FINAL ENVIRONMENTAL SITE ASSESSMENT REPORT

DARUL ULUM COLLEGE:
1 ROMA STREET,
FAWKNER

PREPARED FOR

DARUL ULUM COLLEGE OF VICTORIA

GeoPollution Management Pty Ltd
2 September 2002

FINAL ENVIRONMENTAL SITE ASSESSMENT REPORT

for

STATUTORY ENVIRONMENTAL AUDIT

of

DARUL ULUM COLLEGE:

1 ROMA STREET, FAWKNER

PREPARED FOR

DARUL ULUM COLLEGE OF VICTORIA
c/o PETER G. LYALL & ASSOCIATES PTY LTD

GeoPollution Management Pty Ltd
2 September 2002

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PLAN

This final site assessment report has been prepared by GeoPollution Management Pty Ltd for Mr Mustafa Ceylan of DARUL ULUM COLLEGE of Victoria. This site assessment report satisfies the requirements for a Statutory Environmental Audit of the subject property. The report is provided to the EPA approved Environmental Auditor, Mr David Lam of IT ENVIRONMENTAL (AUSTRALIA) PTY LTD for review, following a request for a Certificate of Environmental Audit.

This document has been prepared on behalf of and for the exclusive use of the client, Darul Ulum College of Victoria and its representatives, Peter Lyall & Associates Pty Ltd. This report is confidential and, beyond its mandatory distribution to the Auditor, EPA and Council shall not to be reproduced unless in full and with permission of the client.

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EXECUTIVE SUMMARY

GeoPollution Management Pty Ltd (GPM) has completed a detailed soil and groundwater contamination survey at the premises of Darul Ulum College located at 1 Roma Street, Fawkner, Victoria. The aim of the investigation was to provide a comprehensive assessment report for review by an EPA accredited Environmental Auditor's in order to obtain a Certificate (or Statement) of Environmental Audit.

In this final site assessment report the methods used are described, results summarized and the environmental quality of the site prior to the extensions and additions to the existing School is evaluated.

The site is rectangular in shape and covers an area of approximately 24,828 m^2. The topography across the site and its immediate surrounds is approximately level. The site is currently occupied by educational buildings, school playing fields and recreational areas and is covered by a mixed concrete/bitumen/exposed soil surface. Exposed soil and grassland is located in the eastern portion of the site. There are two known remaining underground storage facilities present at the site. A third tank was removed in January 2002.

Soil samples were initially collected from a total of thirty-five (35) grid locations, compliant with the minimum number of sampling points for the assessment of a site of approximately 24,828 m^2 size as specified in AS 4482.1-1997. In addition, five target (5) locations were advanced.

For quality control purposes, six field replicate soil samples were collected, three of which were sent to the second laboratory (split duplicates) and the other samples to the primary laboratory as blind duplicates. Two of the split duplicate samples were analysed for eight selected heavy metals and PAH's and the other one for only TPH's and MAH's. Two of the blind duplicate samples were analysed for eight selected heavy metals and PAH's and the other for only TPH's and MAH's.

Twenty two (22) surface fill, deeper fill and natural soil samples were initially analysed from grid and target locations across the site. Twelve of the fourteen surface fill samples collected from the grid locations were analysed individually for eight selected heavy metals (As, Cd, Cr, Cu, Hg, Pb, Zn, Ni) and polycyclic aromatic hydrocarbons (PAH's) and six of the surface fill samples were analysed for (partially volatile) total petroleum hydrocarbons (TPH's) and (volatile) monocyclic aromatic hydrocarbons (MAH's). Three surface fill samples collected from the grid locations were also analysed for pH and volatile halogenated hydrocarbons.

Individual samples of surface fill from twenty-four of the thirty five grid locations were combined at the laboratory into eight 3-part composites and analysed for eight heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn) and PAH's. Individual samples of surface fill from fifteen of the thirty five grid locations were combined at the laboratory into five 3-part composites and analysed for a wider suite of potential contaminants ("Balance of contaminant screen") including nine additional heavy metals (Sb, Ba, Be, Co, Mo, Mn, Se, Sn, V), phenolic compounds, cyanide (total), organochlorine and organophosphate pesticides, polychlorinated biphenyls (PCB's), sulphate, fluoride, halogenated and semi-volatile chlorinated hydrocarbons.

Selected individual target samples at locations adjacent to the underground storage tanks were analysed for (partially volatile) total petroleum hydrocarbons (TPH's) and (volatile) monocyclic aromatic hydrocarbons (MAH's).

Three (3) groundwater monitoring wells were installed in a triangular pattern around the potential contamination sources. In addition to groundwater data from the monitoring wells, a survey of the Victorian Groundwater Database was also conducted.

Soil results were compared with the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) HIL A and E levels (health risk-based investigation levels for "Standard Residential Settings" and "Parks, recreational open space and playing fields, includes secondary schools" respectively) and EIL levels (Interim Ecological Investigation Limits for Urban Land) (NEPC 1999). Where no EIL limits are specified in the NEPM, ANZECC B criteria (ANZECC & NHMRC 1992) are used. Reference is also made to EPAV Fill Material Limits (EPA Bulletin 448, "Classification of Wastes", 1995) with regards to any off-site disposal of any soil which may need to be excavated during the site preparation works for the proposed School extensions and additions.

Groundwater results were compared with Ecosystem Protection Criteria in accordance with the SEPP *Groundwaters of Victoria* (1997) and the SEPP *Waters of Victoria* (1999) Schedule F7 *Waters of the Yarra Catchment for the Urban Waterways Segment.*

SUMMARY OF FINDINGS AND DISCUSSION

Significant results of this environmental site assessment are summarized below:

History Search and Field Observations

- The site is rectangular in shape and covers an area of approximately 24,828 m^2. At the time of investigation, the property was occupied by a mixture of school buildings, administration facilities, and bitumen covered courtyards, car parks and basketball courts on the western side and featured grass-covered school playing fields on the eastern side.

- The site is identified on certificate of title Vol. 10304 Fol. 033 as part of CP4, Parish of Will Will Rook. The site was formerly owned by the United Subdivisional and Finance Company Pty from 1939 (and vacant until 1966) until 1996 when ownership was taken over by Darul Ulum College of Victoria Inc (the current owners). The site is currently zoned 'Residential 1' under the City of Moreland Planning Scheme. An environmental audit overlay exists for the site under this scheme.

- Four previous or current underground storage tank sites were identified or suspected at the site. One suspected tank (Tank 1) was not found after extensive searches under the administration building (as part of this assessment). Two tanks remain in-situ (Tanks 2 &

- 3), and the remaining tank (Tank 4) has been previously removed and validated and the tank pit validated by GPM (GPM Reports TP1376/FC1376, 2002A/B).

- A.S. James Pty Ltd. has also completed a geotechnical investigation of the site in 2001 as a part of proposed classroom extensions and prayer hall developments.

- Fill material was encountered at all borehole locations, and varied from 0.1 to 1.1m at grid and target locations. Fill material consisted of admixed gravel, clay, silt, and minor brick or rock fragments. Natural soil consisted of silty clay with minor sands with moderate to low plasticity.

- No asbestos, either in the form of sheet fragments or lagging, was observed on the site surface or within fill material.

Underground Storage Tanks

"Tank 1"

A comprehensive search was made to establish whether Tank 1 remains on the site under the office administration building. Tank 1 could not be located following a comprehensive electromagnetometer search. Further research led to the conclusion that it is unlikely that a tank remains beneath the administration building at the time of reporting or was ever present at this location.

Tank 2

Tank 2 remains in-situ and contains predominantly water with residue of former product. TPH's in tank water are consistent with the range for kerosene.

Tank 3

Tank 2 remains in-situ and contains predominantly water with residue of former product. Minor amounts of separate phase hydrocarbons are also present. Dissolved phase TPH's are present and are consistent with the range for diesel (as confirmed by TPH fingerprinting).

Tank 4

Tank 4 was removed under GPM supervision in December 2001 – January 2002 and the tank pit was validated.

Chemical Analysis Results

Soil – Grid Points

- A total of thirty-five grid sample locations were advanced across the site. Initially eleven individual samples and eight three-part composite samples representing surface fill material were analysed for eight heavy metals and PAH's. Five individual surface fill samples were also analysed for TPH's and volatile organic compounds. A further five three-part composite samples were analysed for an extended suite of contaminants and additional heavy metals

- The majority of analytes remained below *modified* or standard NEPM EIL levels across the site with the exception of nickel, manganese and vanadium. These were detected in either individual or composite samples. As a result, individual constituents of the composite samples reporting elevated concentrations of analytes were analysed individually.

- Concentrations of vanadium were reported above the NEPM EIL levels in one near-surface sample in the area of the school playing fields on the eastern side of the site note: there are no NEPM HIL levels for vanadium). All remaining locations in this area reported potential contaminants below NEPM EIL levels for surface and deeper fill and natural soil samples.

- In the area of the school buildings to the west of the site, arsenic was detected in concentrations above the NEPM EIL levels in one near-surface fill sample at grid point G26. Nickel showed exceedences of the NEPM EIL levels in fill samples from locations G16, G20, G22, G25, G27, G28, G29, G30, G32 and G35. Manganese was reported at a concentration exceeding the NEPM EIL level in surface fill at test location G28. Vanadium was reported at concentrations that exceeded the NEPM EIL levels in surface fill at test locations G23, G24 and G26.

  Analysis of selected deeper fill material and natural soils reported concentrations below NEPM EIL levels for most analytes of concern, with the exception of test locations G25 and G35, where nickel was reported at concentrations exceeding NEPM EIL levels in deeper fill and natural soil respectively but at concentrations below the NEPM HIL E levels. Sample location G25 terminated in coarse fill material and G35 was terminated in upper natural soils but is covered by a bitumen surface (basketball court) in this area.

  Elutriation testing (by ASLP method using reagent water) of fill material containing elevated levels of arsenic, manganese, vanadium and nickel reported concentrations of these analytes below analytical detection limits and Australian Drinking Water Guidelines. These results indicate that it is unlikely that these analytes would leach down into the deeper fill and underlying natural soils.

- Benzo(a)pyrene was recorded at detectable concentrations in two of the twelve individual samples analysed. All detected concentrations remained well below the NEPM HIL A and HIL E levels. Total PAH concentrations (detected in two of twelve individual samples) remained below the NEPM HIL A and HIL E levels.

  No detectable concentrations of benzo(a)pyrene and/or Total PAH's were reported in the eight composite samples analysed.

- Organochlorine Pesticides, Polychlorinated Biphenyl's (PCB's), Phenolic compounds, Chlorinated Hydrocarbons, Sulphate, Fluoride and Cyanide in composite samples, and Volatile Halogenated Hydrocarbons in individual samples were all reported below laboratory detection limits or well below screening criteria.

- Asbestos was not detected in three fill samples analysed.

- Soil reaction (pH) values in surface fill samples were reported in the neutral to strongly alkaline range (7.71, 8.46 and 10.03 respectively).

- QA/QC duplicates showed most RPD's within acceptable criteria. However, some elevated percentage difference results were attributed primarily to either heterogeneous distribution of analytes in the source soil or differences in laboratory methodology. Overall completeness of the QA/QC data set is 96.9% (570 of a total of 588 internal sample duplicates, field replicates, blanks and spikes), above the desirable minimum of 95%, and is therefore considered acceptable.

Soil – Target Points

- Five target locations were placed adjacent to present or former underground storage tanks. Fill material from one location (T2) was analysed for heavy metals and PAH's and fill material and selected deeper fill and natural soil samples were analysed for TPH's and MAH's.

- All heavy metals at location T2 were reported at concentrations below the NEPM EIL levels with the exception of nickel. Analysis of nickel in deeper fill material at this location reported concentrations also exceeding NEPM EIL levels and at higher concentrations than the fill material above. All concentrations of nickel are below the NEPM HIL-E level for this location.

  Analysis of natural soil at this location reported a nickel concentration below the NEPM HIL A and HIL E levels respectively.

- Heavy mineral oil fraction TPH's were detected in only one target fill sample above the ANZECC B level (fill sample at grid point MW1) and at trace concentrations in deeper fill material in the vicinity of former tank 4 (location T3).

- All remaining samples from target locations reported TPH's and MAH's below either analytical detection limits or ANZECC B levels.

Groundwater

Regional Watertable:

Data from the Victorian Groundwater Database indicate that the regional water table is likely to be between 3.4 m and 6.5 m for wells screened within basalt. The nearest watercourse to the site is Merri Creek, 600m east of the site and the groundwater flow direction is therefore likely to be towards the east/south east.

Groundwater beneficial uses correspond to Segment C of the SEPP Groundwaters of Victoria (1997). This excludes use as potable water based on salinity levels.

On-Site Monitoring Wells:

No PAH's or BTEX was detected in groundwater from any of the monitoring wells on site. No TPH's were detected in routine groundwater samples from any well.

Inferred groundwater flow direction as determined from groundwater levels taken on the site is towards Merri Creek to the south-east of the site.

Final Condition of Site

Concentrations of eight priority heavy metals, two additional metals and PAH's in samples of fill material from the initial and further components of this assessment (all grid and target locations) were averaged.

Arithmetic average concentrations of most analytes listed in Table 29 are below the NEPM EIL levels, with the exception of nickel at 66.58 marginally above the NEPM EIL level but well below the NEPM HIL A and HIL E levels of 600 mg/kg each.

The peak concentrations of arsenic, nickel, manganese and vanadium are above the NEPM EIL Level, but below the NEPM HIL A and HIL-E levels for each (*note* no HIL-A or –E levels have been specified). All remaining analytes have peak concentrations below NEPM EIL levels.

The 95th percentiles of the arithmetic average were calculated according to log-normal distributions for one analyte exhibiting a variation coefficient of >1.2 (arsenic). The calculated concentrations at 95% upper confidence for log-normal distributions of this analyte was below the screening criteria (Appendix H).

With the exception of nickel all 95% upper confidence limits were below NEPM EIL levels.

While the peak concentrations of nickel, manganese and vanadium exceeded the respective screening criteria, analysis of natural soil underlying fill showed that elevated concentrations had not penetrated into natural soil.

Elutriation results yielded further evidence that no impact has occurred on the natural soil profile. All heavy metals of concern displayed negligible leachability.

CONCLUSIONS AND RECOMMENDATIONS

The data obtained during this comprehensive site assessment program, representative of the final condition of the site prior to completion of the Audit, indicate that fill material contains isolated pockets of elevated levels of heavy metals (mainly nickel, minor vanadium, arsenic and manganese) and of mineral oil fraction petroleum hydrocarbons (TPH's >C9) above the NEPM EIL investigation levels. None of the recorded concentrations exceed the HIL E level, where defined in the NEPM (NEPC 1999), for recreational areas and playing fields (incl. secondary schools).

The assessment outcome indicates that the site is conditionally suitable for the proposed re-development and additional building provided that certain site management measures are implemented to contain and seal potentially contaminated soil and thereby minimize the risk of human exposure.

The conditions will be formulated by the Environmental Auditor in a Statement of Environmental Audit. The Statement will be linked to the final development plan approved by Council.

The site would only be eligible for a Certificate of Environmental Audit if clean up was undertaken to bring the entire site in compliance with environmental investigation levels for soils.

Fill remaining on the site which may be excavated during future construction works may be classified as Contaminated Waste (low-level) according to EPA Bulletin 448 (1995) for the purpose of off-site disposal. Such fill would be subject to Prescribed Waste Regulations 1998 and may only be transported accompanied by Waste Transport Certificates and be disposed to EPA licensed landfills only (refer also to EPA Information Bulletin 626, 1998 and EPA Information Bulletin 395a, 1999). We recommend that specific volumes of fill to be disposed off site be tested to determine their actual classification.

Further advice and assistance should be sought from this office or from EPA when off-site disposal of contaminated soil is imminent, in order to ensure that contaminated soil is disposed off in accordance with current regulations.

I. BACKGROUND

I.1. INTRODUCTION

GeoPollution Management Pty Ltd (GPM) was engaged by Mr Peter Lyall of Peter Lyall and Associates Pty Ltd., on behalf of Mr. Mustafa Ceylan (Principal) of Darul Ulum College of Victoria, to carry out a comprehensive environmental assessment for the purpose of an Environmental Audit of Darul Ulum College at 1 Roma Street, Fawkner, Victoria ("the site").

The assessment report was prepared in conformance with EPA guidelines for the review of an EPA Auditor following a request for a Certificate of Environmental Audit (in accordance with the Environment Protection Act 1970, Section IXD) for the site. The audit was required to satisfy a condition of Council's (City of Moreland) planning permit (MPS 2000/0284) prior to conducting "alterations and additions to existing education buildings" (Appendix B).

This investigation has been completed in accordance with GeoPollution Management proposal No. QM 1375 dated 29th May 2002, with subsequent variations and additions as required. The work was authorized by the client on 29th May 2002.

The investigation program outlined in this report has been carried out in compliance with the Australian Standard AS 4482.1-1997 – Guide to the sampling and investigation of potentially contaminated soil (1997) and AS 4482.2-1999 Standards Australia (1999) Guide to the Sampling and Investigation of Potentially Contaminated Soil (Part 2: Volatile Substances). This report was prepared in accordance with Appendix 2 of EPA's Guidelines for Auditors (2001).

The health risk and ecological investigation levels promulgated in the National Environmental Protection (Assessment of Site Contamination) Measure (NEPC 1999) and other relevant guideline criteria for the assessment of potential contamination are considered where appropriate.

This final site assessment report is submitted to the appointed EPA Auditor for review and attachment to his audit report.

I.1.1 Objectives

This site assessment program was designed to satisfy the criteria for an environmental audit with, broadly, the following objectives:

- Determine the degree and extent of potential contaminants through the soil profile across the general site (grid points) as well as at target locations in the vicinity of existing and removed underground storage tanks
- Determine whether potential contaminants are present at concentrations that would pose an environmental or health risk in the context of the proposed residential development
- Assess potential groundwater impacts in the context of beneficial groundwater uses

- Evaluate the final environmental quality of the site prior to additional building occurring, and,
- Present an assessment report in conformance with EPA's guidelines for Environmental Auditors (Appendix 2; EPA 2001).

The final site assessment report essentially presents:

- a description of the site and other relevant background information, incl. a summary of the site history and former above- and in-ground utilities, the geological and hydrogeological context
- a summary of all field and laboratory results and evaluation of analysis results according to adopted soil and groundwater quality guideline limits
- quality control data and evaluation
- statistical analysis of data relevant to the "final" condition of the site (ie. prior to school extensions/additions), and
- conclusions and recommendations.

I.1.2 Scope of the Investigation

Prior to implementation, the proposed sampling and analysis programs were reviewed by Mr David Lam, the EPA Environmental Auditor (Contaminated Land) appointed for this project. The scope of work for this investigation is detailed in the "Work Plan" (7th June 2002), a copy of which are attached as Appendix D to this report.

The investigation program included assessment of shallow and deeper soils at regularly spaced grid locations across the site as well as at target locations in the vicinity of existing and previous potential sources of contamination. The target locations address the quality of soil (and groundwater) surrounding two known existing, one removed and one suspected underground storage tanks at the site, either beneath or immediately adjacent to school buildings.

Soil samples were initially collected from a total of thirty-five (35) grid locations, compliant with the minimum number of sampling points for the assessment of a site of approximately 24,828 m^2 size as specified in AS 4482.1-1997. In addition, five target (5) locations were advanced.

Three (3) groundwater monitoring wells were installed in a triangular pattern around the potential contamination sources. Groundwater data obtained from the monitoring wells are provided in this report, in addition to a survey of the Victorian Groundwater Database. All data are utilized to provide an assessment of potential impact of the site on the beneficial uses of groundwater.

I.2 SITE DETAILS

I.2.1 Site Identification and Physical Setting

The site is located within the Moreland City Council, approximately 12 km north of the Melbourne General Post Office. A general site locality map is attached as part of Appendix A.

The site is identified on Certificate of Title Vol. 10304 Folio 033 as part of Crown Portion 4, Parish of Will Will Rook, County of Bourke (title certificate attached as Appendix B).

The site is located in a predominantly residential area. Fawkner Secondary College is located to the north of the site. Residential properties are situated to the south. Evans Reserve and residential properties are located to the east. Fawkner Soccer Club and grounds are located to the west. A plan of surrounding land uses is included in Appendix A.

I.2.2 Site Description

The site is rectangular in shape and covers an area of approximately 24,828 m^2. The topography across the site and its immediate surrounds is approximately level. The site is currently occupied by educational buildings, school playing fields and recreational areas and is covered by a mixed concrete/bitumen/exposed soil surface. Exposed soil and grassland is located in the eastern portion of the site (Plates 1 and 2).

There are two known remaining underground storage facilities present at the site (refer to Site History (Section I.3). A third tank was removed in January 2002 (GPM 2002) and the former or present existence of suspected fourth tank could not be confirmed during extensive searching (refer to Chapter V). All known or assumed tank locations are shown on the attached Figure 1.

The site photographs referred to above (Plates 1 and 2) are shown on the following page.

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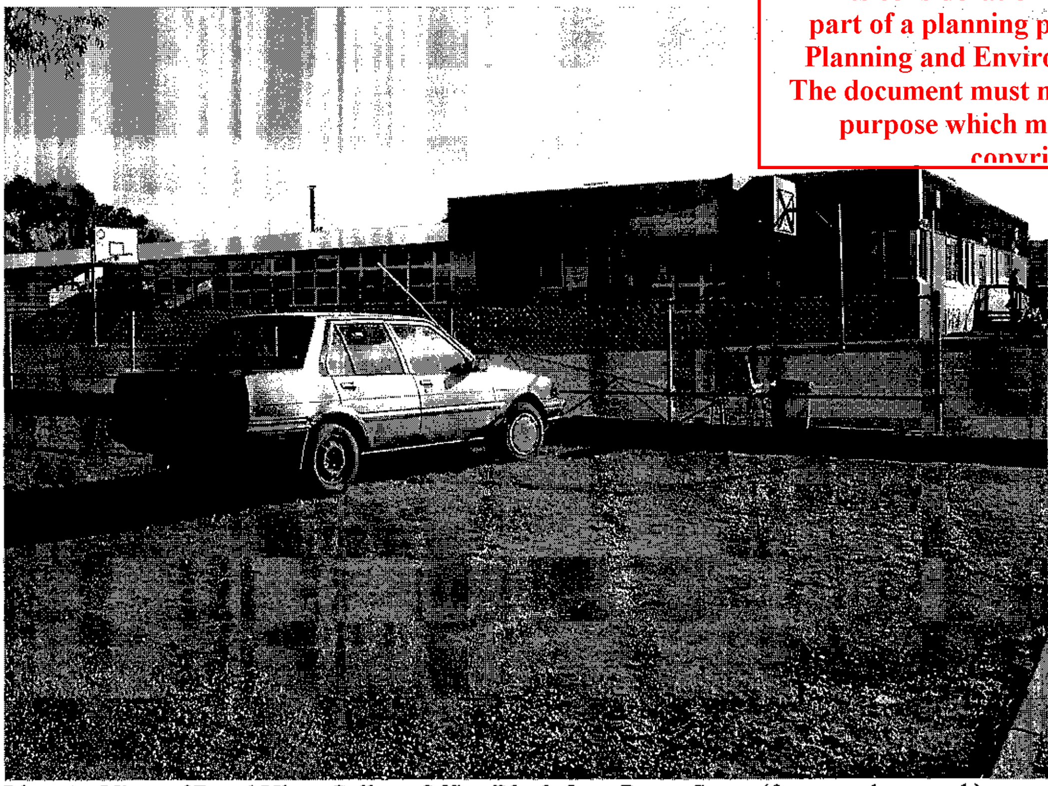

Plate 1: View of Darul Ulum College Office Block from Roma Street (from south to north).

Plate 2: View from south to north of target location T3.

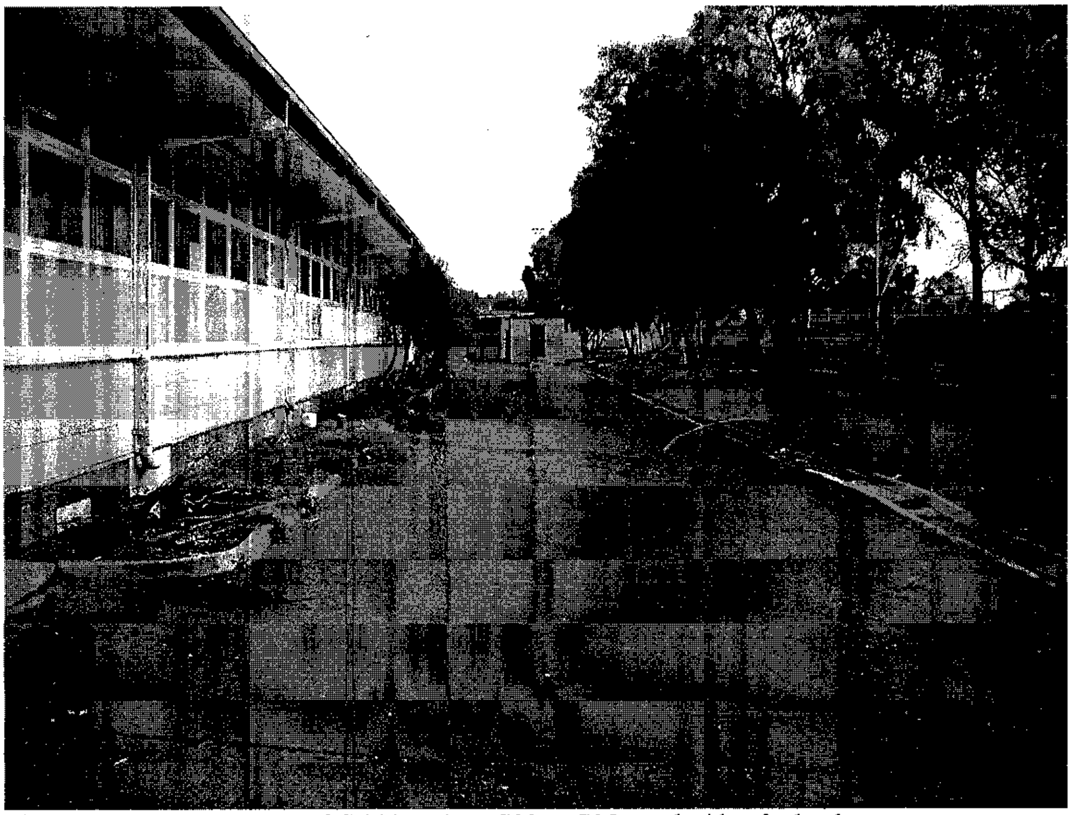

Plate 3: View East to West of Grid locations G23 to G25, north side of school.

Plate 4: View of grid sample location G27 from west to east.

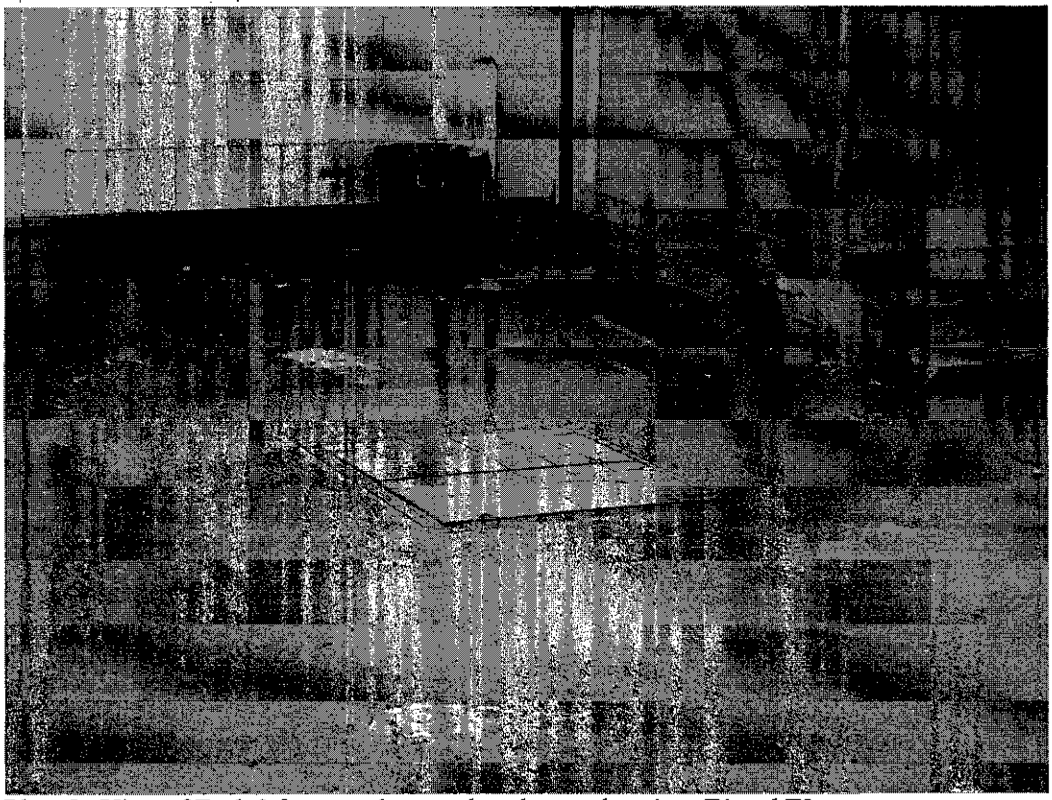

Plate 5: View of Tank 2 from south to north and target locations T1 and T2.

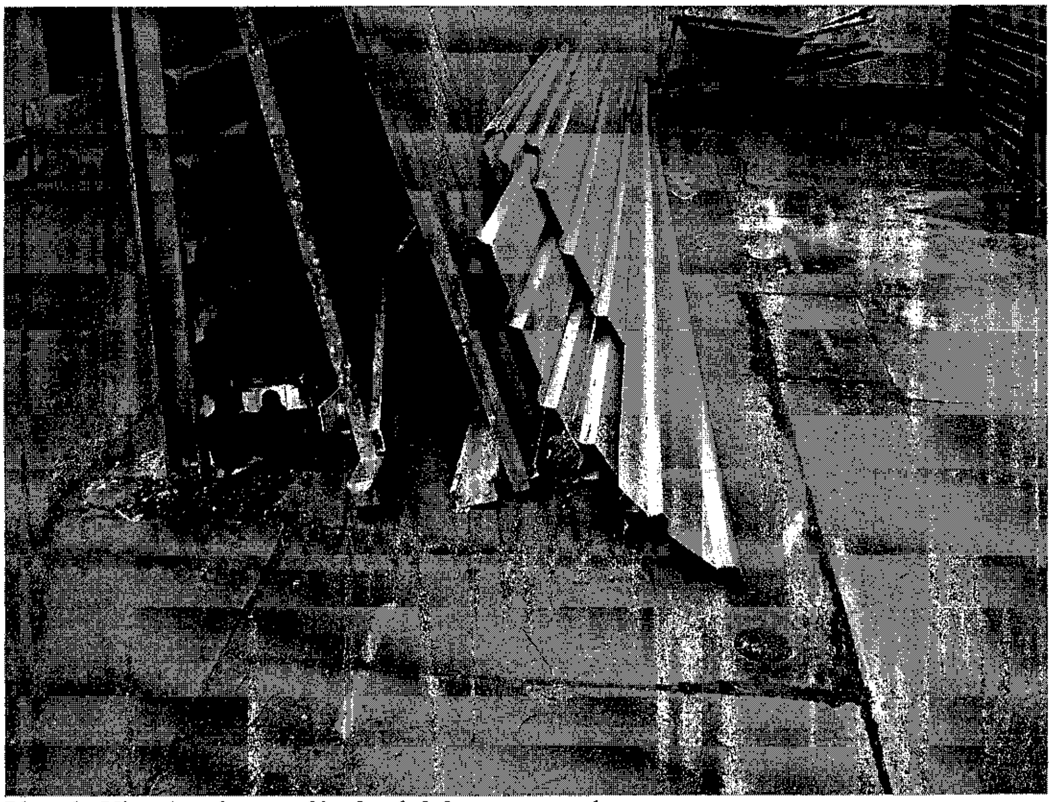

Plate 6: View (south to north) of tank 3 from courtyard area.

I.2.3 Zoning and Proposed Development

The site is zoned "Residential 1", surrounded by "Public Park and Recreational Zone", "Residential 1" and "Public Use Zone 2" zoned properties under the City of Moreland Planning Scheme. The zoning information was obtained from the Land Victoria website (www.land.gov.vic.au) and a copy of zoning information is attached in Appendix B.

The proposed development comprises alterations and additions to existing educational buildings.

I.2.4 Previous Site Assessment Reports

GeoPollution Management conducted validation works following the removal of a single underground storage tank (identified as Tank 4 on Figure 1) within the premises of Darul Ulum College (GPM 2002B). The removed tank contained heating oil and had a storage capacity of approximately 2,000 litres. The following findings were made:

- In-situ vapour testing of headspace samples from the excavated pit indicated that, at the completion of excavation, no significant residual vapour phase contamination remained at the boundaries of the excavation.

- Laboratory analysis of validation samples revealed minor non-volatile fraction petroleum hydrocarbons below criteria, were still present in the southern wall of the excavation. No volatile aromatic compounds were detected in the remaining validation samples.

- Field observations and vapour analysis of stockpiled spoil excavated from the tank pit indicated the absence of volatile aromatic compounds. Laboratory analysis results indicated, that the stockpile satisfied EPA 'Fill Material' (clean fill) criteria for the potential contaminants analysed.

- Stockpiled spoil was considered inappropriate for re-use on-site as backfill material and was subsequently transported off-site as Clean Fill to the Brooklyn Landfill.

- Backfill material comprised a mixture of silt, clay and gravel and/or silty clay with gravel from a nearby service trench excavation (previously identified as below EPA Fill criteria; GPM 2002A).

I.2.4 Previous Geotechnical Assessment Report

A geotechnical investigation was carried out by A.S. JAMES PTY LTD prior to the construction of the proposed classroom extensions and prayer hall as referenced below:

- *A.S. JAMES PTY LTD (2001) Geotechnical Investigation- Proposed classroom extensions and prayer hall at Darul Ulum College, Fawkner. Prepared for K. M. Wright & Associates, Report No. 101979. 14 September 2001.*

As a part of this report a total of seven boreholes were drilled to final depths of 2.0m. The investigation identified that the fill material consisted of crushed rock, clay and gravel and varied in depth between 0.25m and 0.3m. No fill was found at three of the seven boreholes. Natural stiff clay was found to underlie the fill material across the site.

I.3 SITE HISTORY AND POTENTIAL FOR CONTAMINATION

Information pertaining to site history, past land uses and operations was sought from the following sources:

- Moreland City Council – Town Planning Department
- Street Directory of Melbourne (Sands & McDougall), via Royal Historical Society
- Office of the Surveyor General (Aerial Photography)
- Title search: Ownership information
- the client
- Inspection of surrounding land uses (~500m radius).

The information collated is summarised below.

Council

Information obtained from the Moorland City Councils' planning department indicated that a planning permit for works had been issued for the site prior to the current proposed development (attached in Appendix B).

Street Directory

Roma Street was not listed in the Street Directory (Sands and McDougall) from 1989 - 1974. The street directory indicated that there were no occupants on Victory Street (continuation of Roma Street) between Elizabeth and Baird Street. Historical maps of the area show the site and adjacent properties were used as 'open pastureland'.

Certificate of Title

Ownership information in the Certificate of Title (Vol. 6309 Fol. 1267146) indicates that the site was owned by the United Subdivisional and Finance Company Pty Ltd. from June 1939 until October 1996. The current site owner is Darul Ulum College of Victoria Inc. as stated in the most recent Certificate of Title (Vol. 10304, Fol. 033 derived from Lot 1 on Plan of Subdivision 402577B of Parent Title Vol. 06309 Fol. 746).

Aerial Photographs

A review of aerial photographs (one per decade) has shown the following:

The site appears to be vacant from 1945 until 1956. School buildings and playing fields occupied the site from 1967 until 1991 (*Note*: there are no aerial photos available after 1991). The aerial photos suggest that the site has remained vacant and undeveloped until the early to mid 1960's (prior to 1967) from which time onward it was used as a school. The aerial photographs showed no indication of the presence of an incinerator within the school grounds.

Surrounding Land Uses

A survey of surrounding land uses (Appendix A) has indicated that the area is either residential or is used for recreational and educational facilities (e.g. schools and sporting fields). A service station is located approximately 300m southwest of the site at the corner of Major Road and Dowling Street and is considered to be down hydraulic gradient from the site.

Underground Tanks

A total of three UST's containing kerosene are known to have been or are present at the site (Figure 1). One of the UST's (Tank T4) has been removed previously (as discussed above). The former or current presence of "Tank 1", also indicated on the site plans, was initiall suspected but could later not be confirmed (refer to Chapter V).

TABLE 1: Size and Contents of Current or Former Underground Storage Facilities

Tank	Capacity (Litres approx.)	Contents	Age	Comments
Suspected Tank 1	*?*	*?*	*?*	*Refer Chapter V below*
Tank 2	2,000	Kerosene	Unknown	Refer Chapter V below
Tank 3	2,000	Diesel	Unknown	Refer Chapter V below
Tank 4	2,000	Heating Oil	Unknown	Removed January 2002*

*GPM Report TP1376 (GPM 2002B)

Potential Sources of Contamination

The site was vacant between 1945 and prior to 1967, and no other land uses were identified prior to its development to an educational facility. Therefore the principle source of potential soil contamination at the site appears to be the former or current (disused) underground heating fuel storage infrastructure (tanks, pipe joints etc.).

The groups of potential contaminants related to the known history of the site are associated with storage of heating fuel and may be as follows:

⇒ Non-volatile short to medium chain aliphatic Petroleum Hydrocarbons (total fractions – TPH's)
⇒ Volatile Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethyl Benzene and Xylenes)
⇒ Polycyclic Aromatic Hydrocarbons (PAH's).
⇒ Phenols.

