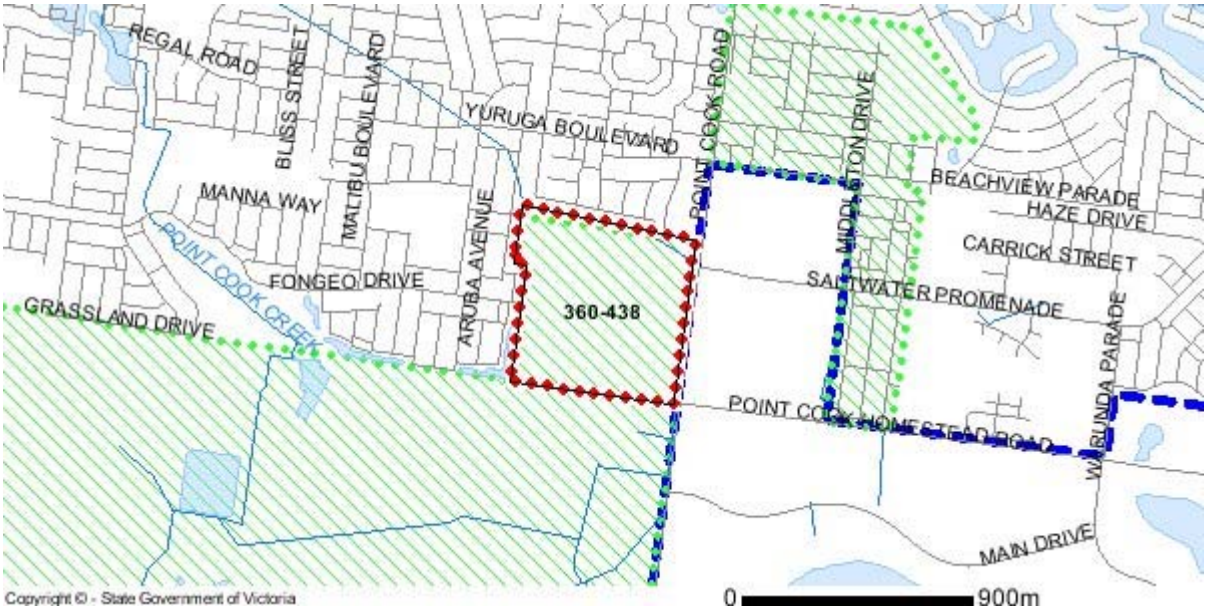
- AEO - Airport Environs
- BMO - Bushfire Management (also WMO)
- CLPO - City Link Project
- DCPO - Development Contributions Plan
- DDO - Design & Development
- DDOPT - Design & Development Part
- DPO - Development Plan
- EAO - Environmental Audit
- EMO - Erosion Management
- ESO - Environmental Significance
- FO - Floodway
- HO - Heritage
- IPO - Incorporated Plan
- LSIO - Land Subject to Inundation
- MAEO1 - Melbourne Airport Environs 1
- MAEO2 - Melbourne Airport Environs 2
- NCO - Neighbourhood Character
- PO - Parking
- PAO - Public Acquisition
- RO - Restructure
- RCO - Road Closure
- SBO - Special Building
- SLO - Significant Landscape
- SMO - Salinity Management
- SRO - State Resource
- VPO - Vegetation Protection

Note: due to overlaps some colours on the maps may not match those in the legend.

## Growth Area Infrastructure Contribution

This land is in an area added to the Urban Growth Boundary after 2005.
It may be subject to the Growth Area Infrastructure Contribution.

For more information about this contribution go to the **Growth Areas Authority** website.




**Growth Area Infrastructure Contribution Legend**

- Urban Growth Boundary
- Land added to UGB since 2005
- Investigation Area
- Selected land

## Areas of Aboriginal Cultural Heritage Sensitivity

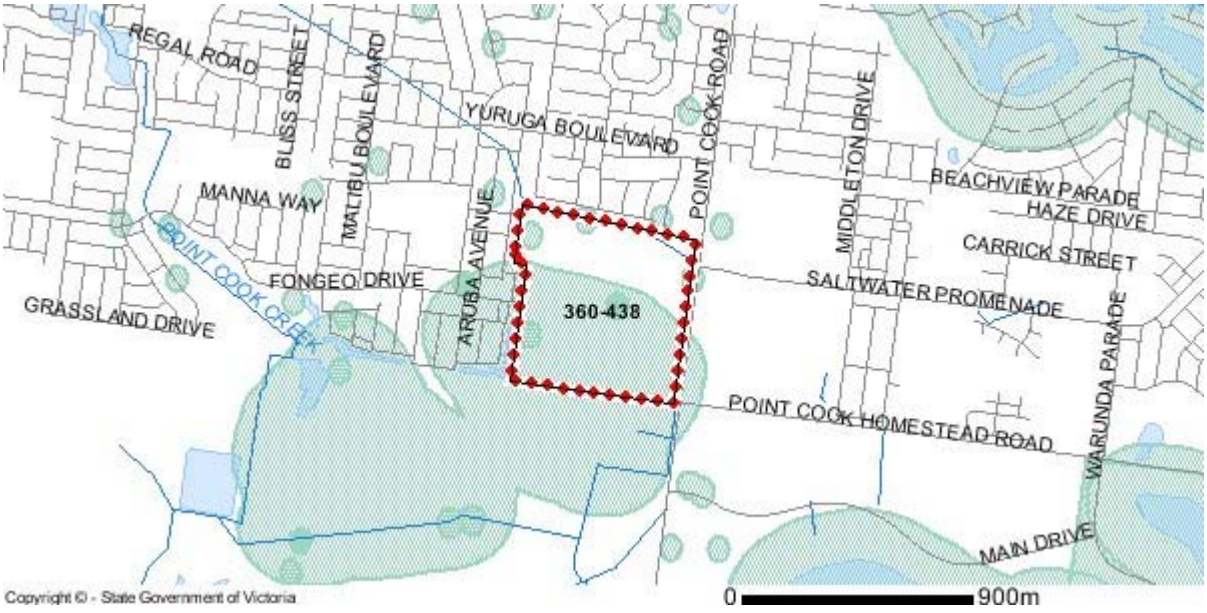
This property is within, or is affected by, one or more areas of cultural heritage sensitivity as described in the Aboriginal Heritage Regulations 2007.

The data provides indicative information about the location and extent of areas of Aboriginal cultural heritage sensitivity and is provided to assist with the decisions about the potential need to prepare a Cultural Heritage Management Plan in relation to proposed activities on this property.

For further information about whether a Cultural Heritage Management Plan is required go to Aboriginal Heritage Planning Tool

To find out if your property has any recorded Aboriginal cultural heritage places, such as scarred trees, occupation sites or places of burial, you can request information from the Victorian Aboriginal Heritage Register.

Find out more about the Victorian Aboriginal Heritage Register




**Aboriginal Cultural Heritage Sensitivity** Aboriginal Cultural Heritage Sensitivity Selected Land

## Further Planning Information

Planning scheme data last updated on 11 December 2014.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the Planning & Environment Act 1987. It does not include information about exhibited planning scheme amendments, or zonings that may abut the land. To obtain a Planning Certificate go to Titles and Property Certificates

For details of surrounding properties, use this service to get the Reports for properties of interest

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online

For other information about planning in Victoria visit www.dpcd.vic.gov.au/planning

**Historical Land Title Review – Job #134 Point Cook**

Current Title:

**v.10129 f.895 (Lot 1)**
**1993;** Eileen M. Bellin & Berryl R. Bellin.
**1997;** Lyndenhill Pty Ltd

**v.10129 f.896 (Lot 2)**
**1993;** Eileen M. Bellin & Berryl R. Bellin.
**1996;** Leenfield Pty Ltd

Historic Titles:

**v.9810 f.903**
**1987;** Eileen Bellin
Derived from v.8669 f.261

**v.9810 f.904**
**1987;** Beryl R. Bellin
Derived from v.8669 f.261

**v.8178 f.205**
**1968;** Stephen F. Bellin (Farmer)
**1991;** Eileen Bellin + Beryl M Bellin
Derived from v.8242 f.659

**v.8669 f.261 (Crown Grant)**
**1965;** Elizebeth Bellin (died 1970)
**1987;** Stephen Francis Bellin (died 1987)

**v.8242 f.659 (Crown Grant)**
**1958;** Stephen F. Bellin + James D. Bellin
**1965;** Bernard Bellin + Kevin Bellin

# Espreon Online Information System
## VIC LTO ALTS Title Search



REGISTER SEARCH STATEMENT Land Victoria

---

Security no : 124028070209G Volume 10790 Folio 838
Produced 27/11/2008 11:06 a

LAND DESCRIPTION

Lot T on Plan of Subdivision PS521564V.
PARENT TITLE Volume 10790 Folio 827
Created by instrument PS521564V 24/03/2004

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
LINCOLN HEATH ESTATE PTY LTD of LEVEL 3 1C HOMEBUSH BAY ROAD RHODES NSW 2
AE241019B 16/03/2006

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AE241021Q 16/03/2006
CBA CORPORATE SERVICES (NSW) PTY LTD

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Secti
24 Subdivision Act 1988 and any other encumbrances shown or entered on th
plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS521564V FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

---

The following information is provided for customer information only.

Street Address: 360-438 POINT COOK ROAD POINT COOK VIC 3030

STATEMENT END

# PLAN OF SUBDIVISION

| Stage No. | LR use only | Plan Number |
|---|---|---|
| / | EDITION 2 | PS 521564V |

## Location of Land

Parish: DEUTGAM

Township: –

Section: C

Crown Allotment: 11 (PART)

Crown Portion: –

Title Reference: VOL 10790 FOL 827

Last Plan Reference: PS 520176L LOT K

Postal Address: POINT COOK ROAD
(at time of subdivision) POINT COOK 3030

AMG Co-ordinates (of approx. centre of land in plan) E 301750 N 5801900 Zone: 55

## Council Certification and Endorsement

Council Name: WYNDHAM CITY COUNCIL Ref: WYP 2188 WYS 1111

1. This plan is certified under section 6 of the Subdivision Act 1988.
2. ~~This plan is certified under section 11(7) of the Subdivision Act 1988. Date of original certification under section 6 / /~~
3. This is a statement of compliance issued under section 21 of the Subdivision Act 1988.

OPEN SPACE

(i) A requirement for public open space under section 18 of the Subdivision Act 1988 ~~has~~/has not been made.

(ii) ~~The requirement has been satisfied.~~

(iii) ~~The requirement is to be satisfied in Stage.....~~

Council Delegate

~~Council Seal~~

Date 9/1/04

~~Re-certified under section 11(7) of the Subdivision Act 1988~~

~~Council Delegate~~

~~Council Seal~~

~~Date / /~~

## Vesting of Roads and/or Reserves

| Identifier | Council/Body/Person |
|---|---|
| NIL | NIL |

## Notations

**Staging** This ~~is~~/is not a staged subdivision
Planning Permit No.

**Depth Limitation** 15.24m BELOW THE SURFACE

LOTS A TO O (BOTH INCLUSIVE) HAVE BEEN OMITTED FROM THIS PLAN

**Survey** This plan is/~~is not~~ based on survey BP 1839V
This survey has been connected to permanent marks no(s) 89, 151, 152
In Proclaimed Survey Area No. 55

## Easement Information

Legend: E – Encumbering Easement, Condition in Crown Grant in the Nature of an Easement or Other Encumbrance; A – Appurtenant Easement; R – Encumbering Easement (Road)

| Subject Land | Purpose | Width (metres) | Origin | Land Benefited/In Favour Of |
|---|---|---|---|---|
| E-1 | DRAINAGE | SEE DIAG | PS 519081F | WYNDHAM CITY COUNCIL |
| E-1 | SEWERAGE | SEE DIAG | PS 519081F | CITY WEST WATER LIMITED |
| E-2 | SEWERAGE | SEE DIAG | THIS PLAN | CITY WEST WATER LIMITED |

LR use only

Statement of Compliance/ Exemption Statement

Received ☑

Date 24/3/04

LR use only

PLAN REGISTERED

TIME 6.38pm

DATE 24/3/04

Assistant Registrar of Titles

Sheet 1 of 4 sheets

LINCOLN HEATH 5 LOTS

**Bosco Jonson Pty Ltd**
A.B.N 95 282 532 642
P.O. Box 243, South Melbourne, Vic 3205
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE ..... DATE / /

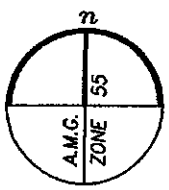
REF 3097093 DWG 309709BB 07/11/03 VERSION B