The analysis program adopted for the target locations as well as some general grid locations includes the above four groups of chemicals.

Soil contamination may also be associated with fill material that may have been imported onto the site at any stage in its history and with the potential use of pesticides (herbicides) on the School Grounds or termiticides to treat foundations against termite infestation (the latter underneath buildings only).

II. SOIL & GROUNDWATER INVESTIGATION – METHODS AND SCOPE

II.1 FIELD METHODS

Technical and scientific staff from our Ringwood office carried out fieldwork for this project on 17th, 18th and 26th June 2002 (soil bores) and on 11th and 19th July 2002 (monitoring wells).

An Environmental Scientist from GeoPollution Management was responsible for on-site testing and collection of soil and groundwater samples and quality assurance procedures. A field geologist was responsible for drilling/hand augering and soil profile logging.

II.1.1 Drilling of Soil Bores and Soil Sampling

Boreholes at all grid locations and target locations across the site were advanced using truck mount drilling rigs (DB 2000 and HMD II custom built) with solid flight tungsten augers of 95mm diameter.

Drilling advanced through fill material and at least 200 mm into the underlying natural clay wherever possible. Excess spoil was backfilled to surface level prior to bore abandonment. Concrete was used to reinstate the bores to surface level where required.

Soil samples were collected directly from the auger following removal of any cross-contaminated portions (outermost portions of the auger cuttings). Samples were collected in a tray before transferring them into acid washed sample jars.

Wherever possible, samples to be analysed for volatile compounds were collected by split spoon assembly in accordance with the requirements of Australian Standard AS 4482.2-1999.

All samples were collected as 'zero-headspace' samples ('jar' samples), ie. the glass jars were filled to full capacity leaving no air gaps. Subsequently, they were tightly sealed with a teflon-lined plastic screw cap. These precautions serve to minimise oxidation of chemicals and loss of volatile compounds between sample collection and laboratory analysis.

Field replicates, equipment blank and trip blank samples were also collected in accordance with the Australian Standard AS4482.1-1997.

A field contamination assessment including routine on-site vapour detection (PID, see section II.1.2 over page) was carried out concurrently with all soil sampling.

II.1.3 Field Screen for Volatile Organic Compounds (Soil Gas Survey)

A vapour screen was routinely conducted at each grid soil sampling location by inserting the probe into the open bore space immediately after exposure. This method provides a gross assessment of the presence of volatile organic compounds within the entire vertical extent of sub-surface material intersected at any given time.

The instrument used for the field screen is a portable Photo-ionisation Detector (PID, Photovac, model Microtip IS-3000) which registers total ionisable organic compounds rather than individual compounds. Prior to commencement of fieldwork, the instrument was calibrated using a gas mix of 95 ppm isobutylene in ultrahigh purity air contained in a plastic sample bag.

Readings represent the total concentration of all photoionisable organic compounds in the sample (in parts per million) and results represent relative concentrations. A background reading was taken each time before testing.

When calibrated with isobutylene span gas, the instrument response is accurate within +/- 2 ppm or +/- 10% (whichever is greater) for 0 to 100 ppm, within +/- 10% for 100 to 1000 ppm and within +/- 15% for 1000 to 2000 ppm.

Plastic bag samples were collected from discrete depth intervals, and PID "headspace" readings were recorded both as a routine check of low borespace measurements and if concentrations of volatiles were detected in excess of 10 ppm during borespace testing.

Note the following in relation to the PID readings documented on bore logs:

- *Actual* vapour concentrations in in-situ soils show gradual transitions.
- Soil gas survey data represent relative levels of VOC's in soil samples, not absolute concentrations in soil samples.
- Bore space readings reflect total concentrations of vapours within the entire open borespace without indicating from which soil layer the vapours originate.

II.1.3 Installation of Monitoring Wells

A total of three groundwater monitoring wells were installed at the site on 11th July 2002 using a Mobile B80 drill rig. Monitoring well locations are shown on Figure 4 and 5.

All monitoring wells were installed by a licensed driller and constructed from 50mm diameter class 18 PVC casing, in accordance with the procedures outlined in 'Minimum Construction Requirements for Water Bores in Australia' (ARMCANZ 1997). Monitoring well construction details, bore completion reports and well construction licenses are included as Appendix I.

All monitoring wells were surveyed (laser level) for top of casing (TOC) elevation and reduced to a relative height datum (m-RHD) by GPM staff (refer to Survey Data attached as part of Appendix I).

II.1.4 Static Groundwater Levels and Product Interface Testing

Static water levels were measured using an interface probe (Solinst model 121), capable of identifying air-water and water-hydrocarbon product interfaces and thicknesses, prior to well purging. Levels were recorded as depths from top of the 50mm diameter well casing.

II.1.5 Groundwater Sampling

Groundwater sampling was carried out in accordance with EPA's Groundwater Sampling Guidelines (EPA Publication 669, 2000). Groundwater samples from the shallow aquifer were retrieved using a low flow sampling method (Micropurge® bladder pump) in accordance with USEPA (1996) as briefly described below.

The pump was installed at a depth of 0.5 metre below the water table approx. half an hour prior to commencement of purging. The pump and tubing were lowered slowly and cautiously so as to minimize disturbance of the water column. The pumping rate varied between 0.1 and 0.5L per minute, less than the recharge capacity of the formation. Wells were purged of a minimum three well volumes prior to sampling, in order to ensure that sampled groundwater was representative of the aquifer.

The equipment was decontaminated between sampling by removal of the tubing and disposal. The pump itself was decontaminated with Decon 90 and rinsed twice. A new bladder was inserted for each well.

The samples were collected in vials and plastic bottles. Samples were placed on ice immediately after collection for transport to the NATA registered analytical laboratory.

II.2 QUALITY ASSURANCE/QUALITY CONTROL

II.2.1 Field Sampling

All sampling equipment including augers that had come into contact with fill or soil were decontaminated between boreholes in accordance with the work procedures adopted by GeoPollution Management Pty Ltd as part of internal quality assurance protocols.

Hand sampling equipment was cleaned according to the following procedure before collection of each sample:

1) Brush in water containing DECON 90 (phosphate-free detergent)
2) Rinse twice in ample tap water
3) Rinse once with distilled water
4) Dry with disposable paper towel.

Water was brought on site in containers.

II.2.2 Laboratories

Internal laboratory quality control testing was requested as follows:

Duplicates	- 10% of all samples analysed or a minimum of 1
Blanks	- 1 per batch of samples analysed
Spikes (Recoveries)	- Duplicates with known spikes. For metals: Spike added to acid digest. For organics: Spike added to soil prior to extraction.
Standards	- Instrument calibration standards as required by NATA.

QA/QC methods were employed to ensure that the data, as far as possible, were accurate, precise (reproducible and repeatable) and representative. The methods employed were in compliance with the National Environment Protection *(Assessment of Site Contamination)* Measure 1999 Schedule B (3) *Guideline on Laboratory Analysis of Potentially Contaminated Soils.* (NEPC 1999).

Field replicate samples were submitted for analysis (at a rate of 20 % of total sample analyses) for the purpose of external quality assurance and internal quality control, involving split duplicates sent to a second laboratory as well as blind duplicates for analysis by the primary laboratory. Blind duplicates sent to the primary laboratory were given different identification numbers to conceal their identity.

All field replicate samples were aliquots of randomly sub-sampled bulk samples taken from the auger cuttings.

II.2.3 Reporting Limits

The reporting limits were one fifth of the equivalent NEPM EIL levels or lower (or HIL A where this is lower than EIL) for all analytes. Detection limits for three-part composite sample analyses were one fifth of the NEPM EIL levels.

The reporting limits (or lower) shown below (Table 2, over page). are applicable to the analysis program for this investigation.

TABLE 2: REPORTING LIMITS

ANALYTES	SOIL (mg/kg)	Groundwater[1] (mg/L)
Heavy Metals (total)		
Arsenic (As)	<2	NA
Barium (Ba)	<1	NA
Cadmium (Cd)	<0.5	NA
Chromium (Cr)	<2	NA
Copper (Cu)	<2	NA
Lead (Pb)	<2	NA
Mercury (Hg)	<0.1	NA
Nickel (Ni)	<2	NA
Zinc (Zn)	<2	NA
Manganese (Mn)	<10	NA
Beryllium (Be)	<2	NA
Molybdenum (Mo)	<5	NA
Vanadium (V)	<5	NA
Tin (Sn)	<2	NA
Cobalt (Co)	<10	NA
Polycyclic Aromatic Hydrocarbons (PAH's) Individual	<0.1	<0.001
Organochlorine Pesticides Individual	<0.01	NA
Organophosphorus Pesticides Individual	<0.1	NA
Polychlorinated Biphenyls (PCB's) Total as Arochlor 1260	<0.1	NA
Chlorinated Hydrocarbons (individuals)	<0.01	NA
Phenols & Cresols (total)	<0.1	NA
Cyanide (total complex)	<5	NA
Total Petroleum Hydrocarbons (TPH's)		
C_6-C_9 Fuel Fraction	<20	<20[3]
C_{10}-C_{14} Mineral Oil Fractions	<50	<50[3]
C_{15}-C_{28} Mineral Oil Fractions	<100	<100[3]
C_{29}-C_{36} Mineral Oil Fractions	<100	<100[3]
Monocyclic Aromatic Hydrocarbons (MAH's)		
Benzene	<0.1	<0.001
Toluene	<0.1	<0.001
Ethylbenzene	<0.1	<0.001
Xylenes	<0.1	<0.01

1. Derived from Health Guideline Values from Australian Drinking Water Guidelines (1996), only listed for analysed parameters.
2. Where no Health value exists, Aesthetic and/or the 95% Aquatic Ecosystems (Freshwater) Guidelines from the ANZECC/ARMCANZ 2000 Guidelines for Fresh and Marine Water Quality are utilised.
3. No Guidelines exist. Based on known laboratory detection limits.

Reporting limits are also referred to as 'Practical Quantitation Limits'. Detection limits of the analytical method may be up to a factor of 10 lower.

II.2.4 Sample Documentation and Dispatch

Sample numbering for this sampling program was according to a defined format. Each sample was given the prefix 'G'X'', where G stands for grid point and X is the number assigned to the borehole from which the sample was collected, as per example below:

G1-1806-1
(ie. Sample from grid point 1, collected on 18th June, Sample No. 1).

Following sample collection and during transport to our Ringwood office, samples were stored on ice. Samples were refrigerated at 4 °C until dispatch on the day following completion of field work. Sample dispatch followed chain of custody procedures. Samples were courier-dispatched to the primary and secondary laboratories on the day following the field work.

Routine chemical analysis was carried out by the NATA accredited analytical laboratory of MGT Environmental Consulting Pty Ltd, Oakleigh, used as the main or primary laboratory (routine samples). QA/QC duplicate samples were submitted to the NATA laboratory of Gribbles Analytical Laboratories, Notting Hill, as the secondary laboratory with the respective chain of custody form attached as part of Appendix F. Internal QA/QC procedures were followed by both subcontracting laboratories (refer to Section V below).

Sample details, any special sample preparation methods required and analytical parameters were entered on Chain of Custody Forms (see Appendix F). These forms double as 'Sample Analysis Request Forms'. All sample labels were cross-checked with the records kept and all required details were entered on the dispatch forms. A copy of all the forms sent to the laboratories together with the samples was retained in the job file.

The analytical laboratories were requested to cross-check the samples upon receipt against the Analysis Request Forms, and to sign the forms and return them by FAX to the GPM office.

II.3 SOIL INVESTIGATION

II.3.1 Soil Sampling and Analysis Schedules

The initial sampling and analysis program was outlined in a "Proposed Sampling and Analysis Program" (Work Plan) reviewed by the Auditor prior to conducting site work. A copy of the proposed work plan (GeoPollution Management, 7th June 2002) is attached as part of Appendix D.

A total of one hundred and twenty (120) routine soil samples were initially collected from thirty-five (35) grid and five (5) target locations across the site. The target locations were positioned as close as possible to the known and suspected underground storage tank sites.

Sampling depth intervals covered shallow fill beneath the concrete slab (and fill exposed at surface where no concrete slab was present) and natural soil at the following nominal intervals (variations subject to actual soil profiles encountered).

1: 0.0 – 0.1m* - FILL
2: 0.3 – 0.5m* - where Fill thickness was 0.5 m or more
3: First 200 mm of natural soil.
** Depths from base of concrete or from ground surface*

At locations where depth of fill material exceeded 0.5m, further samples of fill were collected at a rate of approximately one sample per 0.5 m depth. Samples of natural soil below the fill were collected at all locations. Final investigation depths across the site were between 1.0 and 5.5 metres.

Groundwater monitoring wells were installed at the site on 11 July 2002. Soil samples were collected from well location MW1 to replace samples that could not be collected from test location T5 due to shallow refusal on services (a stormwater pipe was present at the original location preventing drilling).

Copies of the combined chain of custody and analysis request forms are attached to this report as Appendix F.

II.3.1.1 Initial Analysis

The number of chemical analyses initially undertaken and the range of chemical parameters selected are summarised below (TABLE 3a, over page).

TABLE 3a: Summary of Chemical Analyses Performed – Initial Analysis

ANALYTICAL PARAMETERS	No. ROUTINE SAMPLES		No. QA/QC SAMPLES	
	Comp.	Indiv.	Comp.	Indiv.
Grid Locations				
Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc	8	11	-	4
Beryllium, Cobalt, Barium, Molybdenum, Tin, Antimony, Manganese, Selenium, Vanadium	5	-	-	-
Polycyclic Aromatic Hydrocarbons (PAH's)	8	11	-	-
Organochlorine Pesticides	5	-	-	-
Polychlorinated Biphenyls (PCB's)	5	-	-	-
Phenolics	5	-	-	-
Cyanide (CN^-, total complex)	5	-	-	-
Semi Volatile Chlorinated Hydrocarbons	5	-	-	-
Total Petroleum Hydrocarbons (TPH's)	-	5	-	1
Monocyclic Aromatic Hydrocarbons (MAH's, BTEX)	-	5	-	-
Sulphate	5	-	-	-
Fluoride	5	-	-	-
Volatile Halogenated Hydrocarbons	5	-	-	-
pH	3	-	-	-
Target Locations				
Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc	-	1		
Total Petroleum Hydrocarbons (TPH's)	-	11		
Monocyclic Aromatic Hydrocarbons (MAH's, BTEX)	-	11		

Twenty two (22) surface fill, deeper fill and natural soil samples were initially analysed from grid and target locations across the site. Twelve of the fourteen surface fill samples collected from the grid locations were analysed individually for eight selected heavy metals (As, Cd, Cr, Cu, Hg, Pb, Zn, Ni) and polycyclic aromatic hydrocarbons (PAH's) and six of the surface fill samples were analysed for (partially volatile) total petroleum hydrocarbons (TPH's) and (volatile) monocyclic aromatic hydrocarbons (MAH's). Three surface fill samples collected from the grid locations were also analysed for pH and volatile halogenated hydrocarbons.

Individual samples of surface fill from twenty-four of the thirty five grid locations were combined at the laboratory into eight 3-part composites and analysed for eight heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn) and PAH's. Individual samples of surface fill from fifteen of the thirty five grid locations were combined at the laboratory into five 3-part composites and analysed for a wider suite of potential contaminants ("balance of contaminant screen") including nine additional heavy metals (Sb, Ba, Be, Co, Mo, Mn, Se, Sn, V), phenolic compounds, cyanide (total), organochlorine and organophosphate pesticides, polychlorinated biphenyls (PCB's), sulphate, fluoride, volatile halogenated and semi-volatile chlorinated hydrocarbons.

Selected individual target samples at locations adjacent to the underground storage tanks were analysed for (partially volatile) total petroleum hydrocarbons (TPH's) and (volatile) monocyclic aromatic hydrocarbons (MAH's).

For quality control purposes, six field replicate soil samples were collected, three of which were sent to the second laboratory (split duplicates) and the other samples to the primary laboratory as blind duplicates. Two of the split duplicate samples were analysed for eight selected heavy metals and PAH's and the other one for only TPH's and MAH's (refer to Chapter VI). Two of the blind duplicate samples were analysed for eight selected heavy metals and PAH's and the other for only TPH's and MAH's (refer to Chapter V).

TABLES 3b, 3c and 3d contain detailed listings of the grid and target samples respectively as analysed during the first round of analysis. Samples not listed in the table were kept in storage by the laboratory, in case further analysis was required (holding period subject to analytes).

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TABLE 3b: COMPOSITING AND ANALYSIS SCHEDULE – Grid Locations

(Grid locations are shown Figure1 and composite groups on Figure 2, Appendix A)

SAMPLE No.s	COMPOSITE No.	BORE No.	DEPTH RANGE [m]	PARAMETERS ANALYSED
				Composite
G1-1706-1 G2-1706-1 G3-1706-1	Comp F1	G1 G2 G3	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G5-1706-1 G6-1706-1 G9-1706-1	Comp F2	G5 G6 G9	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G8-1706-1 G10-1706-1 G12-1706-1	Comp F3	G8 G10 G12	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G11-1706-1 G13-1706-1 G15-1706-1	Comp F4	G11 G13 G15	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G16-1706-1 G19-1706-1 G20-1706-1	Comp F5	G16 G19 G20	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G22-1806-1 G26-1806-1 G27-1806-1	Comp F6	G22 G26 G27	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G24-1806-1 G25-1806-1 G30-1806-1	Comp F7	G24 G25 G30	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G321-1806-1 G33-1806-1 G35-1806-1	Comp F8	G1 G2 G3	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (8)** and PAH's#
G1-1706-1 G3-1706-1 G5-1706-1	Comp EPA1	G1 G3 G5	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (9)**, PAH's#, OC/OP Pesticides, PCB's, Cyanide (total complex), phenols, sulphate, fluoride, Chlorinated hydrocarbons, volatile halogenated hydrocarbons
G7-1706-1 G9-1706-1 G14-1706-1	Comp EPA2	G7 G9 G14	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (9)**, PAH's#, OC/OP Pesticides, PCB's, Cyanide (total complex), phenols, sulphate, fluoride, Chlorinated hydrocarbons, volatile halogenated hydrocarbons

Cont'd over page

TABLE 3b (cont'd): COMPOSITING AND ANALYSIS SCHEDULE – Grid Locations

SAMPLE No.s	COMPOSITE No.	BORE No.	DEPTH RANGE [m]	PARAMETERS ANALYSED Composite
G16-1706-1 G23-1706-1 G26-1706-1	Comp EPA3	G16 G23 G26	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (9)**, PAH's#, OC/OP Pesticides, PCB's, Cyanide (total complex), phenols, sulphate, fluoride, Chlorinated hydrocarbons, volatile halogenated hydrocarbons
G17-1706-1 G24-1706-1 G28-1706-1	Comp EPA4	G17 G24 G28	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (9)**, PAH's#, OC/OP Pesticides, PCB's, Cyanide (total complex), phenols, sulphate, fluoride, Chlorinated hydrocarbons, volatile halogenated hydrocarbons
G18-1706-1 G30-1806-1 G33-1806-1	Comp EPA5	G18 G30 G33	0.0-0.1 0.0-0.1 0.0-0.1	Heavy Metals (9)**, PAH's#, OC/OP Pesticides, PCB's, Cyanide (total complex), phenols, sulphate, fluoride, Chlorinated hydrocarbons, volatile halogenated hydrocarbons

Polychlorinated Biphenyls
* As, Cd, Cr, Cu, Pb, Hg, Ni, Zn
** Sb, Co, Sn, Be, Mn, Mo, Ba, Se, V

TABLE 3c: ANALYSIS SCHEDULE – Grid Locations (Individual Samples)

SAMPLE No.s	BORE No.	DEPTH RANGE [m]	PARAMETERS ANALYSED
G4-1706-1	G4	0.0-0.1	Heavy Metals (8)*, PAH's
G7-1706-1	G7	0.0-0.1	Heavy Metals (8)*, PAH's
G8-1706-1	G8	0.0-0.1	pH
G14-1706-1	G14	0.0-0.1	Heavy Metals (8)*, PAH's
G17-1706-1	G17	0.0-0.1	Heavy Metals (8)*, PAH's
G19-1706-1	G19	0.0-0.1	pH
G20-1706-1	G20	0.0-0.1	TPH's, MAH's, Halogenated hydrocarbons
G21-1806-1	G21	0.0-0.1	Heavy Metals (8)*, PAH's, TPH's, MAH's, Halogenated hydrocarbons
G23-1806-1	G23	0.0-0.1	Heavy Metals (8)*, PAH's
G26-1806-1	G26	0.0-0.1	TPH's, MAH's
G27-1806-1	G27	0.0-0.1	TPH's, MAH's
G28-1806-1	G28	0.0-0.1	Heavy Metals (8)*, PAH's, pH
G29-1806-1	G29	0.0-0.1	Heavy Metals (8)*, PAH's
G31-1806-1	G31	0.0-0.1	Heavy Metals (8)*, PAH's
G34-1806-1	G34	0.0-0.1	Heavy Metals (8)*, PAH's
G35-1806-1	G35	0.0-0.1	TPH's, MAH's

Polychlorinated Biphenyls
* As, Cd, Cr, Cu, Pb, Hg, Ni, Zn
** Sb, Co, Sn, Be, Mn, Mo, Ba, Se, V

TABLE 3d: ANALYSIS SCHEDULE – Target Locations (Individual Samples)

(Target locations are indicated on the attached Figure 1, Appendix A)

SAMPLE No.s	BORE No.	DEPTH RANGE [m]	PARAMETERS ANALYSED
T1-1806-1	T1	0.0-0.1	TPH's & MAH's
T1-1806-7	T1	2.8-3.0	TPH's & MAH's
T2-1806-1	T2	0.0-0.1	TPH's & MAH's
T2-1806-9	T2	2.0-2.2	TPH's & MAH's
T3-1806-1	T3	0.8-1.0	TPH's & MAH's
T3-1806-4	T3	1.3-1.5	TPH's & MAH's
T3-1806-5	T3	1.8-2.0	TPH's & MAH's
T3-1806-6	T3	2.3-2.5	TPH's & MAH's
T3-1806-9	T3	3.8-4.0	TPH's & MAH's
T4-2606-3	T4	0.8-1.0	TPH's & MAH's
T4-2606-7	T4	2.8-3.0	TPH's & MAH's
MW1-1107-1*	MW1	0.0-0.1	TPH's & MAH's
MW1-1107-5	MW1	2.8-3.0	TPH's & MAH's

* Samples collected during installation of groundwater monitoring well MW1, adjacent to Tank 3

II.3.1.2 Further Soil Analysis

TABLE 4a shows the range and number of further chemical analyses undertaken, based on the outcome of the initial results. TABLE 4b lists the samples analysed (excl. QA/QC check analyses).

TABLE 4a: SUMMARY OF FURTHER CHEMICAL ANALYSES PERFORMED

ANALYTICAL PARAMETERS	No. ROUTINE SAMPLES Indiv.	No. QA/QC SAMPLES Indiv.
Total Arsenic	5	2
Total Chromium	-	1
Total Copper	3	-
Total Manganese	11	-
Total Nickel	24	1
Total Vanadium	15	-
Total Zinc	3	1
Elutriation: Arsenic	1	-
Elutriation: Manganese	1	-
Elutriation: Nickel	2	-
PAH's	-	2
TPH's		

TABLE 4b: FURTHER ANALYSIS SCHEDULE – Grid Locations (Individual Samples)

SAMPLE No.s	BORE No.	DEPTH RANGE [m]	PARAMETERS ANALYSED
Surface Fill Samples:			
G1-1706-1	G1	0.0-0.1	Manganese, Vanadium
G3-1706-1	G3	0.0-0.1	Manganese, Vanadium
G5-1706-1	G5	0.0-0.1	Vanadium
G7-1706-1	G7	0.0-0.1	Arsenic, Vanadium
G9-1706-1	G9	0.0-0.1	Vanadium
G14-1706-1	G14	0.0-0.1	Vanadium
G16-1706-1	G16	0.0-0.1	Manganese, Nickel, Vanadium
G17-1706-1	G17	0.0-0.1	Manganese, Vanadium
G18-1706-1	G18	0.0-0.1	Manganese, Vanadium
G19-1706-1	G19	0.0-0.1	Nickel
G20-1706-1	G20	0.0-0.1	Nickel
G21-1806-1	G21	0.0-0.1	Arsenic, Chromium
G22-1806-1	G22	0.0-0.1	Arsenic, Nickel
G23-1806-1	G23	0.0-0.1	Manganese, Nickel, Vanadium, PAH's
G24-1806-1	G24	0.0-0.1	Manganese, Nickel, Vanadium, Zinc, Elutriation: Vanadium
G25-1806-1	G25	0.0-0.1	Nickel
G26-1806-1	G26	0.0-0.1	Arsenic, Manganese, Nickel, Vanadium; Elutriation: Arsenic
G27-1806-1	G27	0.0-0.1	Arsenic, Nickel
G28-1806-1	G28	0.0-0.1	Manganese, Vanadium; Elutriation: Nickel
G30-1806-1	G30	0.0-0.1	Manganese, Nickel, Vanadium, Zinc, Elutriation: Manganese
G32-1806-1	G32	0.0-0.1	Copper, Nickel; Elutriation: Nickel
G33-1806-1	G33	0.0-0.1	Copper, Manganese, Nickel, Vanadium
G35-1806-1	G35	0.0-0.1	Copper, Nickel
MW1-1107-1	MW1	0.0-0.1	TPH's
Deeper Fill and Natural Soil Samples:			
G5-1706-2	G5	0.2-0.4	Vanadium
G16-1706-2	G16	0.25-0.45	Nickel
G20-1706-2	G20	0.3-0.5	Nickel
G22-1806-2	G22	0.2-0.4	Nickel
G23-1806-2	G23	0.2-0.4	Vanadium
G24-1806-2	G24	0.2-0.4	Vanadium
G25-1806-2	G25	0.3-0.5	Nickel
G27-1806-2	G27	0.2-0.4	Nickel
G29-1806-2	G29	0.2-0.4	Nickel
G30-1806-2	G30	0.3-0.5	Nickel, Manganese
G33-1806-2	G33	0.3-0.5	Nickel
G35-1806-2	G35	0.3-0.5	Nickel
T2-1806-2	T2	0.3-0.5	Nickel
T2-1806-3	T2	0.6-0.8	Nickel

II.4 GROUNDWATER INVESTIGATION

Three groundwater monitoring wells were installed on 11th July 2002. Monitoring well construction details are shown in Appendix I attached to this report ('Well Diagrams').

Groundwater samples were collected on 19th July 2002 and dispatched for laboratory analysis for TPH's, MAH's and TDS.

II.4.1 Groundwater Sampling and Analysis Schedules

Table 5a provides details pertaining to the groundwater purging and sampling procedures at the well.

Table 5a: Details of Monitoring Well Purging and Groundwater Sampling

Monitoring Well No.	Date	Purged Volume (L)	Method[1]	Sample Containers
MW1	19/07/02	6.5	Low-flow bladder pump	1 x 500ml plastic (n.p), 1 x 500ml amber (H_2SO_4)[1], 2 x vial (n.p.)
MW2	19/07/02	6.5	Low-flow bladder pump	1 x 500ml plastic (n.p), 1 x 500ml amber (H_2SO_4)[1], 2 x vial (n.p.)
MW3	19/07/02	6.0	Low-flow bladder pump	1 x 500ml plastic (n.p), 1 x 500ml amber (H_2SO_4)[1], 2 x vial (n.p.)

[1] Refer to Section II.1.5 above
[2] = preservative
n.p. (not preserved)

Groundwater was analysed for Total Petroleum Hydrocarbons (TPH's), Monocyclic Aromatic Hydrocarbons (MAH's) and Total Dissolved Solids (TDS). Relevant analysis requests ("Chain of Custody and Analysis Request Forms") are included in Appendix F.

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PLAN

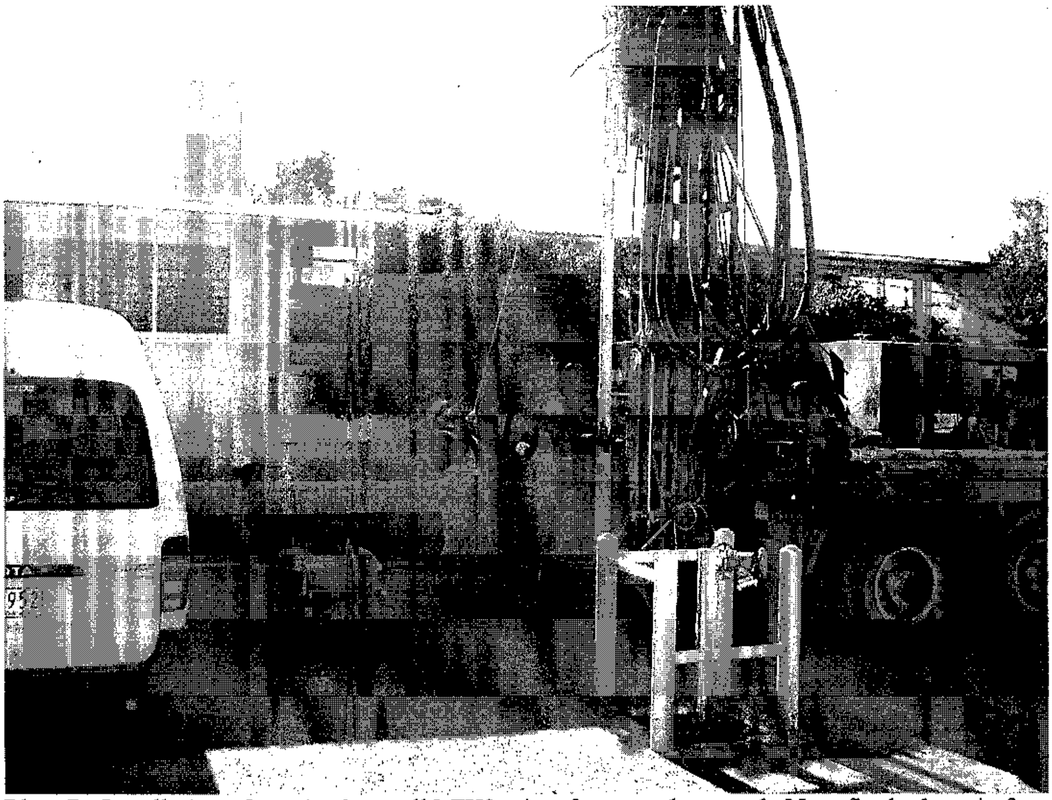

Plate 7: Installation of monitoring well MW2, view from south to north. Note fire hydrant in foreground.

Plate 8: Installation of monitoring well MW3, view from north to south on east side of school administration building.

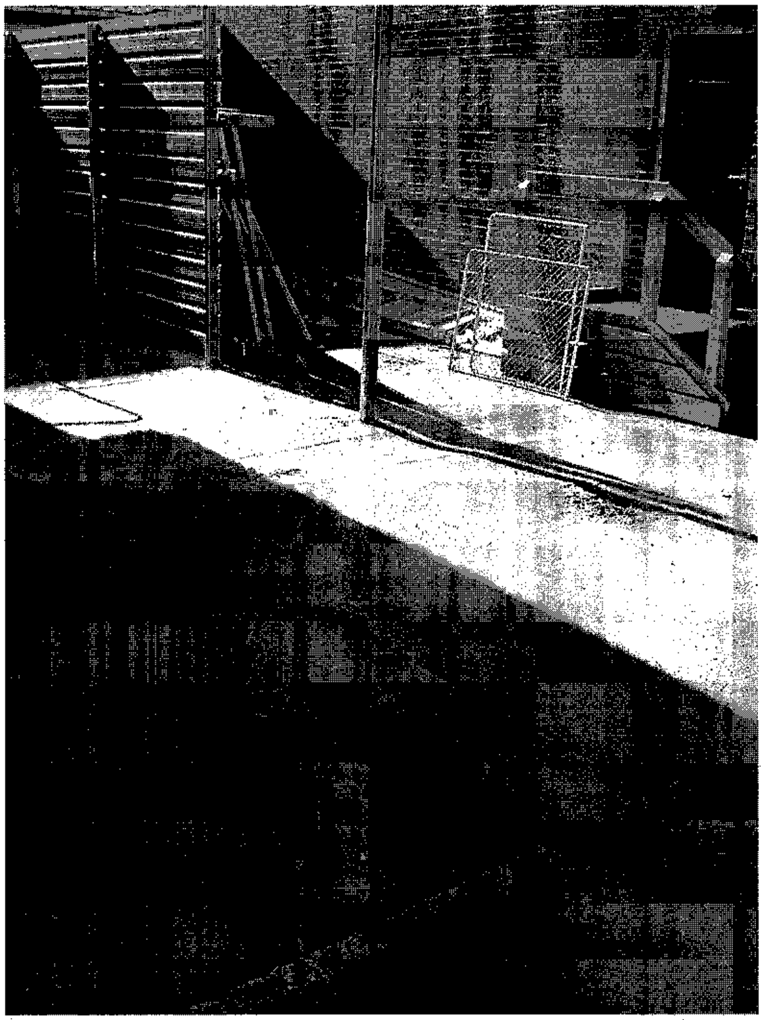

Plate 9: Location of monitoring well MW1 adjacent to Tank 3

The analysis program is summarised in Table 5b.

Table 5b: Schedule of Groundwater Analysis
(The monitoring well location is shown on the attached Figure 1, Appendix A)

Monitoring Well	Sample Number	PARAMETERS ANALYSED
MW1	MW1-1907	TPH's, BTEX, Total Dissolved Solids
MW2	MW2-1907	TPH's, BTEX, Total Dissolved Solids
MW3	MW3-1907	TPH's, BTEX, Total Dissolved Solids

II.5 TANK PRODUCT AND CONTENT INVESTIGATION

At the request of the Auditor, samples of the contents of each accessible tank (Tanks 2 and 3 – Figure 1) were collected and submitted for analysis of TPH's, MAH's (BTEX) and PAH's. Where product was present (Tank 2 only) identification of the product was undertaken (TPH fingerprint).

Table 6: DETAILS OF TANK CONTENTS SAMPLING AND ANALYSIS

Tank No.	Date	Method	Sample Containers	ANALYSIS REQUESTED
Tank 2	11/07/02	Bailer	1 x 500ml amber (H_2SO_4)[1], 2 x vial (n.p.)[1]	TPH, BTEX, PAH's
Tank 3	11/07/02	Bailer	1 x 500ml amber (H_2SO_4)[1], 3 x vial (n.p.)[1]	TPH, BTEX, PAH's Product Identification

[1] = preservative
n.p. (not preserved)

III. RESULTS OF SOIL INVESTIGATION

III.1 SOIL PROFILES

III.1.1 Regional Geology

The site is identified on the Geological Survey of Victoria SUNBURY Sheet (1:63,360) as being located border of the province of Tertiary Pliocene to Quaternary aged 'Newer Volcanics' and Tertiary (Eocene) aged sediments. The 'Newer Volcanics' are comprised of olivine basalt, minor limburgite, trachy-andesite, scoria, thin interbedded sand, clay and tuff. The Tertiary Eocene aged sediments are comprised of silt, sand and minor gravel.

III.1.2 Site Lithology

Soil profiles intersected during the field investigation were consistent with those anticipated from the regional geology. Fill material was encountered at all grid locations, ranging in thickness from between 0.1m and 1.1m (from base of concrete or surface level). Fill generally consisted of admixed clay, silt, sand and gravel with minor brick fragments or rock fragments.

Natural soil was encountered at all but four test locations (G25, G26, G28 and T5) and ranged in thickness from 0.1m to 15m (at monitoring well locations MW1, MW2 and MW3) and consisted of stiff silty clay and sandy silts to silty sands. Refusal was encountered on bedrock, believed to be weathered basalt, at locations G25 and G26. Refusal at locations G28 and T5 was due to a deeper layer of concrete or on a stormwater pipe respectievly.

The maximum depth of investigation was 15m during monitoring well installation.

A typical profile of shallow soil as intersected is summarised in TABLE 7 below. Bore logs, including field sampling and testing records, are presented in Appendix E.

TABLE 7: Typical Soil Profile

TYPE OF MATERIAL	DEPTH INTERVAL [m]	DESCRIPTION
Pavement[1/2]	0.10-0.20[1] or 0.05-0.20[2]	Concrete[1] or Bitumen[2]
Fill material	0.1-1.1m	Admixed clay, silt, sand, gravels with occasional brick or rock fragments, brown to dark brown
Soil Profile	0.1 – 4.0m 9.0 - 15m+[3]	Silty CLAY, brown-grey to grey-green, low plasticity, dry-moist, friable in places. *Or* Sandy CLAY, coarse-medium sand, grey-yellow, moist-dry, stiff to firm *Or* Sandy SILT/ Silty SAND, sand coarse grained, orange grey, increased moisture b/w 10 and 11m
Rock	10.5 - 15m+	Weathered BASALT, yellow brown[4]

1 Boreholes T3, T4, T5
2 Boreholes G16, G20, G22, G23, G24, G25, G27, G28, G30, G35, T1, T2
3 MW 2 and 3
4 MW1

III.2 FIELD CONTAMINATION ASSESSMENT

III.2.1 Visual and Olfactory Observations

Grid Locations

No signs of possible PAH contamination (black fragments) were noted at any of the grid locations.

All other grid locations showed no olfactory evidence of contamination in fill material or natural soil.

Target Locations

No signs of possible PAH contamination (black fragments) were noted at any of the target locations.

Olfactory evidence of hydrocarbon contamination (ranging from moderate to strong hydrocarbon odours) was noted in fill material and natural soil at target location T3, adjacent to the former tank pit of Tank 4.