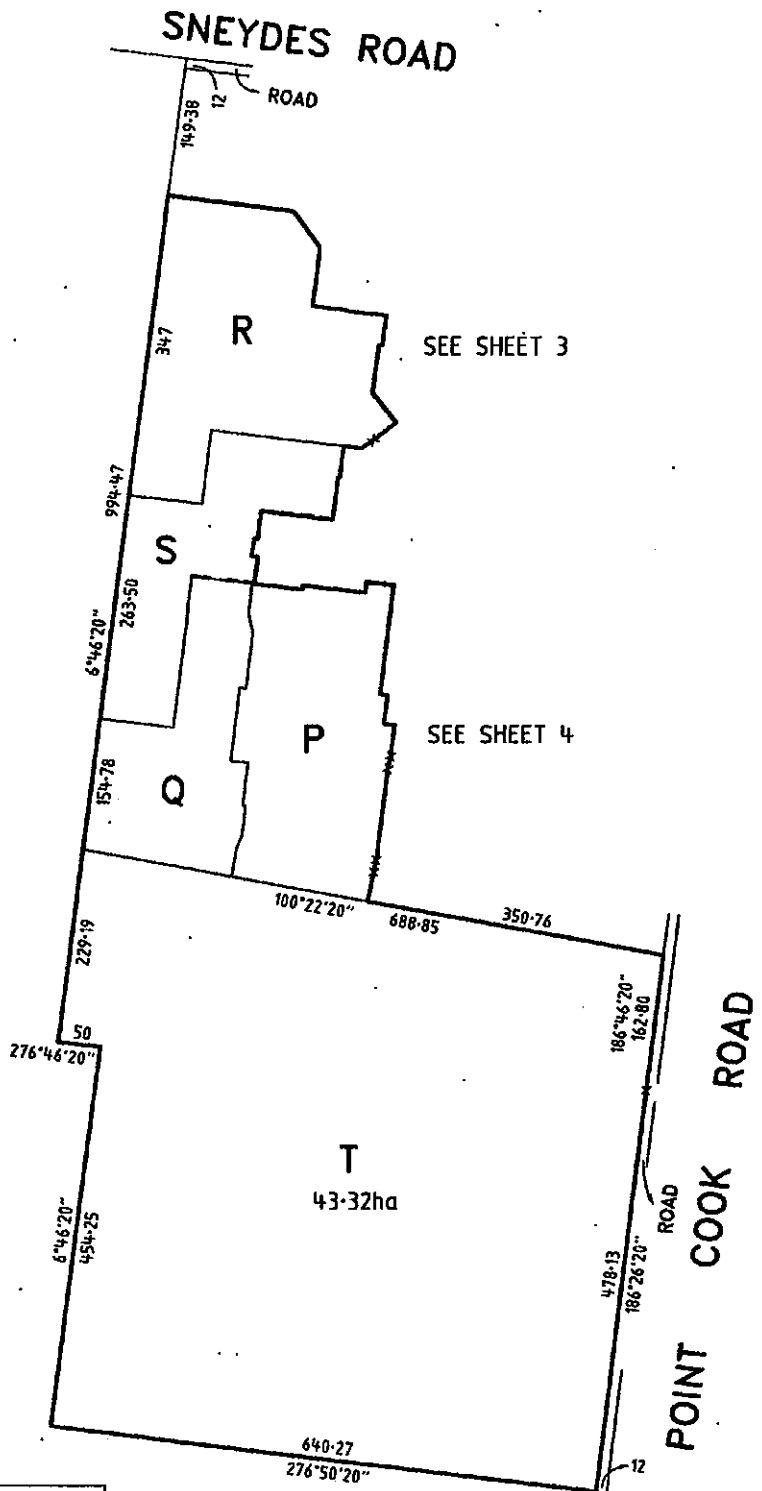
..... DATE / /

COUNCIL DELEGATE SIGNATURE

Original sheet size A3

| | PLAN OF SUBDIVISION | Stage No. / | Plan Number PS 521564V |
|---|---|---|---|




LINCOLN HEATH 5 LOTS

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A.B.N 95 282 532 642
P.O. Box 243, South Melbourne, Vic 3205
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

Sheet 2 of 4 sheets

ORIGINAL

| SCALE | SHEET SIZE |
|---|---|
| 1:6000 | A3 |

SCALE

60 0 120 240

LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE ..... DATE / /

REF 3097093 07/11/03 VERSION B
DWG 309709BB

DATE / /

COUNCIL DELEGATE SIGNATURE

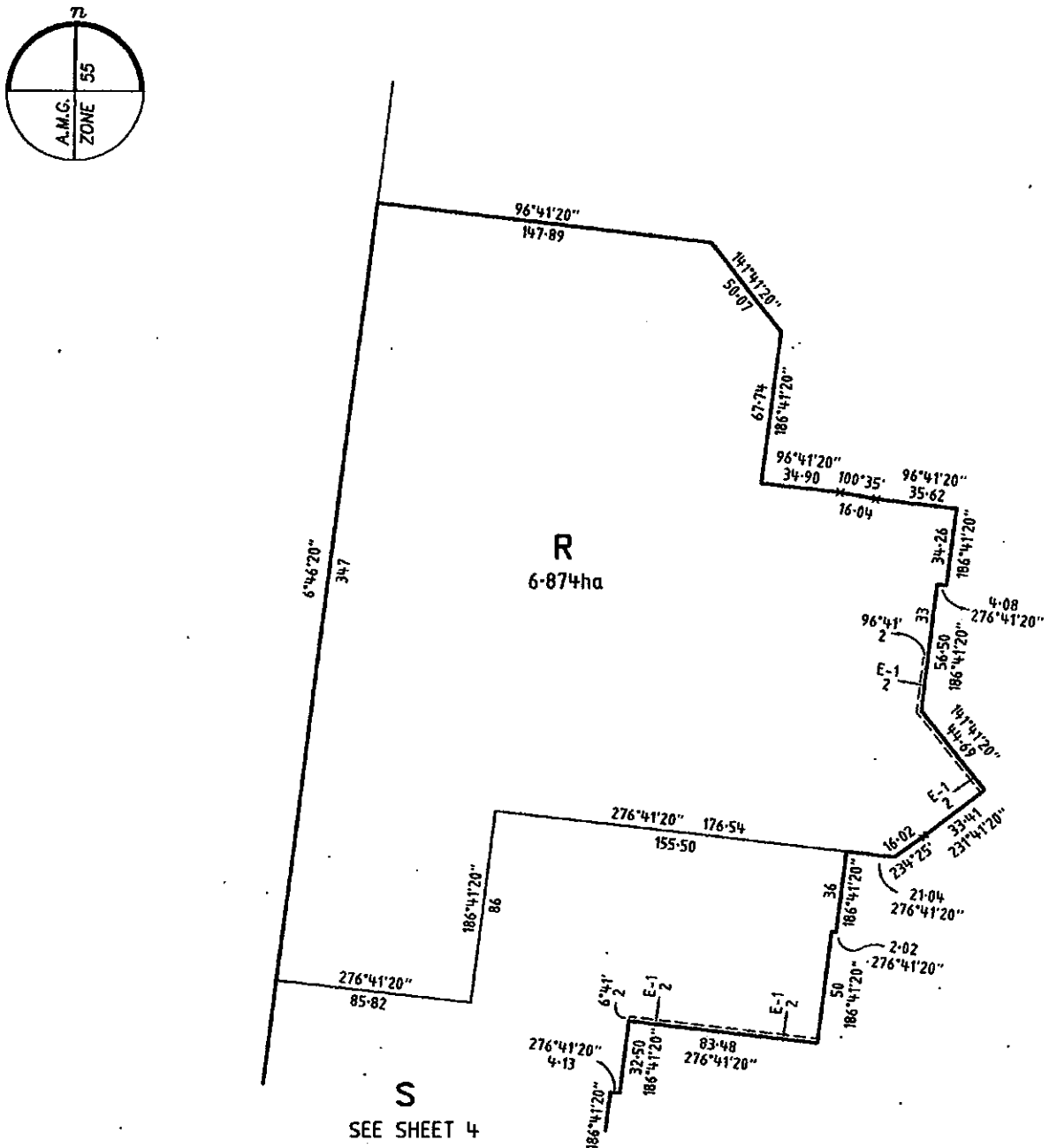
Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100 mm

# PLAN OF SUBDIVISION

Stage No. /

Plan Number **PS 521564V**




LINCOLN HEATH 5 LOTS

**Bosco Jonson Pty Ltd**
A.B.N 95 282 532 642
P.O. Box 243, South Melbourne, Vic 3205
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

ORIGINAL

SCALE 1:2000 | SHEET SIZE A3

SCALE 20 0 40 80 LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE ..... DATE / /

REF 3097093 OWG 309709BB 07/11/03 VERSION B

Sheet 3 of 4 sheets

..... DATE / /

COUNCIL DELEGATE SIGNATURE

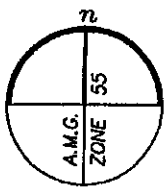
Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100 mm

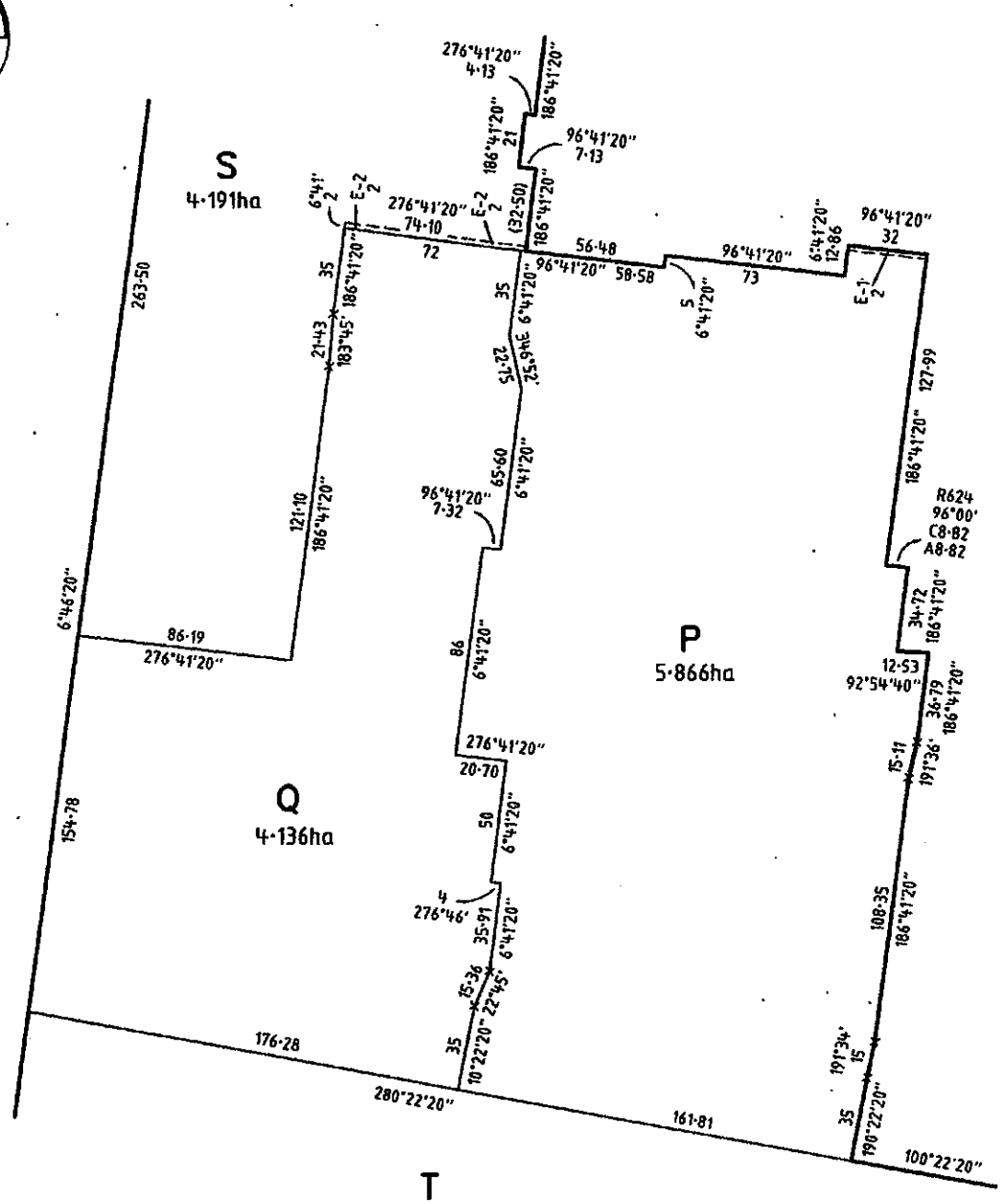
# PLAN OF SUBDIVISION

Stage No. /

Plan Number **PS 521564V**




SEE SHEET 3




SEE SHEET 2

LINCOLN HEATH — 5 LOTS

**Bosco Jonson Pty Ltd**
A.B.N 95 282 532 642
P.O. Box 243, South Melbourne, Vic 3205
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

ORIGINAL

SCALE 1:2000 | SHEET SIZE A3

SCALE 20 0 40 80 — LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE ..... DATE / /

REF 3097093 DWG 309709BB 07/11/03 VERSION B

Sheet 4 of 4 sheets

DATE / /

COUNCIL DELEGATE SIGNATURE

Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100 mm

# MODIFICATION TABLE

RECORD OF ALL ADDITIONS OR CHANGES TO THE PLAN

**PLAN NUMBER**

**PS521564V**

**WARNING: THE IMAGE OF THIS DOCUMENT OF THE REGISTER HAS BEEN DIGITALLY AMENDED. NO FURTHER AMENDMENTS ARE TO BE MADE TO THE ORIGINAL DOCUMENT OF THE REGISTER.**

| AFFECTED LAND/PARCEL | LAND/PARCEL IDENTIFIER CREATED | MODIFICATION | DEALING NUMBER | DATE | EDITION NUMBER | ASSISTANT REGISTRAR OF TITLES |
|---|---|---|---|---|---|---|
| - | - | RECTIFICATION (DEPTH LIMITATION) | A.O IN PS610962M | 11/9/08 | 2 | JFM |
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Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT



## REGISTER SEARCH STATEMENT Land Titles Office, Victoria



Security no : 124001561302L

Volume 10129 Folio 896
Produced 14/05/2002 11:34 am

**LAND DESCRIPTION**

Lot 2 on Plan of Subdivision 325664K.
PARENT TITLES :
Volume 08718 Folio 205
Volume 09810 Folio 903 to Volume 09810 Folio 904
Created by instrument PS325664K 19/08/1993

**REGISTERED PROPRIETOR**

Estate Fee Simple
Sole Proprietor
LEENFIELD PTY. LTD. of 19 KEAM ST EAST IVANHOE 3079
U565283R 20/12/1996

**ENCUMBRANCES, CAVEATS AND NOTICES**

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

**DIAGRAM LOCATION**

SEE PS325664K FOR FURTHER DETAILS AND BOUNDARIES

**DEALING ACTIVITY IN THE LAST 105 DAYS**

NIL

STATEMENT END

## REGISTER SEARCH STATEMENT Land Titles Office, Victoria



Security no : 124001561172B

Volume 10129 Folio 895
Produced 14/05/2002 11:32 am

**LAND DESCRIPTION**
Lot 1 on Plan of Subdivision 325664K.
PARENT TITLES :
Volume 08718 Folio 205
Volume 09810 Folio 903 to Volume 09810 Folio 904
Created by instrument PS325664K 19/08/1993

**REGISTERED PROPRIETOR**
Estate Fee Simple
Sole Proprietor
LYNDENHILL PTY LTD of 19 KEAM ST IVANHOE
V040309H 15/10/1997

**ENCUMBRANCES, CAVEATS AND NOTICES**
MORTGAGE V040310H 15/10/1997
WESTPAC BANKING CORPORATION

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

**DIAGRAM LOCATION**
SEE PS325664K FOR FURTHER DETAILS AND BOUNDARIES

**DEALING ACTIVITY IN THE LAST 105 DAYS**

NIL

STATEMENT END

# PLAN OF SUBDIVISION

| STAGE No. | LTO USE ONLY | PLAN NUMBER |
|---|---|---|
| | EDITION 3 | PS 325664 K |

## LOCATION OF LAND

PARISH: Deutgam

~~TOWNSHIP:~~

SECTION: C

CROWN ALLOTMENT: 7 and 11 (part)

~~CROWN PORTION:~~

LTO BASE RECORD: LITHO 1 (2518)
TITLE REFERENCES: Vol. 8718 Fol. 205,
Vol. 9810 Fol. 903, Vol. 9810 Fol. 904.

LAST PLAN REFERENCE/S:

POSTAL ADDRESS: (At time of subdivision) Sneydes Road, Point Cook.

AMG Co-ordinates (of approx centre of land in plan) E 301 500 N 5 802 000 ZONE: 55

## COUNCIL CERTIFICATION AND ENDORSEMENT

COUNCIL NAME: CITY OF WERRIBEE REF: 75/110/3794

1. This plan is certified under Section 6 of the Subdivision Act 1988
2. ~~This plan is certified under Section 11(7) of the Subdivision Act 1988.~~
~~Date of original certification under Section 6.~~ / /
3. This is a statement of compliance issued under Section 21 of the Subdivision Act 1988.

OPEN SPACE

(i) A requirement for public open space under Section 18 of the Subdivision Act 1988 ~~has~~/has not been made.

(ii) The requirement has been satisfied.

~~(iii) The requirement is to be satisfied in Stage~~

Council Delegate
~~Council Seal~~
Date 27 / 4 / 93

~~Re-certified under Section 11(7) of the Subdivision Act 1988~~
~~Council Delegate~~
~~Council Seal~~
~~Date / /~~

## VESTING OF ROADS AND/OR RESERVES

| IDENTIFIER | COUNCIL/BODY/PERSON |
|---|---|
| | |

## NOTATIONS

STAGING This is/is not a staged subdivision.
Planning permit No.

DEPTH LIMITATION

15·24 metres below the surface applies to Allotment 7.
15·14 metres below the surface applies to Allotment 11.

SURVEY. THIS PLAN IS/IS NOT BASED ON SURVEY

THIS SURVEY HAS BEEN CONNECTED TO PERMANENT MARKS No.(s)
IN PROCLAIMED SURVEY AREA No.

## EASEMENT INFORMATION

LEGEND A - Appurtenant Easement E - Encumbering Easement R - Encumbering Easement (Road)

| Easement Reference | Purpose | Width (Metres) | Origin | Land Benefited/In Favour Of |
|---|---|---|---|---|
| E-1 | Water Supply and Drainage | 20·12 | Crown Grant Vol. 8242 Fol. 659 | State Rivers and Water Supply Commission. |

LTO USE ONLY

STATEMENT OF COMPLIANCE/
EXEMPTION STATEMENT

RECEIVED ☑

DATE 27 / 7 / 93

LTO USE ONLY

PLAN REGISTERED

TIME 3·00

DATE 19 / 8 / 93

Assistant Registrar of Titles

SHEET 1 OF 2 SHEETS

KEARNEY and TYRRELL PTY. LTD.
LAND SURVEYORS PLANNING CONSULTANTS
194 KEILOR ROAD ESSENDON NORTH 3041
TELEPHONE 374 1666

LICENSED SURVEYOR (PRINT) DENIS J. KEARNEY

SIGNATURE ..... DATE 19 / 2 / 93

REF 6482 VERSION

DATE / /

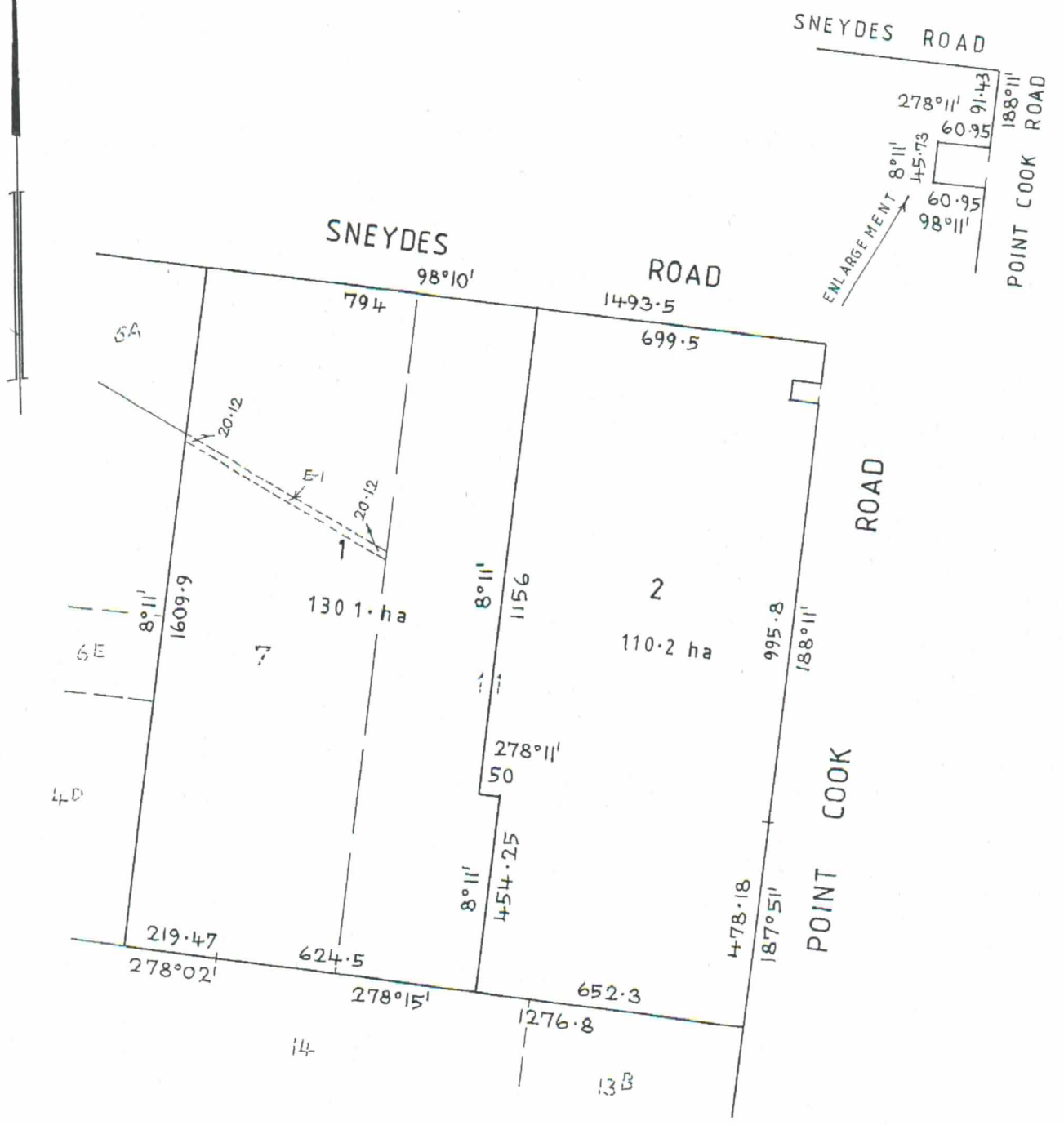
COUNCIL DELEGATE SIGNATURE

ORIGINAL SHEET SIZE A3

Cheffields PS01

# PLAN OF SUBDIVISION

| STAGE No. | PLAN NUMBER |
|---|---|
| | PS 325664 K |




KEARNEY and TYRRELL PTY. LTD.
LAND SURVEYORS PLANNING CONSULTANTS
194 KEILOR ROAD ESSENDON NORTH 3041
TELEPHONE 374 1666

100 0 200 500
LENGTHS ARE IN METRES

ORIGINAL

| SCALE | SHEET SIZE |
|---|---|
| 1:10000 | A3 |

LICENSED SURVEYOR (PRINT) DENIS J. KEARNEY
SIGNATURE ..... DATE 19 / 2 / 93
REF 6482 VERSION

SHEET 2 OF 2 SHEETS
DATE / /
COUNCIL DELEGATE SIGNATURE

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm

Creffields PS03

# MODIFICATION TABLE
## RECORD OF ALL ADDITIONS OR CHANGES TO THE PLAN

PLAN NUMBER

PS 325664K

| LAND | MODIFICATION | DEALING REFERENCE | DATE AND TIME | | NEW EDITION NUMBER | SIGNATURE OF ASSISTANT REGISTRAR OF TITLES |
|---|---|---|---|---|---|---|
| | | | DATE | TIME | | |
| LOTS 1 & 2 | SUBDIVISION | PS335577 X | | | 2 | |
| LOTS 1 + 2 | REJECTED | PS 335577 | | | 3 | |
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# APPENDIX B

## *AEPL Investigation Procedures*

## Quality Assurance Procedure - Soil Sampling

### 1. Sampling Equipment

Boreholes for environmental sampling of soil and groundwater in unconsolidated sediments are preferentially drilled by hand auger. Atma Environmental utilises equipment specially designed for environmental research. Numerous auger pods are at hand in the field to drill the soil most efficiently while minimising smear along borehole walls. Most auger pods allow taking of soil samples with minimal disturbance, which enables inspection of thin layers of soil down to 10 mm. It equally allows the sampling of individual layers without cross contamination with material from other layers. Due to the practically undisturbed nature of the sample, this can be verified visually in the field. For collapsing hole conditions, ABS casing is available to shield the auger from touching the top layers and to avoid hole collapse near the bottom of the hole. For soil sampling below the water table, a thin-wall tube (Shelby tube) sampling system is used to avoid contact with possibly contaminated water.

### 2. Sampling Procedure

1. Discuss borehole locations with site personnel to clear any underground utilities, use cable locater when appropriate.

2. Determine appropriate site safety conditions.

3. Take two sample blanks per day of fieldwork, as specified in the Quality Assurance sampling procedure.

4. Decontaminate sampling equipment.

5. Advance sampler to desired depth. Put on disposable latex sampling gloves prior to sampling; collect samples. Samples are removed from the soil by auger and placed into 150 ml (minimum) clean single use glass jars using latex sampling gloves after trimming the sample of any extraneous borehole sidewall material with a decontaminated knife. Sample containers must be completely filled in such a way as to minimise air pockets within the jar. The sample container is then capped with a lined lid. On specific projects, solvent and acid washed jars may be more appropriate for the application. Atma Environmental log all samples on to a Sample Master List as they are collected. In this fashion any suspected

incidence of cross contamination could be tracked down by looking at the order in which samples are collected.

6. Label sample container using waterproof pen. Labels to include:
   (a) Sample identification number (i.e.: borehole number and sample depth)
   (b) Project reference or job number
   (c) Date and time of sample collection

7. Check to make sure that the sample is tightly sealed and place in cooler immediately.

8. Log the remaining sample on the field bore log or monitoring well log and sample master list. Information to include:
   (a) Soil/rock type,
   (b) Colour,
   (c) Grainsize, sorting, angularity, inclusions,
   (d) Moisture conditions,
   (e) Staining and odour, and
   (f) Organic vapour concentration as measured with a calibrated PID or CED (LEL recorded if very high).

9. Fill out chain of custody form.

10. Store sample set under refrigeration after sampling and prior to transportation.

11. Transport iced sample set via courier with chain of custody to a registered environmental laboratory.

12. Store samples not sent to laboratory for one month after issue of report.

13. Decontaminate and rinse all sampling equipment between sampling locations, to prevent cross contamination.

## Quality Assurance Procedure - Decontamination

### 1. Manual Sampling Equipment

The procedure for decontamination of manual sampling equipment (e.g. hand augers, bailers, split spoons) used to collect INORGANIC samples is as follows:

a) Remove soil adhering to the sampling equipment by scraping, brushing or wiping. A disposable towel may be used for this purpose. Previously used rags may introduce contaminants and should not be used.

b) Wash thoroughly in a bucket with phosphate-free detergent (e.g. NapiSan) and tap water using dedicated brushes or disposable towels. Wipe clean.

c) Shake off excess water and wash again in a second bucket containing only tap water. Wipe clean.

d) Shake off excess water and rinse in a third bucket containing deionised water.

If sampling for ORGANIC parameters, further rinse the equipment with a 1:1 mixture of pesticide grade hexane & acetone.

e) Allow equipment to air dry prior to use on a clean sheet of paper or suspended above ground.

Refresh the wash water every 50 pieces cleaned or more often, depending on field conditions. Do this by disposing of the initial wash water and moving water from bucket 2, to bucket 1, etc. (fill last rinse bucket with fresh distilled water).

Collect 1 quality assurance rinsate blank for every 20 pieces of equipment washed (i.e. soil samples collected). If the rinsate blank is to be collected for inorganic analysis, preserve this in accordance with AS 2031. If the rinsate blank is to be collected for organic analysis, use a glass or PTFE container, preserve this in accordance with AS 2031 and ensure there is a tight seal to minimise loss of liquid.

### 2. Large Equipment

The procedure for decontaminating large equipment shall be as follows:

a) Remove soil adhering to the augers, drill stem and other equipment by scraping, brushing or wiping.

b) Thoroughly pressure wash equipment with tap water and phosphate free detergent using a steam cleaner.

c) Thoroughly rinse equipment with distilled water using a sprayer, collecting the rinsate blank if required and preserve it in accordance with AS2031.

d) Keep the equipment clean between uses by wrapping it in protective sheeting (e.g. plastic, aluminum foil, etc.).

## Quality Assurance Procedure – Quality Assurance Samples

### 1. Collection of Split and Duplicate Samples.

The procedure for collection of duplication/split samples is as follows:

a) A duplicate sample is collected along with the first primary sample collected so that there is at least one QA sample for every sampling program. Duplicate samples are then collected every +/- 20 samples thereafter.

b) A split sample is collected about the 10th primary sample and every +/- 20 samples thereafter.

c) Split/duplicate samples should be taken from the same depth interval in a single action. The removed soil is then placed within a clean stainless steel pan where it is mixed thoroughly to homogenise the soil, after which it is then divided into two jars.

d) Duplicate samples are labeled in such a manner to disclose the sample from its replicate or original (primary) sample in a blind test. The convention used by Atma Environmental is DUPL 1, DUPL 2, etc. numbered sequentially in the order they are sampled. Duplicate samples are then submitted to the same laboratory. Duplicate sample numbers are entered alongside the primary sample ID on the Atma Sample Master List.

e) Split samples follow the same procedure as duplicates but are submitted to a secondary laboratory to check on the proficiency of the primary lab. Conventionally, the sample IDs are prefixed by the word "Split". Samples should both be tested by laboratories using the same analytical methods. Split sample numbers are entered alongside the primary sample ID on the Atma Sample Master List.

### 2. Collection of Rinsate Blank.

The procedures for collection of rinsate samples are as follows:

a) Decontaminate equipment used for sampling in accordance with decontamination procedures.

b) Using laboratory grade deionised water pour an amount of rinsate water over the part of the decontaminated equipment contacting the soil. Collect the rinsate water directly into a clean sample container. Avoid using an intermediate container to collect the rinsate sample (e.g. a bucket).

c) Collect one quality assurance rinsate blank per day or for every 50 pieces of equipment washed (i.e. soil samples collected). If the rinsate blank is to be collected for inorganic analysis, preserve this in accordance with AS 2031. If the rinsate blank is to be collected for organic analysis, use a glass or PTFE container, preserve this in accordance with AS 2031 and ensure there is a tight seal to minimize loss of liquid.

d) Enter the rinsate sample number on the Sample Master List as RW1, RW2, etc. and label the sample.

### 3. Collection of Field Blank Samples.

The procedures for collecting field blank samples is as follows:

a) A fresh, unused sample jar is to be opened and exposed to the environmental conditions at the sampling locations for a 20 minute period, during the fieldwork, twice a day.

b) After 20 minutes, the jars should be sealed, labeled as FB-1 and FB-2 and entered on the Atma Environmental Sample Master List and chain of custody form, before being sent along with the soil samples to the analytical laboratory for testing.

c) If tested, the sample jars should be filled with deionised water and the water tested for the same range of contaminants that the soil contaminants are being tested.

d) The results may be used to determine whether any soil contamination may be attributed to the immediate environmental conditions.

e) Two field blanks should be collected for every day of sampling.

# APPENDIX C

## *Borehole Logs*

## Table X. Grid Sample Soil Descriptions

Atma Environmental

Project Ref.: **1209**

Location: **Point Cook**

Date: **10/11/01**

Site Co-ordinator: **Glenn Berry**

| Sample | Soil Description | Sample | Soil Description |
|---|---|---|---|
| G01/0.15 | LOESS, red-brown, dry, dense | G22/0.15 | CLAY LOESS, red-brown, moderate dense, dry |
| G02/0.15 | SILTY LOESS, red-brown, dry, dense | G23/0.15 | SILTY CLAY, brown, dry, very firm |
| G03/0.15 | SILTY CLAY LOESS, red-brown, dry, dense, minor bulkflecks | G24/0.15 | LOESS, bright red-brown, dry, dense, crumbly |
| G04/0.15 | SILTY CLAY, brown, moist, less dense, slightly plastic | **G25/0.15** | No decscription available |
| G05/0.15 | CLAY LOESS, red-brown, bright, dense, ferruginous | G26/0.15 | LOESS, red-brown, dry, slightly dense |
| G06/0.15 | very slight loess, red-brown, Fe nods, dry, dense | G27/0.15 | CLAY LOESS, dry, red-brown, dense, some Fe |
| G07/0.15 | SILTY LOESS, brown, moist going dry, plastic | G28/0.15 | SILTY CLAY, red-brown, slightly moist, ferrug., dense, bulk flecks, coarse sand |
| G08/0.15 | LOESS, red-brown, bright in part, dry, dense | G29/0.15 | SILTY LOESS, brown, dry, dense |
| G09/0.15 | CLAY LOESS, red-brown, dense, slightly moist | G30/0.15 | CLAY LOESS, red-brown, slightly moist, dense, some Fe |
| G10/0.15 | SILTY CLAY, bright red-brown, dry, very dense | G31/0.15 | SILTY CLAY LOESS, grey-brown, dry, dense, ferruginous |
| G11/0.15 | LOESS, brown, dry dense | **G32/0.15** | SILTY CLAY LOESS, very dense, dry, red-brown |
| G12/0.15 | LOESS, brown, dry dense | **G33/0.15** | SILTY LOESS, red-brown, dense, dry |
| G13/0.15 | SILTY LOESS, red-brown, dry, dense | **G34/0.15** | SANDY LOESS, bright red-brown, dry, dense |
| G14/0.15 | SILTY LOESS, red-brown, dry, dense | **G35/0.15** | LOESS, brown, dry, moderate dense, loose |
| G15/0.15 | CLAY LOESS, red-brown, dry, dense | **G36/0.15** | SILTY CLAY, dark grey-brown, very firm, dry, organic |
| G16/0.15 | CLAY LOESS, brown, dry, dense | **G37/0.15** | CLAY, grey, plastic, moist |
| G17/0.15 | SILTY CLAY, brown, very dense, dry, some Fe | G38/0.15 | SILTY CLAY LOESS, dark grey-brown, firm, slightly moist, organic |
| G18/0.15 | SILTY CLAY LOESS, red-brown, dense, dry, deep cracked | G39/0.15 | SILTY CLAY LOESS, red-brown, dry, dense |
| G19/0.15 | CLAY LOESS, red-brown, dense, dry, ferruginous | G40/0.15 | CLAY LOESS, red-brown, dry, slightly dense |
| G20/0.15 | CLAY LOESS, brown, dry, very dense | G06B/0.15 | Organic topsoil, bulk, dry, stressed vegetaion |
| G21/0.15 | LOESS, brown, dry, very dense | G20B/0.15 | SILTY LOESS, red-brown, dense, dry |
| | | | |
| | | | |

Sampling Locations specific to 360-438 Point Cook Road (2014) are highlighted in grey.

# Soil Borehole Log

Atma Environmental

Project : Point Cook (#134)

Engineer: Jay Parmansche

Date: 7/11/01



BOREHOLE/TESTPIT No.: MW1

Diameter: 85mm

Method: Rotary Auger/Hammer

| Depth (m) | Soil Description | Water | Field Rank (0-4) | Samples Collected | OVA Readings | Additional Observations |
|---|---|---|---|---|---|---|
| 0.00 | | | | | | |
| | CLAYEY SILT, loose, brown | DR | 0 | 0.1 | 0 | |
| | CLAY, brown, very firm, plastic, abundant calcite | DR | 0 | 0.5 | 0 | |
| | CLAY, brown, firm, low plasticity, some calcite | DR | 0 | 1.0 | 0 | |
| | | | | 2.0 | 0 | |
| 2.50 | BASALT, brown/grey, slightly porous | DR | 0 | | | |
| | | | | 4.0 | 0 | |
| 5.00 | | | | | | |
| 7.50 | | | | | | |
| | becoming moist | M | 0 | | | |
| 10.00 | | | | | | EOH @ 10.0m |

*Remarks:*

**WATER CONTENT:** DR - dry; DP - damp; M - moist; S - saturated

**FIELD RANKING:** 0 - clean; 1- fill/suspect; 2 - fill + suspect; 3 - odorous/stained; 4- very contam.

# Soil Borehole Log

Atma Environmental

Project : Point Cook (#134)

Engineer: Jay Parmansche

Date: 7/11/01



BOREHOLE/TESTPIT No.: MW2

Diameter: 85mm

Method: Rotary Auger/Hammer

| Depth (m) | Soil Description | Water | Field Rank (0-4) | Samples Collected | OVA Readings | Additional Observations |
|---|---|---|---|---|---|---|
| 0.00 | SILTY CLAY, low plasticity, brown | DR | 0 | 0.1 | 0 | |
| | CLAY, brown, very firm, plastic, some calcite | DR | 0 | 0.5 | 0 | |
| | | | | 1.0 | 0 | |
| 1.50 | CLAY, brown, firm, low plasticity, some basalt pebbles | DR | 0 | | | |
| | SANDY CLAY, brown, low plasticity, some floating weathered basalt | DR | 0 | 2.0 | 0 | |
| 3.00 | BASALT, grey/brown, slightly porous | DR | 0 | | | |
| | SANDY CLAY, brown, low plasticity, some floating weathered basalt | DR | 0 | 4.0 | 0 | |
| 4.50 | becoming moist | M | 0 | | | |
| 6.00 | | | | | | EOH @ 6.0m |

*Remarks:*

**WATER CONTENT:** DR - dry; DP - damp; M - moist; S - saturated

**FIELD RANKING:** 0 - clean; 1- fill/suspect; 2 - fill + suspect; 3 - odorous/stained; 4- very contam.

# Soil Borehole Log

Atma Environmental

Project : Point Cook (#134)

Engineer: Jay Parmansche

Date: 7/11/01



BOREHOLE/TESTPIT No.: MW3

Diameter: 85mm

Method: Rotary Auger/Hammer

| Depth (m) | Soil Description | Water | Field Rank (0-4) | Samples Collected | OVA Readings | Additional Observations |
|---|---|---|---|---|---|---|
| 0.00 | SILTY CLAY, brown, loose, fine-medium grained | DR | 0 | 0.1 | 10 | |
| | CLAY, very firm, brown, plastic, some calcite | DP | 0 | 0.5 | 0 | |
| | | | | 1.0 | 0 | |
| | CLAYEY SILT, loose, light brown, some calcite, some basalt pebbles | DR | 0 | 2.0 | 0 | |
| 2.50 | BASALT, hard, grey/brown, slightly porous | DR | 0 | | | |
| | | | | 4.0 | 0 | |
| 5.00 | | | | | | |
| 7.50 | becoming moist | M | 0 | | | |
| 10.00 | | | | | | EOH @ 10.0m |