III.2.2 Vapour Survey

Potential vapour phase contamination at the subject site was assessed by conducting a soil gas survey for volatile organic compounds (VOC's). Background vapour concentrations were recorded at 0.0 ppm at all locations, except at grid locations G1 (1.2 ppm), G2 (0.8 ppm), G3 (0.2 ppm), G6 (0.2 ppm), G21 (2.4 ppm), G23 (0.6 ppm) and at target location T1 (2.4 ppm).

Results of bore space monitoring and sample headspace tests are recorded on bore logs attached in Appendix E.

Grid Locations

Soil gas concentrations (PID readings of freshly exposed open bore spaces) were equivalent to background levels (0.0 ppm) at all sample locations, except at grid locations G1 (ranging from 8.2-10.2 ppm), G2 (0.6 ppm), G3 (0.4 ppm), G6 (0.8 ppm), G8 (0.1 ppm) and G21 (ranging from 0.6-0.8 ppm). Low bore space readings were confirmed by headspace analysis results of discrete samples (ranging between 0.0 ppm and 0.2 ppm of total ionizable organics in all samples tested).

Target Locations

Soil gas concentrations (PID readings of freshly exposed open bore spaces) ranged between 0.0 ppm and a peak concentration of 10.5 ppm at target location T3. Bore space readings at all remaining target locations were below 10 ppm. Any bore space readings above 0.0 ppm were confirmed by headspace analysis results (ranging between 0.0 ppm and 29.9 ppm). Headspace readings decreased with depth at all target locations that showed detectable bore space readings.

III.3 CHEMICAL ANALYSIS

III.3.1 Soil Assessment Criteria

Criteria adopted for the assessment of potentially contaminated sites were published in the National Environment Protection *(Assessment of Site Contamination)* Measure as "Health Investigation Levels" for various land use settings (HIL A to F, NEPC 1999; derived from the National Environmental Health Forum guidelines, NEHF 1999), and generic "Ecological Investigation Levels", interim levels for urban land (EIL; NEPC 1999). EIL levels are based on phytotoxicity, survey data of urban residential properties and ANZECC B levels (ANZECC & NHMRC 1992).

The NEPM levels denote the threshold above which further "appropriate investigation and evaluation" is required (ANZECC & NHMRC 1992). The EPA Auditor may adopt environmental or health risk-based investigation levels as acceptance criteria for a particular site audit. In this instance, HIL E levels, applicable to recreational areas and playing fields incl. secondary schools, are, apart from the lower HIL A levels, referred to as screening criteria, where the EIL (or HIL A) levels are exceeded.

If soil investigation levels are exceeded, site-specific factors such as exposure pathways, receptors, future land use, local geology and hydrogeology and potential off-site effects are considered in a risk evaluation on the basis of which the need for corrective action is determined.

In order to assess the need for further investigation based on *composite* sample results, modified criteria were generated by dividing criteria for individual samples by the number of individual samples comprising the composites, thereby allowing for sample dilution.

Volatile organic compounds are determined in this investigation both as total ionisable organic compounds (benzene equivalents) by a field vapour screen (a rapid indicator of the *relative* concentrations of fuel vapours in soil pores; refer to Section II.1.2) and by laboratory analysis.

A field headspace vapour concentration of more than 10 ppm is considered to indicate potential soil contamination, a concentration of 100 ppm+ is considered to represent a potential vapour hazard.

The criteria used for data evaluation of the assessment component of this investigation are shown in the table below (TABLE 8, over page). Where EIL levels have not been defined in the NEPM (1999), the ANZECC B levels (ANZECC & NHMRC 1992) are reverted to. Reference is also made to EPA 'Fill Classification Criteria' (EPA Bulletin 448 "Classification of Wastes') where removal and off-site disposal of soil may be required.

TABLE 8: Soil Quality Screening Criteria (mg/kg dry weight of soil)

ANALYTES	NEPM[1] INVESTIGATION LEVELS			EPAV FILL MATERIAL LIMITS
	HIL A[2]	HIL E[3]	EIL[4]	
Heavy Metals (total)				
Antimony (Sb)	Ns	ns	Ns	-
Arsenic (As)	100	200	Ns	30
Beryllium (Be)	20	40	Ns	-
Barium (Ba)	Ns	Ns	300	-
Cadmium (Cd)	20	40	3	5
Chromium (Cr), total as III	12%	24%	Ns	250
Cobalt (Co)	100	200	Ns	50
Copper (Cu)	1000	2000	100	100
Lead (Pb)	300	600	600	300
Manganese (Mn)	1500	3000	500	-
Mercury (Hg)	15	30	1	2
Molybdenum (Mo)	Ns	Ns	40*	40
Nickel (Ni)	600	600	60	100
Selenium (Se)	Ns	Ns	Ns	10
Tin (Sn)	Ns	Ns	Ns	50
Vanadium (V)	Ns	Ns	50	Ns
Zinc (Zn)	7000	14000	200	500
Polycyclic Aromatic Hydrocarbons (PAH's)				
Total	20	40	20*	20
Benzo(a)pyrene	1	2	1*	ns
Organochlorine Pesticides				
Dieldrin	Ns	Ns	0.2*	Ns
Dieldrin + Aldrin	10	20	ns	Ns
DDT + DDD + DDE	200	400	ns	Ns
Chlordane	50	100	ns	Ns
Heptachlor	10	20	ns	Ns
Other Individual	ns	ns	0.5*	Ns
Total OC Pesticides	ns	ns	1*	1
Fluoride (total)	-	-	400	-
Sulphate	ns	ns	2000	-
Cyanide (total complex)	500	1000	50*	50
Phenolics (total)	8500 (Phenol)	17,000	1*	1
Polychlorinated Biphenyls (PCB's)	10	20	1*	Ns
Semi-Volatile Halogenated Hydrocarbons				
Chlorobenzenes (indiv.)	Ns	Ns	1*	Ns
Chlorobenzenes (total)	Ns	Ns	2*	Ns
Total Chlorinated Compounds	Ns	Ns	ns	1
Monocyclic Aromatic Hydrocarbons (MAH's)				
Benzene	Ns	Ns	1*	Ns
Toluene	Ns	Ns	3*	Ns
Ethyl Benzene	Ns	Ns	5*	Ns
Xylenes (4 isomers)	Ns	ns	5*	Ns
Total	Ns	ns	7*	7
Total Petroleum Hydrocarbons (TPH's)				
<C9 Fuel Fraction	Ns	ns	100*	100
>C9 Mineral Oil Fractions	Ns	ns	1000*	1000
pH Value	Ns	ns	6-8*	Ns

[1]: NEPM Schedule B(1) (NEPC 1999) ns: not specified [2]: Standard residential setting with garden/accessible soil
[3]: Parks, recreational open space and playing fields, includes secondary schools [4]: Interim levels for Urban Land
* ANZECC B Values in absence of NEPM EIL levels [5]: DUTCH B Limit adopted in absence of NEPM criteria

III.3.2 Chemical Analysis Results

Results of the chemical analysis (initial and further) undertaken are attached as Appendix G.1 (NATA endorsed final laboratory reports). Appendix G.2 includes QA results reported by the secondary laboratory (refer to Chapter VI for QA/QC evaluation).

III.3.2.1 Initial Analysis

Initial analysis results are summarised in Table 9 (individual grid heavy metals and PAH's), Table 10 (composite samples – heavy metals and PAH's), Table 11 (composite samples – additional heavy metals), Table 12 (organochlorine and organophosphate pesticides, polychlorinated biphenyls, cyanide, phenols, fluoride, sulphate and semi-volatile chlorinated hydrocarbons in composite samples), Table 13 (volatile analyses of individual grid samples), Table 14 (volatile analyses of individual grid samples), Table 15 (individual samples – pH value) and Table 16 (Asbestos). The tables list the screening criteria (HIL A & D and EIL levels; NEPM 1999) as well as ANZECC B levels for TPH's and BTEX (suitable NEPM criteria not defined for TPH's, and no NEPM levels specified to date for BTEX), and EPAV Fill Material Limits (EPA Bulletin 448, 1995) with a view to fill classification of soil to be disposed off-site.

Analysis results for composite samples may conceal elevated concentrations in one or more individual samples, rather than representing average concentrations in the individual samples that make up the composite. *Modification* of the above assessment criteria specified for individual samples, according to the number of samples comprising the composite, takes the potential diluting effect of sample compositing into account. Modified assessment criteria for three-part composites are only shown in the tables if at least one of the analytes is higher than these.

Results are discussed in detail following the tables.

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TABLE 9: SUMMARY OF ANALYSIS RESULTS (Individual Grid Samples) – Heavy Metals and PAH's [mg/kg dry weight of soil]

SAMPLE No.	BORE No.	DEPTH [m]	TYPE OF MATERIAL	CONCENTRATIONS OF POTENTIAL CONTAMINANTS									
				HEAVY METALS								PAH's	
				As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P*	Total
G4-1706-1	G4	0.0-0.1	Fill	<2	<0.5	19	11	25	<0.1	15	35	0.12	1.09
G7-1706-1	G7	0.0-0.1	Fill	3.3	<0.5	13	6.5	5.1	<0.1	16	22	<0.1	nd
G14-1706-1	G14	0.0-0.1	Fill	2.8	<0.5	12	9.3	5.7	<0.1	22	52	<0.1	nd
G17-1706-1	G17	0.0-0.1	Fill	3.5	<0.5	35	72	30	<0.1	16	68	<0.1	nd
G18-1706-1	G18	0.0-0.1	Fill	2.5	<0.5	14	14	12	<0.1	34	68	0.32	2.74
G21-1806-1	G21	0.0-0.1	Fill	12	<0.5	50	24	46	<0.1	76	120	<0.1	nd
G23-1806-1	G23	0.0-0.1	Fill	2.7	<0.5	15	5.2	<5	<0.1	11	18	<0.1	nd
G28-1806-1	G28	0.0-0.1	Fill	2.2	<0.5	20	36	**86**	<0.1	14	55	<0.1	nd
G29-1806-1	G29	0.0-0.1	Fill	<2	<0.5	8.2	34	**74**	<0.1	10	78	<0.1	nd
G31-1806-1	G31	0.0-0.1	Fill	3.1	<0.5	<5	5.2	7.7	<0.1	7.8	41	<0.1	nd
G34-1806-1	G34	0.0-0.1	Fill	2.9	<0.5	14	24	50	<0.1	18	92	<0.1	nd
T2-1806-1	T2	0.0-0.1	Fill	<2	<0.5	26	35	**73**	<0.1	15	57	<0.1	nd
ASSESSMENT CRITERIA													
EPAV Fill Material Limits				30	5	250	100	100	2	300	500	ns	20
NEPM Investigation Levels		HIL A		100	20	12%	1,000	600	15	300	7,000	1	20
		HIL E		200	40	24%	2,000	600	30	600	14,000	2	40
		EIL		20	3	400	100	60	1	600	200	ns	20[2]

*: B(a)P Benzo(a)pyrene

[2]: Dutch B adopted in the absence of ANZECC B

[1] ANZECC A (Background) Range

Shaded and/or Bold Border Around Cell: Concentration exceeds the EIL Level

nd: not detected

TABLE 10: SUMMARY OF ANALYSIS RESULTS (Composite Samples) – Heavy Metals and PAH's [mg/kg dry weight of soil]

COMPOSITE No.	SAMPLE No.	DEPTH [m]	CONCENTRATIONS OF POTENTIAL CONTAMINANTS									
			HEAVY METALS								PAH's	
			As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P*	Total
COMP F1	G1-1706-1 G2-1706-1 G3-1706-1	0.0-0.1	<2	<0.5	26	11	15	<0.1	15	30	<0.1	nd
COMP F2	G5-1706-1 G6-1706-1 G9-1706-1	0.0-0.1	<2	<0.5	20	14	16	<0.1	23	50	<0.1	nd
COMP F3	G8-1706-1 G10-1706-1 G12-1706-1	0.0-0.1	2.5	<0.5	19	11	13	<0.1	20	42	<0.1	nd
COMP F4	G11-1706-1 G13-1706-1 G15-1706-1	0.0-0.1	<2	<0.5	40	18	17	<0.1	20	38	<0.1	nd
COMP F5	G16-1706-1 G19-1706-1 G20-1706-1	0.0-0.1	2.5	<0.5	17	21	47	<0.1	13	43	<0.1	nd

ASSESSMENT CRITERIA

			As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P*	Total
NEPM Investigation Levels	HIL A	Unmodified	100	20	12%	1,000	600	15	300	7,000	1	20
	HIL E	Unmodified	200	40	24%	2,000	600	30	600	14,000	2	40
	EIL	Unmodified	20	3	400	100	60	1	600	200	Ns	20[2]
		Modified for 3-part Comp	6.67	1	133.3	33.3	20	0.33	200	66.67	-	6.67

*: B(a)P Benzo(a)pyrene
[2]: Dutch B adopted in the absence of ANZECC B

[1] ANZECC A (Background) Range
Shaded and/or Bold Border Around Cell: Concentration exceeds the modified EIL Level

TABLE 10 (cont'd): SUMMARY OF ANALYSIS RESULTS (Composite Samples) – Heavy Metals & PAH's [mg/kg dry weight of soil]

COMPOSITE No.	SAMPLE No.	DEPTH [m]	CONCENTRATIONS OF POTENTIAL CONTAMINANTS									
			HEAVY METALS								PAH's	
			As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P*	Total
COMP F6	G22-1806-1 G26-1806-1 G27-1806-1	0.0-0.1	11	<0.5	25	26	50	<0.1	9.7	49	<0.1	nd
COMP F7	G24-1806-1 G25-1806-1 G30-1806-1	0.0-0.1	<2	<0.5	19	32	**82**	<0.1	13	89	<0.1	nd
COMP F8	G32-1806-1 G33-1806-1 G35-1806-1	0.0-0.1	<2	<0.5	21	39	**80**	<0.1	12	52	<0.1	nd

ASSESSMENT CRITERIA

			As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P*	Total
NEPM Investigation Levels	HIL A	Unmodified	100	20	12%	1,000	600	15	300	7,000	1	20
	HIL E	Unmodified	200	40	24%	2,000	600	30	600	14,000	2	40
	EIL	Unmodified	20	3	400	100	60	1	600	200	Ns	20[2]
		Modified for 3-part Comp	6.67	1	133.3	33.3	20	0.33	200	66.67	-	-

*: B(a)P Benzo(a)pyrene

[1] ANZECC A (Background) Range

[2]: Dutch B adopted in the absence of ANZECC B

Shaded and/or Bold Border Around Cell: Concentration exceeds the modified EIL Level

Shaded, Bold Font and Bold Border Around Cell: Concentration exceeds the unmodified EIL Level

TABLE 11: SUMMARY OF ANALYSIS RESULTS (cont'd) – Nine Heavy Metals (Composite Samples) [mg/kg dry weight of soil]

Composite No.	Sample No.	Depth [m]	CONCENTRATIONS OF HEAVY METALS								
			Sb	Ba	Be	Co	Mn	Mo	Sn	Se	V
COMP EPA1	G1-1706-1 G3-1706-1 G5-1706-1	0.0-0.1	<10	90	<2	10	170	<10	<10	<2	40
COMP EPA2	G7-1706-1 G9-1706-1 G14-1706-1	0.0-0.1	<10	50	<2	<5	89	<10	<10	<2	41
COMP EPA3	G16-1706-1 G23-1806-1 G26-1806-1	0.0-0.1	<10	30	<2	11	230	<10	<10	<2	41
COMP EPA4	G17-1706-1 G24-1806-1 G28-1806-1	0.0-0.1	<10	45	<2	15	350	<10	<10	<2	**82**
COMP EPA5	G18-1706-1 G30-1806-1 G33-1806-1	0.0-0.1	<10	25	<2	16	380	<10	<10	<2	27

ASSESSMENT CRITERIA

			Sb	Ba	Be	Co	Mn	Mo	Sn	Se	V
NEPM Investigation Levels	HIL A	Unmodified	Ns	ns	20	100	1,500	Ns	ns	ns	Ns
	EIL	Unmodified	20[1]	300	20[1]	50[1]	500	40[1]	10[1]	50[1]	50
		Modified for a 3-part Comp	6.7	100	6.7	16.7	166.7	13.3	3.33	16.7	16.7

[1]: ANZECC B level in absence of NEPM EIL level
ND: not detected
Ns: not specified
Shaded and Bold Border Around Cell: Concentration exceeds the modified EIL Level
Shaded, Bold Font and Bold Border Around Cell: Concentration exceeds the unmodified EIL Level

TABLE 12: SUMMARY OF ANALYSIS RESULTS (Composite Samples) cont'd - OC/OP Pesticides, PCB's, Cyanide, Phenols, Fluoride, Sulphate and Semi-Volatile Chlorinated and Volatile Halogenated Hydrocarbons [mg/kg dry weight of soil]

COMP No.	SAMPLE No.	CONCENTRATIONS OF POTENTIAL CONTAMINANTS												
		OC/OP Pesticides				PCB's Total	Cyanide Total	Phenols (total)	Sulphate	Fluoride	Chlorinated Hydrocarbons		Volatile Hal. Hydrocarbons	
		Indiv. OPP's	Indiv. OCP's	Total OPP's	Total Pest.						Indiv.	Total	Indiv.	Total
COMP EPA1	G1-1706-1 G5-1706-1 G3-1706-1	<0.1	<0.1	nd	ND	<0.1	<5	<0.1	120	80	<0.05	ND	<0.01	ND
COMP EPA2	G7-1706-1 G9-1706-1 G14-1706-1	<0.1	<0.1	nd	ND	<0.1	<5	<0.1	180	58	<0.05	ND	<0.01	ND
COMP EPA3	G16-1706-1 G23-1706-1 G26-1706-1	<0.1	<0.1	nd	ND	<0.1	<5	<0.1	110	28	<0.05	ND	<0.01	ND
COMP EPA4	G17-1706-1 G24-1706-1 G28-1706-1	<0.1	<0.1	nd	ND	<0.1	<5	<0.1	90	56	<0.05	ND	<0.01	ND
COMP EPA5	G18-1706-1 G30-1706-1 G33-1706-1	<0.1	<0.1	nd	ND	<0.1	<5	<0.1	120	59	<0.05	ND	<0.01	ND

ASSESSMENT CRITERIA

NEPM Investigation Levels	HIL A	Ns	Ns	Ns	Ns	1	500	8,500	Ns	Ns	ns	1	ns	1
	EIL	Ns	Ns	0.5	1	Ns	50	1[2]	2,000	400[2]	ns	1	ns	1

[1]: Dutch B Limit in absence of ANZECC B level [2]ANZECC B used in absence of EIL ND: not detected
ns: not specified

TABLE 13: SUMMARY OF ANALYSIS RESULTS (Individual Grid Samples) – ORGANIC COMPOUNDS [mg/kg dry weight of soil]

SAMPLE No.	Depth [m]	CONCENTRATIONS OF POTENTIAL CONTAMINANTS											
		TOTAL PETROLEUM HYDROCARBONS					VOLATILE ORGANIC COMPOUNDS						
							Monocyclic Aromatic Hydrocarbons					Halogenated Hydrocarbons	
		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total $>C_9$	Benzene	Toluene	Ethyl Benzene	Xylenes	Total MAH's	Indiv.	Total
G20-1706-1	0.05-0.15	<20	<50	<100	<100	nd	<0.01	<0.01	<0.01	<0.01	nd	<0.01	nd
G21-1706-1	0.0-0.1	<20	<50	<100	<100	nd	<0.01	<0.01	<0.01	<0.01	nd	<0.01	nd
G26-1806-1	0.0-0.1	<20	<50	<100	<100	nd	<0.01	<0.01	<0.01	<0.01	nd	-	-
G27-1806-1	0.0-0.1	<20	<50	<100	<100	nd	<0.01	<0.01	<0.01	<0.01	nd	-	-
G35-1806-1	0.0-0.1	<20	<50	<100	<100	nd	<0.01	<0.01	<0.01	<0.01	nd	<0.01	nd
ASSESSMENT CRITERIA													
ANZECC B / EPA Fill Limits		100	ns	ns	ns	1,000	1	3*	5*	5*	7	ns	1

*: DUTCH B Limits, used in absence of specific ANZECC -B Limits
nd: not detected
Half the detection limit is used for calculation of totals where individual compounds are reported at less than detection limit
ns: not specified
Note: A dash indicates no test performed

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TABLE 14: SUMMARY OF ANALYSIS RESULTS (Individual Target Samples) – ORGANIC COMPOUNDS [mg/kg dry weight of soil]

SAMPLE No.	Depth [m]	CONCENTRATIONS OF POTENTIAL CONTAMINANTS									
		TOTAL PETROLEUM HYDROCARBONS					VOLATILE ORGANIC COMPOUNDS				
		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total >C_9	Benzene	Toluene	Ethyl Benzene	Xylenes	Total MAH's
T1-1806-1	0.0-0.1	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T1-1807-7	2.8-3.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T2-1806-1	0.0-0.1	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T2-1806-9	2.0-2.2	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T3-1806-3	0.8-1.0	<20	50	370	<100	470	<0.01	<0.01	0.02	0.04	0.07
T3-1806-4	1.3-1.5	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T3-1806-5	1.8-2.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T3-1806-6	2.3-2.5	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T3-1806-9	3.8-4.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
T4-2606-3	0.8-1.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	ND
T4-2607-7	2.8-3.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	ND

ASSESSMENT CRITERIA

	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total >C_9	Benzene	Toluene	Ethyl Benzene	Xylenes	Total MAH's
ANZECC B / EPA Fill Limits	100	ns	ns	ns	1,000	1	3*	5*	5*	7

*: DUTCH B Limits, used in absence of specific ANZECC -B Limits

ns: not specified

ND: not detected

Half the detection limit is used for calculation of totals where individual compounds are reported at less than detection limit

TABLE 15 : SUMMARY OF ANALYSIS RESULTS – pH Value

SAMPLE NUMBER	DEPTH INTERVAL [m]	Concentrations of Potential Contaminants pH Value
G8-1706-1	0.0-0.1	7.71
G19-1706-1	0.0-0.1	8.46
G28-1806-1	0.0-0.1	10.03
ASSESSMENT CRITERIA		
ANZECC A (Background Range)		(6 – 8)

Shaded and/or Bold Border Around Cell: pH Value outside ANZECC A background range

TABLE 16: SUMMARY OF ANALYSIS RESULTS - Asbestos

SAMPLE No.	LOCATION	TYPE	ASBESTOS PRESENT Yes/No, If Yes: Type
G3-1706-1	G3	Soil	No
G22-1706-1	G22	Soil	No
G25-1806-1	G25	Soil	No

Summary of Results

The findings of the initial round of analysis are summarized below for grid and target samples combined. EPA Fill limits, also included in some of the tables, are not referred to in the discussion below.

Heavy Metals:

Individual Samples

- Nickel exceeded the NEPM EIL level in grid samples G28 (86 mg/kg) and G29 (74 mg/kg) and target point T2 (73 mg/kg), but remained well below the NEPM HIL A level of 600 mg/kg. Nickel concentrations in other individual grid and target fill samples were below the EIL level of 60 mg/kg.

- All remaining "priority" heavy metals in individual samples (both grid and target) contained concentrations either below laboratory detection limits or below NEPM EIL levels.

Composite Samples

Eight 3-part composite samples of surface fill material (Comp F1 - Comp F8) were analysed for eight heavy metals. The majority of heavy metals with the exception of arsenic (in one composite), copper (in one composite), nickel (in four composites) and zinc (in one composite) were below modified NEPM EIL levels.

A further five 3-part composite samples representing surface fill material (Comp EPA1 - Comp EPA8) were analysed for an additional nine heavy metals. All composites returned results below reporting limits or below NEPM EIL limits for all heavy metals with the exception of manganese in four composites and vanadium in all five composites.

- The arsenic concentration in composite sample Comp F6 (11 mg/kg) marginally exceeded the *modified* NEPM EIL limit of 6.67 mg/kg, but remained well below the *unmodified* EIL limit of 20 mg/kg and well below the HIL E level.

- Comp F8 contained a copper concentration of 39 mg/kg, marginally above the *modified* NEPM EIL limit of 33.3 mg/kg. The reported concentration remained well below the *unmodified* EIL limit of 100 mg/kg.

- Nickel concentrations exceeded the *modified* EIL limit in composite samples Comp F5, Comp F6, Comp F7 and Comp F8. All nickel concentrations (with the exception of Comp F7 and Comp F8) were below the *unmodified* NEPM EIL level. Comp F7 (82 mg/kg) and Comp F8 (80 mg/kg) remained below the *unmodified* NEPM HIL A /HIL E level of 600 mg/kg.

- A single composite sample (Comp F7) contained a zinc concentration above the *modified* NEPM EIL limit for a three-part composite. The reported concentration (89 mg/kg) remained well below the *unmodified* EIL limit of 200 mg/kg.

- Manganese concentrations ranged from 170 mg/kg to 380 mg/kg and exceeded the *modified* NEPM EIL level of 166.7 mg/kg in composite samples Comp EPA1, Comp EPA3, Comp EPA4 and Comp EPA5. All concentrations remained below *unmodified* NEPM EIL level of 500 mg/kg.

- Vanadium concentrations exceeded the *modified* NEPM EIL level of 16.7 mg/kg in all five composite samples Comp EPA1 – Comp EPA5 and concentrations ranged from 27 mg/kg to 82 mg/kg. Composite sample Comp EPA4 (82 mg/kg) also exceeded the *unmodified* NEPM EIL level of 50 mg/kg. No NEPM health investigation levels are specified for vanadium.

Polycyclic Aromatic Hydrocarbons (PAH's):

Benzo(a)pyrene:

- Two of twelve individual grid and target samples contained detectable benzo(a)pyrene. All concentrations were below the NEPM HIL A level of 1 mg/kg and the HIL E level of 2 mg/kg. All remaining grid and target samples analysed for benzo(a)pyrene returned concentrations below laboratory detection limits.

  No detectable concentrations of benzo(a)pyrene were reported in the eight composite samples.

Total PAH's:

- Two of twelve individual grid and target samples contained detectable Total PAH's. All concentrations were below the NEPM HIL A and HIL E levels. All remaining concentrations of total PAH's below laboratory detection limits were found in all grid and target samples analysed.

  No detectable concentrations of Total PAH's were reported in the eight composite samples.

Total Petroleum Hydrocarbons (TPH's)

Five individual grid samples and eleven individual target samples were analysed for TPH's.

Light Fuel Fractions (C_6-C_9):

- Fuel fraction petroleum hydrocarbon (C_6-C_9 carbon atoms) were below detection limits in all samples.

Mineral Oil Fractions (>C9):

- Trace concentrations (well below the ANZECC B level of 1,000 mg/kg, no NEPM EIL level specified) of mineral oil fraction petroleum hydrocarbon (>C_9 carbon atoms) were detected in fill sample T3-1806-3 (470 mg/kg). The remaining grid and target samples analysed for TPH's returned concentrations below laboratory detection limits.

Monocyclic Aromatic Hydrocarbons (MAH's)

Five individual grid samples and eleven individual target samples were analysed for MAH's.

- Detectable concentrations of MAH's were noted in one of the sixteen individual grid and target samples. Trace concentrations of ethyl benzene and xylene's were detected in natural soil sample T3-1806-3 (at 0.02 mg/kg and 0.04 mg/kg respectively) below the ANZECC B limit (no NEPM EIL level specified). The underlying sample (T3-1806-4) was below laboratory detection limits. The remaining grid and target individual samples analysed for MAH's returned concentrations below laboratory detection limits.

Volatile Halogenated Hydrocarbons

- Three individual near-surface grid samples were analysed for volatile halogenated hydrocarbons. All three samples contained concentrations below laboratory detection limits.

Soil pH

- pH values in surface fill samples G8, G19 and G28 were reported in the neutral to strongly alkaline range (7.71, 8.46 and 10.03 respectively).

Asbestos

- No asbestos was detected in three surface soil samples analysed.

Other Parameters:

- No semi volatile chlorinated hydrocarbons, PCB's, Cyanide, Phenols, OC or OP Pesticides were detected in individual and composite samples analysed. Detectable concentrations of sulphate and fluoride remained well below NEPM EIL levels.

III.3.3 Further Analysis – Phase 1 (Individual Constituents of Composite Samples)

Further analyses were performed on individual samples where composite analyses revealed elevated concentrations of potential contaminants above *modified* or unmodified EIL levels, or on deeper fill and natural soil samples where surface fill samples contained elevated concentrations of contaminants. Elutriation analyses were also performed to assess potential vertical migration of contaminants from surface fill material to deeper fill or underlying natural soils.

Individual Analysis of Fill Samples and Natural Soil Samples Beneath Fill

Fill sample T2-2806-2 and natural soil sample G29-1806-2 were analysed for nickel. Individual constituents of composite samples Comp F5, Comp F6, Comp F7 and Comp F8 were analysed for nickel. Individual constituents of composite samples Comp F6, Comp F7 and Comp F8 were analysed for arsenic, zinc and copper respectively.

Individual samples from composites EPA1, EPA3, EPA4 and EPA5 were analysed for manganese and vanadium, while individual constituents of composite EPA2 were analysed for vanadium only.

Results of the above analyses are tabulated in Table 17 and summarised below the table.

TABLE 17: SUMMARY OF FURTHER ANALYSIS RESULTS (Individual Grid & Target Samples) – Heavy Metals [mg/kg dry weight of soil]

SAMPLE No.	BORE No.	DEPTH [m]	TYPE OF MATERIAL	CONCENTRATIONS OF POTENTIAL CONTAMINANTS – HEAVY METALS						
				As	Cr	Cu	Mn	Ni	V	Zn
Surface Fill Samples										
G1-1706-1	G1	0.0-0.1	Fill	-	-	-	60	-	39	-
G3-1706-1	G3	0.0-0.1	Fill	-	-	-	180	-	32	-
G5-1706-1	G5	0.0-0.1	Fill	-	-	-	330	-	52	-
G7-1706-1	G7	0.0-0.1	Fill	<2	-	-	-	-	38	-
G9-1706-1	G9	0.0-0.1	Fill	-	-	-	-	-	40	-
G14-1706-1	G14	0.0-0.1	Fill	-	-	-	-	-	48	-
G16-1706-1	G16	0.0-0.1	Fill	-	-	-	390	**110**	15	-
G17-1706-1	G17	0.0-0.1	Fill	-	-	-	340	-	34	-
G18-1706-1	G18	0.0-0.1	Fill	-	-	-	110	-	21	-
G19-1706-1	G19	0.0-0.1	Fill	-	-	-	-	22	-	-
G20-1706-1	G20	0.0-0.1	Fill	-	-	-	-	75	-	-
G21-1806-1	G21	0.0-0.1	Fill	5.3	45	-	-	-	-	-

ASSESSMENT CRITERIA

		As	Cr	Cu	Mn	Ni	V	Zn
EPAV Fill Material Limits		30	250	100	ns	100	ns	500
NEPM Investigation Levels	HIL A	100	12%	1,000	1,500	600	ns	7,000
	HIL E	200	24%	2,000	3,000	600	ns	14,000
	EIL	20^3	400	100	500	60	50	200

[1] ANZECC A (Background) Range
3: ANZECC B criteria adopted in absence of NEPM EIL
[2]: Dutch B adopted in the absence of ANZECC B
Shaded and/or Bold Border Around Cell: Concentration exceeds the EIL Level
Shaded, Bold Font and Bold Border Around Cell: Concentration exceeds the EPA Fill Material Limit

TABLE 17 (cont'd): SUMMARY OF FURTHER ANALYSIS RESULTS (Individual Grid & Target Samples) – Heavy Metals [mg/kg dry weight of soil]

SAMPLE No.	BORE No.	DEPTH [m]	TYPE OF MATERIAL	CONCENTRATIONS OF POTENTIAL CONTAMINANTS – HEAVY METALS						
				As	Cr	Cu	Mn	Ni	V	Zn
G22-1806-1	G22	0.0-0.1	Fill	<2	-	-	-	**140**	-	-
G23-1806-1	G23	0.0-0.1	Fill	-	-	-	79	-	72	-
G24-1806-1	G24	0.0-0.1	Fill	-	-	-	110	24	120	10
G25-1806-1	G25	0.0-0.1	Fill	-	-	-	-	**150**	-	61
G26-1806-1	G26	0.0-0.1	Fill	27	-	-	150	31	55	-
G27-1806-1	G27	0.0-0.1	Fill	<2	-	-	-	63	-	-
G28-1806-1	G28	0.0-0.1	Fill	-	-	-	810	-	42	-
G30-1806-1	G30	0.0-0.1	Fill	-	-	-	830	**160**	34	120
G32-1806-1	G32	0.0-0.1	Fill	-	-	91	-	**190**	-	-
G33-1806-1	G33	0.0-0.1	Fill	-	-	22	230	48	20	-
G35-1806-1	G35	0.0-0.1	Fill	-	-	49	-	**110**	-	-
Deeper Fill and Natural Soil Samples										
G29-1806-2	G29	0.2-0.4	Natural clay	-	-	-	-	8.5	-	-
T2-1806-2	T2	0.3-0.5	Fill	-	-	-	-	83	-	-

ASSESSMENT CRITERIA

Criteria		As	Cr	Cu	Mn	Ni	V	Zn
EPAV Fill Material Limits		30	250	100	ns	100	ns	500
NEPM Investigation Levels	HIL A	100	12%	1,000	1,500	600	ns	7,000
	HIL E	200	24%	2,000	3,000	600	ns	14,000
	EIL	20	400	100	500	60	50	200

*: B(a)P Benzo(a)pyrene [1] ANZECC A (Background) Range [2]: Dutch B adopted in the absence of ANZECC B
3: ANZECC B criteria adopted in absence of NEPM EIL
Shaded and/or Bold Border Around Cell: Concentration exceeds the EIL Level
Shaded, Bold Font and Bold Border Around Cell: Concentration exceeds the EPA Fill Material Limit

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Arsenic

The laboratory reported an arsenic concentration of 27 mg/kg (in excess of the NEPM EIL Level) in surface fill from G26. The reported concentration remained below the NEPM HIL A level of 100 mg/kg. Remaining individual samples from Comp F6 (G22-1806-1 and G27-1806-1) reported arsenic below NEPM EIL levels.

Nickel

Nickel concentrations ranged from 22 mg/kg to 190 mg/kg. Eight of the twelve samples analysed exceeded the NEPM EIL Level of 60 mg/kg (refer Figure 4, Appendix A). All concentrations remained well below the NEPM HIL A/HIL E level of 600 mg/kg. Nickel in six of the grid samples exceeds the EPA Fill Material limit (Bulletin 448, 1995), indicating classification as low-level contaminated waste.

Copper and Zinc

All individual copper and zinc concentrations remained well below NEPM EIL Levels.

Manganese

Manganese concentrations ranged from 60 mg/kg to 830 mg/kg. Two of the twelve samples analysed exceeded the NEPM EIL Level of 500 mg/kg (refer Figure 4, Appendix A). All concentrations remained well below the NEPM HIL A level of 1,500 mg/kg.

Vanadium

Vanadium concentrations ranged from 15 mg/kg to 120 mg/kg. Four of the fifteen samples analysed exceeded the NEPM EIL Level of 50 mg/kg (refer Figure 4, Appendix A). No health investigation levels are currently specified for vanadium.

Elutriation Testing – Nickel

Elutriation testing of the sample showing the highest concentrations of nickel was commissioned in order to determine metal leachability. Leachability testing was carried out using the Australian Standard Leachate Procedure (Reagent Water). This method is milder than the standard "Toxicity Characteristic Leaching Procedure" (TCLP) and therefore more adequately reflects in-situ conditions. In the absence of EPA criteria for this elutriation test, the leachate test results are compared with the water quality guidelines for raw drinking water (Table 4.1 in ANZECC 1992). Results are summarized in Table 18 below.

TABLE 18: Elutriation Test Results – Australian Standard Leachate Procedure (ASLP)

Heavy Metals	Elutriation Test Results [mg/L]	WATER QUALITY GUIDELINE - Raw Waters for Drinking Purposes [mg/L]
	G28-1806-1	
Nickel	<0.05	0.1

The elutriation test results for sample G28-1806-1 indicated that the leachability of nickel is less than the water quality guidelines for raw drinking water. Therefore concentrations are unlikely to migrate off-site and/or to adversely impact on groundwater quality.

III.3.4 Further Target Sampling – Soil at MW1

During the initial sampling phase, refusal (on a stormwater pipe) was encountered at target location T5 (adjacent to Tank 3 on Figure 1, Appendix A). In order to assess deeper soils adjacent to the underground tank, required soil samples were collected instead during the installation of groundwater monitoring well MW1 (located in close proximity to former location T5). Samples were analysed for TPH's and MAH's in accordance with previous target sampling.

TPH's

The laboratory results revealed elevated concentrations of heavier fraction petroleum hydrocarbons (TPH's >C_9) in surface fill material in excess of NEPM EIL level (Table 19 below). TPH's were below laboratory detection limits in all underlying fill and natural soil samples. MAH's were not detected in any of the samples analysed.

TABLE 19: SUMMARY OF FURTHER ANALYSIS RESULTS (Individual Target Samples) – Organic Compounds [mg/kg dry weight of soil]

SAMPLE No.	Depth [m]	CONCENTRATIONS OF POTENTIAL CONTAMINANTS									
		TOTAL PETROLEUM HYDROCARBONS					VOLATILE ORGANIC COMPOUNDS				
		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total >C_9	Benzene	Toluene	Ethyl Benzene	Xylenes	Total MAH's
MW1-1107-1	0.0-0.1	<20	<50	160	980	1,165	<0.01	<0.01	<0.01	<0.01	nd
MW1-1107-2	0.3-0.5	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
MW1-1107-3	0.8-1.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd
MW1-1107-5	2.8-3.0	<20	<50	<100	<100	ND	<0.01	<0.01	<0.01	<0.01	nd

ASSESSMENT CRITERIA

ANZECC B / EPA Fill Limits	100	ns	ns	ns	1,000	1	3*	5*	5*	7

*: DUTCH B Limits, used in absence of specific ANZECC -B Limits   ns: not specified
ND: not detected
\# Half the detection limit is used for calculation of totals where individual compounds are reported at less than detection limit
Shaded and/or Bold Border Around Cell: Concentration exceeds the EIL Level

III.3.5 Further Analysis – Phase 2 (Deeper Fill & Natural Soil)

As a result of the initial phase of further analyses of individual constituents of composite samples, a further set of analyses were requested on material from deeper fill material and natural soils below locations with elevated concentrations of potential contaminants. These samples were analysed for selected heavy metals (manganese, nickel or vanadium). Results of the further phase of analyses are presented in Tables 20 and 21 below.