*Remarks:*

**WATER CONTENT:** DR - dry; DP - damp; M - moist; S - saturated

**FIELD RANKING:** 0 - clean; 1- fill/suspect; 2 - fill + suspect; 3 - odorous/stained; 4- very contam.

## Table X. Grid Sample Soil Descriptions

Project Ref.: **134**

Date: **10/11/01**

Location: **Point Cook**

Site Co-ordinator: **Glenn Berry**

| Sample | Soil Description |
|---|---|
| G01/0.15 | LOESS, red-brown, dry, dense |
| G02/0.15 | SILTY LOESS, red-brown, dry, dense |
| G03/0.15 | SILTY CLAY LOESS, red-brown, dry, dense, minor bulkfleck |
| G04/0.15 | SILTY CLAY, brown, moist, less dense, slightly plastic |
| G05/0.15 | CLAY LOESS, red-brown, bright, dense, ferruginous |
| G06/0.15 | very slight loess, red-brown, Fe nods, dry, dense |
| G07/0.15 | SILTY LOESS, brown, moist going dry, plastic |
| G08/0.15 | LOESS, red-brown, bright in part, dry, dense |
| G09/0.15 | CLAY LOESS, red-brown, dense, slightly moist |
| G10/0.15 | SILTY CLAY, bright red-brown, dry, very dense |
| G11/0.15 | LOESS, brown, dry dense |
| G12/0.15 | LOESS, brown, dry dense |
| G13/0.15 | SILTY LOESS, red-brown, dry, dense |
| G14/0.15 | SILTY LOESS, red-brown, dry, dense |
| G15/0.15 | CLAY LOESS, red-brown, dry, dense |
| G16/0.15 | CLAY LOESS, brown, dry, dense |
| G17/0.15 | SILTY CLAY, brown, very dense, dry, some Fe |
| G18/0.15 | SILTY CLAY LOESS, red-brown, dense, dry, deep cracked |
| G19/0.15 | CLAY LOESS, red-brown, dense, dry, ferruginous |
| G20/0.15 | CLAY LOESS, brown, dry, very dense |
| G21/0.15 | LOESS, brown, dry, very dense |
| | |

| Sample | Soil Description |
|---|---|
| G22/0.15 | CLAY LOESS, red-brown, moderate dense, dry |
| G23/0.15 | SILTY CLAY, brown, dry, very firm |
| G24/0.15 | LOESS, bright red-brown, dry, dense, crumbly |
| G25/0.15 | No decscription available |
| G26/0.15 | LOESS, red-brown, dry, slightly dense |
| G27/0.15 | CLAY LOESS, dry, red-brown, dense, some Fe |
| G28/0.15 | SILTY CLAY, red-brown, slightly moist, ferrug., dense, bulk flecks, coarse sand |
| G29/0.15 | SILTY LOESS, brown, dry, dense |
| G30/0.15 | CLAY LOESS, red-brown, slightly moist, dense, some Fe |
| G31/0.15 | SILTY CLAY LOESS, grey-brown, dry, dense, ferruginous |
| G32/0.15 | SILTY CLAY LOESS, very dense, dry, red-brown |
| G33/0.15 | SILTY LOESS, red-brown, dense, dry |
| G34/0.15 | SANDY LOESS, bright red-brown, dry, dense |
| G35/0.15 | LOESS, brown, dry, moderate dense, loose |
| G36/0.15 | SILTY CLAY, dark grey-brown, very firm, dry, organic |
| G37/0.15 | CLAY, grey, plastic, moist |
| G38/0.15 | SILTY CLAY LOESS, dark grey-brown, firm, slightly moist, organic |
| G39/0.15 | SILTY CLAY LOESS, red-brown, dry, dense |
| G40/0.15 | CLAY LOESS, red-brown, dry, slightly dense |
| G06B/0.15 | Organic topsoil, bulk, dry, stressed vegetaion |
| G20B/0.15 | SILTY LOESS, red-brown, dense, dry |
| | |

# APPENDIX D

## *Well Installation Records*

SOUTHERN
Rural Water

30 November 2001

Jay Parmansche
Atma Environmental
10/459 Little Collins Street
MELBOURNE VIC 3000

Dear Jay

**APPLICATION FOR A BORE CONSTRUCTION LICENCE**

I reply to your recent application on behalf of your client Australand Holdings. Enclosed is Bore Construction Licence No. 58858 which authorises you to construct 3 groundwater investigation bores at the Sneydes Road, Werribee site indicated in your application (in the Parish of Deutgam).

We shall be grateful if you will provide us with a detailed site plan showing the exact location of the bores when they are available **(including AMG Co-ordinates)** for the Groundwater Database records.

An official receipt in respect of the $436.00 received in payment for this Licence is enclosed, for your records.

As "Licensee" it is your responsibility to ensure that all conditions of the licence are complied with. You should discuss this matter with your service provider (driller) ensuring that conditions of the licence are understood and adhered to. I am also enclosing a driller's copy of your licence. Could you please pass this onto your chosen driller.

**As part of the bore construction process, Southern Rural Water may undertake an inspection of the works during construction. You will be notified accordingly if this is to occur.**

If you have any further enquires then please do not hesitate to contact Narelle Proud, Licensing Officer, on (03) 5139 3143.

Yours sincerely

NProud

**TREVOR McDEVITT**
**Manager Licensing Administration**

c:\primary data\bcl's\bcl-consultants (iv).doc

PO Box 153 MAFFRA VIC 3860
Telephone: (03) 5139 3100
Facsimile: (03) 5139 3150

ABN: 70 801 473 421
Email: srw@srw.com.au
Website: http://www.srw.com.au

# Well Installation & Completion Record

Atma Environmental

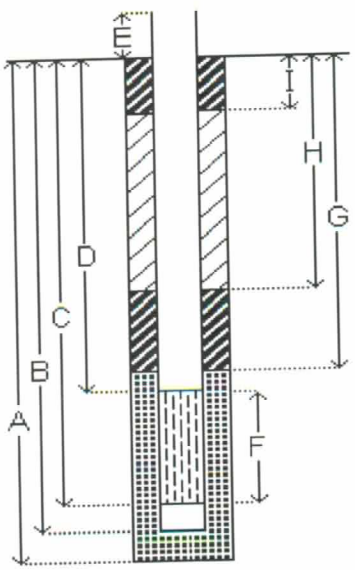
**Project:** Point Cook **Site No:** 134 **Location:** Cnr. Sneydes and Point Cook Road

**WELL NO.:** MW1

| | |
|---|---|
| **Date of Installation:** | 7/11/01 |
| **Drilling method:** | Auger/Hammer |
| **Drilling fluid used:** | Air |
| **Samples obtained?:** | Yes |
| **Borehole diameter:** | 100mm |
| **Well material:** | PVC |
| **Slot size:** | 0.2mm |
| **Gravel pack size:** | 4mm |
| **Grout seals - 1st type:** | Bentonite |
| **- 2nd type:** | |
| **Well diameter:** | 50mm |
| **Flush cover:** | No |

| | |
|---|---|
| **Drilling Company:** | Statewide Drilling |
| **Drilling method:** | Auger/Hammer |
| **Drilling fluid used:** | Air |
| **Driller's License No:** | 567 |
| **Well developed by:** | Submersible Pump |
| **Amount Used:** | |
| **or Recovered:** | ~30L |

**WELL CONSTRUCTION DETAILS:**




| | |
|---|---|
| **A:** | 10.0m |
| **B:** | 10.0m |
| **C:** | 10.0m |
| **D:** | 7.0m |
| **E:** | 0.54m |
| **F:** | 3.0m |
| **G:** | 7.0m |
| **H:** | 6.0m |
| **I:** | - |

| | |
|---|---|
| **Borehole water at:** | ~8.5m depth |
| **Water level after install:** | 8.26m |
| **Approx. recharge/yield:** | <10L/s |
| **Well screen in:** | BASALT |

**Contaminant(s) encountered:**
None

**VOC detector measurements**

| Depth (m): | ppm: |
|---|---|
| 0.1 | 0 |
| 0.5 | 0 |
| 1.0 | 0 |
| 2.0 | 0 |
| 4.0 | 0 |

**Notes:**
Situated next to sheep dip.

**Engineer/Site Supervisor:**
Jay Parmansche, B.Eng.(Env.)

# Well Installation & Completion Record

Atma Environmental

**Project:** Point Cook **Site No:** 134 **Location:** Cnr. Sneydes and Point Cook Road

**WELL NO.:** MW2

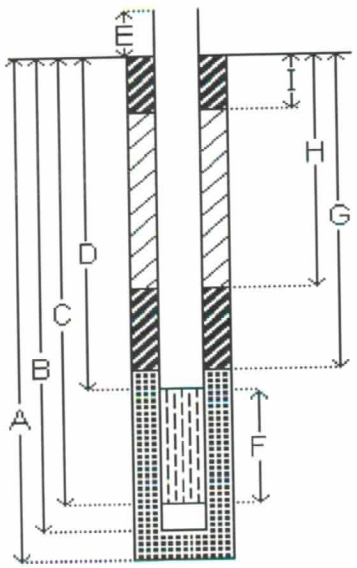
| | |
|---|---|
| **Date of Installation:** | 7/11/01 |
| **Drilling method:** | Auger/Hammer |
| **Drilling fluid used:** | Air |
| **Samples obtained?:** | Yes |
| **Borehole diameter:** | 100mm |
| **Well material:** | PVC |
| **Slot size:** | 0.2mm |
| **Gravel pack size:** | 4mm |
| **Grout seals - 1st type:** | Bentonite |
| **- 2nd type:** | |

| | |
|---|---|
| **Well diameter:** | 50mm |
| **Flush cover:** | No |

| | |
|---|---|
| **Drilling Company:** | Statewide Drilling |
| **Drilling method:** | Auger/Hammer |
| **Drilling fluid used:** | Air |

| | |
|---|---|
| **Driller's License No:** | 567 |
| **Well developed by:** | Bailer |
| **Amount Used:** | |
| **or Recovered:** | ~30L |

**WELL CONSTRUCTION DETAILS:**




| | |
|---|---|
| **A:** | 6.0m |
| **B:** | 6.0m |
| **C:** | 6.0m |
| **D:** | 3.0m |
| **E:** | 0.54m |
| **F:** | 3.0m |
| **G:** | 3.0m |
| **H:** | 2.0m |
| **I:** | - |

| | |
|---|---|
| **Borehole water at:** | ~5.0m depth |
| **Water level after install:** | 2.46m |
| **Approx. recharge/yield:** | <10L/s |

**Well screen in:** Sandy CLAY

**Contaminant(s) encountered:**
None

**VOC detector measurements**

| Depth (m): | ppm: |
|---|---|
| 0.1 | 0 |
| 0.5 | 0 |
| 1.0 | 0 |
| 2.0 | 0 |
| 4.0 | 0 |

**Notes:**
Situated next to tip site.

**Engineer/Site Supervisor:**
Jay Parmansche, B.Eng.(Env.)

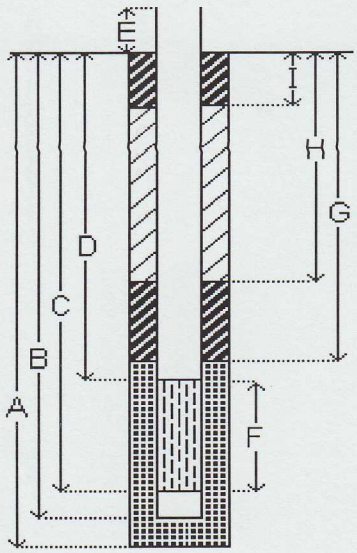
# Well Installation & Completion Record

Atma Environmental

**Project:** Point Cook **Site No:** 134 **Location:** Cnr. Sneydes and Point Cook Road

| | | | |
|---|---|---|---|
| **Date of Installation:** | 7/11/01 | **WELL NO.:** | **MW3** |
| **Drilling method:** | Auger/Hammer | | |
| **Drilling fluid used:** | Air | | |
| **Samples obtained?:** | Yes | | |
| **Borehole diameter:** | 100mm | **Well diameter:** | 50mm |
| **Well material:** | PVC | **Flush cover:** | No |
| **Slot size:** | 0.2mm | | |
| **Gravel pack size:** | 4mm | | |
| **Grout seals - 1st type:** | Bentonite | | |
| **- 2nd type:** | | | |
| **Drilling Company:** | Statewide Drilling | **Driller's License No:** | 567 |
| **Drilling method:** | Auger/Hammer | **Well developed by:** | Submersible Pump |
| **Drilling fluid used:** | Air | **Amount Used:** | |
| | | **or Recovered:** | ~40L |

**WELL CONSTRUCTION DETAILS:**




| | |
|---|---|
| **A:** | 10.0m |
| **B:** | 10.0m |
| **C:** | 10.0m |
| **D:** | 7.0m |
| **E:** | 0.76m |
| **F:** | 3.0m |
| **G:** | 7.0m |
| **H:** | 6.0m |
| **I:** | - |

**Borehole water at:** ~9.0m depth
**Water level after install:** 8.52m
**Approx. recharge/yield:** <10L/s

**Well screen in:** BASALT

**Contaminant(s) encountered:**
None

**VOC detector measurements**

| **Depth (m):** | **ppm:** |
|---|---|
| 0.1 | 10 |
| 0.5 | 0 |
| 1.0 | 0 |
| 2.0 | 0 |
| 4.0 | 0 |

**Notes:**
Situated behind the Machinery Shed.

**Engineer/Site Supervisor:**
Jay Parmansche, B.Eng.(Env.)

# APPENDIX E

## *Chain of Custody and Laboratory Reports*

150524

# Chain of Custody Record

(modified after US EPA chain of custody form)

Sheet 1 of 3

Atma Environmental

PROJECT: POINT COOK  Sampler's Signature: △ G Berry

Site No: 134  Date 10/11/2001  Time:

| SAMPLE NO | DISCRETE | COMPOSITE | GRAB | SAMPLE MATRIX: SOIL | WATER | | ANALYSIS FOR: 16 metals | sulphate | pH | | | | | | CONTAINERS | COMPOSITING INSTRUCTIONS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G01/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G02/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G03/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G04/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G05/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G06/0.15 | ✓ | | | ✓ | | | x | | x | | | | | | | |
| G07/0.15 | ✓ | NO 871. | | ✓ | | | x | | | | | | | | | |
| G08/0.15 | ✓ | NO 872 | | ✓ | | | x | | | | | | | | | |
| G09/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G10/0.15 | ✓ | | | ✓ | | | x | x | | | | | | | | |
| G11/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G12/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G13/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| missing sample G14/0.15 | ✓ | NO 877 | | ✓ | | | x | | | | | | | | | |
| G15/0.15 | ✓ | | | ✓ | | | x | x | | | | | | | | |
| G16/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G17/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G18/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G19/0.15 | ✓ | | | ✓ | | | x | x | x | | | | | | | |
| G20/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| TOTAL: | | | | | | | | | | | | | | | | |

Please test for 24 hr turnaround

RELINQUISHED BY: (sign)  RECEIVED BY: (sign)  (DATE/TIME)

Chu Tran  16/11/01.