Individual Analysis of Deeper Fill Samples and Natural Soil Samples

Manganese

Manganese concentrations in natural clay at test location G30 were detected at 30 mg/kg. The concentration is well below the NEPM EIL Level of 500 mg/kg and the NEPM HIL A level of 1,500 mg/kg.

Nickel

Detected concentrations of nickel ranged from 7.5 mg/kg to 96 mg/kg. Two of the nine samples (G25-1806-2 and G35-1806-2) analysed exceeded the NEPM EIL Level of 60 mg/kg (refer Figure 4, Appendix A). All concentrations remained well below the NEPM HIL A/HIL E level of 600 mg/kg.

Vanadium

Vanadium concentrations ranged from 37 mg/kg to 49 mg/kg. All three samples analysed were below the NEPM EIL Level of 50 mg/kg (refer Figure 4, Appendix A). The natural clay sample from location G5 was reported marginally below the NEPM EIL level. No health investigation levels are currently specified for vanadium.

TABLE 20: SUMMARY OF FURTHER ANALYSIS RESULTS (Individual Grid & Target Samples) – Heavy Metals [mg/kg dry weight of soil]

SAMPLE No.	BORE No.	DEPTH [m]	TYPE OF MATERIAL	CONCENTRATIONS OF POTENTIAL CONTAMINANTS – HEAVY METALS		
				Mn	Ni	V
Deeper Fill & Natural Soil Samples						
G5-1706-2	G5	0.2-0.4	Natural Clay	-	-	49
G16-1706-2	G16	0.25-0.45	Natural Clay	-	15	-
G20-1706-2	G20	0.3-0.5	Natural Clay	-	46	-
G22-1706-2	G22	0.2-0.4	Natural Clay	-	7.5	-
G23-1806-2	G23	0.2-0.4	Natural Clay	-	-	37
G24-1806-2	G24	0.3-0.5	Fill	-	-	37
G25-1806-2	G25	0.3-0.5	Fill	-	96	-
G27-1806-2	G27	0.2-0.4	Natural Clay	-	25	-
G30-1806-2	G30	0.3-0.5	Natural Clay	30	<5	-
G33-1806-2	G33	0.3-0.5	Natural Clay	-	43	-
G35-1806-2	G35	0.3-0.5	Fill	-	95	-
T2-1806-3	T2	0.6-0.8	Natural Clay	-	35	-

ASSESSMENT CRITERIA

		Mn	Ni	V
EPAV Fill Material Limits		NS	100	NS
NEPM Investigation Levels	HIL A	1,500	600	NS
	HIL E	3,000	600	NS
	EIL	500	60	50

[1] ANZECC A (Background) Range [2]: Dutch B adopted in the absence of ANZECC B
3: ANZECC B criteria adopted in absence of NEPM EIL Shaded: Levels exceed the EIL Levels
ns – not specified
Shaded and/or Bold Border Around Cell: Concentration exceeds the EIL Level

Elutriation Testing – Arsenic, Manganese, Nickel and Vanadium

As metal concentrations reported during further analysis were greater than initial results, further elutriation testing of the individual samples showing the highest concentrations of arsenic, manganese, nickel and vanadium was commissioned in order to determine metal leachability. Leachability testing was carried out using the Australian Standard Leachate Procedure (Reagent Water). This method is milder than the standard "Toxicity Characteristic Leaching Procedure" (TCLP) and therefore more adequately reflects in-situ conditions. In the absence of EPA criteria for this elutriation test, the leachate test results are compared with the water quality guidelines for raw drinking water (Table 4.1 in ANZECC 1992). Results are summarized in Table 21 below.

TABLE 21: Further Elutriation Test Results – Australian Standard Leachate Procedure (ASLP)

Heavy Metals	Elutriation Test Results [mg/L]				WATER QUALITY GUIDELINE - Raw Waters for Drinking Purposes [mg/L]
	G24 -1806-1	G28 -1806-1	G30 -1806-1	G32 -1806-1	
Arsenic	-	<0.02	-	-	0.05
Manganese	-	-	<0.05	-	0.1
Nickel	-	<0.05	-	<0.05	0.1
Vanadium	<0.5	-	-	-	*

A dash indicates no analysis performed
Shaded – Result exceeds Water Quality Guideline level
* no guideline exists for Vanadium

Arsenic

The elutriation test results for sample G28-1806-1 indicated that the leachability of arsenic is less than the water quality guidelines for raw drinking water. Therefore, concentrations are unlikely to migrate off-site and/or to adversely impact on groundwater quality.

Manganese

The elutriation test results for sample G30-1806-1 indicated that the leachability of manganese is less than the water quality guidelines for raw drinking water. Therefore, concentrations are unlikely to migrate off-site and/or to adversely impact on groundwater quality.

Nickel

The elutriation test results for samples G28-1806-1 and G32-1806-1 indicated that the leachability of nickel at these locations is less than the water quality guidelines for raw drinking water. Therefore, concentrations are unlikely to migrate off-site and/or to adversely impact on groundwater quality.

Vanadium

The elutriation test results for samples G24-1806-1 indicated that the leachability of vanadium concentrations is unlikely to migrate off-site and/or to adversely impact on groundwater quality. There are no water quality guidelines for vanadium in raw drinking water.

IV. RESULTS OF GROUNDWATER INVESTIGATION

IV.1 REGIONAL HYDROGEOLOGY

IV.1.1 Introduction

This section covers groundwater information obtained from the Victorian Groundwater Database (Groundwater Victoria).

Excerpts of groundwater data reports for wells in the vicinity of the site are provided. Selected data from the Victorian Groundwater Database are included as Appendix I to this report. Appendix I includes data from a total of 84 registered wells (ie. all uses), located within a 2 km radius. The data are presented as four database reports including "Location", "Aquifer Details" "Chemistry" and "Composite" (Appendix I).

IV.1.2 Summary and Discussion of Data

Groundwater Extraction Wells in Vicinity of Site

Twenty of the 84 wells within 2 km radius of the site are registered as groundwater investigation wells. One groundwater well is registered for domestic use. Thirty seven well are registered for State Electricity Corporation use (use undefined) Twenty of the wells are registered as non groundwater wells. Six wells are of unknown use.

Two wells, well 69869 (located approximately 1.5 km west of the site at Fawkner Cemetery) and well 103447 (located 2.5 km northwest at Northcorp Reserve) are the closest wells for which chemistry data is available). The use of well 69869 is for domestic water and has reported a TDS of 2,385 mg/L, while well 103447 is registered as an investigation well and reported a TDS of 5,706 mg/L.

None of the wells registered and listed in the VGDB are located on the site.

Aquifer data is available for sixteen wells within the 2 km search radius. Two wells are screened in basalt, three are screened in sand, six are screened in siltstone, three are screened in clay and two wells are screened in mudstone. The geology of the remaining wells was not available.

Screen intervals of wells screened within basalt range from 9m to 91.4 m; within in siltstone range between 2.0m to 24.3m; within sand 20.0 m to 28.5 m; and within clay 9 m to 34.5 m.

Groundwater chemistry data was available for two wells within a 2 km radius of the site (Wells 69869 and 103447). Salinity (as TSS) ranges from 2,385 mg/L to 5,706 mg/L, pH ranged from 8.1 to 8.42 (alkaline). Other analytes are listed on the database report contained in Appendix I.

Groundwater Flow Direction

The nearest watercourse to the site is the Merri Creek, approximately 600m east of the site. The groundwater flow direction as inferred from the level survey (survey data included in Appendix I) and groundwater gauging data collected on 19 July 2002 is towards the south east – in the general direction of Merri Creek (refer to Figure 6, Appendix A).

IV.2 STANDING WATER LEVELS

Standing water level data from the monitoring wells (MW1-MW3) are summarised in Table 22 below. Well construction details are included in Appendix I.

TABLE 22: Groundwater - Standing Water Levels

Monitoring Well	Date	Standing Water Level (m)*	Depth of Well (m)*
MW1	19/07/02	11.762	15.000
MW2	19/07/02	11.645	14.200
MW3	19/07/02	11.628	14.200

*depths measured from top of casing

A total volume of 6 litres of water was purged from each well prior to sampling using a low-flow pumping method (refer to Section II.1.5 above).

IV.3 FIELD CONTAMINATION ASSESSMENT

No visual and/or olfactory evidence of contamination and no separate-phase hydrocarbons were noted during the sampling of groundwater.

IV.4 CHEMICAL ANALYSIS

IV.4.1 Groundwater Assessment Criteria

The groundwater assessment criteria are based on beneficial uses subject to salinity. TDS values in groundwater at the site was reported to range from 7,400 ppm to 8,200 ppm (at an average of 7,700 mg/L). Table 23 below summarizes the protected beneficial uses of groundwater divided into segments as defined by TDS.

TABLE 23: Protected Beneficial Uses of Groundwater *(reproduced from SEPP 1997)*

BENEFICIAL USES	SEGMENTS (mg/L TDS)				
	A1 (0-500)	A2 (501-1,000)	B (1,001-3,500)	C (3,501-13,000)	D (>13,000)
1. Maintenance of Ecosystems	✓	✓	✓	✓	✓
2. Potable Water Supply					
Desirable	✓				
Acceptable		✓			
3. Potable Mineral Water	✓	✓	✓		
4. Agriculture, parks and gardens	✓	✓	✓		
5. Stock watering	✓	✓	✓	✓	
6. Industrial water use	✓	✓	✓	✓	✓
7. Primary contact recreation (e.g. bathing, swimming)	✓	✓	✓	✓	
8. Buildings and structures	✓	✓	✓	✓	✓

According to Table 23, Segment C of the State Environment Protection Policy *Groundwater's of Victoria* (EPA 1997) is applicable to groundwater beneath this site. Segment C prescribes protection of groundwater for the following potential beneficial uses.

- Maintenance of Ecosystems,
- Stock Watering,
- Industrial water use,
- Primary contact recreation and
- Buildings and Structures.

Hence, groundwater quality for this site is assessed against "Ecosystem Protection Criteria" as per SEPP (Water of Victoria) Schedule F7 *Waters of the Yarra Catchment for the Urban Waterways Segment* (1999) and in accordance with the SEPP (Groundwater's of Victoria) 1997. Specific water quality objectives not specified in the SEPP are derived from ANZECC Australian Water Quality Guidelines (1992).

Where ecosystem protection levels have not been specified in the above publications, the NSW EPA "Threshold Concentrations for Protection of Aquatic Ecosystems" are used (NSW EPA 1994).

IV.4.2 Groundwater Analysis Results

Results of the chemical analysis undertaken are attached as Appendix G.1 (NATA endorsed final laboratory report). Results are summarized in Table 22 (following page).

Groundwater analytical results are summarised below:

TPH's and BTEX were at concentrations below analytical detection limits in the routine groundwater samples from all monitoring wells.

However, TPH's (C_{10}-C_{14}) were detected in the split duplicate sample (analysed by the secondary laboratory) during sampling of monitoring well MW1 (refer to QA/QC Chapter VI below). As a result of QA/QC issues and the possibility of contamination by tank 3 at this well a further sampling event was undertaken to reanalyse for TPH's only.

Repeat sampling of MW1 was undertaken on 6th August 2002.

On repeat analysis, the results reported by both laboratories showed that TPH's and MAH's were below laboratory detection limits. Therefore, it was considered that the TPH results reported for the split duplicate during the previous sampling round (19th July 2002) for MW1 were not representative of the general regional aquifer conditions. The previous results for the split duplicate were therefore disregarded.

TABLE 24: GROUNDWATER FIELD AND ANALYSIS RESULTS - TPH, BTEX and TDS [µg/L]

SAMPLE No.	Sample Origin	SWL* (m from surface)	Thick-ness SPH in Well [m]	TDS [mg/L]	CONCENTRATIONS OF POTENTIAL CONTAMINANTS: TOTAL PETROLEUM HYDROCARBONS				MONOCYCLIC AROMATIC HYDROCARBONS				
					C_{6}-C_{9}	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Benzene	Toluene	Ethyl Benzene	Xylene	Total
MW1-1907	MW1	11.762	Nil	8,200	<20	<50	<100	<100	<1	<1	<1	<1	ND
MW2-1907	MW2	11.645	Nil	7,500	<20	<50	<100	<100	<1	<1	<1	<1	ND
MW3-1907	MW3	11.628	Nil	7,400	<20	<50	<100	<100	<1	<1	<1	<1	ND
ASSESSMENT CRITERIA													
Ecosystem Protection Levels*					ns	ns	ns	ns	300[1]	300[2]	140[2]	380[2]	ns

* Static Water Level
SPH = Separate Phase Hydrocarbons (floating on top of groundwater table)
Shaded: Concentrations exceeding Investigation Levels
ns: not specified
ND: Not detected
[1] Threshold for Protection of Freshwater Ecosystems (NEPC 1999)
[2] Threshold for Protection of Freshwater Ecosystems (NSW EPA 1994)

V. RESULTS OF THE TANK INVESTIGATION

V.1 Introduction

Three underground storage tank sites (for heating products) were identified as either formerly or currently existing at the site (Figure 1). In addition, a suspected fourth tank (referred to as "Tank 1" in this report) was thought to have been covered during construction of the school administration building. As the tank location was not accessible, an attempt was made, as a part of this study, to determine whether this tank has been removed and, if not, to determine the exact location of the tank (see below). Tanks 2 and 3 remain in-situ at the site. Tank 4 has previously been removed from the site and the tank pit has been validated by this company (see GPM 2002B and Section I.2.4 above).

Samples of water and/or product were collected from each of the accessible tanks, ie. Tank 2 and Tank 3, on 11th July 2002. At the request of the auditor, samples were submitted for analysis of TPH's, MAH's and PAH's to determine the quality of the contents of the residual water remaining.

Separate phase hydrocarbons (SPH) were detected in Tank 3 during sampling. A sample of SPH was also collected and submitted for product "fingerprinting" to identify the type of material remaining in this tank.

V.2 Search for Tank 1

The potential presence of underground storage tank "Tank 1" (Figure 1) had been inferred from site plans and from correspondence with the school headmaster. It was reported that this tank had been covered during construction of the school administration block. An extensive search was therefore undertaken to establish the presence of an underground tank beneath the building. An EM survey was conducted by ELS. In addition, the Architect and builder, Structural Engineer and Deputy Principal of the School were interviewed. Supporting documentation is attached as Appendix J.

Electronic Search by ELS

Mr. Les Cook of Environmental Location Systems Pty Ltd (ELS) undertook a search for this tank on 31st July 2002 using electronic detection methods. Two hours of searching failed to reveal any signs of a tank in the suspected area and only located a gas main and hot water service. The indication in the ELS report that the *"deputy principal……remembered the tanks being pulled"* was clarified as to referring to Tank 4 pulled in early 2002 (GPM 2002B).

Architect and Builder

A copy of the footing plan (May 2000) and letter (dated 19th August 2002) from Peter Lyall (Peter Lyall & Associates). The letter indicates that the builder did not encounter the tank when footings were dug for the stumps under the administration building during construction. A copy of the footing plan is included in Appendix J.

If the tank was present or any tank pit backfill material encountered, then further stability testing would have been required to ensure appropriate engineering standards were met for the footings (Peter Lyall & Associates, verbal communication). However, no such work was required. Building works were undertaken between October 2000 and March 2001.

The builder (Radwan Haddara, verbal communication) confirmed the presence of the metal gatic lid in the area of the new building, however, this was present over a single brick wall of 1.0 to 1.5m^2 area containing dry sand, large gravel and rocks. No tank was encountered or removed during removal of this feature and excavation of the footings. He also indicated that the area contained extensive concrete stumps for the new building and nothing was encountered during this work.

Structural Engineer

The structural and building engineer, Ken Wright (K.M Wright & Associates, verbal communication) stated that, on initial inspection of the site, the gatic cover was in the position indicated on the original survey plan of the site. On his next visit to the site this feature had been removed (along with associated concrete and bitumen) and the builders indicated the presence of crushed rock only in this position.

Site Visit by GPM Staff 21st August 2002

To confirm the above information GPM staff visited the site on 21st August 2002. With the assistance of information indicated on the footing plan and verbal information received, the suspect area under the building was thoroughly searched. Five test pits were dug to a maximum depth of 400 mm depth by small pick and trowel in the suspect area, then probed with a 200 mm long probe through the bottom of each pit (The tops of the remaining tanks on site were no deeper than 600 mm below ground surface). A copy of the footing plan with notes of the inspection is included in Appendix J.

Coarse fill and rock material was encountered at surface to 200 mm below surface, underlain by a mixture of silt, sand and coarse gravel (up to 100mm diameter) to the bottom of the probed area. No odours or visually contaminated soils were detected.

Two digital photographs of the area of concern are included in Appendix J.

Summary

Based on the above verbal information and extensive searches, we are of the opinion that it is unlikely that a tank remains beneath the administration building at the time of reporting or was ever present at this location.

V.3 Tank Contents - Water Quality

Samples of water collected from the tanks were submitted for analysis of TPH's, BTEX and PAH's. Results are summarised in Table 25 below.

TABLE 25: TANK WATER ANALYSIS RESULTS - TPH, BTEX and PAH's [µg/L]

SAMPLE No.	Sample Origin	CONCENTRATIONS OF POTENTIAL CONTAMINANTS: TOTAL PETROLEUM HYDROCARBONS				MONOCYCLIC AROMATIC HYDROCARBONS					PAH's
		C_{6}-C_{9}	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Benzene	Toluene	Ethyl Benzene	Xylene	Total	Total
T2-1107	Tank 2	110	680	1,800	<100	<0.1	<1	<1	<1	ND	<1
T3-1107	Tank 3	<20	460	800	<100	<0.1	<1	<1	<1	ND	<1
ASSESSMENT CRITERIA											
Ecosystem Protection Levels*		ns	ns	ns	ns	300^1	300^2	140^2	380^2	ns	3

Shaded: Concentrations exceeding Investigation Levels ns: not specified ND: Not detected

[1] Threshold for Protection of Freshwater Ecosystems (NEPC 1999)

[2] Threshold for Protection of Freshwater Ecosystems (NSW EPA 1994)

V.3.1 Tank 2

No BTEX or PAH's were detected during analysis of this sample (T2-1107). Analysis of TPH's revealed concentrations of TPH C_6-C_9 (at 110 μg/L), TPH C_{10}-C_{14} (at 680 μg/L) and TPH C_{14}-C_{29} (at 1,800 μg/L). These results are consistent with the TPH range for kerosene. The school principal (Mr. Mustafa Ceylan) had previously indicated to GPM that kerosene has been used for heating at the school.

V.3.2 Tank 3

No BTEX or PAH's were detected during analysis of this sample (T3-1107). Analysis of TPH's revealed concentrations of TPH C_{10}-C_{14} (at 460 μg/L) and TPH C_{14}-C_{29} (at 800 μg/L). These results are consistent with the product identification below (Section V.4).

V.4 Tank Contents – Identification of Product in Tank 3

A sample of SPH was submitted to Amdel Laboratories for product identification to identify the residual contents of Tank 3. Chromatographic signatures (attached to Appendix G.3) indicate that the product contained in Tank 3 was "Diesel".

VI. QA/QC ANALYSIS RESULTS

The QA/QC program comprised both an internal laboratory quality control program comprising analysis of duplicates (repeat analyses), matrix spikes, blanks and known standards, as well as external quality checks by analysis of field duplicates both at an external check laboratory (secondary laboratory) and as blind replicates analysed at the primary laboratory under an anonymous sample number.

The results analysis of field duplicate samples provide an inter-laboratory comparison with respect to accuracy and precision (subsample variability), and indicate how well the analytical results represent the soil quality at the test locations.

For the majority of the analysis program the primary laboratory was MGT Environmental Consulting Pty Ltd (MGT), Oakleigh, the secondary laboratory was Gribbles Analytical Laboratories (GAL), Notting Hill. For groundwater repeat analysis Gribbles was used as primary laboratory and ALS Environmental, Clayton as secondary laboratory.

The field replicate sample pairs are listed below (Table 24).

TABLE 26: LIST OF SPLIT AND BLIND DUPLICATE PAIRS

a) Quality Assurance: QA Field Duplicates (Splits)

Sample No. (Primary Lab.)	Bore Location	Sample No. (Secondary lab.)	TABLE No.
G7-1706-1	G7	G7-1706-1DUP	27a
G23-1706-1	G23	G23-1706-1DUP	27b
T1-1806-1	T1	T1-1806-1	27c
MW1-1907	MW1	MW1-1907-DUP	27d

b) Quality Control: QC Blind Duplicates (Primary Laboratory)

Sample No. (Primary Lab.)	Bore Location	Sample No.	TABLE No.
G21-1806-1	G21	M-1806	28a
G28-1806-1	G28	GF-1806	28b
MW1-1107-1	MW1	C-1107	28c

Three equipment blanks (final rinse water samples) and three trip blanks were collected. The equipment blanks were analysed for TPH's and BTEX.

RPD values (Relative Percentage Differences) include "Non-Detected" values, which are approximated to zero. Where one result is above and the other is below detection limits, half the detection limit is assumed for the not detected results. Where both results are below the detection limits, RPD is assumed to be nil.

RPD values were evaluated according to the Australian Standard AS 4482.1-1997 using the following formula to calculate RPD (Relative Percentage Difference) Values:

$$\text{RPD (\%)} = \frac{\text{Result 1} - \text{Result 2}}{\text{Mean}} \times 100$$

Wherever possible, reanalysis of sample pairs was undertaken where RPD's exceeded 50%. Analysis results and RPD calculations are presented below and on the following pages (Tables 27a to 27e and Tables 28a to 28c).

VI.1 Split Duplicate Analyses

VI.1.1 G7-1706-1 and G7-1706-1DUP

Table 27a compares the analysis results for duplicate samples G7-1706-1 and G7-1706-1DUP by primary and secondary laboratories respectively.

TABLE 27a: QA SPLIT DUPLICATE RESULTS AND EVALUATION - Samples G7-1706-1 and G7-1706-1DUP [mg/kg (=ppm) dry weight of soil]

ANALYTES	SAMPLE DUPLICATES				ARITHMETIC MEAN*		RPD* (%)	
	Main Lab G7-1706-1		QA/QC Lab G7-1706-1DUP					
	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis
Heavy Metals								
Arsenic	3.3	<2	<2.0	<2	2.15	NA	**<u>106.97</u>**	0
Cadmium	<0.5	-	<1.0	-	NA	-	0	-
Chromium	13	-	21	-	17	-	47.05	-
Copper	6.5	-	5.9	-	6.2	-	9.67	-
Nickel	5.1	-	7.9	-	6.5	-	43.08	-
Mercury	<0.1	-	<0.01	-	NA	-	0	-
Lead	16	-	13	-	14.5	-	20.69	-
Zinc	22	-	13	14	17.5	18	**<u>51.43</u>**	44.44
PAH's								
Benzo[a]pyrene	<0.1	-	<0.05	-	NA	-	0	-
Total PAH's**	<2	-	<2	-	NA	-	0	-

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
Bold and Underlined: RPD >50%

Heavy Metals
Variation between 2 of a total of 8 heavy metal pairs was greater than 50% RPD, namely Arsenic at 106.97% and zinc at 51.43%. Both primary and split duplicate samples were re-

analysed for arsenic and zinc. After re-analysis RPD percentages showed significant improvement (with arsenic not detected by both laboratories). The average RPD for this set of heavy metal analyses was 20.62% below the acceptable RPD of 50%.

PAH's
Polycyclic Aromatic Hydrocarbons were reported below analytical detection limits. The RPD value for this set of analyses was therefore zero.

Overall Average RPD
The overall average 'Percent Relative Difference' (RPD) across all analytes for this initial duplicate analysis was 16.49%, below the acceptable limit of 50%.

VI.1.2 G23-1806-1 and G23-1806-1DUP

Table 27b compares the analysis results for duplicate samples G23-1806-1 and G23-1806-1DUP by primary and secondary laboratories respectively.

TABLE 27b: QA SPLIT DUPLICATE RESULTS AND EVALUATION - Samples G23-1806-1 and G23-1806-1DUP [mg/kg (=ppm) dry weight of soil]

ANALYTES	SAMPLE DUPLICATES				ARITHMETIC MEAN*		RPD* (%)	
	Main Lab G23-1806-1		QA/QC Lab G23-1806-1DUP					
	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis
Heavy Metals								
Arsenic	2.7	-	4.4	-	3.55	-	47.88	-
Cadmium	<0.5	-	<1.0	-	NA	-	0	-
Chromium	15	-	39	-	27	-	**<u>88.89</u>**	-
Copper	5.2	-	11	-	8.1	-	**<u>71.6</u>**	-
Nickel	<5	14	26	37	14.25	25.5	**<u>164.91</u>**	**<u>90.19</u>**
Mercury	<0.1	-	<0.01	-	NA	-	0	-
Lead	11	-	13	-	12	-	16.67	-
Zinc	18	-	19	-	18.5	-	5.41	-
PAH's								
Benzo[a]pyrene	<0.1	<0.1	0.28	<0.05	0.165	NA	**<u>139.39</u>**	0
Total PAH's**	<1	<1	4	<2	2.25	NA	**<u>156.56</u>**	0

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
Bold and Underlined: RPD >50%

Heavy Metals
Heavy metals initially showed poor correspondence between primary and secondary laboratories. RPD's for chromium, copper and nickel exceeded the acceptable RPD of 50%.

Primary and secondary samples were re-analysed for Nickel with the primary laboratory reporting an increase in Nickel concentration after initially reporting nickel at below analytical detection limits. The average RPD for this set of heavy metal results was 40.08%, within the acceptable level of 50%.

PAH's

PAH results for split duplicate sample G23-1806-1DUP and corresponding routine sample G23-1806-1 initially showed poor correspondence. RPD's for benzo(a)pyrene and Total PAH's exceeded the acceptable RPD of 50% after the primary laboratory reported concentrations of PAH's below analytical detection limits. Both samples were re-analysed for PAH's and both laboratories reported concentrations of PAH's below analytical detection limits giving rise to 0.0 % RPD's.

Overall Correspondence

The average RPD for this set of results improved from 69.03% to an acceptable 32.06% following re-analysis.

VI.1.3 T1-1806-1 and T1-1806-1DUP

Table 27c compares the analysis results for duplicate samples T1-1806-1 and T1-1806-1DUP by primary and secondary laboratories respectively.

TABLE 27c: QA SPLIT DUPLICATE RESULTS AND EVALUATION - Samples T1-1806-1 and T1-1806-1DUP [mg/kg (=ppm) dry weight of soil]

ANALYTES	SAMPLE DUPLICATES		ARITHMETIC MEAN*	RPD* (%)
	Main Lab T1-1806-1	QA/QC Lab T1-1806-1DUP		
MAH's				
Benzene	<0.01	<0.1	na	0
Toluene	<0.01	<0.1	na	0
Ethyl benzene	<0.01	<0.1	na	0
Xylenes	<0.01	<0.1	na	0
Cumene	-	<0.1	na	na
TPH's				
TPH C6-C9	<20	<20	na	0
TPH C10-C14	<50	<20	na	0
TPH C15-C28	<100	<20	na	0
TPH C28-C36	<100	<20	na	0
Total TPH >C9	ND	ND	na	0

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
na = not applicable

MAH's and TPH's

Both primary and secondary laboratories reported MAH's and TPH's at concentrations below analytical detection limits. All RPD's were therefore 0.0 % (acceptable).

Overall Correspondence

Overall correspondence of this set of results was good with neither TPH's or MAH's detected by both laboratories and, hence, zero % RPD's.

VI.1.4 MW1-1907 and MW1-1907DUP

Table 27d compares results for groundwater sample MW1-1907 and the split duplicate sample MW1-1907DUP.

TABLE 27d: QA SPLIT DUPLICATE RESULTS AND EVALUATION
- Split Duplicate MW1-1907DUP of MW1-1907 [µg/L]

ANALYTES	DUPLICATE SAMPLES (Secondary Laboratory)				ARITHMETIC MEAN*		RPD* (%)	
	MW1-1907		Split Duplicate MW1-1907DUP					
	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis
TPH's								
TPH's C6-C9	<20	-	<20	<20	NA	NA	0	0
TPH's C10-C14	<50	-	60	40	42.5	32.5	**82.35%**	46.15%
TPH's C15-C28	<100	-	<100	<100	NA	NA	0	0
TPH's C29-C36	<100	-	<100	<100	NA	NA	0	0
MAH's (BTEX)								
Benzene	<1	-	<1	-	NA	-	0	-
Toluene	<1	-	<1	-	NA	-	0	-
Ethyl benzene	<1	-	<1	-	NA	-	0	-
Xylenes	<1	-	<1	-	NA	-	0	-

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
Shaded and Bold: RPD >50%
TBA – to be advised on receipt of results.

MAH's and TPH's

Both primary and secondary laboratories reported MAH's and TPH's at concentrations below analytical detection limits. All but RPD's were therefore 0.0 %. The TPH C10-C14 gave rise to an RPD value of 82.35%, however, on repeat analysis, this was below 50%.

Overall Correspondence

Overall correspondence of this set of results was acceptable with an average RPD of 5.77% (using repeat results for TPH's).

Table 27e compares results for groundwater sample MW1-0608 and the split duplicate sample MW1-0608DUP.

TABLE 27e: QA SPLIT DUPLICATE REPEAT SAMPLING RESULTS AND EVALUATION - Split Duplicate MW1-0608DUP of MW1-0608 [µg/L]

ANALYTES	DUPLICATE SAMPLES (Secondary Laboratory)		ARITHMETIC MEAN*	RPD* (%)
	MW1-0608	Split Duplicate MW1-0608DUP		
TPH's				
TPH's C6-C9	<50	<20	NA	0
TPH's C10-C14	<40	<50	NA	0
TPH's C15-C28	<100	<100	NA	0
TPH's C29-C36	<100	<50	NA	0
MAH's (BTEX)				
Benzene	<1	<1	NA	0
Toluene	<1	<2	NA	0
Ethyl benzene	<1	<2	NA	0
Xylenes	<1	<2	NA	0

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed

MAH's and TPH's

Both primary and secondary laboratories reported MAH's and TPH's at concentrations below analytical detection limits. All RPD's were therefore 0.0 % (acceptable).

Overall Correspondence

Overall correspondence of this set of results was good with neither TPH's or MAH's detected by both laboratories and, hence, zero % RPD's.

VI.2 Blind Duplicate Analyses

VI.2.1 G21-1806-1 and M-1806

Table 28a compares results for sample G21-1806-1 and the blind duplicate sample M-1806.

TABLE 28a: QC BLIND DUPLICATE RESULTS AND EVALUATION - Blind Duplicate M-1806 of G21-1806-1 [mg/kg (=ppm) dry weight of soil]

ANALYTES	DUPLICATE SAMPLES (Primary Laboratory)				ARITHMETIC MEAN*		RPD* (%)	
	G21-1806-1		Blind Duplicate M-1806					
	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis
Heavy Metals								
Arsenic	12	5.3	2.5	7.7	7.25	6.5	**131.03**	36.92
Cadmium	<0.5	-	<0.5	-	NA	-	0	-
Chromium	50	45	14	43	32	44	**112.50**	4.54
Copper	24	-	12	-	18	-	**66.67**	-
Nickel	46	-	30	-	38	-	42.11	-
Mercury	<0.1	-	<0.1	-	NA	-	0	-
Lead	76	-	43	-	59.5	-	**55.46**	-
Zinc	120	-	66	-	93	-	**58.06**	-
PAH's								
Benzo[a]pyrene	<0.1	-	<0.1	-	NA	-	0	-
Total PAH's**	nd	-	nd	-	NA	-	0	-

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
Shaded and Bold: RPD >50%

Heavy Metals

Variation between 2 of a total of 8 heavy metal pairs was greater than 50% RPD after initial analysis, namely arsenic at 131.03% and chromium at 112.50%. Both samples were re-analysed and showed marked improvement in correspondence, with RPD's of 36.92% and 4.54% respectively (after higher results for the blind duplicate sample). Overall 'Percent Relative Difference' for heavy metals was 32.97%. This indicates acceptable correspondence.

PAH's

RPD's were unable to be calculated with all PAH's were below detection limits.

Overall Correspondence

The overall average 'Percent Relative Difference' (RPD) across all analytes for the duplicate analysis was 26.38%, indicating good correspondence.

VI.2.2 G28-1806-1 and GF-1806

Table 28b compares results for sample G28-1806-1 and the blind duplicate sample GF-1806.

TABLE 28b: QC BLIND DUPLICATE RESULTS AND EVALUATION - Blind Duplicate GF-1806 of G28-1806-1 [mg/kg (=ppm) dry weight of soil]

ANALYTES	DUPLICATE SAMPLES (Primary Laboratory)		ARITHMETIC MEAN*	RPD* (%)
	G28-1806-1	Blind Duplicate GF-1806		
Heavy Metals				
Arsenic	2.2	<2	1.6	**<u>75.00</u>**
Cadmium	<0.5	<0.5	NA	0
Chromium	20	20	20	0
Copper	36	37	36.5	2.74
Nickel	86	91	88.5	5.65
Mercury	<0.1	<0.1	NA	0
Lead	14	9.8	11.9	35.29
Zinc	55	60	57.5	8.70
PAH's				
Benzo[a]pyrene	<0.1	<0.1	NA	0
Total PAH's**	nd	nd	NA	0

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
Bold and Underlined: RPD >50%

Heavy Metals
Variation between 1 of a total of 8 heavy metal pairs was greater than 50% RPD. Arsenic alone exhibited RPD variations outside acceptable limits (at 75%). Overall 'Percent Relative Difference' for heavy metals was 15.92% indicating overall acceptable correspondence.

PAH's
All individual PAH's were below detection limits.

Overall Correspondence
The overall average 'Percent Relative Difference' (RPD) across all analytes for the initial duplicate analysis was 12.74%, indicating overall acceptable correspondence.

VI.2.3 MW1-1107-1 and C-1107

Table 28c compares results for sample MW1-1107-1 and the blind duplicate sample C-1107.

TABLE 28c: QC BLIND DUPLICATE RESULTS AND EVALUATION
- Blind Duplicate C-1107 of MW1-1107-1 [mg/kg (=ppm) dry weight of soil]

ANALYTES	DUPLICATE SAMPLES (Primary Laboratory)				ARITHMETIC MEAN*		RPD* (%)	
	MW1-1107-1		Blind Duplicate C-1107					
	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis	Initial	Re-analysis
TPH's								
TPH's C6-C9	<20	<20	<20	<20	NA	NA	0	NA
TPH's C10-C14	<50	<50	<50	<50	NA	NA	0	NA
TPH's C15-C28	160	160	<100	120	105	140	**<u>104.76</u>**	28.57
TPH's C29-C36	980	760	580	490	780	625	**<u>51.28</u>**	43.20
TPH's >C9	1,165	945	655	635	910	790	**<u>56.04</u>**	39.24
MAH's (BTEX)								
Benzene	<0.01	-	<0.01	-	NA	-	0	-
Toluene	<0.01	-	<0.01	-	NA	-	0	-
Ethyl benzene	<0.01	-	<0.01	-	NA	-	0	-
Xylenes	<0.01	-	<0.01	-	NA	-	0	-

*: RPD = Relative Percentage Difference
**: If one of the individual results was below detection limits half the detection limit was assumed
Bold and Underlined: RPD >50%

TPH's
After initial analysis, three RPD's were greater than the acceptable level of 50% with one result greater than 100% (TPH's C_{15}-C_{28}). Both routine and duplicate samples were submitted for re-analysis. After re-analysis correspondence of results improved significantly as a result of detection of TPH C_{15}-C_{28} range analytes in the duplicate sample (at 120 mg/kg), where previously these were below analytical detection limits of 100 mg/kg.

Note: The re-analysis of the routine sample and the blind duplicate samples was performed outside of the standard holding time for TPH's.

MAH's
No MAH's were detected in either primary or duplicate samples.

Overall Correspondence
The overall average 'Percent Relative Difference' (RPD) across all TPH and BTEX analytes for this set of duplicate samples is 12.33% (compared to 23.56% previously) and therefore within acceptable limits.

VI.3 Data Quality Evaluation

Inter-Laboratory Comparison (QA Field Duplicates):

Precision

The average RPD of results for initial QA grid duplicate pairs ranged from 0% to 85% for 5 pairs of QA samples based on a moderate number of heavy metals, PAH's and TPH's exhibiting RPD percentages greater than 50%. Overall average RPD for after initial analyses 41.10%. Arsenic was initially detected in one routine sample by the primary laboratory and not by the secondary laboratory for one split field pair. PAH's from one split pair of samples were reported initially below detection limit by the primary laboratory and detected by the secondary laboratory (RPD range 139.39%-155.56%), and nickel was reported in the same routine sample initially at one tenth of the value of the secondary laboratory (RPD 164.91%). Mineral oil range TPH's were detected in one field split duplicate pair, with TPH C_{15}-C_{29} reported initially marginally below detection limits by the secondary laboratory (RPD range 51.28%-104.76%).

Repeat analysis of laboratory split samples with initial RPD's greater than 100% (PAH's, TPH's and selected metals) showed significant improvements after re-analysis, with overall RPD results ranging from 0% to 61.35%. The overall average RPD after re-analysis of samples was 24.45%. In one split pair re-analysis, PAH's were reported below analytical detection limits by both laboratories (RPD's reduced to 0%) and nickel was detected at greater concentrations by both (RPD to 90.2%). TPH re-analysis, although performed outside the recommended holding time, also showed improvements with RPD's ranging from 28.57%-43.20% for mineral oil fractions.

These findings suggested that sub-sample heterogeneity (uneven distributions of admixed gravels with silts and clays) and sample preparation techniques at the laboratories play a role in reproducibility of heavy metal results. We consider that differences in heavy fraction TPH results, on the other hand, are mainly due to different analytical techniques applied by the laboratories.

The overall average across all split duplicate analyses was 27.74%.

Acceptability / Completeness

The percentage of field duplicate analyses performed by primary and secondary laboratories (completeness) over both initial and repeat analyses producing acceptable results was 80% (56 of a total of 70) compared to a desirable value of 95%.

Internal Laboratory Comparison (QC Blind Duplicates):

Precision

Blind duplicate pairs collected during the site assessment component of this investigation and analysed by the primary laboratory showed mean 'Relative Percentage Differences' of 46.58% (initial), 26.38% (repeat)) and 15.92%, each within the acceptable range of up to 50%.

Repeat analysis was performed on one pair of duplicate samples with initial variations reported by the heavy metals, arsenic, and chromium, greater than 100% RPD (at 131.03% and 112.50% respectively). Re-analysis of both samples for arsenic and chromium showed significant improvements with the blind duplicate sample reporting increased concentrations of both metals and the routine sample reporting minor decreases in concentrations of both metals. RPD's were calculated as 36.92% and 4.55% respectively after re-analysis.

Acceptability / Completeness
The percentage of field duplicate analyses performed by primary laboratory producing acceptable results (completeness) was 73% (16 of a total of 22) compared to a desirable value of 95%.

RPD's greater than the acceptable 50% initially occurred for a number of heavy metals. Variations in heavy metal results are considered likely to be due to non-homogenous distribution of these analytes in the source material (being admixed fill material containing an uneven distribution of silts, clays and gravels).

Internal QA/QC:

Accuracy - Primary Laboratory:
A total of 90 spike recoveries were performed, all of which were within the acceptable range of 75%-125%. Spike percentage recoveries reported by the primary laboratory were between 86% and 112%.

Accuracy - Secondary Laboratory:
Most spike recoveries reported by the secondary laboratory were within the acceptable range (127 of a total of 138 performed, ie. 92%).

Accuracy - Third Laboratory Used for Groundwater Analysis:
All but one sample control spike recoveries (SCS and DCS; total 26 incl. duplicate) reported by the third laboratory (ALS) were within the acceptable range. One matrix spike and its duplicate (MS and MSD) were well below acceptance criteria at 22%. Enquiry revealed that this spike was not performed on our sample as insufficient volume was available. The low recovery was due to matrix interference which may not necessarily apply to the Fawkner samples. We consider that the MS and MSD results should be disregarded.

Equipment Blank Samples

Rinse Water Blanks:
The equipment blanks were analysed for TPH's and BTEX according to elevated concentrations of compounds reported for soil samples collected during field sampling during the initial round of analysis. None of these compounds were detected in the rinsate blanks.

Trip Blanks:
No trip blanks were analysed as a part of this assessment.

Overall Completeness of QA/QC Data Set:

Completeness is an indicator of the success of the sampling and analysis program. Overall completeness considers blind and split duplicate pairs, trip and equipment blanks, and internal laboratory QC data (primary laboratory only), including internal duplicates, blanks and spike recoveries. The totals include analysis results for imported fill material reported out by a third laboratory. Completeness should be at least 95%.

The percentage of analyses producing acceptable results (ie. RPD <50%, spike recoveries between 75 and 125% and not detected blank sample results) was **96.9% (570 of a total of 588 internal sample duplicates, field replicates, blanks and spikes)**. Hence, overall completeness was above the threshold limit of 95% and is therefore considered acceptable.

VII. SUMMARY AND CONCLUSIONS

This site assessment provides an evaluation the environmental quality of soils across the general site and at targeted locations. Three groundwater monitoring wells were installed and water samples analysed. Water samples were also collected from the two accessible (and only two remaining) tanks and analysed to determine their contents and quality.

Soil results were compared with the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) HIL A and E levels (health risk-based investigation levels for "Standard Residential Settings" and "Parks, recreational open space and playing fields, includes secondary schools" respectively) and EIL levels (Interim Ecological Investigation Limits for Urban Land) (NEPC 1999). Where no EIL limits are specified in the NEPM, ANZECC B criteria (ANZECC & NHMRC 1992) are used. Reference is also made to EPAV Fill Material Limits (EPA Bulletin 448, "Classification of Wastes", 1995) with regards to any off-site disposal of any soil which may need to be excavated during the site preparation works for the proposed School extensions and additions.

Groundwater results were compared with Ecosystem Protection Criteria in accordance with the SEPP *Groundwaters of Victoria* (1997) and the SEPP *Waters of Victoria* (1999) Schedule F7 *Waters of the Yarra Catchment for the Urban Waterways Segment.*

Significant results of this Environmental Site Assessment are summarized below:

VII.1 SITE HISTORY AND FIELD OBSERVATIONS

- The site is rectangular in shape and covers an area of approximately 24,828 m^2. At the time of investigation, the property was occupied by a mixture of school buildings, administration facilities, and bitumen covered courtyards, car parks and basketball courts on the western side and featured grass-covered school playing fields on the eastern side.

- The site is identified on certificate of title Vol. 10304 Fol. 033 as part of CP4, Parish of Will Will Rook. The site was formerly owned by the United Subdivisional and Finance Company Pty from 1939 (and vacant until 1966) until 1996 when ownership was taken over by Darul Ulum College of Victoria Inc (the current owners). The site is currently zoned 'Residential 1' under the City of Moreland Planning Scheme. An environmental audit overlay exists for the site under this scheme.

- Four previous or current underground storage tank sites were identified or suspected at the site. One suspected tank (Tank 1) was not found after extensive searches under the administration building (as part of this assessment). Two tanks remain in-situ (Tanks 2 & 3), and the remaining tank (Tank 4) has been previously removed and validated and the tank pit validated by GPM (GPM Reports TP1376/FC1376, 2002A/B).

- A.S. James Pty Ltd. has also completed a geotechnical investigation of the site in 2001 as a part of proposed classroom extensions and prayer hall developments.

- Fill material was encountered at all borehole locations, and varied from 0.1 to 1.1m at grid and target locations. Fill material consisted of admixed gravel, clay, silt, and minor brick or rock fragments. Natural soil consisted of silty clay with minor sands with moderate to low plasticity.

- No asbestos, either in the form of sheet fragments or lagging, was observed on the site surface or within fill material.

VII.2 UNDERGROUND STORAGE TANKS

"Tank 1"
A comprehensive search was made to establish whether Tank 1 remains on the site under the office administration building. Tank 1 could not be located following a comprehensive electromagnetometer search. Further research led to the conclusion that it is unlikely that a tank remains beneath the administration building at the time of reporting or was ever present at this location.

Tank 2
Tank 2 remains in-situ and contains predominantly water with residue of former product. TPH's in tank water are consistent with the range for kerosene.

Tank 3
Tank 2 remains in-situ and contains predominantly water with residue of former product. Minor amounts of separate phase hydrocarbons are also present. Dissolved phase TPH's are present and are consistent with the range for diesel (as confirmed by TPH fingerprinting).

Tank 4
Tank 4 was removed under GPM supervision in December 2001 – January 2002 and the tank pit was validated.

VII.3 CHEMICAL ANALYSIS RESULTS

VII.3.1 Soil – Grid Points

- A total of thirty-five grid sample locations were advanced across the site. Initially eleven individual samples and eight three-part composite samples representing surface fill material were analysed for eight heavy metals and PAH's. Five individual surface fill samples were also analysed for TPH's and volatile organic compounds. A further five three-part composite samples were analysed for an extended suite of contaminants and additional heavy metals

- The majority of analytes remained below *modified* or standard NEPM EIL levels across the site with the exception of nickel, manganese and vanadium. These were detected in either individual or composite samples. As a result, individual constituents of the composite samples reporting elevated concentrations of analytes were analysed individually.

- Concentrations of vanadium were reported above the NEPM EIL levels in one near-surface sample in the area of the school playing fields on the eastern side of the site note: there are no NEPM HIL levels for vanadium). All remaining locations in this area reported potential contaminants below NEPM EIL levels for surface and deeper fill and natural soil samples.

- In the area of the school buildings to the west of the site, arsenic was detected in concentrations above the NEPM EIL levels in one near-surface fill sample at grid point G26. Nickel showed exceedences of the NEPM EIL levels in fill samples from locations G16, G20, G22, G25, G27, G28, G29, G30, G32 and G35. Manganese was reported at a concentration exceeding the NEPM EIL level in surface fill at test location G28. Vanadium was reported at concentrations that exceeded the NEPM EIL levels in surface fill at test locations G23, G24 and G26.

  Analysis of selected deeper fill material and natural soils reported concentrations below NEPM EIL levels for most analytes of concern, with the exception of test locations G25 and G35, where nickel was reported at concentrations exceeding NEPM EIL levels in deeper fill and natural soil respectively but at concentrations below the NEPM HIL E levels. Sample location G25 terminated in coarse fill material and G35 was terminated in upper natural soils but is covered by a bitumen surface (basketball court) in this area.

  Elutriation testing (by ASLP method using reagent water) of fill material containing elevated levels of arsenic, manganese, vanadium and nickel reported concentrations of these analytes below analytical detection limits and Australian Drinking Water Guidelines. These results indicate that it is unlikely that these analytes would leach down into the deeper fill and underlying natural soils.

- Benzo(a)pyrene was recorded at detectable concentrations in two of the twelve individual samples analysed. All detected concentrations remained well below the NEPM HIL A and HIL E levels. Total PAH concentrations (detected in two of twelve individual samples) remained below the NEPM HIL A and HIL E levels.

  No detectable concentrations of benzo(a)pyrene and/or Total PAH's were reported in the eight composite samples analysed.

- Organochlorine Pesticides, Polychlorinated Biphenyl's (PCB's), Phenolic compounds, Chlorinated Hydrocarbons, Sulphate, Fluoride and Cyanide in composite samples, and Volatile Halogenated Hydrocarbons in individual samples were all reported below laboratory detection limits or well below screening criteria.

- Asbestos was not detected in three fill samples analysed.

- Soil reaction (pH) values in surface fill samples were reported in the neutral to strongly alkaline range (7.71, 8.46 and 10.03 respectively).

- QA/QC duplicates showed most RPD's within acceptable criteria. However, some elevated percentage difference results were attributed primarily to either heterogeneous distribution of analytes in the source soil or differences in laboratory methodology. Overall completeness of the QA/QC data set is 96.9% (570 of a total of 588 internal sample duplicates, field replicates, blanks and spikes), above the desirable minimum of 95%, and is therefore considered acceptable.

VII.3.2 Soil – Target Points

- Five target locations were placed adjacent to present or former underground storage tanks. Fill material from one location (T2) was analysed for heavy metals and PAH's and fill material and selected deeper fill and natural soil samples were analysed for TPH's and MAH's.

- All heavy metals at location T2 were reported at concentrations below the NEPM EIL levels with the exception of nickel. Analysis of nickel in deeper fill material at this location reported concentrations also exceeding NEPM EIL levels and at higher concentrations than the fill material above. All concentrations of nickel are below the NEPM HIL-E level for this location.

  Analysis of natural soil at this location reported a nickel concentration below the NEPM HIL A and HIL E levels respectively.

- Heavy mineral oil fraction TPH's were detected in only one target fill sample above the ANZECC B level (fill sample at grid point MW1) and at trace concentrations in deeper fill material in the vicinity of former tank 4 (location T3).

- All remaining samples from target locations reported TPH's and MAH's below either analytical detection limits or ANZECC B levels.

VII.3.3 Groundwater

Regional Watertable:

Data from the Victorian Groundwater Database indicate that the regional water table is likely to be between 3.4 m and 6.5 m for wells screened within basalt. The nearest watercourse to the site is Merri Creek, 600m east of the site and the groundwater flow direction is therefore likely to be towards the east/south east.

Groundwater beneficial uses correspond to Segment C of the SEPP Groundwaters of Victoria (1997). This excludes use as potable water based on salinity levels.

On-Site Monitoring Wells:

No PAH's or BTEX was detected in groundwater from any of the monitoring wells on site. No TPH's were detected in routine groundwater samples from any well.

Inferred groundwater flow direction as determined from groundwater levels taken on the site is towards Merri Creek to the south-east of the site.

VII.3.4 Statistics Relevant to Final Condition of Site

Concentrations of eight priority heavy metals, two additional metals and PAH's in soil samples (fill material) from the initial and further components of this assessment (all grid and target locations) were averaged and are summarised in TABLE 29.

Upper confidence limits (UCL at 95%) of mean concentrations were calculated according to NSW EPA Sampling Design Guidelines (NSW EPA 1995). The calculations are attached in Appendix H).

TABLE 29: 95% UCL OF ARITHMETIC AVERAGE AND PEAK CONCENTRATIONS OF DETECTED CONTAMINANTS [mg/kg dry weight of soil]

ANALYTES	ARITHMETIC AVERAGE	95% UCL OF MEAN	PEAK (ppm)	NEPM EIL LEVELS	NEPM HIL LEVELS	
					HIL A	HIL E
Arsenic	4.25	7.19	27	20	100	200
Cadmium	<0.5	<0.5	<0.5	3	20	40
Chromium	21.05	28.1	50	400	12%	24%
Copper	23.02	33.1	72	100	1000	2,000
Lead	21.23	30.8	76	600	300	600
Mercury	<0.1	<0.1	<0.1	1	15	30
Nickel	66.58	84.2	190	60	600	600
Zinc	59.80	74.9	120	200	7,000	14,000
Manganese	301.58	438.9	830	500	1,500	3,000
Vanadium	47.17	59.2	120	50	ns	ns
PAH's						
B(a)P*	0.08	0.1	0.32	ns	1	2
Total PAH's	1.15	1.4	2.74	ns	20	40

Shaded and/or Bold Border Around Cell: Concentration above NEPM EIL level
* B(a)P, Benzo(a)pyrene
[1]: Calculations performed using Procedure G (95% UCL of the average concentration for a lognormal distribution) from Sampling and Design Guidelines (NSW EPA, 1995)

Arithmetic average concentrations of most analytes listed in Table 29 are below the NEPM EIL levels, with the exception of nickel at 66.58 marginally above the NEPM EIL level but well below the NEPM HIL A and HIL E levels of 600 mg/kg each.

The peak concentrations of arsenic, nickel, manganese and vanadium are above the NEPM EIL Level, but below the NEPM HIL A and HIL-E levels for each (*note* no HIL-A or –E levels have been specified). All remaining analytes have peak concentrations below NEPM EIL levels.

The 95th percentiles of the arithmetic average were calculated according to log-normal distributions for one analyte exhibiting a variation coefficient of >1.2 (arsenic). The calculated concentrations at 95% upper confidence for log-normal distributions of this analyte was below the screening criteria (Appendix H).

With the exception of nickel all 95% upper confidence limits were below NEPM EIL levels.

While the peak concentrations of nickel, manganese and vanadium exceeded the respective screening criteria, analysis of natural soil underlying fill showed that elevated concentrations had not penetrated into natural soil.

Elutriation results yielded further evidence that no impact has occurred on the natural soil profile. All heavy metals of concern displayed negligible leachability.

In summary, the data obtained during this comprehensive site assessment program, representative of the final condition of the site prior to completion of the Audit, indicate that fill material contains isolated pockets of elevated levels of heavy metals (mainly nickel, minor vanadium, arsenic and manganese) and of mineral oil fraction petroleum hydrocarbons (TPH's >C9) above the NEPM EIL investigation levels. None of the recorded concentrations exceed the HIL E level, where defined in the NEPM (NEPC 1999), for recreational areas and playing fields (incl. secondary schools).

VII.1 RECOMMENDATIONS

The results obtained in this comprehensive assessment indicate that the site is conditionally suitable for the proposed re-development and additional building provided that certain site management measures are implemented to contain and seal potentially contaminated soil and thereby minimize the risk of human exposure.

The conditions will be formulated by the Environmental Auditor in a Statement of Environmental Audit. The Statement will be linked to the final development plan approved by Council.

The site would only be eligible for a Certificate of Environmental Audit if clean up was undertaken to bring the entire site in compliance with environmental investigation levels for soils.

Fill remaining on the site which may be excavated during future construction works may be classified as Contaminated Waste (low-level) according to EPA Bulletin 448 (1995) for the purpose of off-site disposal. Such fill would be subject to Prescribed Waste Regulations 1998 and may only be transported accompanied by Waste Transport Certificates and be disposed to EPA licensed landfills only (refer also to EPA Information Bulletin 626, 1998 and EPA Information Bulletin 395a, 1999). We recommend that specific volumes of fill to be disposed off site be tested to determine their actual classification.

Further advice and assistance should be sought from this office or from EPA when off-site disposal of contaminated soil is imminent, in order to ensure that contaminated soil is disposed off in accordance with current regulations.

Draft Report Prepared By: ....Greg Foster.............(Environmental Scientist)

Draft Report Reviewed By: ....Dr. Karin Schwab......

Date Draft Report Issued: ....23 August 2002.........

Date Final Report Issued: ....2 September 2002........

Signed on behalf of GeoPollution Management Pty Ltd:

....

Dr. Karin B. Schwab
(Principal Environmental Scientist)

REFERENCES

ANZECC & NHMRC (1992) Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites, January

ANZECC and Victorian EPA (1996) Guidelines For the Laboratory Analysis of Contaminated Soils, August

ARMCANZ (1997) Minimum Construction Requirements for Water Bores in Australia. Agriculture and Resource Management Council of Australia and New Zealand.

A.S. JAMES PTY LTD (2001) Geotechnical Investigation- Proposed classroom extensions and prayer hall at Darul Ulum College, Fawkner. Prepared for K. M. Wright & Associates, Report No. 101979. 14 September 2001.

Environment Protection Authority (1995) Classification of Wastes. Bulletin 448, September

Environment Protection (Prescribed Waste) Regulations (1998) Statutory Rule No. 95.1998

Environment Protection Authority (1998) Environment Protection (Prescribed Waste) Regulations 1998. Management of Waste Contaminated Soil and Low Level Contaminated Soil. EPA Information Bulletin. Publication 626, October

Environment Protection Authority (1999) Industrial Waste Strategy. Instructions for Completion of Waste Transport Certificates. EPA Information Bulletin. Publication 395a, August

Environment Protection Authority (2000) Groundwater Sampling Guidelines. Publication 669, April

Environment Protection Authority (2001) Environmental Auditor (Contaminated Land) Guidelines for Issue of Certificates and Statements of Environmental Audit. State Government of Victoria, May

GeoPollution Management Pty Ltd. (2002A) Assessment of Fill Material Quality – Stockpiled Excavated Soil, 1 Roma Street, Fawkner. Prepared for Austech Petroleum Services Pty Ltd., Report No. FC1376, January.

GeoPollution Management Pty Ltd. (2002B) Excavation Validation Report, 1 Roma Street, Fawkner. Prepared for Austech Petroleum Services Pty Ltd., Report No. TP1376, February.

NEPC (1999) National Environmental Protection (Assessment of Site Contamination) Measure. National Environment Protection Council Service Corporation

NSW Environment Protection Authority (1995) Contaminated Sites. Sampling Design Guidelines, September

SEPP State Environment Protection Policy (1997) Groundwaters of Victoria. Victoria Government Gazette No. S160, December

SEPP State Environment Protection Policy (1999) Waters of Victoria. Victoria Government Gazette No. S89, June

SEPP State Environment Protection Policy (1999) Waters of Victoria. Schedule F7 Waters of the Yarra Catchment for the Urban Waterways Segment

Standards Australia (1997) Guide to the Sampling and Investigation of potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds. Australian Standard AS 4482.1-1997.

Standards Australia (1999) Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile Substances. Australian Standard AS 4482.2-1999

USEPA (1996): Puls, R.W., Barcelona, M.J. (April 1996) Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. United States Environmental Protection Agency. EPA Groundwater Issue EPA/540/S-95/504.

LIMITATIONS OF THIS INVESTIGATION

While the spacing and number of test locations was chosen to be representative of the overall site, inherent limitations remain as for any assessment based on a limited number of spot tests.

The precision with which sub-surface conditions are indicated depends not only on the frequency and method of sampling but also on the degree of uniformity of sub-surface material. The borehole logs represent the sub-surface conditions at specific test locations only. Boundaries between strata as indicated on the log sheets are often not distinct but transitional and are a result of interpretation of the field observations.

Point data have been extrapolated across the site (or across certain portions of the site) using best available knowledge combined with professional judgement.

No guarantees can be given as to the maintenance of the environmental condition of the site surface as described in this report, during forthcoming earthworks and building construction (eg. possible occurrence of fuel or oil spillages).

APPENDICES

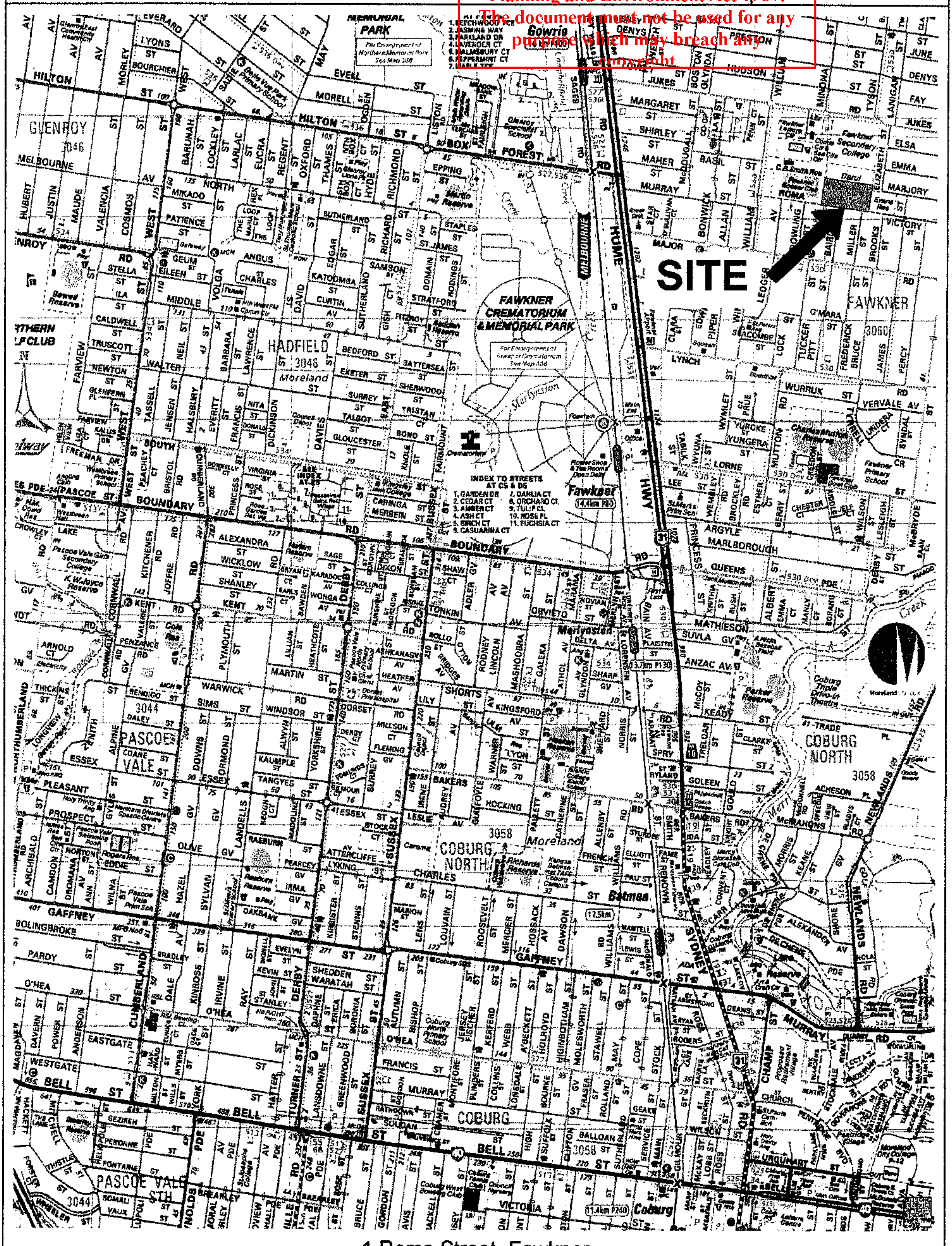
APPENDIX A

GENERAL SITE LOCALITY AND SURROUNDING LAND USE PLANS, SAMPLE POINT AND MONITORING WELL PLANS

GeoPollution Management

LOCALITY PLAN

FILE: EA1375

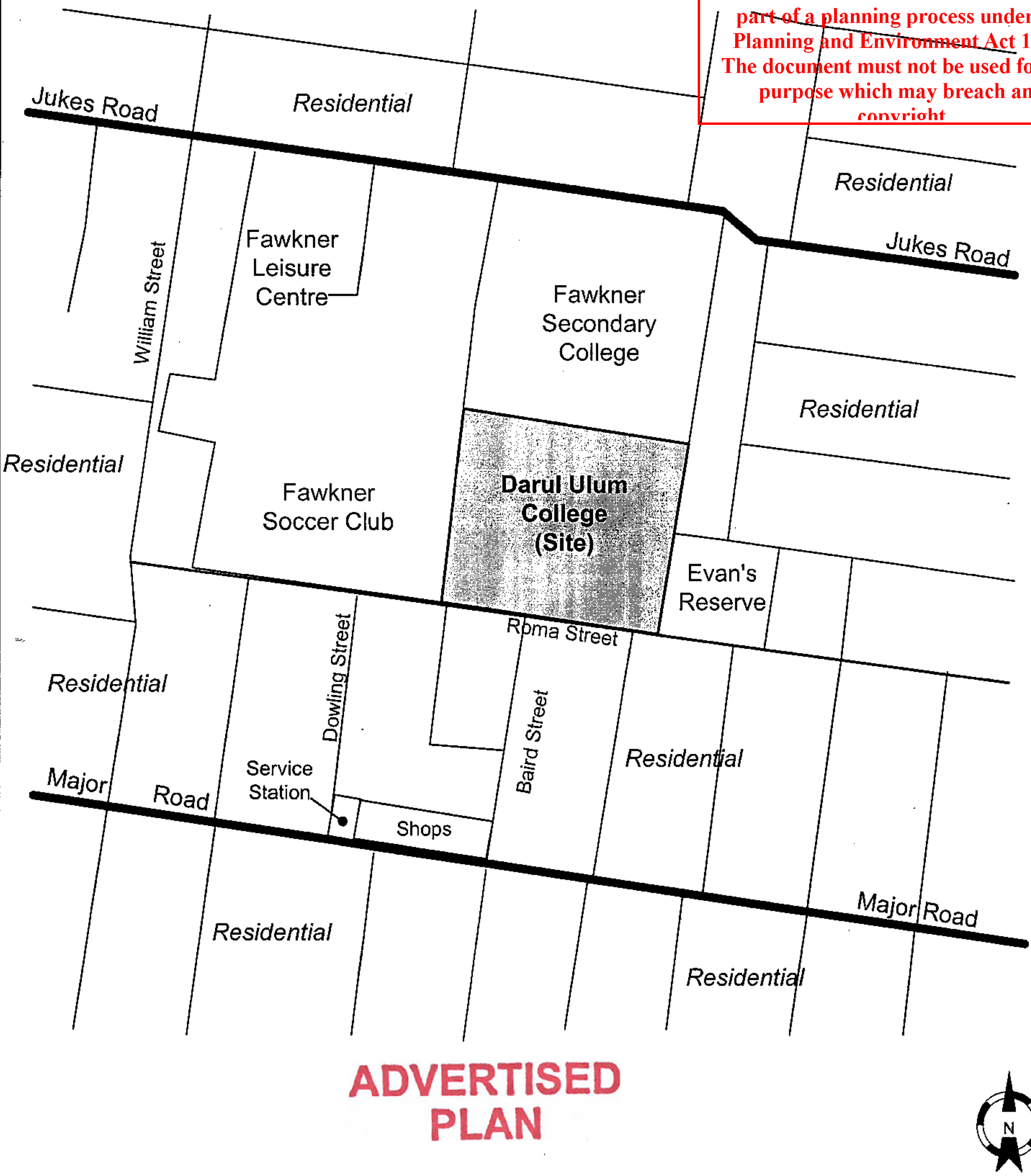


1 Roma Street, Fawkner

GeoPollution Management
SURROUNDING LAND USE PLAN

Project No: EA1375

Surrounding Land Uses (500 m radius)



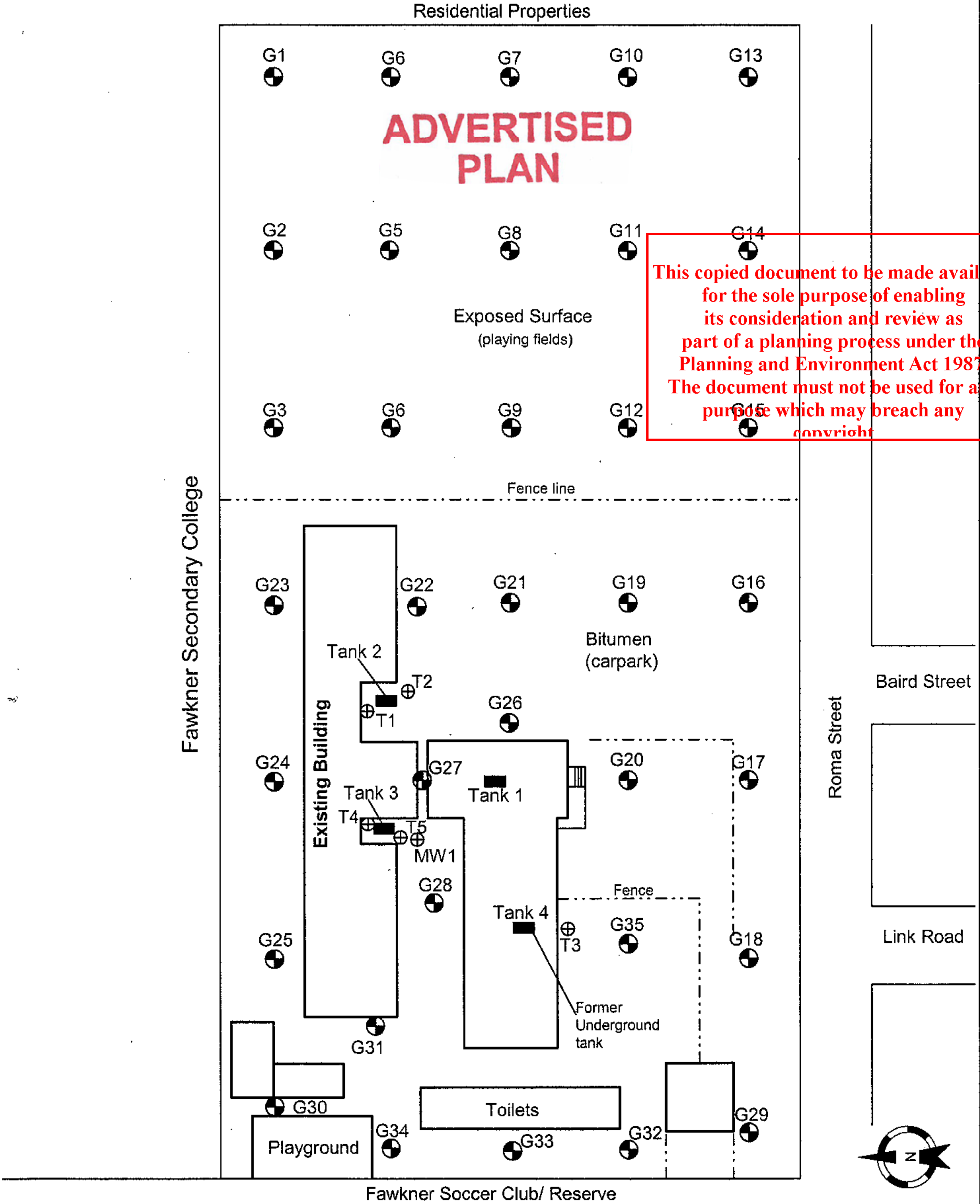
Key:	SCALE:	PROJECT:
	1: 6000 approx.	Darul Ulum College, 1 Roma Street, Fawkner

GeoPollution Management
LOCATION PLAN

Project No: EA 1375

FIGURE No: 1

Site Layout and Location of Grid and Target Sampling Points

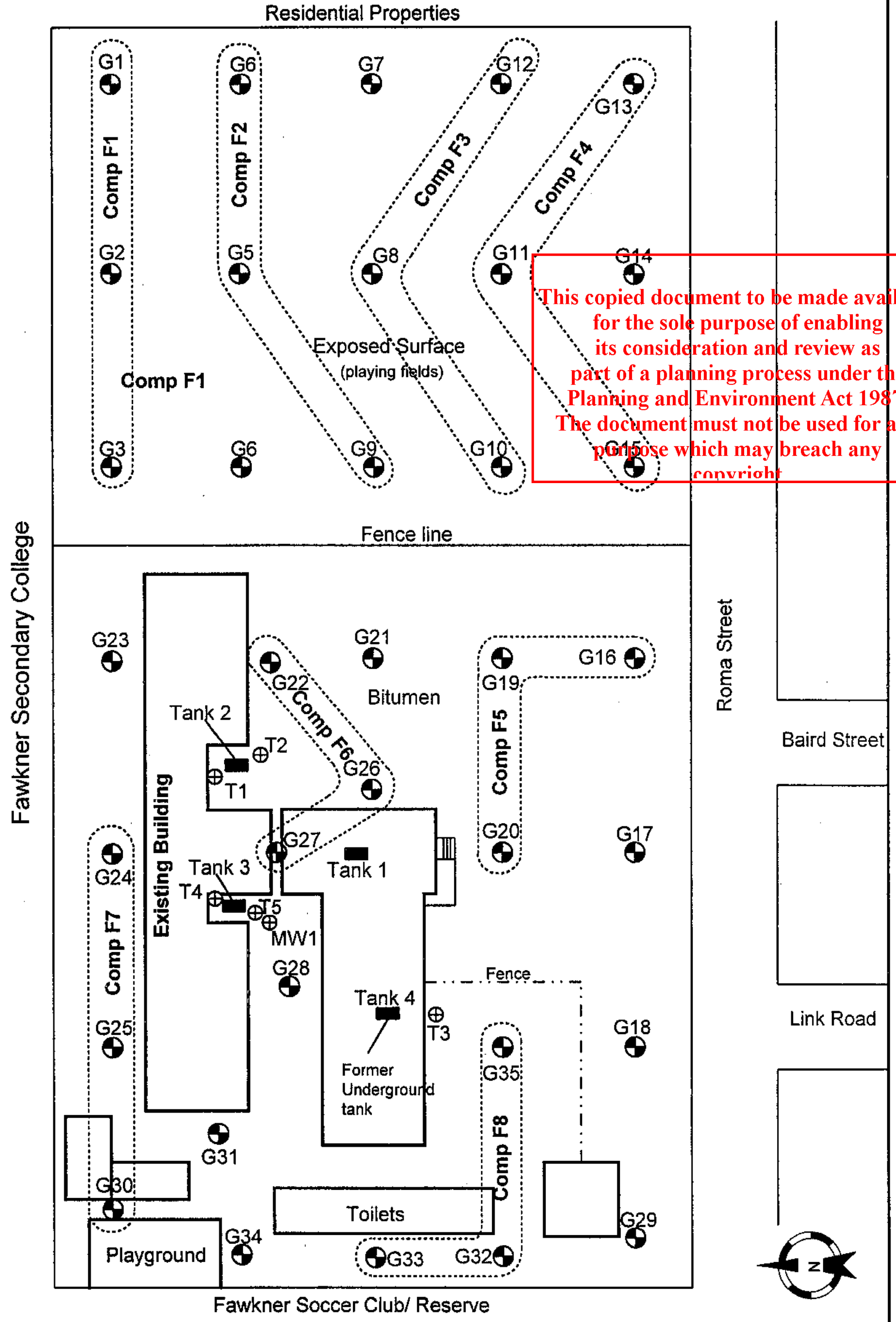


KEY:	SCALE:	PROJECT:
Grid Sampling Points Target Points Underground Tanks	1: 1000 approx.	1 Roma Street, FAWKNER