DISPATCHED BY: (sign)  DATE/TIME

△ G Berry  10/11/01 18:30

■ LAB NAME: M.G.T.  (DATE/TIME)

REC'D FOR LAB BY: (sign)

FINAL (TYPED) RESULTS SHALL BE AVAILABLE WITHIN: (24 HRS) ~~48 HRS~~ ~~NORMAL~~

LAB. NO.  FAXED RESULTS REC'D:  (DATE/TIME)

LAB. SUP[illegible] (sign)  FINAL RESULTS REC'D:  (DATE/TIME)

REMARKS

Fax results (03) 9670 6559

NOTE: Use only 50% of each jar to make composite sample. Mix content of jars thoroughly before taking 50% out.

Store all samples in cool, dark place.

△ Must be completed by Atma Environmental  ■ Must be completed with date and time by laboratory.

# Chain of Custody Record

(modified after US EPA chain of custody form)

Sheet 2 of 3

Atma Environmental

PROJECT: POINT COOK Sampler's Signature: △ G Berry

Site No: 134 Date 10/11/2001 Time:

| SAMPLE NO. | DISCRETE | COMPOSITE | GRAB | SAMPLE MATRIX: SOIL | WATER | | ANALYSIS FOR: 16 metals | Sulphate | pH | | | | | | CONTAINERS | COMPOSITING INSTRUCTIONS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G21/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G22/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G23/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G24/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G25/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G26/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G27/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G28/0.15 | ✓ | | | ✓ | | | x | | x | | | | | | | |
| G29/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G30/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G31/0.15 | ✓ | | | ✓ | | | x | x | | | | | | | | |
| G32/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| x2 G33/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G34/0.15 | ✓ | | | ✓ | | | x | | x | | | | | | | |
| G35/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G36/0.15 | ✓ | | | ✓ | | | x | x | | | | | | | | |
| G37/0.15 | ✓ | | | ✓ | | | x | x | x | | | | | | | |
| G38/0.15 | ✓ | | | ✓ | | | x | x | | | | | | | | |
| G39/0.15 | ✓ | | | ✓ | | | x | | | | | | | | | |
| G40/0.15 | ✓ | | | ✓ | | | x | x | | | | | | | | |
| TOTAL: | | | | | | | | | | | | | | | | |

RELINQUISHED BY: (sign) RECEIVED BY: (sign) (DATE/TIME)

DISPATCHED BY: (sign) DATE/TIME △ G Berry 10/11/01 18:30

■ LAB NAME: MGT. (DATE/TIME)

REC'D FOR LAB BY: (sign)

FINAL (TYPED) RESULTS SHALL BE AVAILABLE WITHIN 24 HRS ~~48 HRS~~ ~~NORMAL~~

LAB. NO. FAXED RESULTS REC'D: (DATE/TIME)

LAB. SUPERVISOR: (sign) FINAL RESULTS REC'D: (DATE/TIME)

REMARKS:

**Fax results to: (03) 9670 6559**

NOTE: Use only 50% of each jar to make composite sample. Mix content of jars thoroughly before taking 50% out

Store all samples in cool, dark place.

△ Must be completed by Atma Environmental ■ Must be completed with date and time by laboratory

# Chain of Custody Record

(modified after US EPA chain of custody form)

Sheet 3 of 3

Atma Environmental

PROJECT: POINT COOK  Sampler's Signature: △ G Berry

Site No: 134  Date 10/11/2001  Time:

| SAMPLE NO. | DISCRETE | COMPOSITE | GRAB | SAMPLE MATRIX: SOIL | WATER | | ANALYSIS FOR: 16 metals | OCPs | OPPs | As,Ni,Cr,Zn,Cu | TRH | | | | CONTAINERS | COMPOSITING INSTRUCTIONS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G06B/0.15 | ✓ | | | ✓ | | | X | X | X | | | | | | | |
| G20B/0.15 | ✓ | | | ✓ | | | X | X | X | | | | | | | |
| BH1/0.1 | ✓ | | | ✓ | | | X | X | X | | X | | | | | |
| BH1/0.5 | ✓ | | | ✓ | | | X | X | X | | | | | | | |
| DUPL G1 | ✓ | | | ✓ | | | | | | X | | | | | | |
| DUPL G2 | ✓ | | | ✓ | | | | | | X | | | | | | 'G' * 10.15 ↓ |
| COMP 1 J | | | | | | | | X | | | | | | | | → 1,2,3,4 |
| COMP 2 K | | | | | | | | X | X | | | | | | | → 5,6,15,16 |
| COMP 3 L | | | | | | | | X | | | | | | | | → 7,8,13,14 |
| COMP 4 M | | | | | | | | X | | | | | | | | → 9,10,11,12 |
| COMP 5 N | | | | | | | | X | | | | | | | | → 17,18,27,28 |
| COMP 6 O | | | | | | | | X | X | | | | | | | → 19,20,25,26 |
| COMP 7 P | | | | | | | | X | | | | | | | | → 21,22,23,24 |
| COMP 8 Q | | | | | | | | X | | | | | | | | → 29,30,39,40 |
| COMP 9 R | | | | | | | | X | X | | | | | | | → 31,32,37,38 |
| COMP 10 S | | | | | | | | X | X | | | | | | | → 33,34,35,36 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| TOTAL: | | | | | | | | | | | | | | | | |

RELINQUISHED BY: (sign)  RECEIVED BY: (sign)  (DATE/TIME)

DISPATCHED BY: (sign) △ G Berry  DATE/TIME 10/11/01/18:30

■ LAB NAME: M.G.T.  (DATE/TIME)

REC'D FOR LAB BY: (sign)

FINAL (TYPED) RESULTS SHALL BE AVAILABLE WITHIN: (24 HRS) ~~48 HRS~~ ~~NORMAL~~

LAB. NO.  FAXED RESULTS REC'D  (DATE/TIME)

LAB. SUPERVISOR: (sign)  FINAL RESULTS REC'D  (DATE/TIME)

REMARKS: COMPS 1-10 relabelled to letters

**Fax results to: (03) 9670 6559**

NOTE: Use only 50% of each jar to make composite sample. Mix content of jars thoroughly before taking 50% out.
Store all samples in cool, dark place.
△ Must be completed by Atma Environmental  ■ Must be completed with date and time by laboratory.

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

# MGT ANALYSIS REPORT 150524

CLIENT :- Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

SITE :- POINT COOK 134

DATE RECEIVED :- 12/11/01

DATE EXTRACTED OR PREPARED :- 12/11/01 - 13/11/01

DATE REPORTED :- 20/11/01

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 150524
A total of 7 duplicate, 4 matrix spike % recovery and 5 method blank analyses or sets of analyses were carried out on this batch of samples.
All QA/QC results for duplicates, matrix spike % recoveries, method blanks and known QC standards were within the set acceptable criteria.

FINAL REPORT :- The results in this report supersede any previously corresponded results.