ADVERTISED
PLAN

GeoPollution Management LOCATION PLAN	Project No: EA 1375 FIGURE No: 2

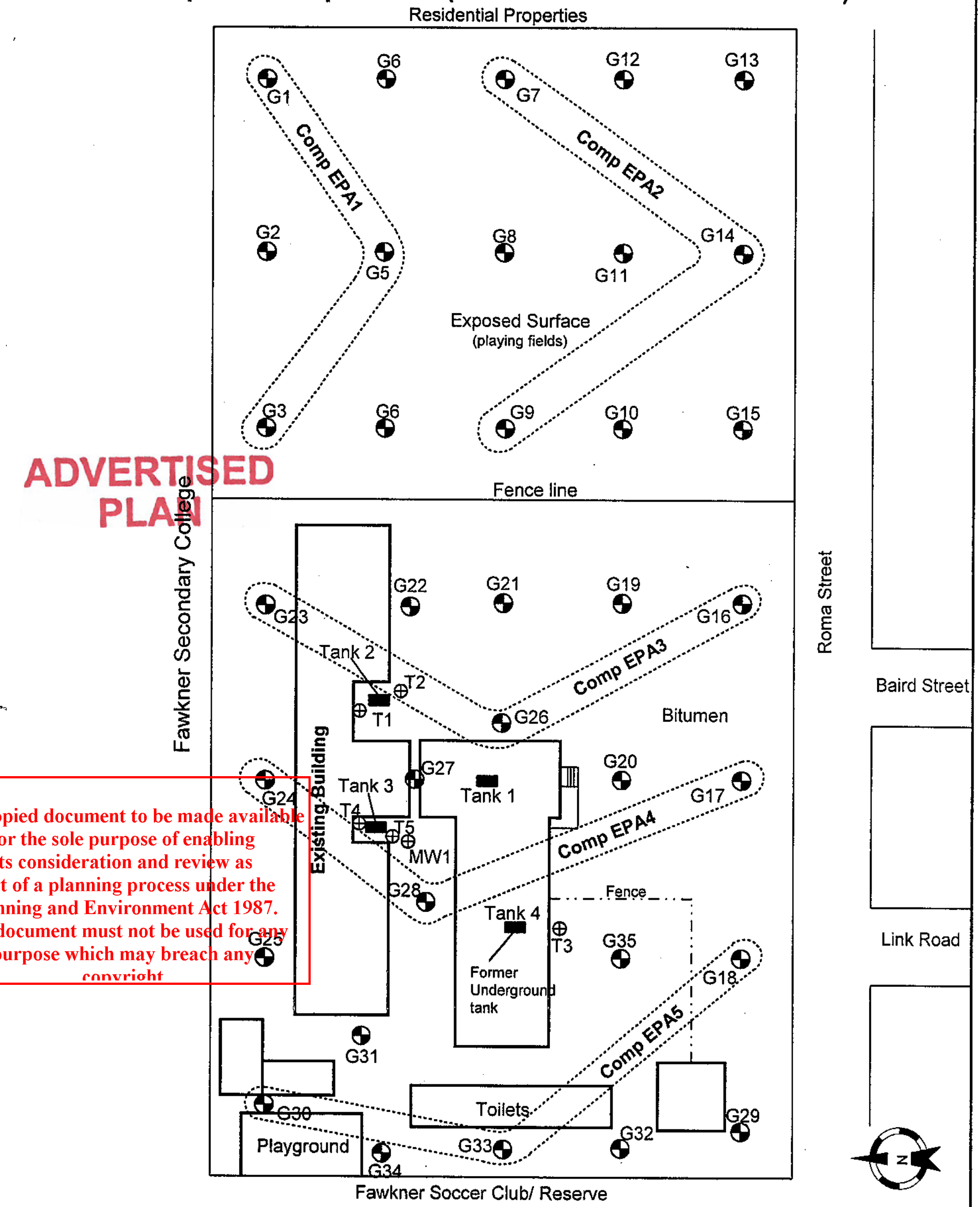
Composite Sample Plan - Heavy Metals & PAH's



KEY:	SCALE:	PROJECT:
Grid Sampling Points Target Points Underground Tanks	1: 1000 approx.	1 Roma Street, FAWKNER

GeoPollution Management LOCATION PLAN	Project No: EA 1375 FIGURE No: 3

Composite Sample Plan - (Balance of Contaminant Screen)



KEY:	SCALE:	PROJECT:
Grid Sampling Points Target Points Underground Tanks	1: 1000 approx.	1 Roma Street, FAWKNER

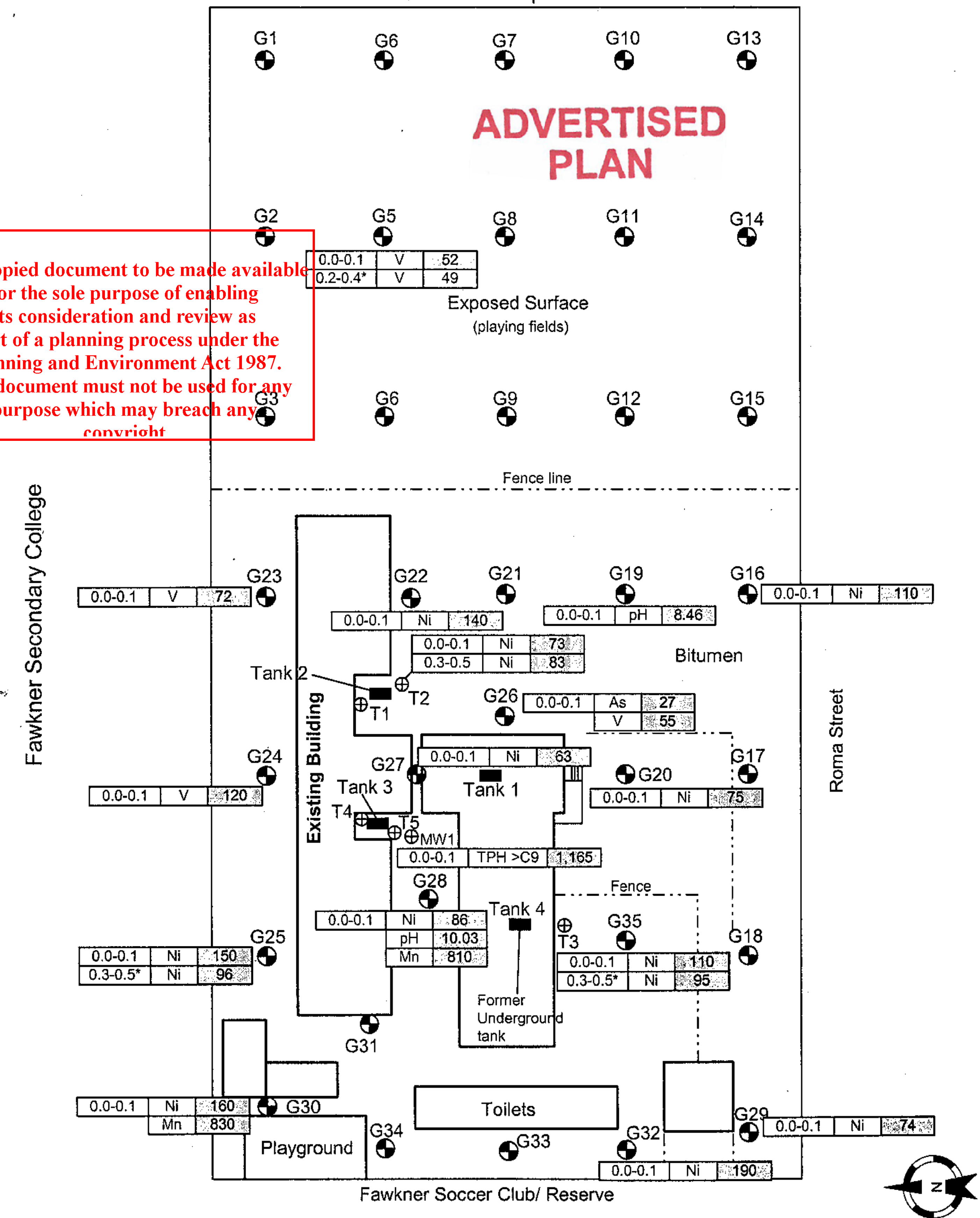
GeoPollution Management
LOCATION PLAN

Project No: EA 1375

FIGURE No: 4

Significant Contaminant Concentrations

Residential Properties



KEY: ⊕ or ⊕ Grid or Target Sampling Points

Depth Interval in [m] → 0.0-0.1 | Zn | 840 ← Analyte Tested

Concentration in [mg/kg]
Shaded: Level exceeds NEPM EIL / ANZECC B
Shaded & Bold: Level exceeds NEPM HIL A
Shaded, Bold & Underlined: Level exceeds HIL D

* No underlying sample available

SCALE: 1: 1000 approx.

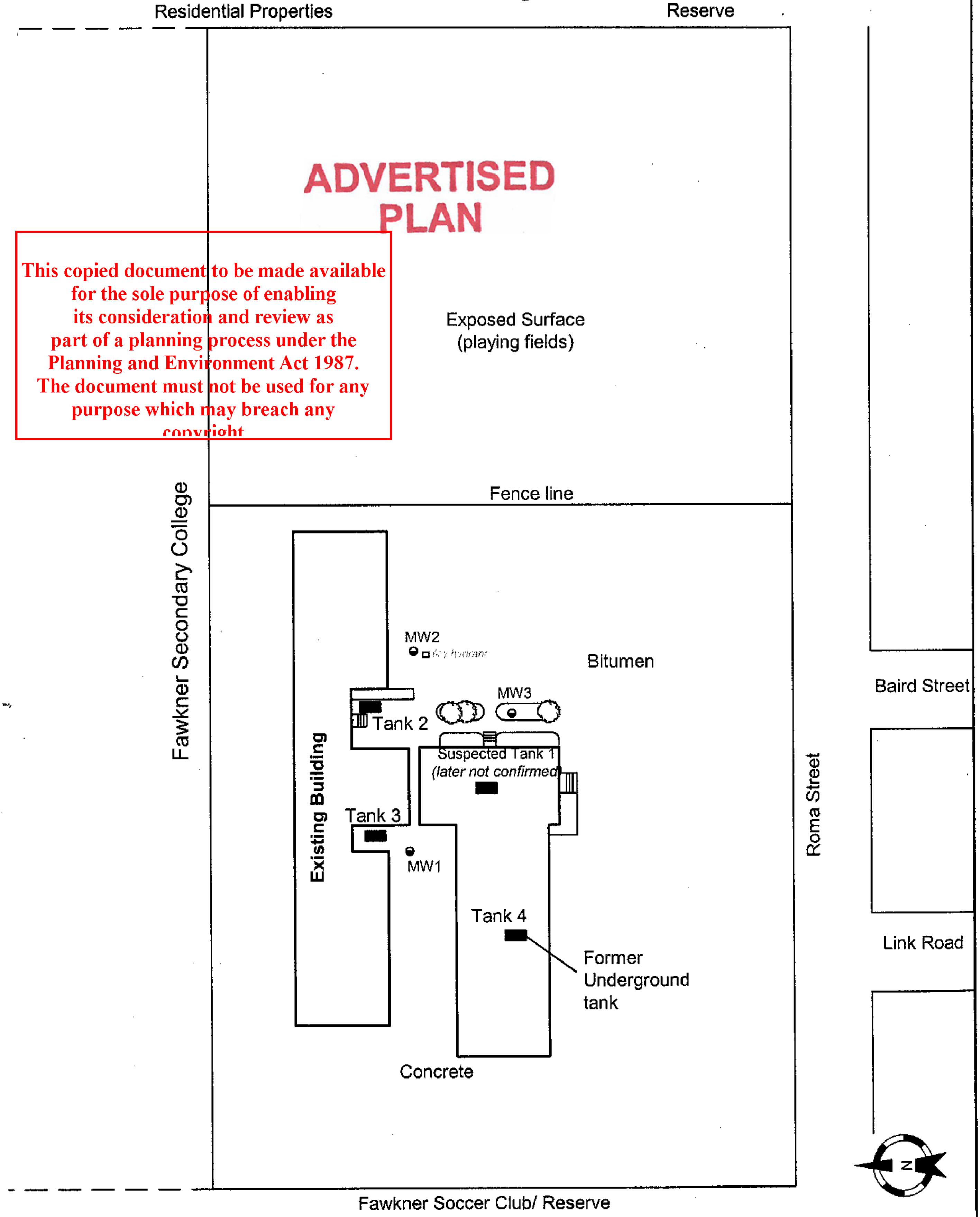
PROJECT: Darul Ulum College
1 Roma Street,
FAWKNER

GeoPollution Management
LOCATION PLAN

Project No: EA 1375

FIGURE No: 5

Groundwater Monitoring Well Locations



KEY: Monitoring Wells

Underground Tanks

SCALE: 1: 1000 approx.

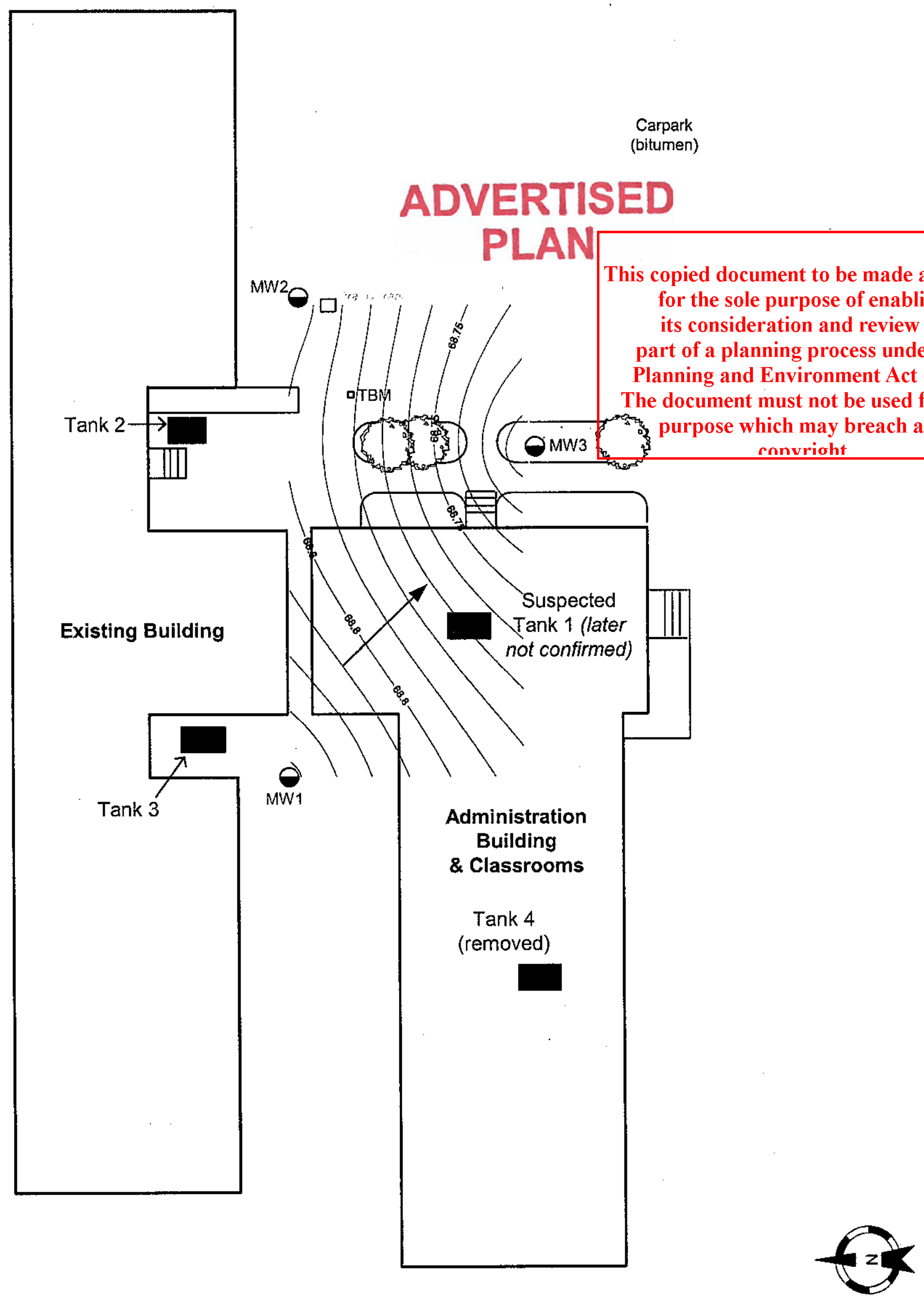
PROJECT: 1 Roma Street,
FAWKNER

GeoPollution Management
LOCATION PLAN

Project No: EA 1375

FIGURE No: 6

Groundwater Monitoring Well Locations & Inferred Flow Direction



KEY: Monitoring Wells Underground Tanks Inferred Groundwater flow direction	TBM = temp. bench mark (top of utility pit)	**SCALE:** 1: 450 approx.	**PROJECT:** 1 Roma Street, FAWKNER

APPENDIX B

CERTIFICATES OF TITLE, PLAN OF SUBDIVISION, COPY OF PLANNING PERMIT AND ZONING MAP

Volume 10304 Folio 033

72840492826A Page 1
Produced 23/10/1996 11:47 am

VICTORIA

CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT

I certify that the registered proprietor is the proprietor of the estate and interest in the land subject to the encumbrances, caveats and notices described.

REGISTRAR OF TITLES

LAND

LOT 1 on Plan of Subdivision 402577B.
PARENT TITLE Volume 06309 Folio 746
Created by instrument PS402577B 23/10/1996

REGISTERED PROPRIETOR

ESTATE FEE SIMPLE
SOLE PROPRIETOR
DARUL ULUM COLLEGE OF VICTORIA INC; 3 PARK AVENUE PRESTON 3072
Registered PS402577B 23/10/1996

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988.
Any other encumbrances shown or entered on the plan.

SEE PS402577B FOR FURTHER DETAILS AND BOUNDARIES

END OF CERTIFICATE

I HEREBY CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL DOCUMENT.

31/3/2000

STAN KIRATZIS B.Juris, LL.B. (Hons.)
A natural person who is a current practitioner within the meaning of the Legal Practice Act 1996
NURI & KIRATZIS
419 Lygon Street, East Brunswick 3057

THIS CERTIFICATE CONTAINS INFORMATION CORRECT AT THE TIME OF PRINTING.
CURRENT INFORMATION SHOULD BE OBTAINED BY A SEARCH OF THE REGISTER

Entered in the Register — CANCELLED

Vol. 6309 Fol. 1261746

VICTORIA.

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1928."

United Subdivisional and Finance Company Proprietary Limited of 62 Swanston ---- Street Melbourne is --

now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All *that piece of Land, delineated and coloured* red on the map in the margin containing Nineteen acres Three roods and Eight ----- perches or thereabouts being Lot 50 on Plan of Subdivision No.5523 lodged in the-- Office of Titles and being part of Crown Portion Four Parish of Will Will Rook -- County of Bourke --

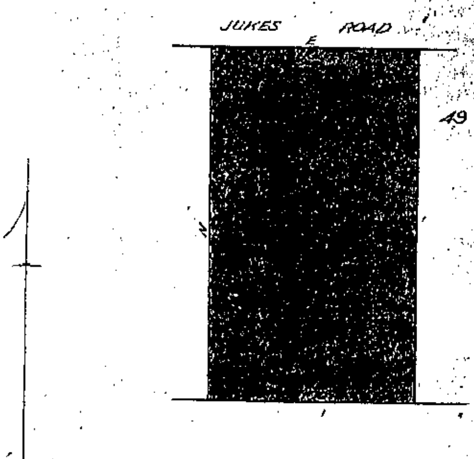
Dated the Twenty-eighth *day of* June *One thousand nine hundred and* thirty-nine.

Assistant Registrar of Titles.

OFFICE OF TITLES VICTORIA

ENCUMBRANCES REFERRED TO.

ADVERTISED PLAN



FEIGL NEWELL, Title Searchers, GPO Box 2343, Melb 3001 (DX301), Ph 9602 - 1436

T06309-746-1-5

3756 — 671

PLAN LS 402 5773 AFFECTS LAND HEREIN

The Measurements are in links

ORIGINAL CERTIFICATE.

Not to be dealt with outside the Titles Office.

Vol. 3906 Fol. 793071 Transfer. 1735954 Application.

The Minister of the Crown administering the Education Acts is

now the proprietor of the within described estate by transfer registered on 2 OCT 1956 and numbered A230168

Asst Registrar of Titles.

CREATION OF EASEMENT

Registered 7th December 1966

No.C657808

T.E.J.

PROPRIETOR
DARUL ULUM COLLEGE OF VICTORIA INC
3 PARK AV. PRESTON 3072

U287780W 01/07/96

B.J.

CANCELLED

NO. PS402577B

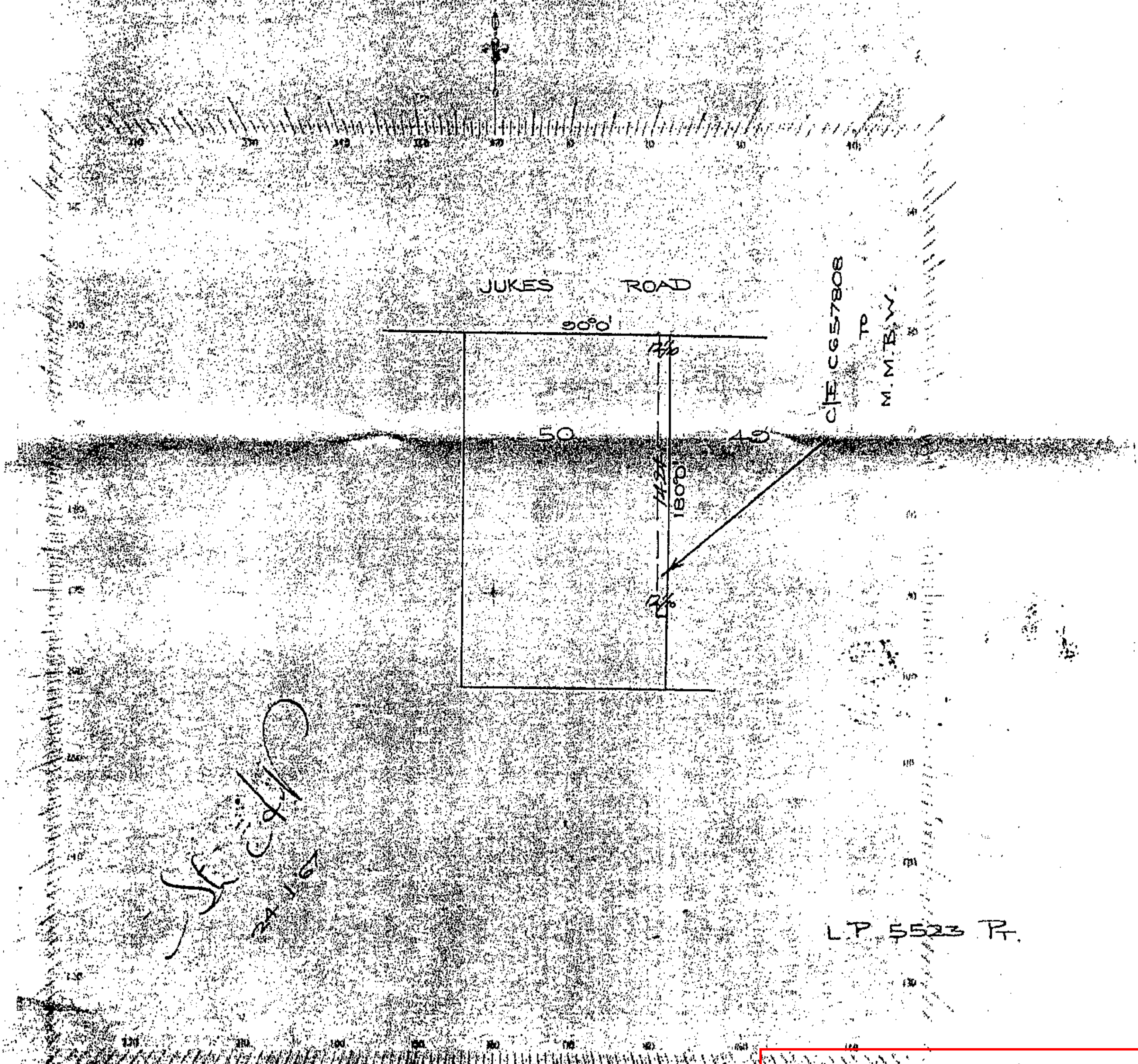
K.B.

ADVERTISED PLAN

SCALE: 6 Chains

Vol. 6309 fol 746

T06309-746-2-3



Natural Resources and Environment
AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

INTENTIONALLY
BLANK

PLAN OF SUBDIVISION

STAGE NO. —

LTO use only
EDITION 1

Plan Number
PS 402577B

Location of Land

Parish: WILL WILL ROOK

Township:
Section:
Crown Allotment:
Crown Portion: 4 (part)

LTO Base Record: Chart 4 Will Will Rook
Title Reference: Vol. 6309 Fol. 746

Last Plan Reference: L.P. 5523 (Lot 50)
Postal Address: Jukes Road,
(at time of subdivision) Fawkner 3060

AMG Co-ordinates (of approx. centre of land in plan) E 321040 N 5825080 Zone: 55

Vesting of Roads or Reserves

Identifier	Council/Body/Person
Nil	Nil

ADVERTISED PLAN

This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright

Council Certification and Endorsement

Council Name: MORELAND Ref: 96/0052

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 12 / 7 / 96

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

Council Delegate
Council Seal

Date / /

Notations

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

Depth Limitation Does not apply.

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: E - Encumbering Easement or 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, Sewerage & Water Supply	2·43	C/E C657808	M.M.B.W.

LTO use only

Statement of Compliance/ Exemption Statement

Received ☑

Date 18 / 10 / 96

LTO use only

PLAN REGISTERED

TIME 11·30

DATE 23/10 / 96

K Osborne
Assistant Registrar of Titles

Sheet 1 of 2 Sheets

NEIL A. WEBSTER AND ASSOCIATES
1004 Main Road, Eltham 3095
9439 4222

LICENSED SURVEYOR (PRINT) NEIL ALFRED WEBSTER
SIGNATURE [signature] DATE 7 / 5 / 96
REF 6920 VERSION 1

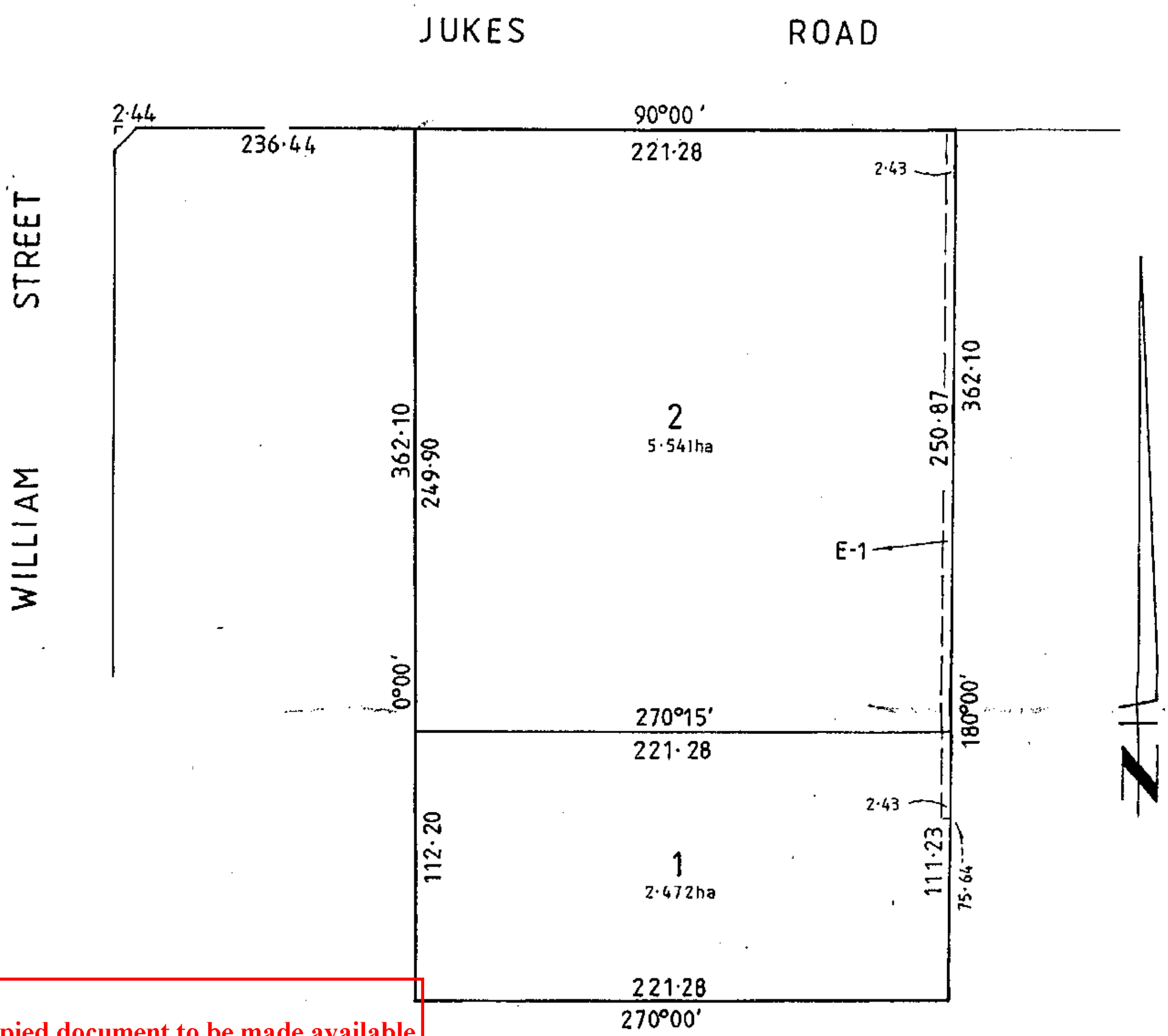
DATE / /
COUNCIL DELEGATE SIGNATURE

Original sheet size A3

T.O.1

	PLAN OF SUBDIVISION	Stage No. —	Plan Number PS 402577B

ADVERTISED PLAN



NEIL A. WEBSTER AND ASSOCIATES
1004 Main Road, Eltham 3095
9439 4222

Sheet 2 of 2 sheets

ORIGINAL SCALE	SHEET SIZE	SCALE		
1:2000	A3	20 0 40 80 — LENGTHS ARE IN METRES	LICENSED SURVEYOR (PRINT) NEIL ALFRED WEBSTER SIGNATURE .... DATE 7 / 5 / 96 REF 6920 VERSION 1	DATE / / COUNCIL DELEGATE SIGNATURE Original sheet size A3

T.O.2

Moreland City Council

Municipal Offices
90 Bell Street
Coburg
Victoria 3058

Postal address
Locked Bag 10
Moreland
Victoria 3058

Telephone 03 9240 1111
Facsimile 03 9240 1212

PLANNING PERMIT

Application No.	MPS 2000/0284
Planning Scheme	Moreland Planning Scheme
Responsible Authority:	Moreland City Council

ADDRESS OF LAND: **1 Roma Street, Fawkner**

THE PERMIT ALLOWS: **Alterations and additions to existing educational buildings (Stage 1 of Masterplan)**

THE CONDITIONS OF THE PERMIT ARE:

10. Before a residential use, child care centre, pre-school centre or primary school (sensitive use) commences or before the construction or carrying out of buildings or works in association with a sensitive use commences, the owner must provide to the responsible authority:

    a) A certificate of environmental audit for the land in accordance with Section 57AA of the Environment Protection Act 1970; or,

    b) A statement by an environmental auditor (appointed under the Environment Protection Act 1970) in accordance with Section 57AA (5) (b) of that Act stating that the environmental conditions of the land are suitable for sensitive use.

11 This permit expires if development is not commenced within 12 months from the date of issue or the buildings and works are not completed within 24 months of the date of issue unless either of these dates are extended by the responsible authority in writing. An application for extension of time must be lodged in writing before the permit expires or within 3 months after the expiry date of the permit.

NOTE1:

A separate building permit is required for the proposed development from the relevant Building Surveyor or Registered Building Surveyor.

NOTE 2:

Approval by or registration with Council's public health department may be required.

26 September, 2000

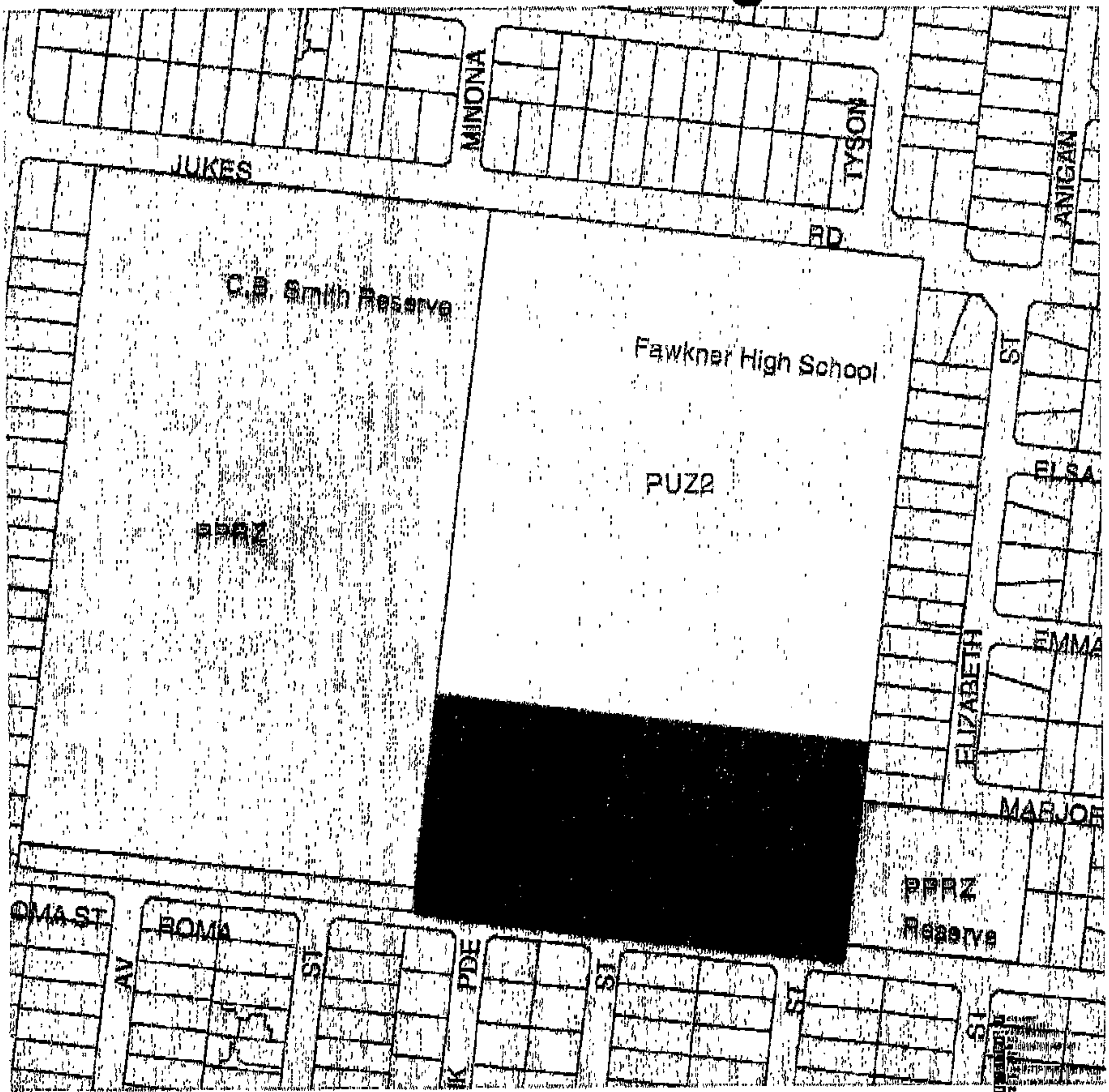
Date Issued

Paul Brixton.