Michael Wright
Laboratory Manager

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

## HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)

| Sample | G01/0.15 | G01/0.15 Dup | G02/0.15 | G03/0.15 | G04/0.15 | G05/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0865#Soil | NO0865D#Soil | NO0866#Soil | NO0867#Soil | NO0868#Soil | NO0869#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 7.3 | 8.2 | 10 | 12 | 7.9 | 11 |
| Beryllium | <2 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 57 | 61 | 85 | 140 | 52 | 90 |
| Cobalt | 15 | 16 | 16 | 19 | 13 | 13 |
| Copper | 15 | 16 | 14 | 21 | 13 | 15 |
| Lead | 15 | 16 | 13 | 11 | 10 | 14 |
| Manganese | 730 | 750 | 450 | 530 | 510 | 420 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 24 | 27 | 33 | 41 | 27 | 22 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 69 | 70 | 94 | 120 | 59 | 110 |
| Zinc | 47 | 49 | 34 | 36 | 30 | 32 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G06/0.15 | G07/0.15 | G08/0.15 | G09/0.15 | G10/0.15 | G11/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0870#Soil | NO0871#Soil | NO0872#Soil | NO0873#Soil | NO0874#Soil | NO0875#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 15 | 7.5 | 7.5 | 8.1 | 9.8 | 8.3 |
| Beryllium | <5 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 140 | 51 | 53 | 53 | 96 | 46 |
| Cobalt | 27 | 9.5 | 8.8 | 12 | 21 | 11 |
| Copper | 20 | 11 | 14 | 13 | 21 | 11 |
| Lead | 18 | 21 | 13 | 13 | 12 | 12 |
| Manganese | 1100 | 290 | 260 | 400 | 650 | 400 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 43 | 17 | 16 | 18 | 47 | 17 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 180 | 66 | 68 | 67 | 90 | 77 |
| Zinc | 37 | 30 | 31 | 34 | 37 | 27 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G12/0.15 | G14/0.15 | G15/0.15 | G16/0.15 | G17/0.15 | G18/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0876#Soil | NO0877#Soil | NO0878#Soil | NO0879#Soil | NO0880#Soil | NO0881#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 8.1 | 11 | 9.8 | 13 | 7.7 | 8.1 |
| Beryllium | <2 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 55 | 97 | 66 | 54 | 47 | 51 |
| Cobalt | 11 | 20 | 15 | 12 | 11 | 12 |
| Copper | 11 | 16 | 16 | 12 | 11 | 13 |
| Lead | 12 | 15 | 14 | 14 | 13 | 13 |
| Manganese | 380 | 640 | 550 | 310 | 380 | 320 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 18 | 30 | 19 | 18 | 15 | 14 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 74 | 120 | 89 | 120 | 69 | 71 |
| Zinc | 30 | 36 | 35 | 28 | 26 | 29 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G19/0.15 | G20/0.15 | G21/0.15 | G22/0.15 | G22/0.15 Dup | G23/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0882#Soil | NO0883#Soil | NO0884#Soil | NO0885#Soil | NO0885D#Soil | NO0886#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 8.3 | 8.4 | 7.9 | 7.4 | 6.9 | 7.4 |
| Beryllium | <2 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 59 | 53 | 48 | 48 | 50 | 43 |
| Cobalt | 15 | 12 | 12 | 12 | 14 | 10 |
| Copper | 13 | 13 | 12 | 16 | 14 | 12 |
| Lead | 12 | 14 | 14 | 12 | 13 | 12 |
| Manganese | 660 | 370 | 470 | 540 | 560 | 350 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 23 | 16 | 16 | 18 | 18 | 15 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 75 | 76 | 70 | 62 | 64 | 60 |
| Zinc | 28 | 44 | 31 | 33 | 34 | 32 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G24/0.15 | G25/0.15 | G26/0.15 | G27/0.15 | G28/0.15 | G29/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0887#Soil | NO0888#Soil | NO0889#Soil | NO0890#Soil | NO0891#Soil | NO0892#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 9.6 | 9.9 | 6.8 | 7.8 | 7.4 | 7.8 |
| Beryllium | <2 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 83 | 81 | 43 | 49 | 51 | 43 |
| Cobalt | 18 | 12 | 9.9 | 12 | 11 | 7.5 |
| Copper | 15 | 13 | 11 | 11 | 13 | 10 |
| Lead | 13 | 14 | 12 | 13 | 8.8 | 13 |
| Manganese | 640 | 340 | 340 | 330 | 260 | 220 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 33 | 19 | 14 | 13 | 19 | 11 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 90 | 120 | 59 | 73 | 60 | 70 |
| Zinc | 38 | 33 | 26 | 28 | 26 | 25 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G30/0.15 | G31/0.15 | G32/0.15 | G33/0.15 | G34/0.15 | G35/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0893#Soil | NO0894#Soil | NO0895#Soil | NO0896#Soil | NO0897#Soil | NO0898#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 7.0 | 7.2 | 7.0 | 8.1 | 9.1 | 6.9 |
| Beryllium | <2 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 42 | 46 | 44 | 53 | 96 | 40 |
| Cobalt | 7.9 | 7.9 | 7.7 | 10 | 18 | 9.2 |
| Copper | 11 | 11 | 11 | 12 | 15 | 11 |
| Lead | 11 | 9.7 | 10 | 12 | 13 | 12 |
| Manganese | 190 | 180 | 270 | 310 | 670 | 300 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 15 | 18 | 14 | 16 | 30 | 15 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 58 | 58 | 62 | 74 | 91 | 57 |
| Zinc | 29 | 28 | 27 | 31 | 40 | 28 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G36/0.15 | G37/0.15 | G38/0.15 | G39/0.15 | G40/0.15 | G06B/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0899#Soil | NO0900#Soil | NO0901#Soil | NO0902#Soil | NO0903#Soil | NO0904#Soil |
| Antimony | <10 | <10 | <10 | <10 | <10 | <10 |
| Arsenic | 8.4 | 5.6 | 6.7 | 11 | 12 | 10 |
| Beryllium | <2 | <2 | <2 | <2 | <2 | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 59 | 36 | 47 | 73 | 94 | 66 |
| Cobalt | 19 | 6.9 | 13 | 12 | 15 | 21 |
| Copper | 18 | 13 | 14 | 15 | 17 | 20 |
| Lead | 12 | 9.9 | 9.1 | 15 | 14 | 12 |
| Manganese | 690 | 210 | 520 | 350 | 310 | 1200 |
| Mercury | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | 28 | 16 | 22 | 30 | 30 | 33 |
| Selenium | <2 | <2 | <2 | <2 | <2 | <2 |
| Tin | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | 56 | 40 | 49 | 110 | 120 | 89 |
| Zinc | 36 | 29 | 29 | 32 | 35 | 40 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G20B/0.15 | BH1/0.1 | BH1/0.5 | DUPL G1 | DUPL G2 | G13/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0905#Soil | NO0906#Soil | NO0907#Soil | NO0908#Soil | NO0909#Soil | NO1476#Soil |
| Antimony | <10 | <10 | <10 | - | - | <10 |
| Arsenic | 13 | 9.9 | 7.1 | 6.8 | 8.5 | 8.6 |
| Beryllium | <2 | <2 | <2 | - | - | <2 |
| Cadmium | <0.5 | <0.5 | <0.5 | - | - | <0.5 |
| Chromium | 67 | 59 | 57 | 48 | 52 | 52 |
| Cobalt | 14 | 13 | 11 | - | - | 9.1 |
| Copper | 21 | 35 | 14 | 11 | 12 | 9.2 |
| Lead | 33 | 80 | 7.0 | - | - | 12 |
| Manganese | 340 | 370 | 310 | - | - | 250 |
| Mercury | <0.1 | <0.1 | <0.1 | - | - | <0.1 |
| Molybdenum | <10 | <10 | <10 | - | - | <10 |
| Nickel | 23 | 23 | 36 | 21 | 15 | 12 |
| Selenium | <2 | <2 | <2 | - | - | <2 |
| Tin | <10 | <10 | <10 | - | - | <10 |
| Vanadium | 85 | 65 | 54 | - | - | 70 |
| Zinc | 200 | 180 | 30 | 28 | 30 | 25 |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | G13/0.15 Dup | Spike % Recov | Meth.Bl.(mg/l) | | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1476D#Soil | NO1476S#Soil | | | | |
| Antimony | <10 | - | <0.5 | | | |
| Arsenic | 9.5 | 89% | <0.02 | | | |
| Beryllium | <2 | 90% | <0.02 | | | |
| Cadmium | <0.5 | 88% | <0.02 | | | |
| Chromium | 55 | 108% | <0.05 | | | |
| Cobalt | 9.4 | 92% | <0.05 | | | |
| Copper | 10 | 102% | <0.05 | | | |
| Lead | 13 | 97% | <0.05 | | | |
| Manganese | 240 | - | <0.05 | | | |
| Mercury | <0.1 | 93% | <0.001 | | | |
| Molybdenum | <10 | 88% | <0.5 | | | |
| Nickel | 14 | 95% | <0.05 | | | |
| Selenium | <2 | - | <0.02 | | | |
| Tin | <10 | - | <0.5 | | | |
| Vanadium | 74 | 90% | <0.5 | | | |
| Zinc | 27 | 98% | <0.05 | | | |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

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**MISCELLANEOUS ANALYSES. METHODS US EPA SW846 OR APHA STANDARD METHODS 19TH ED. 1995.**

| Sample | G06/0.15 | G10/0.15 | G15/0.15 | G19/0.15 | G19/0.15 Dup | G28/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0870#Soil | NO0874#Soil | NO0878#Soil | NO0882#Soil | NO0882D#Soil | NO0891#Soil |
| Sulphate (S) | - | 100 | 74 | <20 | <20 | - |
| pH (units) (1:5 aqueous extract) | 7.55 | - | - | 7.33 | - | 7.24 |

Results in ppm (soils mg/kg dry, waters mg/l.) except where specified otherwise.

Date received 12/11/01 Date Reported 20/11/01

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**MISCELLANEOUS ANALYSES. METHODS US EPA SW846 OR APHA STANDARD METHODS 19TH ED. 1995.**

| Sample | G31/0.15 | G34/0.15 | G36/0.15 | G37/0.15 | G38/0.15 | G40/0.15 |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0894#Soil | NO0897#Soil | NO0899#Soil | NO0900#Soil | NO0901#Soil | NO0903#Soil |
| Sulphate (S) | 56 | - | <20 | 20 | 48 | 35 |
| pH (units) (1:5 aqueous extract) | - | 7.15 | - | 7.28 | - | - |

Results in ppm (soils mg/kg dry, waters mg/l.) except where specified otherwise.

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**ORGANOCHLORINE PESTICIDES US EPA SW846 METHOD 8081A.**

| Sample | G06B/0.15 | G20B/0.15 | G20B/0.15 Dup | BH1/0.1 | BH1/0.5 | COMP J |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0904#Soil | NO0905#Soil | NO0905D#Soil | NO0906#Soil | NO0907#Soil | NO0910#Soil |
| Aldrin | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| α-BHC | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| ß-BHC | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| σ-BHC | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Lindane | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chlordane | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| 4,4'-DDD | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 4,4'-DDE | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 4,4'-DDT | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dieldrin | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Endosulfan I | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Endosulfan II | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Endrin | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Heptachlor | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Heptachlor epoxide | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Methoxychlor | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Toxophene | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

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**ORGANOCHLORINE PESTICIDES US EPA SW846 METHOD 8081A.**

| Sample | COMP K | COMP M | COMP N | COMP O | COMP P | COMP Q |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0911#Soil | NO0912#Soil | NO0913#Soil | NO0914#Soil | NO0915#Soil | NO0916#Soil |
| Aldrin | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| α-BHC | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| ß-BHC | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| σ-BHC | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Lindane | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Chlordane | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| 4,4'-DDD | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 4,4'-DDE | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| 4,4'-DDT | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dieldrin | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Endosulfan I | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Endosulfan II | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Endrin | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Heptachlor | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Heptachlor epoxide | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Methoxychlor | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Toxophene | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**ORGANOCHLORINE PESTICIDES US EPA SW846 METHOD 8081A.**

| Sample | COMP R | COMP S | COMP L | Spike % Recov | Meth.Bl.(mg/l) | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0917#Soil | NO0918#Soil | NO1477#Soil | NO1477S#Soil | | |
| Aldrin | <0.01 | <0.01 | <0.01 | 97% | <0.001 | |
| α-BHC | <0.01 | <0.01 | <0.01 | 89% | <0.001 | |
| ß-BHC | <0.01 | <0.01 | <0.01 | 90% | <0.001 | |
| σ-BHC | <0.01 | <0.01 | <0.01 | 91% | <0.001 | |
| Lindane | <0.01 | <0.01 | <0.01 | 95% | <0.001 | |
| Chlordane | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| 4,4'-DDD | <0.01 | <0.01 | <0.01 | 98% | <0.001 | |
| 4,4'-DDE | <0.01 | <0.01 | <0.01 | - | <0.001 | |
| 4,4'-DDT | <0.01 | <0.01 | <0.01 | 96% | <0.001 | |
| Dieldrin | <0.01 | <0.01 | <0.01 | 92% | <0.001 | |
| Endosulfan I | <0.01 | <0.01 | <0.01 | 90% | <0.001 | |
| Endosulfan II | <0.01 | <0.01 | <0.01 | 91% | <0.001 | |
| Endrin | <0.01 | <0.01 | <0.01 | 95% | <0.001 | |
| Heptachlor | <0.01 | <0.01 | <0.01 | 102% | <0.001 | |
| Heptachlor epoxide | <0.01 | <0.01 | <0.01 | 101% | <0.001 | |
| Methoxychlor | <0.01 | <0.01 | <0.01 | 95% | <0.001 | |
| Toxophene | <0.1 | <0.1 | <0.1 | - | <0.01 | |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

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3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

## ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.

| Sample | G06B/0.15 | G20B/0.15 | G20B/0.15 Dup | BH1/0.1 | BH1/0.5 | COMP K |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0904#Soil | NO0905#Soil | NO0905D#Soil | NO0906#Soil | NO0907#Soil | NO0911#Soil |
| Azinphos Methyl | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Bolstar | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chlorpyrifos | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Coumaphos | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Demeton-O | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Demeton-S | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Diazinon | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Dichlorvos | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Disulfoton | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ethoprop | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fensulfothion | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Fenthion | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Merphos | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Mevinphos | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Naled | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

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Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.**

| Sample | COMP O | COMP R | COMP S | Spike % Recov | Meth.Bl.(mg/l) | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0914#Soil | NO0917#Soil | NO0918#Soil | NO0918S#Soil | | |
| Azinphos Methyl | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Bolstar | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Chlorpyrifos | <0.1 | <0.1 | <0.1 | 89% | <0.01 | |
| Coumaphos | <0.1 | <0.1 | <0.1 | 96% | <0.01 | |
| Demeton-O | <0.1 | <0.1 | <0.1 | 92% | <0.01 | |
| Demeton-S | <0.1 | <0.1 | <0.1 | 90% | <0.01 | |
| Diazinon | <0.1 | <0.1 | <0.1 | 93% | <0.01 | |
| Dichlorvos | <0.1 | <0.1 | <0.1 | 89% | <0.01 | |
| Disulfoton | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Ethoprop | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Fensulfothion | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Fenthion | <0.1 | <0.1 | <0.1 | 94% | <0.01 | |
| Merphos | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Mevinphos | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Naled | <0.1 | <0.1 | <0.1 | - | <0.01 | |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

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Melbourne Vic 3000

Site : POINT COOK 134

**ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.**

| Sample | G06B/0.15 | G20B/0.15 | G20B/0.15 Dup | BH1/0.1 | BH1/0.5 | COMP K |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0904#Soil | NO0905#Soil | NO0905D#Soil | NO0906#Soil | NO0907#Soil | NO0911#Soil |
| Parathion Methyl | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Phorate | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Ronnel | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Tokuthion | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Trichloronate | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

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3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.**

| Sample | COMP O | COMP R | COMP S | Spike % Recov | Meth.Bl.(mg/l) | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0914#Soil | NO0917#Soil | NO0918#Soil | NO0918S#Soil | | |
| Parathion Methyl | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Phorate | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Ronnel | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Tokuthion | <0.1 | <0.1 | <0.1 | - | <0.01 | |
| Trichloronate | <0.1 | <0.1 | <0.1 | - | <0.01 | |
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Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

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459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**TOTAL RECOVERABLE HYDROCARBONS (GC) MGT METHOD 100A-GC**

| Sample | BH1/0.1 | Spike % Recov | Meth.Bl.(mg/l) | | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO0906#Soil | NO0906S#Soil | | | | |
| T.R.H. $C_6$-$C_9$ Fraction by GC | <20 | - | <0.02 | | | |
| T.R.H. $C_{10}$-$C_{14}$ Fraction by GC | <50 | 96% | <0.05 | | | |
| T.R.H. $C_{15}$-$C_{28}$ Fraction by GC | 330 | - | <0.1 | | | |
| T.R.H. $C_{29}$-$C_{36}$ Fraction by GC | 410 | - | <0.1 | | | |
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Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 20/11/01

# Chain of Custody Record

(modified after US EPA chain of custody form) Sheet 1 of 1.

Atma Environmental

PROJECT: POINT COOK Sampler's Signature: △

Site No: 134 Date 12/11/01 Time: 2pm

| SAMPLE NO. | DISCRETE | COMPOSITE | GRAB | SAMPLE MATRIX: SOIL | WATER | | ANALYSIS FOR: 16 metals | TRH, BTEX, TDS | ocp/opp, ph | hardness | * | ^ | | | CONTAINERS | COMPOSITING INSTRUCTIONS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW1 | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 5 | |
| MW2 | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 6 | |
| MW3 | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | 6 | |
| DUP1 | ✓ | | | | ✓ | | ✓ | | | | | | | | 1 | |
| TOTAL: | 4 | | | | 4 | | 4 | 3 | 3 | 3 | 3 | 3 | | | 18 | |

RELINQUISHED BY: (sign) RECEIVED BY: (sign) (DATE/TIME)

DISPATCHED BY: (sign) △ DATE/TIME 12/11/01

■ LAB NAME: MGT C Mian (DATE/TIME) 12/11/01 5:15pm

REC'D FOR LAB BY: (sign)

FINAL (TYPED) RESULTS SHALL BE AVAILABLE WITHIN: (24 HRS) 48 HRS NORMAL

LAB. NO. FAXED RESULTS REC'D: (DATE/TIME)

LAB. SUPERVISOR: (sign) FINAL RESULTS REC'D: (DATE/TIME)

REMARKS: * = Qualitative volatiles/semi-volatiles

Fax results to: (03) 9670 6559 1= chloride, sulphate, bicarbonate, carbonate, sodium, pottasium, magnesium, calcium, nitrate, nitrite.

NOTE: Use only 50% of each jar to make composite sample. Mix content of jars thoroughly before taking 50% out. Store all samples in cool, dark place.

△ Must be completed by Atma Environmental ■ Must be completed with date and time by laboratory.

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

# MGT ANALYSIS REPORT 150552

CLIENT :- Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

SITE :- POINT COOK 134

DATE RECEIVED :- 12/11/01

DATE EXTRACTED OR PREPARED :- 12/11/01 - 13/11/01

DATE REPORTED :- 16/11/01

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 150552
A total of 3 duplicate, 1 matrix spike % recovery and 10 method blank analyses or sets of analyses were carried out on this batch of samples.
All QA/QC results for duplicates, matrix spike % recovery, method blanks and known QC standards were within the set acceptable criteria.

FINAL REPORT :- The results in this report supersede any previously corresponded results.

Michael Wright
Laboratory Manager

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
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Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | MW1 | MW1 Dup | MW2 | MW3 | DUP 1 | Spike % Recov |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1002D#Water | NO1003#Water | NO1004#Water | NO1005#Water | NO1005S#Water |
| Antimony | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - |
| Arsenic | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | - |
| Beryllium | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | 90% |
| Cadmium | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | 89% |
| Chromium | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 94% |
| Cobalt | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 100% |
| Copper | 0.026 | 0.026 | 0.026 | 0.026 | 0.025 | 106% |
| Lead | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 98% |
| Manganese | 0.033 | 0.028 | 0.030 | 0.031 | 0.029 | 106% |
| Mercury | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | - |
| Molybdenum | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 90% |
| Nickel | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 100% |
| Selenium | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | - |
| Tin | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | - |
| Vanadium | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 97% |
| Zinc | 0.041 | 0.041 | 0.027 | 0.029 | 0.029 | 114% |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

Date received 12/11/01 Date Reported 16/11/01

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3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
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Melbourne Vic 3000

Site : POINT COOK 134

**HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)**

| Sample | Methd Blk | | | | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | | | | | | |
| Antimony | <0.005 | | | | | |
| Arsenic | <0.002 | | | | | |
| Beryllium | <0.002 | | | | | |
| Cadmium | <0.002 | | | | | |
| Chromium | <0.005 | | | | | |
| Cobalt | <0.005 | | | | | |
| Copper | <0.005 | | | | | |
| Lead | <0.005 | | | | | |
| Manganese | <0.005 | | | | | |
| Mercury | <0.001 | | | | | |
| Molybdenum | <0.005 | | | | | |
| Nickel | <0.005 | | | | | |
| Selenium | <0.002 | | | | | |
| Tin | <0.005 | | | | | |
| Vanadium | <0.005 | | | | | |
| Zinc | <0.005 | | | | | |

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/l).

Date received 12/11/01 Date Reported 16/11/01

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3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**MISCELLANEOUS ANALYSES. METHODS US EPA SW846 OR APHA STANDARD METHODS 19TH ED. 1995.**

| Sample | MW1 | MW2 | MW3 | MW3 Dup | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | NO1004D#Water | | |
| pH (units) | 7.4 | 7.2 | 7.5 | - | | |
| Chloride | 2400 | 2600 | 2700 | 2700 | | |
| Total Dissolved Solids | 4800 | 4900 | 4700 | 5000 | | |
| Sulphate (S) | 160 | 170 | 170 | - | | |
| Bicarbonate (as $CaCO_3$) | 500 | 550 | 550 | - | | |
| Carbonate (as $CaCO_3$) | <0.05 | <0.05 | <0.05 | - | | |
| Hardness (Total) | 600 | 780 | 680 | - | | |
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Results in ppm (soils mg/kg dry, waters mg/l.) except where specified otherwise.

Date received 12/11/01 Date Reported 16/11/01

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Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**MAH's AROMATIC VOLATILE ORGANICS US EPA SW846 METHODS 8021B,8260B,5030 & MGT 350A**

| Sample | MW1 | MW2 | MW3 | Methd Blk | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| Benzene | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Toluene | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Ethyl Benzene | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Xylenes | <0.001 | <0.001 | <0.001 | <0.001 | | |
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Results in ppm (soils mg/kg dry, waters mg/l).

Date received 12/11/01 Date Reported 16/11/01

NATA Accredited Laboratory
Number: 1261
This laboratory is accredited by the National Association of Testing Authorities,

Report No. 150552

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

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Level 10
459 Little Collins St
Melbourne Vic 3000

Site : POINT COOK 134

**METALS-US EPA SW846 7000(AA) & 6010B(ICP).**

| Sample | MW1 | MW2 | MW3 | Methd Blk | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| Calcium | 41 | 50 | 55 | <0.05 | | |
| Magnesium | 130 | 170 | 140 | <0.05 | | |
| Potassium | 19 | 17 | 19 | <0.05 | | |
| Sodium | 1600 | 1600 | 1700 | <0.05 | | |
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Extn with (1+3) HNO3 & HCl.Results in ppm (soils mg/kg dry, waters mg/l).

Date received 12/11/01 Date Reported 16/11/01

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Level 10
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Melbourne Vic 3000

Site : POINT COOK 134

**NITROGEN COMPOUNDS METHODS US EPA SW846 & APHA STANDARD METHODS 19TH EDITION 1995.**

| Sample | MW1 | MW2 | MW3 | | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| Nitrate(N) | <0.05 | <0.05 | <0.05 | | | |
| Nitrite(N) | <0.05 | <0.05 | <0.05 | | | |

Results in ppm (soils mg/kg dry, waters mg/l).

Date received 12/11/01 Date Reported 16/11/01

mgt Environmental Consulting Pty. Ltd.

3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: + 61 3 9564 7055
Fax+ 61 3 9564 7190
Email: mgt@mgtenv.com.au

Atma Environmental
Level 10
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## ORGANOCHLORINE PESTICIDES US EPA SW846 METHOD 8081A.

| Sample | MW1 | MW2 | MW3 | Methd Blk | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| Aldrin | <0.001 | <0.001 | <0.001 | <0.001 | | |
| α-BHC | <0.001 | <0.001 | <0.001 | <0.001 | | |
| ß-BHC | <0.001 | <0.001 | <0.001 | <0.001 | | |
| σ-BHC | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Lindane | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Chlordane | <0.01 | <0.01 | <0.01 | <0.01 | | |
| 4,4'-DDD | <0.001 | <0.001 | <0.001 | <0.001 | | |
| 4,4'-DDE | <0.001 | <0.001 | <0.001 | <0.001 | | |
| 4,4'-DDT | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Dieldrin | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Endosulfan I | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Endosulfan II | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Endrin | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Heptachlor | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Heptachlor epoxide | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Methoxychlor | <0.001 | <0.001 | <0.001 | <0.001 | | |
| Toxophene | <0.01 | <0.01 | <0.01 | <0.01 | | |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 16/11/01

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## ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.

| Sample | MW1 | MW2 | MW3 | Methd Blk | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| Azinphos Methyl | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Bolstar | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Chlorpyrifos | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Coumaphos | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Demeton-O | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Demeton-S | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Diazinon | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Dichlorvos | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Disulfoton | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Ethoprop | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Fensulfothion | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Fenthion | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Merphos | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Mevinphos | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Naled | <0.01 | <0.01 | <0.01 | <0.01 | | |

Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

Date received 12/11/01 Date Reported 16/11/01

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**ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.**

| Sample | MW1 | MW2 | MW3 | Methd Blk | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| Parathion Methyl | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Phorate | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Ronnel | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Tokuthion | <0.01 | <0.01 | <0.01 | <0.01 | | |
| Trichloronate | <0.01 | <0.01 | <0.01 | <0.01 | | |
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Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

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## TOTAL RECOVERABLE HYDROCARBONS (GC) MGT METHOD 100A-GC

| Sample | MW1 | MW2 | MW3 | Methd Blk | | |
|---|---|---|---|---|---|---|
| Lab. No. / Sample matrix | NO1002#Water | NO1003#Water | NO1004#Water | | | |
| T.R.H. $C_6$-$C_9$ Fraction by GC | <0.02 | <0.02 | <0.02 | <0.02 | | |
| T.R.H. $C_{10}$-$C_{14}$ Fraction by GC | <0.05 | <0.05 | <0.05 | <0.05 | | |
| T.R.H. $C_{15}$-$C_{28}$ Fraction by GC | <0.1 | <0.1 | <0.1 | <0.1 | | |
| T.R.H. $C_{29}$-$C_{36}$ Fraction by GC | <0.1 | <0.1 | <0.1 | <0.1 | | |
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Results in ppm (soils mg/kg dry, waters mg/l). Extraction MGT 300A soils, USEPA 3510 waters.

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A.B.N. 50 005 085 521
3 Kingston Town Close, Oakleigh, Victoria, 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: (03) 9564 7055
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Email: mgt@mgtenv.com.au

**ATMA ENVIRONMENTAL**

# ANALYTICAL REPORT.

**MGT REPORT NO. 150552**

On 12.11.01 three water samples were received from Atma Environmental for analysis to determine the presence of any organic species that may be present.

The sample was identified as follows, and were assigned unique laboratory numbers, for identification within the laboratory.

| **ATMA ID.** | **MGT Lab. No.** |
|---|---|
| MW1 | No1002 |
| MW2 | No1003 |
| MW3 | No1004 |

Analysis was performed in two stages, focusing on Semivolatile and Volatile species respectively.

## *1. Semivolatiles.*

Each sample was serially extracted with Dichloromethane according to the procedures outlined in USEPA 8270C.
The resultant extracts were then concentrated using Kuderna-Danish concentration techniques.
An aliquot of each concentrated extract was introduced into a gas chromatograph fitted with a mass selective detector scanning between 30 and 600 AMU.
Various 'surrogate' compounds were introduced into the sample prior to extraction in order to monitor the performance of the analytical system, and the effectiveness of the method in dealing with the sample matrix.
In addition, a number of Internal Standards were added to each extract prior to injection into the gas chromatograph, to act as a reference for semi-quantitative estimates of the concentration of any peaks found.
Prior to analysis the mass spectrometer was 'tuned' using DFTPP.

The Total Ion Chromatograms (TIC) that resulted from these procedures were treated as follows:-
Each peak in the TIC was selected in turn, and its mass spectrum was compared with the mass spectra contained in the NIST/EPA library of mass spectra, with the aid of computer library search facilities.
It should be noted that any identities found using this procedure are 'tentative' only. Positive identification can only be made by running authentic standards under identical chromatographic conditions.

NATA

A semi-quantitative estimate of the concentration of each component was made by comparison with the closest eluting internal standard.

The results of this procedure are summarized below.

**RESULTS:- Semivolatile GC/MS.**

No peaks were detected in any of the three samples, apart from those due to surrogates/internal standards.
No peaks were detected with concentrations exceeding 0.005 mg/litre. (5 parts per billion)

## *2. Volatiles.*

A portion of each sample was analysed by Purge & Trap GC/MS techniques according to the methodology outlined in USEPA8260B in order to detect any volatile species present in the samples, which would otherwise be lost during the sample 'work-up' procedures employed in the semivolatiles determinations.
A number of surrogates/internal standards were added to each sample prior to purging, in order to monitor the performance of the analytical system, the effectiveness of the method in dealing with the sample matrix, and to act as a reference for semi-quantitative estimates of the concentration of any peaks found.
Prior to analysis the mass spectrometer was 'tuned' using Perfluorotributylamine (PTA).

The Total Ion Chromatograms (TIC) that resulted from these procedures were treated as follows:-
Each peak in the TIC was selected in turn, and its mass spectrum was compared with the mass spectra contained in the NIST/EPA library of mass spectra, with the aid of computer library search facilities.

It should be noted that any identities found using this procedure are 'tentative' only. Positive identification can only be made by running authentic standards under identical chromatographic conditions.
A semi-quantitative estimate of the concentration of each component was made by comparison with the closest eluting internal standard.

The results of this procedure are summarized below.

**RESULTS:- Volatile GC/MS.**

No peaks were detected in any of the three samples, apart from those due to surrogates/internal standards.
No peaks were detected with concentrations exceeding 0.001 mg/litre. (1 part per billion)

M. Wright.
16.11.01