Signature for Responsible Authority

ADVERTISED PLAN

Moreland Planning Scheme



N

95 0 95 190 Meters

Amendments Current 12 September 2001

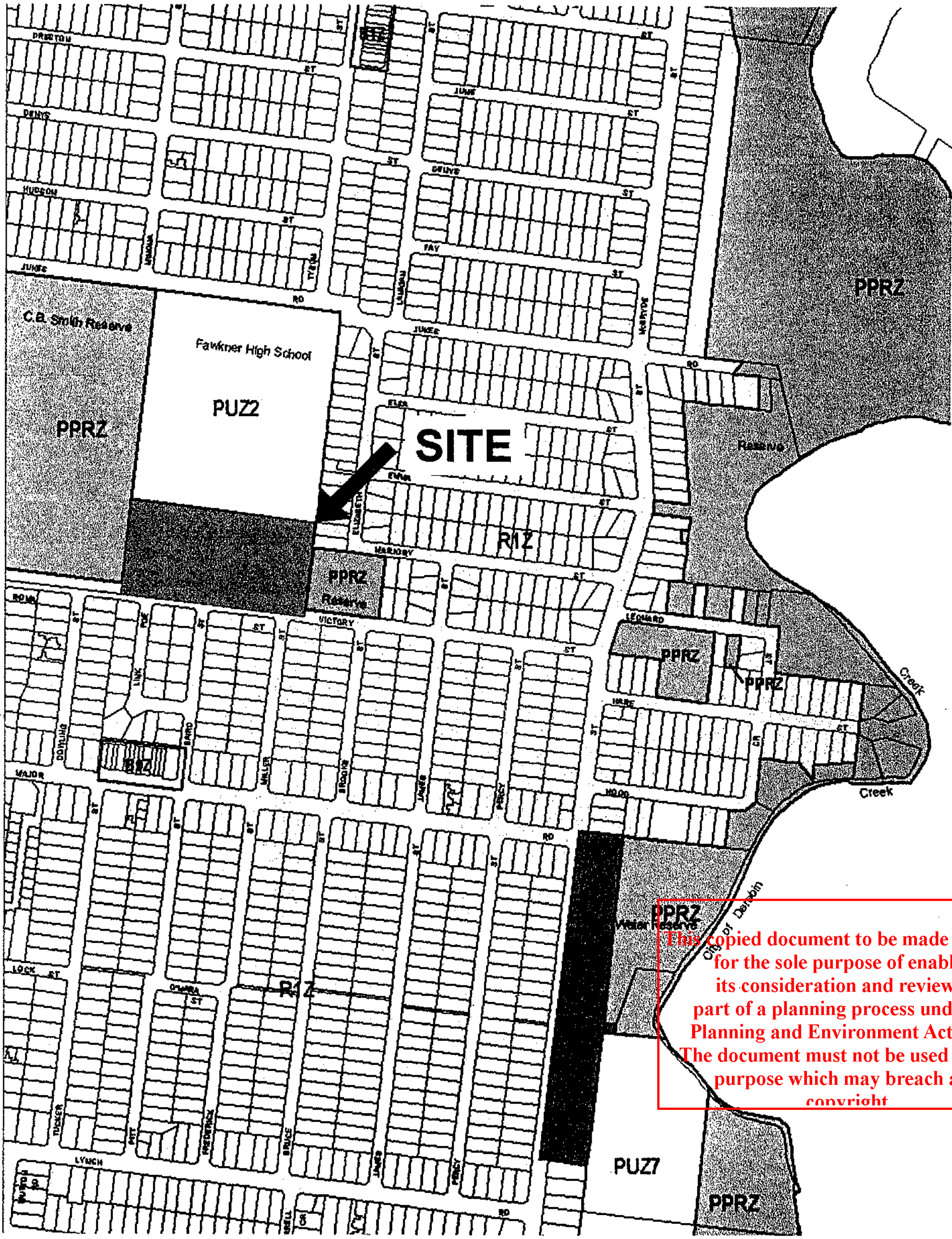
1:3000

Stratagem

GeoPollution Management

MORELAND PLANNING SCHEME

FILE: EA1375



1 Roma Street, Fawkner

ADVERTISED PLAN

ADVERTISED
PLAN

GeoPollution Management

ZONING KEY INFORMATION

Business

- Business 1 Zone
- Business 2 Zone
- Business 3 Zone
- Business 4 Zone
- Business 5 Zone

Industrial

- Industrial 1 Zone
- Industrial 3 Zone

Public Land

- Public Conservation And Resource Zone
- Public Park And Recreation Zone
- Public Use Zone Education
- Public Use Zone Health And Community
- Public Use Zone Local Government
- Public Use Zone Other Public Use
- Public Use Zone Service And Utility
- Public Use Zone Transport
- Road Zone Category 1

Residential

- Mixed Use Zone
- Residential 1 Zone

Special Purpose

- Comprehensive Development Zone 1
- Comprehensive Development Zone 2
- Special Use Zone 1
- Special Use Zone 2
- Special Use Zone 3
- Urban Floodway Zone

Unknown Category

- Unknown Code 63b2

Ref: www.doi.vic.gov.au

APPENDIX C

SITE HISTORY DOCUMENTATION
- Street Directory and Aerial Photographs

1956 Aerial Photograph of the site (arrow pointing at north-west corner of site)
- Melbourne Outer Suburbs Project 02/1956, Run 10, Film Roll 1165, Project Ref: M3 250, 1: 12,000

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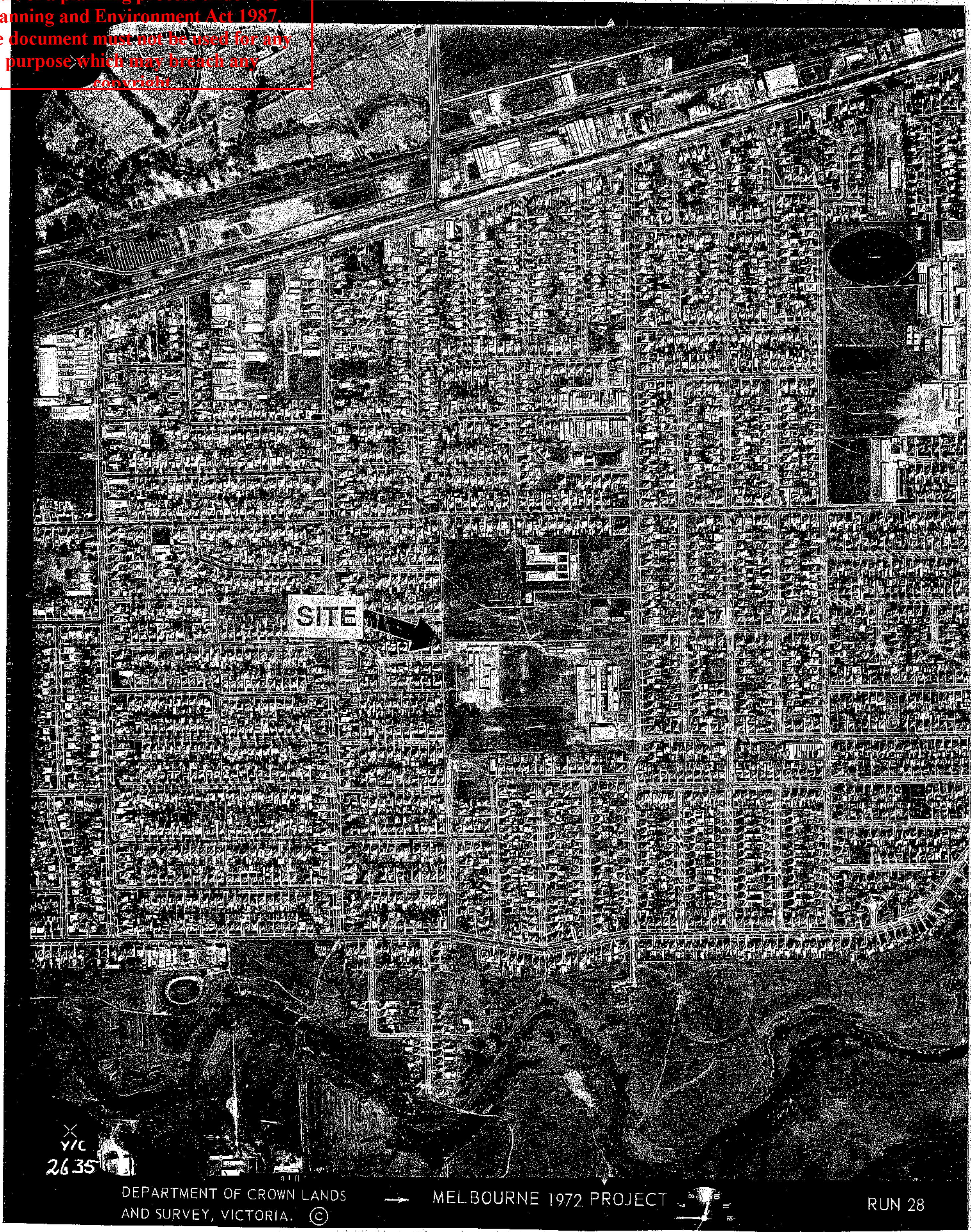
GeoPollution Management



1972 Aerial Photograph of the site (arrow pointing at north-west corner of site)
- Melbourne Project 04/1972, Run 28, Film Roll 2635, Project Ref: M39N985, 1: 9,600

N

ROYAL HISTORICAL SOCIETY OF VICTORIA INC.

239 A'Beckett Street, Melbourne 3000

FAX TO: Marisa Feher – GeoPollution Management
Fax: 03 9873 2899

FAX FROM: Michael King

DATE: 2/06/2002 5:55 PM

SUBJECT: Site History Search – 1 Roma Street, Fawkner

PAGES: One (including this page)

Dear Ms Feher,

Because Roma Street is actually a walkway, I have mentioned Victory Street which once ran as far as Baird Street, which is know is part of the walkway. I contacted the client who advised me that the site concerned is actually adjacent to Owens Reserve and the College (Darul Ulum College) grounds. In 1974 the was no Roma Street listed, and on Victory Street between Elizabeth and Baird Street there was no occupants shown. It was possible that this was vacant land at this time, what it was used for is not possible to say, except that all maps show the oval as "open pastureland".

Our Norma Martin wrote this report.

Kind Regards

MLK

Michael King
Administrative Officer

Tel: (03) 9326 9288 Fax: (03) 9326 9477
Email: office@historyvictoria.com.au ABN 36 520 675 471 Reg. No: A2529
Find out more about us on our website: www.historyvictoria.com.au

APPENDIX D

WORK PLAN FOR ASSESSMENT AND PLAN OF PROPOSED WELL LOCATIONS

GeoPollution Management

Environmental Scientists and Engineers

ADVERTISED PLAN

File No.: **EA1375** Date: 14th June 2002

IT Environmental (Australia) Pty Ltd
169 Burwood Road
Hawthorn Vic 3122

Attention: Vanessa Bryant / David Lam
CC: Peter Lyall, Peter G Lyall & Associates Pty Ltd

RE: REVISED WORK PLAN – ENVIRONMENTAL AUDIT

Project: Darul Ulum College of Victoria, 1 Roma Street, Fawkner

Dear Vanessa / David,

Following yesterday's meeting, we are pleased to present a revised summary of our proposed investigation program for comprehensive assessment of soil and groundwater at the above site. A sketch plan (Figure 1) is attached indicating current surfaces, the existing and removed underground tanks, and proposed grid and target sampling points.

Brief Site Description and Surrounding Land Uses:

The site is rectangular in shape and covers an area of approximately 24,828m^2 (please refer to attached site plan). Darul Ulum College of Victoria currently occupies the site.

The site is zoned "Residential Zone 1" and is surrounded by 'Public Park and Recreational Zone', 'Residential 1' and 'Public Use Zone 2' zoned properties (City of Moreland Planning Scheme, source: Land Data Victoria).

Fawkner Secondary School is located to the north of the site. Residential properties and Evans Reserve are situated to the east. The Fawkner swimming and sport center adjoins the site to the east.

Three underground storage tanks (UST) are presently located at the site. A former tank has been removed and the tank pit validated by GeoPollution Management in February 2002 (Refer to the section on the next page for more information). The tanks are mainly located adjacent or beneath the school buildings. The former UST and one of the existing UST's (Tanks 1 - 4; Refer to Figure 1 for location) are located beneath the southern most school building. The remaining UST's (Tanks 2 and 3) are located immediately adjacent to the south of the school building situated at the rear of the site (Refer to Figure 1).

Site History and Previous Site Assessments

Certificate of Title
Ownership information in the Certificate of Title (Vol. 6309 Fol. 1261746) indicates that the site was owned by United Subdivisional and Finance Company Pty Ltd, between 1935 and 1956. The Minister of the Crown administrating the Education Acts owned the property till 1996. The current site owner is Durul Ulum College of Victoria, as stated in the latest Certificate of Title (Vol. 10304, Fol. 033).

Street Directory Information

Roma Street was not listed in the Street Directory (Sands and McDougall) from 1989 - 1974. The street directory indicated that there were no occupants on Victory Street (continuation of Roma Street) between Elizabeth and Baird Street. Historical maps of the area show the site and adjacent properties were used as 'open pastureland'.

Aerial Photographs
A review of aerial photographs (one per decade) has shown the following:

The site appears to be vacant from 1945 until 1956. School buildings occupied the site from 1967 until 1991 (no aerial photos available after 1991). The aerial photos suggest that the site has remained vacant and undeveloped until the late 1960's from which onward time it was used as a school. The aerial photographs showed no indication of the presence of an incinerator within the school grounds.

Previous Environmental Site Assessments

Geopollution Management conducted validation works following the removal of a single underground storage tank within the premises of Darul Ulum College. The removed tank contained heating oil and had a storage capacity of approximately 2000 litres. The following findings were made:

- In-situ vapour testing of headspace samples from the excavated pit indicated that, at the completion of excavation, no significant residual vapour phase contamination remained at the boundaries of the excavation.

- Laboratory analysis of validation samples revealed minor non-volatile fraction petroleum hydrocarbons below criteria, were still present in the southern wall of the excavation. No volatile aromatic compounds were detected in the remaining validation samples.

- Field observations and vapour analysis of stockpiled spoil excavated from the tank pit indicated the absence of volatile aromatic compounds. Laboratory analysis results indicated, that the stockpile satisfied EPA 'Fill Material' (clean fill) criteria for the potential contaminants analysed.

- Stockpiled spoil was considered inappropriate for re-use on-site as backfill material and was subsequently transported off-site as Clean Fill to the Brooklyn Landfill.

- Backfill material comprised a mixture of silt, clay and gravel and/or silty clay with gravel from a nearby service trench excavation (previously identified as below EPA Fill criteria; GPM 2002).

Previous Geotechnical Investigation

A geotechnical investigation was carried out by A.S. JAMES PTY LTD prior to the construction of the proposed classroom extensions and prayer hall as referenced below:

- *A.S. JAMES PTY LTD (2001) Geotechnical Investigation- Proposed classroom extensions and prayer hall at Darul Ulum College, Fawkner. Prepared for K. M. Wright & Associates, Report No. 101979. 14 September 2001.*

A total of seven boreholes were drilled to final depths of 2.0m. The investigation identified that the fill material consisted of crushed rock, clay and gravel and varied in depth between 0.25m and 0.3m. Fill was not found at three of their seven boreholes. Natural stiff clay was found to underlie the fill material across the site.

A copy of Geopollution reports and A.S. geotechnical investigation have been sent via post.

Proposed Development

The existing education buildings will be altered and extended. A new seminar and prayer building will be built at the rear of the sports field.

The following outlines our proposed scope of work for the soil and groundwater investigations.

A. SOIL

Proposed Sampling Schedule:

Grid Points (Drilled Boreholes):

The Australian Standard AS 4482.1-1997 specifies **thirty-five** grid sampling points for a site of around 24,800m^2 size. This sampling density (19 x 27m grid spacing) will enable detection of contamination, at 95% confidence, between 5-10% of the site area (South Australian Health Commission Monograph 1991).

Sampling points will be located in a square pattern across the site away from former and existing petroleum infrastructures. As a general rule each lithological horizon will be sampled and analysed as a minimum.

Target Points (existing and former underground tanks):

A total of **6 target sampling locations** are proposed. The proposed target points will broadly aim to determine the quality of soil adjacent to the existing underground tanks (UST's) and former underground tank. One of the existing UST's (Tank1) and the former UST (Tank 4) are located underneath the school buildings (Refer to Figure 1). Therefore direct access to these tanks and immediate areas is difficult. However there is a 1m height void between the ground and the floors of the building above tank 1. We will attempt to advance a target point (by hand) to has been located with the aid of a metal detector).

The former underground tank excavation (Tank 4) is also located beneath school buildings. Therefore soil samples from the backfill or from the base of the former tank pit will not be collected. The closest location to the tank is approximately 6.0m to the south of the former tank pit. We propose to advance this target point to approximately 4.0m to confirm the quality of the soil in the wider surrounds of the tank.

The remaining target points adjacent to tanks 2 and 3 will be advanced to a minimum depth of 3.0m. Two target points will be drilled adjacent to each tank.

We will collect **grid and target samples** at the required depth intervals as follows (subject to actual soil profiles encountered).

A:	0.0 – 0.1m	- FILL (or natural soil)
B:	0.3 – 0.5m*	- FILL (or natural soil)
C:	0.8 – 1.0m*	- FILL (or natural soil)

**Where fill is deeper than 0.5m, additional samples of fill will be collected at half metre intervals.*

The last sample at each borehole will be of natural soil (or weathered rock) unless refusal is encountered.

Where fill is deeper than 0.5m, additional fill samples will be collected for every half metre of fill. Visually different layers of fill will be sampled separately. Deeper samples will be collected in natural soil if PID readings >20 ppm are recorded.

Samples to be analysed for volatile compounds will be collected by split spoon assembly, wherever possible, in accordance with the requirements of Australian Standard AS 4482.2-1999.

Revised Proposed Analysis Schedule

The following table summarizes the revised proposed analysis schedule for soil samples. Eleven individual near-surface grid samples will be analysed for heavy metals and PAH's. The remainder of the individual near-surface grid samples will be combined into eight three-part composite samples and analysed for heavy metals and PAH's. Further samples of fill may be analysed subject to field observations and PID readings.

A minimum of five grid samples will be analysed for TPH's and MAH's (incl. BTEX) if no signs of potential petroleum hydrocarbon contamination are detected. Should elevated PID readings be encountered at any grid or target test points, the samples from the corresponding depth interval will be analysed for TPH's and MAH's in addition to any allowance made below.

Five three-part composite samples for each depth layer in fill will be combined for analysis for a wider suite of parameters ("balance of EPA Screen") that are not part of routine analyses.

TABLE 1: Range and Number of Revised Proposed Analyses

ANALYTICAL PARAMETERS	No. Routine Samples: Indiv.	No. Routine Samples: Composite	No. QA/QC Samples: Blind	No. QA/QC Samples: Split	No. QA/QC Samples: Blank	COMMENTS
Grid Locations:						
Heavy Metals (8) As, Cd, Cr, Cu, Pb, Hg, Ni, Zn *	Min. 11	8	1	1		Surface fill samples; deeper fill samples for selected metals as required
Elutriation Testing	TBA	-	-	-		ASLP (Reagent Water); Sample(s) with highest concentrations of total metals above
Polycyclic Aromatic Hydrocarbons (PAH's)	Min. 11	8	1	1		Possibly additional if signs of potential PAH contamination (eg. black fragments) noticed
Total Petroleum Hydrocarbons (TPH's)	Min. 5	-	-	-	-	Additional if PID field test results >20 ppm or odours are detected; C6-C9 by Purge & Trap
Monocyclic Aromatic Hydrocarbons (MAH's, BTEX)	Min. 5	-	-	-	-	
Volatile Halogenated Hydrocarbons	Min. 3	-	-	-	-	Additional if PID field test results >20 ppm or odours are detected
Asbestos	Min. 3	-	-	-	-	-
pH Value	Min. 3	-	-	-	-	-
Additional Metals (9) Sb, Ba, Be, Co, Mn, Mo, Se, Sn, V **Phenols (total), Cyanide (total), OC & OP Pesticides, PCBs, Sulphate, Fluoride, Semi-vol. Chlorinated Hydrocarbons**	-	5	-	-	-	One 3-part for each depth in fill Tin by Method 201 (aqua regia)
Heavy Metals (8) As, Cd, Cr, Cu, Pb, Hg, Ni, Zn; **PAH's, TPH, BTEX**	-	-	-	-	Rinsate 1/day	1 Equipment blank will be analysed during initial round
TBA	-	-	-	-	Trip: 1/day	Trip Blank analysed only if any contaminants of concern are found in the equipment blank.
Target Locations:						
Total Petroleum Hydrocarbons (TPH's)	Min. 12	-	1	1	-	Additional if PID field test results >20 ppm or odours are detected; C6-C9 by Purge & Trap Method
Monocyclic Aromatic Hydrocarbons (MAH's, BTEX)	Min. 12	-	1	1	-	
Polycyclic Aromatic Hydrocarbons (PAH's)	Min. 4	-	-	-	-	Selected soil samples (one per tank location).
Heavy Metals (8) As, Cd, Cr, Cu, Pb, Hg, Ni, Zn	Min. 2	-	-	-	-	Selected samples collected from sampling locations adjacent to tanks T2 and T3
Background/Reference Values:						
Heavy Metals (8) As, Cd, Cr, Cu, Pb, Hg, Ni, Zn	Min. 3	-	-	-	-	Natural soil beneath grid sample points
Polycyclic Aromatic Hydrocarbons (PAH's)	Min. 3	-	-	-	-	

QA/QC Program:

Field replicate samples comprise blind duplicates sent to the main laboratory under an anonymous sample number and split duplicates sent to a second laboratory. Field replicates will be split from the bulk sample without mixing. Both blind and split duplicates will be analysed at a rate of 20% of total sample analyses for the contaminants of concern (heavy metals & PAH's). If high RPD's are recorded for several analyte pairs, possible re-analysis of either and/or both of the routine and replicate samples may be required. If, following re-analysis, high RPD's persist and cannot be justified, further sampling and analysis may be required.

One equipment blank (final rinse water) and one trip blank sample will be collected. One of each blank will be collected for any additional days of field work if applicable. The equipment blank(s) will be analysed for TPH, BTEX, PAH's and priority Heavy Metals (8). The trip blank(s) will be analysed for contaminants of concern subject to the outcome of soil and equipment analysis.

Assessment Criteria

Aesthetics

During drilling and sample collection, the appearance of all soil encountered will be recorded. The aesthetics of the soil will be assessed via its odour (if any), colour and grain size. Observations will be reported in the forthcoming summary fax and documented in the assessment report.

Analytical Data

Site specific assessment criteria are shown on the following page (Table 2). For this environmental assessment (taking into account the presence of large unsealed areas), the adopted assessment criteria would be the NEPM 'HIL A' levels. However, where the laboratory reports detected concentrations of contaminants, samples will be initially compared to NEPM EIL (HIL A for lead) levels.

Should any of the more conservative environmental and health investigation levels be exceeded, the respective contaminants will be compared to NEPM HIL A levels and finally HIL D levels.

Reporting Limits

The detection limits will not exceed the equivalent of one tenth of the NEPM EIL (or HIL A where these are lower) levels (or one fifth of ANZECC B guideline levels if no NEPM levels have been defined). Detection limits for composite samples will be divided by the number of samples in the composite.

Background / Reference Values:

We propose to determine local background/reference levels from natural soil samples collected on site provided that overlying fill at those locations is not contaminated. Should fill be contaminated at all test points and no meaningful background samples can be collected on-site, collection of off-site samples may be required. Off-site samples would be of the same soil type and would be collected in an area that is unaffected by contamination.

TABLE 2: Generic Assessment Criteria (mg/kg dry weight of soil)

ANALYTES	NEPM[1] INVESTIGATION LEVELS		
	HIL A[2]	HIL D[3]	EIL[4]
Heavy Metals (total)			
Antimony (Sb)	Ns	Ns	20*
Arsenic (As)	100	400	20
Barium (Ba)	Ns	Ns	300
Beryllium (Be)	20	80	20*
Cadmium (Cd)	20	80	3
Chromium (Cr), total as III	12%	48%	400
Cobalt (Co)	100	400	50*
Copper (Cu)	1000	4000	100
Lead (Pb)	300	1200	600
Manganese (Mn)	1500	6000	500
Mercury (Hg)	15	60	1
Molybdenum	Ns	Ns	40*
Nickel (Ni)	600	2400	60
Selenium (Se)	Ns	Ns	ns
Tin (Sn)	Ns	Ns	50*
Vanadium (V)	Ns	Ns	50
Zinc (Zn)	7000	28000	200
Polycyclic Aromatic Hydrocarbons (PAH's) Total	20	80	20*
Benzo(a)pyrene	1	4	1*
Organochlorine Pesticides			
Dieldrin	Ns	Ns	0.2*
Dieldrin + Aldrin	10	40	ns
DDT + DDD + DDE	200	800	ns
Chlordane	50	200	ns
Heptachlor	10	40	ns
Other Individual	ns	ns	0.5*
Total OC Pesticides	ns	ns	1*
Fluoride	Ns	Ns	400
Sulphate	Ns	Ns	2000
Cyanide (total complex)	500	2000	50*
Phenols (total)	8500 (Phenol)	34000	1*
Polychlorinated Biphenyls (PCB's)	10	40	1*
Volatile Halogenated & Semi-Volatile Chlorinated Hydrocarbons			
Chlorobenzenes (indiv.)	Ns	Ns	1*
Chlorobenzenes (total)	Ns	Ns	2*
Halogenated Volatiles	Ns	Ns	ns
Total Chlorinated Compounds	Ns	Ns	ns
Monocyclic Aromatic Hydrocarbons (MAH's)			
Benzene	Ns	Ns	1*
Toluene	Ns	Ns	3*
Ethyl Benzene	Ns	Ns	5*
Xylenes (4 isomers)	Ns	Ns	5*
Total	Ns	Ns	7*
Total Petroleum Hydrocarbons (TPH's)			
<C9 Fuel Fraction	Ns	Ns	100*
>C9 Mineral Oil Fractions	Ns	Ns	1000*
pH Value	Ns	Ns	6-8*

[1]: NEPM Schedule B(1) (NEPC 1999)
ns: not specified
[2]: Standard residential setting with garden/accessible soil
[3]: Residential with minimal opportunities for soil access
[4]: Interim ecological investigation levels for urban land
* ANZECC B Values in absence of NEPM EIL levels

Laboratory Subcontractors:
Samples will be sent to the following two laboratories:
- MGT Environmental Consulting, Oakleigh (Primary Laboratory).
- Gribbles Analytical Laboratories, Notting Hill (Secondary Laboratory).

B. GROUNDWATER

We propose to install a minimum of three monitoring wells at the site, gauge and sample each well and determine groundwater flow direction. Details relating to the groundwater monitoring wells will be reviewed once the data of the forthcoming soil sampling round are available.

Installation of monitoring wells will be by a licensed driller in accordance with the "Minimum Construction Requirements for Water Bores in Australia" (Agriculture and Resource Management Council of Australia and New Zealand 1997).

Following installation, all three bores will be developed using compressed air. Purging and sampling will be in accordance with EPA's *Groundwater Sampling Guidelines. Publication 669, April 2000* and will involve 'Low Flow' purging and sampling to minimise the loss of volatile contaminants. The sampling round will be carried out after the groundwater has equilibrated for one week. Stabilisation parameters, including dissolved oxygen, Redox potential, pH, and EC, will be determined during purging. The pump will be installed half way into the water column. The wells will be purged prior to sampling until parameters have stabilised (in accordance with EPA Publ. 669, 2000).

Groundwater monitoring will include depth to water table and product interface. All groundwater samples will be analysed for TPH's, BTEX, Lead and TDS, as a minimum. A split duplicate groundwater sample will be sent to the secondary laboratory and analysed for TPH's, BTEX, lead and TDS. A blind duplicate will also be collected as part of the QA/QC program and analysed for the same parameters by the primary laboratory.

Well Decommissioning

Once sufficient data have been collected, any wells installed will be decommissioned in accordance with Section *18 Decommissioning of Bores (Abandonment)* in ARMCANZ (1997).

Reporting Limits - Groundwater

The reporting limits will not exceed the equivalent of one fifth of the Australian Drinking Water Guidelines (1996) or one fifth of the 95% Aquatic Ecosystems Criteria from the ANZECC/ARMCANZ *"Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000"* where no drinking water criteria exist.

Primary and secondary laboratories should adopt the same reporting limit (or PQLs). Reporting limits for groundwater are shown in the next page.

TABLE 3: Generic Assessment Criteria (µg/L)

ANALYTES	Requested Reporting Limits[1] (mg/L)
Polycyclic Aromatic Hydrocarbons (PAH's)	
Benzo(a)pyrene	0.00002
Naphthalene	0.0032[2]
Volatile Halogenated & Semi-Volatile Chlorinated Hydrocarbons	
Individual	0.0002
Monocyclic Aromatic Hydrocarbons (MAH's)	
Benzene	0.0002
Toluene	0.16
Ethyl Benzene	0.06
Xylenes	0.12
Total Petroleum Hydrocarbons (TPH's)	
<C9 Fuel Fraction	0.05[3]
C10-C36 Fuel Fraction (total)	0.05[3]

- No guidelines exist.
1. Derived from Health Guideline Values from Australian Drinking Water Guidelines (1996).
2. Where no Health value exists, Aesthetic and/or the 95% Aquatic Ecosystems (Freshwater) Guidelines from the ANZECC/ARMCANZ 2000 Guidelines for Fresh and Marine Water Quality are utilised.
3. No Guidelines exist. Based on known laboratory detection limits.

C. REPORTING

Interim Summary Reports

A summary of findings of the each round of field work and analysis will be provided in the form of a summary fax to the Auditor (copy to client). The facsimile will include an outline of issues arising from the findings and recommendations for further analysis if appropriate.

The facsimile will have the following attachments:

- Tabulated routine analysis results, QA/QC results and RPD calculations
- Sample location plans and composite plans incl. a sample point plan showing significant soil results
- Bore Logs
- Well Diagrams
- NATA laboratory results.
- Interim conclusions and recommendations.

Assessment Report

A draft site assessment report will be submitted for the Auditor's review, when all data have been collated. Upon receipt of the Auditor's comments, we will review and finalize our report. The assessment report will comply with Appendix 2 of EPA's Environmental Auditor (Contaminated Land) Guidelines, May 2001.

D. FIELD WORK

The field work is scheduled for this coming week (week starting 17th June). We will notify you as soon as a time has been confirmed with the subcontractors.

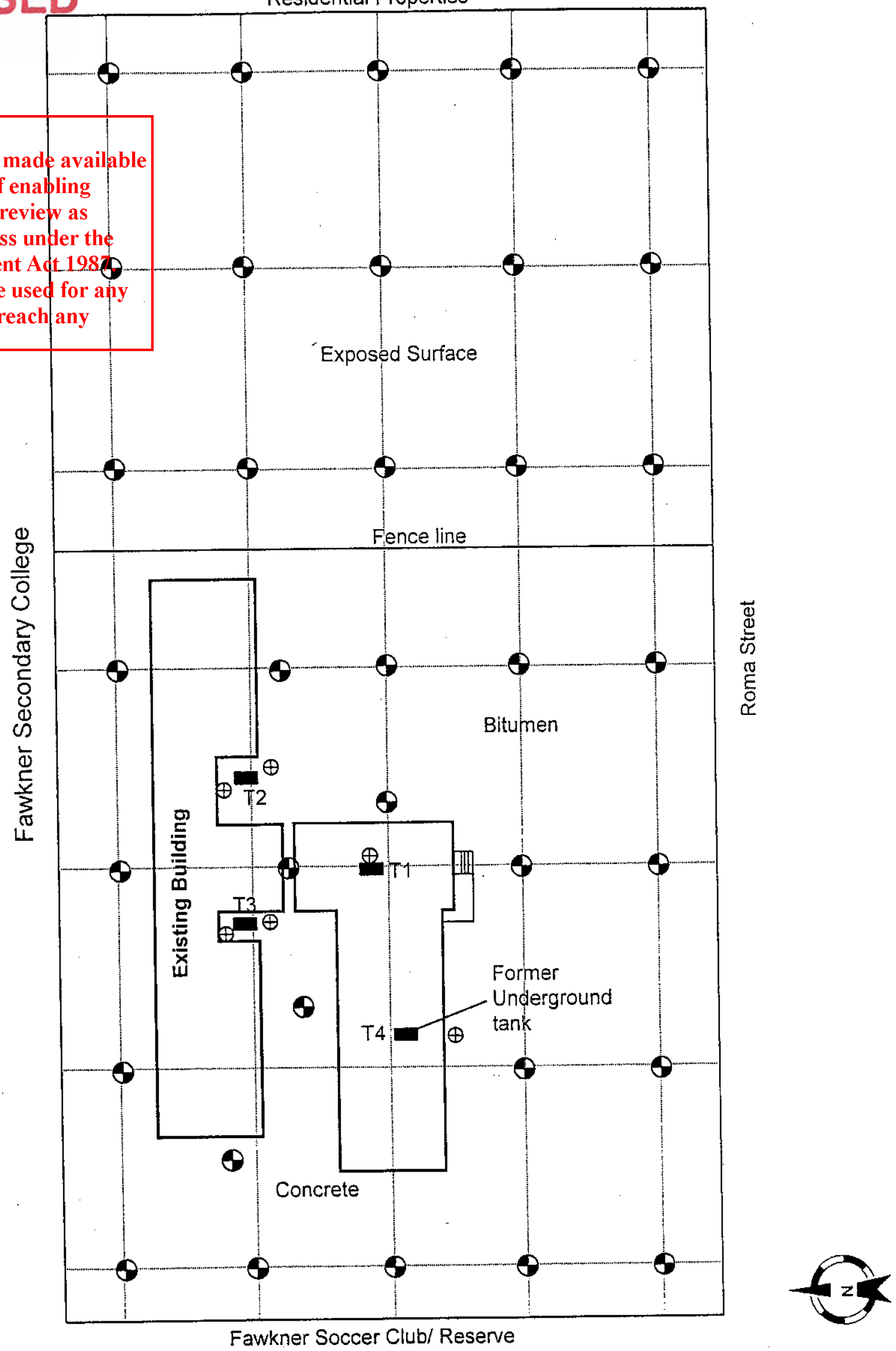
Yours faithfully

Marisa Feher (Environmental Engineer)
Dr. Karin Schwab (Principal Environmental Scientist)

Attachment:
Proposed Sampling Plan

GeoPollution Management **LOCATION PLAN**	**Project No:** EA 1375 **FIGURE No:** 1

Proposed Sampling Plan



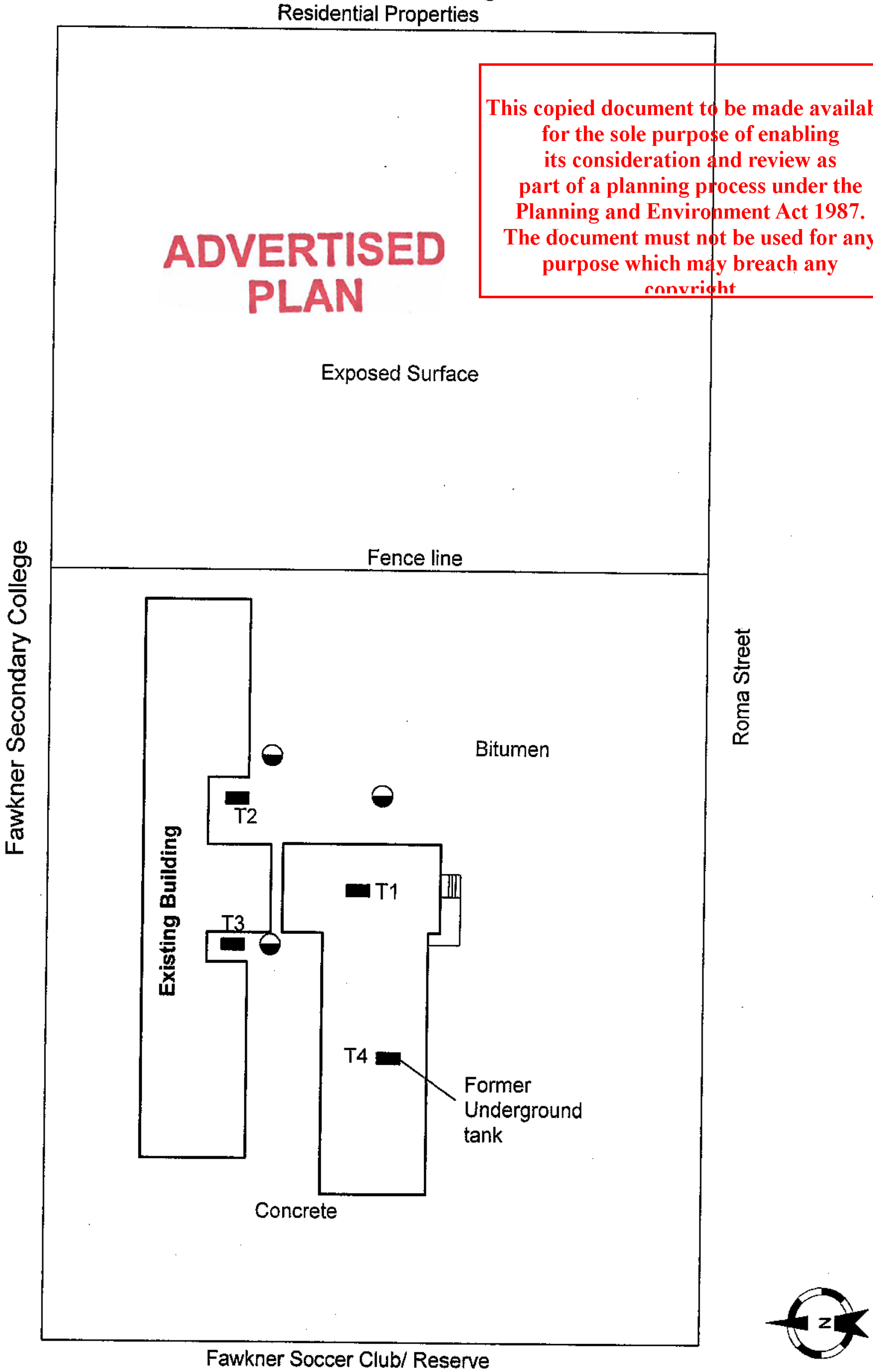
KEY:	SCALE:	PROJECT:
Proposed Sampling Points Proposed Target Points Underground Tanks	1: 1000 approx.	1 Roma Street, FAWKNER

GeoPollution Management
LOCATION PLAN

Project No: EA 1375

FIGURE No: 1

Proposed Groundwater Monitoring Well Locations



KEY:	SCALE:	PROJECT:
Proposed Monitoring Wells Underground Tanks	1: 1000 approx.	1 Roma Street, FAWKNER

APPENDIX E

SOIL BORE AND MONITORING WELL LOGS

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOGS

Sheet:	...1.. of .17....
Job No:	EA1375
Date:	....17/06/02...
Scientist:	M. Feher
Drilled By:	A. Hannaker
Logged By:	M. Feher
Topography:	approx. level

PROJECT:..............Environmental Site Assessment.........

TYPE OF SITE:.......School Grounds.........

SITE ADDRESS:....1 Roma Street, Fawkner.........

CLIENT:.................Darul Ulum College of Victoria.........

Surface Cover:	Exposed Ground	Surrounds:	Playing Fields		
Drill Rig:	DB2000	Drill Method:	Solid Flight Auger	Sampling Method:	Grab Samples

Bore No.: G1

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed silt, sand, dark brown	MD	D	0.0-0.1	Soil/J	G1-1706-1	1.2 ppm	10.2 ppm	8.2 ppm	No odours detected
1.0	SOIL PROFILE	Silty CLAY, grey green, low plasticity	VSt	D	0.2-0.4	Soil/J	G1-1706-2	0.0 ppm	8.2 ppm	2.1 ppm	

TERMINATED at 1.0m

Bore No.: G2

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed silt, sand, brown	MD	D	0.0-0.1	Soil/J	G2-1706-1	0.8 ppm	0.6 ppm	0.2 ppm	No odours detected
1.0	SOIL PROFILE	Silty CLAY, brown grey, low plasticity	Fb	D	0.2-0.4	Soil/J	G2-1706-2	0.0 ppm	0.0 ppm	0.1 ppm	

TERMINATED at 1.0m

Bore No.: G3

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed silt, sand, dark brown	MD	D	0.0-0.1	Soil/J	G3-1706-1	0.2 ppm	0.4 ppm	1.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey green, low plasticity	VSt	D	0.2-0.4	Soil/J	G3-1706-2	0.0 ppm	0.0 ppm	0.6 ppm	

TERMINATED at 0.5m

Sample Type		Moisture Condition		Consistency				Relative Density		Testing	
U50	Tube Sample (Undisturbed)			VS	very soft	VSt	very stiff	VL	very loose	PID	Photoionization Detector
U63	Tube Sample (Undisturbed)	D	dry	S	soft	H	hard	L	loose	BG	Background Reading (PID)
SSP	Split Spoon Sample (Undist.)	M	moist	F	firm	Fb	friable	MD	moderately dense	BS	Borespace Reading (PID)
Auger	Grab (Flight Auger)	W	wet	St	stiff					HS	Headspace Reading (PID)
J	Jar, Zero-Headspace Sample	➲	Seepage entering					D	dense	PP	Pocket Penetrometer Reading
V	Vial, Headspace Sample							VD	very dense	WL	Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOGS

Job No: EA1375
Date: ....17/06/02...

PROJECT:..............Environmental Site Assessment.........
TYPE OF SITE:.......School Grounds........
SITE ADDRESS:....1 Roma Street, Fawkner........
CLIENT:................Darul Ulum College of Victoria........

Scientist: M. Feher
Drilled By: A. Hannaker
Logged By: M. Feher
Topography: approx. level

Surface Cover: Exposed Ground
Surrounds: Playing Fields
Drill Rig: DB2000
Drill Method: Solid Flight Auger
Sampling Method: Grab Samples

Bore No.: G4

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed sand, silt, dark brown	MD	D	0.0-0.1	Soil/J	G4-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey brown, low plasticity	St	D	0.2-0.4	Soil/J	G4-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G5

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed sand, silt, dark brown	MD	D	0.0-0.1	Soil/J	G5-1706-1	0.0 ppm	0.0 ppm	0.20 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, dark grey, brown	Fb	D	0.2-0.4	Soil/J	G5-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G6

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Sample Depth [m]	Sample Type	Sample No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed sand, silt, dark brown	MD	D	0.0-0.1	Soil/J	G6-1706-1	0.2 ppm	0.8 ppm	0.6 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey-brown, low plasticity	St	M	0.2-0.4	Soil/J	G6-1706-2	0.0 ppm	0.0 ppm	0.4 ppm	

TERMINATED at 0.5m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft; VSt very stiff	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft; H hard	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm; Fb friable	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	➲ Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample			VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample				WL Water Level

GeoPollution Management

Environmental Scientists and Engineers — PO BOX 441 RINGWOOD 3134

Job No: EA1375

Date: ....17/06/02...

BORE LOGS

PROJECT:...............Environmental Site Assessment.........

TYPE OF SITE:.......School Grounds.........

SITE ADDRESS:....1 Roma Street, Fawkner.........

CLIENT:.................Darul Ulum College of Victoria.........

Scientist: M. Feher

Drilled By: A. Hannaker

Logged By: T. Russell

Topography: approx. level

Surface Cover: Exposed Ground | Surrounds: Playing Fields

Drill Rig: DB2000 | Drill Method: Solid Flight Auger | Sampling Method: Grab Samples

Bore No.: G7

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples			PID			Visual/ Odours
					Depth [m]	Type	No.	BG	BS	HS	
0.1	FILL	Admixed silt, sand, dark brown-brown	MD	D	0.0-0.1	Soil/J	G7-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey, low plasticity	VSt	D	0.2-0.4	Soil/J	G7-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G8

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples			PID			Visual/ Odours
					Depth [m]	Type	No.	BG	BS	HS	
0.1	FILL	Admixed silt, sand, dark brown-brown	MD	D	0.0-0.1	Soil/J	G8-1706-1	0.0 ppm	0.1 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.2-0.4	Soil/J	G8-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G9

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples			PID			Visual/ Odours
					Depth [m]	Type	No.	BG	BS	HS	
0.1	FILL	Admixed silt, sand, dark brown-brown	MD	D	0.0-0.1	Soil/J	G9-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.2-0.4	Soil/J	G9-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample		VSt very stiff	VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample		H hard		WL Water Level
		Fb friable		

GeoPollution Management

Environmental Scientists and Engineers

PO BOX 441, RINGWOOD 3134

BORE LOGS

Sheet:	..4.. of .17...
Job No:	EA1375
Date:	....17/06/02...
Scientist:	M. Feher
Drilled By:	A. Hannaker
Logged By:	T. Russell
Topography:	approx. level

PROJECT:..............Environmental Site Assessment
TYPE OF SITE:.......School Grounds
SITE ADDRESS:....1 Roma Street, Fawkner
CLIENT:................Darul Ulum College of Victoria

Surface Cover: Exposed Ground	Surrounds: Playing Fields	
Drill Rig: DB2000	Drill Method: Solid Flight Auger	Sampling Method: Grab Samples

Bore No.: G10

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
	FILL	Admixed sand, silt, gravel, brown-light brown	L-MD	D	0.0-0.1	Soil/J	G10-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
					0.3-0.5	Soil/J	G10-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
1.1					0.8-1.0	Soil/J	G10-1706-3	0.0 ppm	0.0 ppm	0.0 ppm	
1.5	SOIL PROFILE	Silty CLAY, grey brown, low plasticity	VSt	D	1.1-1.3	Soil/J	G10-1706-4	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 1.5m

ADVERTISED PLAN

Bore No.: G11

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.3	FILL	Admixed sand, silt, gravel, brown	L-MD	D	0.0-0.1	Soil/J	G11-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
	SOIL PROFILE	Silty CLAY, grey brown, low plasticity	St	D	0.2-0.3	Soil/J	G11-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
0.8					0.4-0.6	Soil/J	G11-1706-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.8m

Bore No.: G12

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed sand, silt, brown	L-MD	D	0.0-0.1	Soil/J	G12-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey green, low plasticity	VSt	D	0.2-0.4	Soil/J	G12-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft; VSt very stiff	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft; H hard	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm; Fb friable	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample			VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample				WL Water Level

GeoPollution Management

Environmental Scientists and Engineers

PO BOX 441 RINGWOOD 3134

BORE LOGS

Sheet: ..5.. of .17...
Job No: EA1375
Date: ....17/06/02...
Scientist: M. Feher
Drilled By: A. Hannaker
Logged By: M. Feher
Topography: approx. level

PROJECT: Environmental Site Assessment
TYPE OF SITE: School Grounds
SITE ADDRESS: 1 Roma Street, Fawkner
CLIENT: Darul Ulum College of Victoria

Surface Cover: Exposed Ground | Surrounds: Playing Fields
Drill Rig: DB2000 | Drill Method: Solid Flight Auger | Sampling Method: Grab Samples

Bore No.: G13

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed silt, sand, brown	MD	D	0.0-0.1	Soil/J	G13-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey green, low plasticity	VSt	D	0.2-0.4	Soil/J	G13-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
					0.5-0.7	Soil/J	G13-1706-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G14

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.4	FILL	Admixed silty sand, gravel, brown red	MD	D	0.0-0.1	Soil/J	G14-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
1.0	SOIL PROFILE	Silty CLAY, grey brown low plasticity	VSt	D	0.2-0.4	Soil/J	G14-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
					0.5-0.7	Soil/J	G14-1706-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 1.0m

Bore No.: G15

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.4	FILL	Admixed silty sand, gravel, brown-dark brown	MD	M/D	0.0-0.1	Soil/J	G15-1706-1	0.0 ppm	0.0 ppm	0.1 ppm	No odours detected
1.0	SOIL PROFILE	Silty CLAY, brown-light brown, low plasticity	VSt	M/D	0.2-0.4	Soil/J	G15-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
					0.5-0.7	Soil/J	G15-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 1.0m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft; VSt very stiff	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft; H hard	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm; Fb friable	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	➲ Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample			VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample				WL Water Level

GeoPollution Management

Environmental Scientists and Engineers
PO BOX 441, RINGWOOD 3134

BORE LOGS

Job No: EA1375
Date: ....17/06/02...

PROJECT: Environmental Site Assessment
TYPE OF SITE: School Grounds
SITE ADDRESS: 1 Roma Street, Fawkner
CLIENT: Darul Ulum College of Victoria

Scientist: M. Feher
Drilled By: A. Hannaker
Logged By: M. Feher
Topography: approx. level

Surface Cover: Bitumen/Gravel | Surrounds: Car Park
Drill Rig: DB2000 | Drill Method: Solid Flight Auger | Sampling Method: Grab Samples

Bore No.: G16

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.25	FILL	Admixed silt, sand, gravel, brown	MD	D	0.0-0.15	Soil/J	G16-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey, low plasticity	St	D	0.25-0.45	Soil/J	G16-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G17

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.3	FILL	Admixed silt, sand, brown-light brown	L	D	0.0-0.1	Soil/J	G17-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.2-0.4	Soil/J	G17-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
					0.3-0.5	Soil/J	G17-1706-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G18

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed silty sand, gravel, brown-grey	L	D	0.0-0.1	Soil/J	G18-1706-1		0.0 ppm	0.0 ppm	No odours detected
0.6	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.1-0.2	Soil/J	G18-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	
					0.3-0.5	Soil/J	G18-1706-3	~~0.0~~ ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.6m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	➲ Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample		VSt very stiff	VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample		H hard		WL Water Level
		Fb friable		

GeoPollution Management

Environmental Scientists and Engineers

PO BOX 441 RINGWOOD 3134

BORE LOGS

Sheet: ..7.. of .17....

Job No: EA1375

Date: ....17/06/02...

PROJECT:..............Environmental Site Assessment

TYPE OF SITE:.......School Grounds

SITE ADDRESS:....1 Roma Street, Fawkner

CLIENT:................Darul Ulum College of Victoria

Scientist: M. Feher

Drilled By: C. French

Logged By: M. Feher

Topography: approx. level

Surface Cover: Gravel / Bitumen

Surrounds: Car Park

Drill Rig: DB2000

Drill Method: Solid Flight Auger

Sampling Method: Grab Samples

Bore No.: **G19**

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed silty sand, gravel, brown-grey	L	D	0.0-0.1	Soil/J	G19-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.6	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.2-0.4	Soil/J	G19-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.6m

Bore No.: **G20**

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed silty sand, gravel, brown-grey	L-MD	D	0.5-0.15	Soil/J	G20-1706-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey, medium-low plasticity	Fb	D	0.3-0.5	Soil/J	G20-1706-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: **G21**

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed gravel, sand, silt, brown grey	MD	D	0.0-0.1	Soil/J	G21-1806-1	2.4 ppm	0.8 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.2-0.4	Soil/J	G21-1806-2	0.0 ppm	0.06 ppm	0.0 ppm	

TERMINATED at 0.5m

Sample Type
- U50 Tube Sample (Undisturbed)
- U63 Tube Sample (Undisturbed)
- SSP Split Spoon Sample (Undist.)
- Auger Grab (Flight Auger)
- J Jar, Zero-Headspace Sample
- V Vial, Headspace Sample

Moisture Condition
- D dry
- M moist
- W wet
- ➲ Seepage entering

Consistency
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable

Relative Density
- VL very loose
- L loose
- MD moderately dense
- D dense
- VD very dense

Testing
- PID Photoionization Detector
- BG Background Reading (PID)
- BS Borespace Reading (PID)
- HS Headspace Reading (PID)
- PP Pocket Penetrometer Reading
- WL Water Level

GeoPollution Management

Environmental Scientists and Engineers

PO BOX 441 RINGWOOD 3134

BORE LOGS

Job No: EA1375

Date: ....17/06/02...

PROJECT:...............Environmental Site Assessment

TYPE OF SITE:.......School Grounds.

SITE ADDRESS:....1 Roma Street, Fawkner.

CLIENT:.................Darul Ulum College of Victoria.

Scientist: M. Feher

Drilled By: C. French

Logged By: M. Feher

Topography: approx. level

Surface Cover: Bitumen | Surrounds: Surrounds of School Building

Drill Rig: DB2000 | Drill Method: Solid Flight Auger | Sampling Method: Grab Samples

Bore No.: G22

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed clay, sand, gravel, brown-dark brown	MD	D	0.0-0.1	Soil/J	G22-1806-1	0.0 ppm	2.8 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Sandy CLAY, mottled dark grey, medium plasticity	S	M	0.2-0.4	Soil/J	G22-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G23

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed sand, clay, gravel, brown, yellow	MD	D	0.0-0.1	Soil/J	G23-1806-1	0.6 ppm	0.8 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey, low plasticity	Fb	D	0.2-0.4	Soil/J	G23-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G24

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.6	FILL	Admixed sand, silt, gravel, brown	L-MD	D	0.0-0.1	Soil/J	G24-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
					0.3-0.5	Soil/J	G24-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	
1.0	SOIL PROFILE	Silty CLAY, grey, some sand, medium plasticity	F-St	D	0.7-0.9	Soil/J	G24-1806-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 1.0m

Sample Type
- U50 Tube Sample (Undisturbed)
- U63 Tube Sample (Undisturbed)
- SSP Split Spoon Sample (Undist.)
- Auger Grab (Flight Auger)
- J Jar, Zero-Headspace Sample
- V Vial, Headspace Sample

Moisture Condition
- D dry
- M moist
- W wet
- ➲ Seepage entering

Consistency
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable

Relative Density
- VL very loose
- L loose
- MD moderately dense
- D dense
- VD very dense

Testing
- PID Photoionization Detector
- BG Background Reading (PID)
- BS Borespace Reading (PID)
- HS Headspace Reading (PID)
- PP Pocket Penetrometer Reading
- WL Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOGS

Sheet:	..9.. of .17....
Job No:	EA1375
Date:	....17/06/02...
Scientist:	M. Feher
Drilled By:	C. French
Logged By:	M. Feher
Topography:	approx. level

PROJECT:...............Environmental Site Assessment..

TYPE OF SITE:........School Grounds...

SITE ADDRESS:....1 Roma Street, Fawkner..

CLIENT:.................Darul Ulum College of Victoria.......................................

Surface Cover: Bitumen / Exposed Soil | Surrounds: Surrounds of School Buildings

Drill Rig: DB2000 | Drill Method: Solid Flight Auger | Sampling Method: Grab Samples

Bore No.: G25 Bitumen Pavement

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.5	FILL	Admixed sand, silt, light yellow, brown, some brick fragments	L	D	0.0-0.2	Soil/J	G25-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
					0.3-0.5	Soil/J	G25-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

REFUSAL at 0.5m

Bore No.: G26 Exposed Surface | Drill Method: Hand Auger | Augered by: G. Foster

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed rock, sand, clay, brown-dark brown	MD	D-M	0.0-0.1	Soil/J	G26-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected

TERMINATED at 0.2m

Bore No.: G27 Bitumen Pavement | Drill Method: Hand Auger | Augered by: G. Foster

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.1	FILL	Admixed sand, clay, gravel, yellow orange-brown	L	M	0.0-0.1	Soil/J	G27-1806-1	0.0 ppm	0.1 ppm	0.0 ppm	No odours detected
0.4	SOIL PROFILE	Silty CLAY, grey, medium plasticity	F	M-D	0.2-0.4	Soil/J	G27-1806-2	0.0 ppm	0.0 ppm	0.2 ppm	

TERMINATED at 0.4m

Sample Type		Moisture Condition		Consistency		Relative Density		Testing	
U50	Tube Sample (Undisturbed)	D	dry	VS very soft	VSt very stiff	VL	very loose	PID	Photoionization Detector
U63	Tube Sample (Undisturbed)	M	moist	S soft	H hard	L	loose	BG	Background Reading (PID)
SSP	Split Spoon Sample (Undist.)	W	wet	F firm	Fb friable	MD	moderately dense	BS	Borespace Reading (PID)
Auger	Grab (Flight Auger)	➲	Seepage entering	St stiff		D	dense	HS	Headspace Reading (PID)
J	Jar, Zero-Headspace Sample					VD	very dense	PP	Pocket Penetrometer Reading
V	Vial, Headspace Sample							WL	Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOGS

Job No: EA1375

Date: ....17/06/02...

PROJECT:...............Environmental Site Assessment...

TYPE OF SITE:........School Grounds...

SITE ADDRESS:....1 Roma Street, Fawkner...

CLIENT:................Darul Ulum College of Victoria...

Scientist: M. Feher

Augered by: G. Foster

Logged By: M. Feher

Surface Cover: Pavement or Exposed Soil | Surrounds: Surrounds of School Buildings | Topography: approx. level

Drill Rig: NA | Drill Method: Hand Auger | Sampling Method: Grab Samples

Bore No.: G28 Bitumen / Concrete (200mm)

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL SOIL PROFILE	Admixed concrete, rocks, sand, gravel, yellow brown	L-MD	M	0.0-0.1	Soil/J	G28-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected

REFUSAL on Concrete at 0.2m

Bore No.: G29 Exposed Surface | Drill Method: DB2000 (Solid Flight Auger) | Drilled by: C. French

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.3	FILL	Admixed silt, sand, brown-light brown	L	D	0.0-0.1	Soil/J	G29-1806-1	0.1 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.2-0.4	Soil/J	G29-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: G30 Bitumen (0.05m) | Drill Method: Hand Auger | Augered by: G. Foster

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed silty sand, gravel, brown-grey	L	D	0.0-0.1	Soil/J	G30-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, brown grey	Fb	D	0.3-0.5	Soil/J	G30-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	
						Soil/J	G30-1806-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed) U63 Tube Sample (Undisturbed) SSP Split Spoon Sample (Undist.) Auger Grab (Flight Auger) J Jar, Zero-Headspace Sample V Vial, Headspace Sample	D dry M moist W wet ➲ Seepage entering	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable	VL very loose L loose MD moderately dense D dense VD very dense	PID Photoionization Detector BG Background Reading (PID) BS Borespace Reading (PID) HS Headspace Reading (PID) PP Pocket Penetrometer Reading WL Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

Job No: **EA1375**

Date: ....17/06/02...

BORE LOGS

PROJECT:...............Environmental Site Assessment..

TYPE OF SITE:.......School Grounds...

SITE ADDRESS:....1 Roma Street, Fawkner..

CLIENT:..................Darul Ulum College of Victoria..

Scientist: M. Feher
Augered by: G. Foster
Logged By: G. Foster

Topography: approx. level

Surface Cover: Exposed Soil | Surrounds: Surrounds of School Buildings

Drill Rig: NA | Drill Method: Hand Auger | Sampling Method: Grab Samples

Bore No.: **G31** Garden Bed

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed sand, silt, clay, dry, loose, grey	MD	D	0.0-0.1	Soil/J	G31-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, with minor sand, medium plasticity, grey/brown	F	D-M	0.3-0.5	Soil/J	G31-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Bore No.: **G32** Exposed Surface | Drill Method: DB2000 (Solid Flight Auger) | Drilled by: C. French

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.5	FILL	Admixed sand, silt, gravel, brown	MD	D-M	0.0-0.1	Soil/J	G32-1806-1	0.0 ppm	0.8 ppm	0.0 ppm	No odours detected
					0.3-0.5	Soil/J	G32-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	
1.0	SOIL PROFILE	Silty CLAY, some sand present, brown grey, medium plasticity	F	D-M	0.6-0.8	Soil/J	G32-1806-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 1.0m

Bore No.: **G33** Exposed Surface | Drill Method: DB2000 (Solid Flight Auger) | Drilled by: C. French

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed gravel, sand, silt, brown	MD	D	0.0-0.2	Soil/J	G33-1806-1	0.0 ppm	0.2 ppm	0.1 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY, grey, some sand, medium plasticity	F	D-M	0.3-0.5	Soil/J	G33-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Sample Type		Moisture Condition		Consistency				Relative Density		Testing	
U50	Tube Sample (Undisturbed)			VS	very soft	VSt	very stiff	VL	very loose	PID	Photoionization Detector
U63	Tube Sample (Undisturbed)	D	dry	S	soft	H	hard	L	loose	BG	Background Reading (PID)
SSP	Split Spoon Sample (Undist.)	M	moist	F	firm	Fb	friable	MD	moderately dense	BS	Borespace Reading (PID)
Auger	Grab (Flight Auger)	W	wet	St	stiff					HS	Headspace Reading (PID)
J	Jar, Zero-Headspace Sample	➲	Seepage entering					D	dense	PP	Pocket Penetrometer Reading
V	Vial, Headspace Sample							VD	very dense	WL	Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

Sheet: ..12.. of .17....

Job No: EA1375

Date: ....18/06/02...

BORE LOGS

PROJECT: Environmental Site Assessment

TYPE OF SITE: School Grounds

SITE ADDRESS: 1 Roma Street, Fawkner

CLIENT: Darul Ulum College of Victoria

Scientist: M. Feher

Drilled By: C. French

Logged By: M. Feher

Topography: approx. level

Surface Cover: Soil or Bitumen

Surrounds: Surrounds of School Buildings

Drill Rig: DB2000

Drill Method: Solid Flight Auger

Sampling Method: Grab Samples

Bore No.: G34 Exposed Surface

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.4	FILL	Admixed silt, sand, gravel, brown-light brown	MD-L	D	0.0-0.1	Soil/J	G34-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
1.0	SOIL PROFILE	Silty CLAY, molted grey yellow, plastic	F-St	D	0.2-0.4	Soil/J	G34-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	
					0.5-0.8	Soil/J	G34-1806-3	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 1.0m

Bore No.: G35 Bitumen (100mm)

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID BG	PID BS	PID HS	Visual/ Odours
0.2	FILL	Admixed gravel (coarse), sand, silt, grey/brown	MD	D	0.0-0.1	Soil/J	G35-1806-1	0.0 ppm	0.0 ppm	0.0 ppm	No odours detected
0.5	SOIL PROFILE	Silty CLAY with sand, firm-moderate plasticity, minor occasional gravel, dark grey	St	M-D	0.3-0.5	Soil/J	G35-1806-2	0.0 ppm	0.0 ppm	0.0 ppm	

TERMINATED at 0.5m

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed) U63 Tube Sample (Undisturbed) SSP Split Spoon Sample (Undist.) Auger Grab (Flight Auger) J Jar, Zero-Headspace Sample V Vial, Headspace Sample	D dry M moist W wet ➲ Seepage entering	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable	VL very loose L loose MD moderately dense D dense VD very dense	PID Photoionization Detector BG Background Reading (PID) BS Borespace Reading (PID) HS Headspace Reading (PID) PP Pocket Penetrometer Reading WL Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOG

Bore No: T1
Job No: EA1375
Date: ...18/06/02...
Sheet: ..13. of .17...

PROJECT:...............Environmental Site Assessment...
TYPE OF SITE:........School Grounds...
SITE ADDRESS:....1 Roma Street, Fawkner...
CLIENT:.................Darul Ulum College of Victoria...

Scientist: M. Feher
Drilled By: C. French
Logged By: G. Foster
Sampling Method: Grab Samples

Drill Rig: HMDII | Drill Method: Solid Flight Auger | Bore Diameter: 95 mm

Surface/Surrounds: Bitumen Pavement / Vicinity of Tank 2 (refer to Figure 1) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
								PID Readings:
	FILL	Admixed clay, sand, gravel, brown, yellow, grey, heterogeneous	MD	M	0.0-0.1	Soil/J	T1-1806-1	BG: 0.0 ppm BS: 0.0 ppm (0.1m) HS: 0.0 ppm (0.0-0.1m)
0.6					0.3-0.5	Soil/J	T1-1806-2	BG: 0.0 ppm BS: 0.0 ppm (0.5m) HS: 0.0 ppm (0.3-0.5m)
0.8	SOIL PROFILE	Sandy CLAY, grey green, highly plastic, fine grain	S	M				
		Silty CLAY, grey-yellow, medium plasticity, some sand (fine)	F-St	M-D	0.6-0.8	Soil/J	T1-1806-3	BG: 0.0 ppm BS: 6.8ppm (0.8m) HS: 0.8 ppm (0.6-0.8m)
					1.3-1.5	Soil/J	T1-1806-4	BG: 0.0 ppm BS: 0.0 ppm (1.5m) HS: 0.2 ppm (1.3-1.5m)
					1.8-2.0	Soil/J	T1-1806-5	BG: 0.0 ppm BS: 0.0 ppm (0.2m) HS: 0.0 ppm (1.8-0.2m)
					2.3-2.5	Soil/J	T1-1806-6	BG: 2.4ppm BS: 2.8 ppm (2.5m) HS: 0.0 ppm (2.3-2.5m)
					2.8-3.0	Soil/J	T1-1806-7	BG: 0.0 ppm BS: 3.0 ppm (3.0m) HS: 0.0 ppm (2.8-3.0m)
3.7					3.6-3.8	Soil/J	T1-1806-8	BG: 2.4 ppm BS: 2.8ppm (3.6m) HS: 0.0 ppm (3.6-3.8m)
3.8		Sandy CLAY, coarse grain, grey	F	M				
		TERMINATED at 3.8m						No Hydrocarbon Odour throughout

Sample Type		Moisture Condition		Consistency				Relative Density		Testing	
U50	Tube Sample (Undisturbed)	D	dry	VS	very soft	VSt	very stiff	VL	very loose	PID	Photoionization Detector
U63	Tube Sample (Undisturbed)	M	moist	S	soft	H	hard	L	loose	BG	Background Reading (PID)
SSP	Split Spoon Sample (Undist.)	W	wet	F	firm	Fb	friable	MD	moderately dense	BS	Borespace Reading (PID)
Auger	Grab (Flight Auger)	➲	Seepage entering	St	stiff					HS	Headspace Reading (PID)
J	Jar, Zero-Headspace Sample							D	dense	PP	Pocket Penetrometer Reading
V	Vial, Headspace Sample							VD	very dense	WL	Water Level

GeoPollution Management

Environmental Scientists and Engineers — PO BOX 441 RINGWOOD 3134

BORE LOG

Bore No: T2
Job No: EA1375
Date: 18/06/02
Sheet: 14. of 17

PROJECT: Environmental Site Assessment
TYPE OF SITE: School Grounds
SITE ADDRESS: 1 Roma Street, Fawkner
CLIENT: Darul Ulum College of Victoria

Scientist: M. Feher
Drilled By: C. French
Logged By: G. Foster
Sampling Method: Grab Samples

Drill Rig: HMDII | Drill Method: Solid Flight Auger | Bore Diameter: 95 mm
Surface/Surrounds: Bitumen Pavement / Vicinity of Tank 2 (refer to Figure 1) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
								PID Readings:
0.5	FILL	Admixed gravel, sand, clay, grey brown	MD	D-M	0.0-0.1	Soil/J	T2-1806-1	BG: 0.0 ppm BS: 0.0 ppm (0.1m) HS: 0.0 ppm (0.0-0.1m)
	SOIL PROFILE	Silty CLAY, grey, some sand, plastic, moist – wet at 1.0m	S-F	M	0.3-0.5	Soil/J	T2-1806-2	BG: 0.0 ppm BS: 0.0 ppm (0.5m) HS: 0.0 ppm (0.3-0.5m)
					0.6-0.8	Soil/J	T2-1806-3	BG: 0.0 ppm BS: 0.0 ppm (0.8m) HS: 0.2 ppm (0.6-0.8m)
					1.0-1.2	Soil/J	T2-1806-4	BG: 0.0 ppm BS: 0.0 ppm (1.2m) HS: 0.0 ppm (1.0-1.2m)
					1.5-1.7	Soil/J	T2-1806-5	BG: 0.0 ppm BS: 0.0 ppm (1.7m) HS: 0.3 ppm (1.5-1.7m)
					2.0-2.2	Soil/J	T2-1806-6	BG: 0.0 ppm BS: 0.0 ppm (2.2m) HS: 0.0 ppm (2.0-2.2m)
					2.5-2.7	Soil/J	T2-1806-7	BG: 0.0 ppm BS: 3.0 ppm (2.7m) HS: 0.0 ppm (2.5-2.7m)
					3.0-3.2	Soil/J	T2-1806-8	BG: 0.0 ppm BS: 0.0 ppm (3.2m) HS: 0.0 ppm (3.0-3.2m)
4.0					3.8-4.0	Soil/J	T2-1806-9	BG: 0.0 ppm BS: 0.0 ppm (4.0m) HS: 0.0 ppm (3.8-4.0m)
		TERMINATED at 4.0m						No Hydrocarbon Odour throughout

Sample Type
U50 Tube Sample (Undisturbed)
U63 Tube Sample (Undisturbed)
SSP Split Spoon Sample (Undist.)
Auger Grab (Flight Auger)
J Jar, Zero-Headspace Sample
V Vial, Headspace Sample

Moisture Condition
D dry
M moist
W wet
➲ Seepage entering

Consistency
VS very soft; VSt very stiff
S soft; H hard
F firm; Fb friable
St stiff

Relative Density
VL very loose
L loose
MD moderately dense
D dense
VD very dense

Testing
PID Photoionization Detector
BG Background Reading (PID)
BS Borespace Reading (PID)
HS Headspace Reading (PID)
PP Pocket Penetrometer Reading
WL Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOG

Bore No: T3	
Job No: EA1375	
Date: ...18/06/02...	
Sheet: ..15. of .17..	

PROJECT:...............Environmental Site Assessment......
TYPE OF SITE:.......School Grounds......
SITE ADDRESS:....1 Roma Street, Fawkner......
CLIENT:..................Darul Ulum College of Victoria......

Scientist: M. Feher
Drilled By: C. French
Logged By: G. Foster
Sampling Method: Grab Samples

Drill Rig: HMDII | Drill Method: Solid Flight Auger | Bore Diameter: 95 mm

Surface/Surrounds: Bitumen/Concrete (50mm) / Vicinity of Tank 4 (refer to Figure 1) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
0.2	FILL	Admixed gravel, sand, silt, brown grey	MD	D	0.0-0.2	Soil/J	T3-1806-1	*PID Readings:* BG: 0.0 ppm BS: 0.0 ppm (0.2m) HS: 0.0 ppm (0.0-0.2m) No HC* Odour
1.5	SOIL PROFILE	Silty CLAY, green grey, plastic, wet at 1.0m	F	M-W	0.3-0.5	Soil/J	T3-1806-2	BS: 0.0 ppm (0.5m) HS: 0.0 ppm (0.3-0.5m) No HC* Odour
					0.8-1.0	Soil/J	T3-1806-3	BS: 8.2ppm (1.0m) HS: 29.9 ppm (0.8-1.0m) Elevated HC* Odour
					1.3-1.5	Soil/J	T3-1806-4	BS: 7.2 ppm (1.5m) HS: 14.8 ppm (1.3-1.5m) Elevated HC* Odour
4.0		Silty CLAY, brown yellow, low to medium plasticity, some sand content	St	M-D	1.8-2.0	Soil/J	T3-1806-5	BS: 10.5 ppm (0.2m) HS: 24.4 ppm (1.8-0.2m) Moderate HC* Odour
					2.3-2.5	Soil/J	T3-1806-6	BS: 0.0 ppm (2.5m) HS: 18.2 ppm (2.3-2.5m) Moderate HC* Odour
					2.8-3.0	Soil/J	T3-1806-7	BS: 0.0 ppm (3.0m) HS: 0.8 ppm (2.8-3.0m) Slight HC* Odour
					3.3-3.5	Soil/J	T3-1806-8	BS: 10.2 ppm (3.5m) HS: 0.0 ppm (3.3-3.5m) Slight HC* Odour
					3.8-4.0	Soil/J	T3-1806-9	BS: 0.4ppm (4.0m) HS: 0.0 ppm (3.8-4.0m) Very Faint HC* Odour
		TERMINATED at 4.0m						* HC = Hydrocarbon Odour

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed) U63 Tube Sample (Undisturbed) SSP Split Spoon Sample (Undist.) Auger Grab (Flight Auger) J Jar, Zero-Headspace Sample V Vial, Headspace Sample	D dry M moist W wet ➲ Seepage entering	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable	VL very loose L loose MD moderately dense D dense VD very dense	PID Photoionization Detector BG Background Reading (PID) BS Borespace Reading (PID) HS Headspace Reading (PID) PP Pocket Penetrometer Reading WL Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

Bore No:	T4
Job No:	EA1375
Date:	26/06/02
Sheet:	16. of .17

BORE LOG

PROJECT: Environmental Site Assessment

TYPE OF SITE: School Grounds

SITE ADDRESS: 1 Roma Street, Fawkner

CLIENT: Darul Ulum College of Victoria

Scientist: G. Foster
Drilled By: A. Hannaker
Logged By: G. Foster

Sampling Method: Grab Samples

Drill Rig: Jacro 200 | Drill Method: Solid Flight Auger | Bore Diameter: 95 mm

Surface/Surrounds: Concrete Pavement (100mm) / Vicinity of Tank 3 (refer to Figure 1) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
								PID Readings: BG: 0.0 ppm
0.5	FILL	Admixed silt, clay, & sand, dark grey-dark brown	MD	M-D	0.0-0.1	Soil/J	T4-2606-1	BS: 0.0 ppm (0.1m) HS: 0.0 ppm (0.0-0.1m)
0.8	SOIL PROFILE	Sandy CLAY, grey green, medium plasticity	St	D-M	0.3-0.5	Soil/J	T4-2606-2	BS: 0.0 ppm (0.5m) HS: 2.0 ppm (0.3-0.5m)
4.0		Sandy CLAY, medium grained, grey-yellow	St	M-D	0.8-1.0	Soil/J	T4-2606-3	BS: 0.0ppm (1.0m) HS: 2.0 ppm (0.8-1.0m)
					1.3-1.5	Soil/J	T4-2606-4	BS: 0.0 ppm (1.5m) HS: 0.0 ppm (1.3-1.5m)
					1.8-2.0	Soil/J	T4-2606-5	BS: 0.0 ppm (0.2m) HS: 0.0 ppm (1.8-0.2m)
					2.3-2.5	Soil/J	T4-2606-6	BS: 0.0 ppm (2.5m) HS: 0.0 ppm (2.3-2.5m)
					2.8-3.0	Soil/J	T4-2606-7	BS: 0.0 ppm (3.0m) HS: 0.0 ppm (2.8-3.0m)
					3.3-3.5	Soil/J	T4-2606-8	BS: 0.0 ppm (3.5m) HS: 0.0 ppm (3.3-3.5m)
					3.8-4.0	Soil/J	T4-2606-9	BS: 0.0ppm (4.0m) HS: 0.0 ppm (3.8-4.0m)
		TERMINATED at 4.0m						No Hydrocarbon Odour throughout

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft; VSt very stiff	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft; H hard	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm; Fb friable	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample			VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample				WL Water Level

GeoPollution Management

Environmental Scientists and Engineers

PO BOX 441 RINGWOOD 3134

SOIL BORE / MONITORING WELL LOG

Bore No:	MW1
Job No:	**EA1375**
Date:	...11/07/02..
Sheet:	..1.. of ..3..
Scientist:	G. Foster
Driller:	C. Hannaker
Logged By:	G. Foster
Sampling Method:	Grab Samples

PROJECT:..................Environmental Site Assessment..........................

TYPE OF SITE:..........School Grounds..

SITE ADDRESS:.......1 Roma Street, Fawkner..

CLIENT:....................Darul Ulum College of Victoria...............................

Drill Rig: Mobile B80 | Drill Method: Solid Auger/Air Hammer | Bore Diameter: 95 mm

Surface/Surrounds: Asphalt / Tank 3, soil bore aspect in lieu of T5 (Refusal) (Figure 5) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture
	Pavement	Bitumen, 50mm		
0.5	FILL	Admixed sand, silt, gravel, brown-dark grey, loose	MD	M-D
1.2	SOIL PROFILE	CLAY, dark grey-dark brown, stiff, moderate plasticity, homogenous	St	M-D
2.6		CLAY, light brown-light grey, stiff, moderate plasticity, homogeneous	St	M-D
7.0		Silty CLAY with minor sand grains, moderate plasticity, stiff, light grey-light brown	St	M
10.5		CLAY with medium sand fraction, orange-brown, odour, stiff, low plasticity	St	M-D
15.0	ROCK	Weathered BASALT, sandy (coarse grained), clay matrix, moist/wet at 12m		
		WELL INSTALLED at 15.0m		

Samples Depth [m]	Type	No.
1.0	Soil/ Jar	MW1-1107-1
2.0	Soil/ Jar	MW1-1107-2
3.0	Soil/ Jar	MW1-1107-3
4.0	Soil/ Jar	MW1-1107-4
5.0	Soil/ Jar	MW1-1107-5
6.0	Soil/ Jar	MW1-1107-6
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		

PID Test Data/ Observations

PID Readings:
BG: 0.0 ppm

BS: 0.0 ppm
HS: 0.0 ppm (1.0m)

BS: 0.0 ppm
HS: 0.0 ppm (2.0m)

BS: 0.0 ppm
HS: 0.0 ppm (3.0m)

BS: 0.0 ppm
HS: 0.0 ppm (4.0m)

BS: 0.0 ppm
HS: 0.0 ppm (5.0m)

BS: 0.0 ppm
HS: 0.0 ppm (6.0m)

BS: 0.0 ppm
HS: 0.0 ppm (7.0m)

BS: 0.0 ppm
HS: 0.0 ppm (8.0m)

BS: 0.0 ppm
HS: 0.0 ppm (9.0m)

BS: 0.0 ppm
HS: 0.0 ppm (10.0m)

BS: 0.0 ppm
HS: 0.0 ppm (11.0m)

BS: 0.0 ppm
HS: 0.0 ppm (12.0m)

BS: 0.0 ppm
HS: 0.0 ppm (13.0m)

BS: 0.0 ppm
HS: 0.0 ppm (14.0m)

BS: 0.0 ppm
HS: 0.0 ppm (15.0m)

No Hydrocarbon Odours throughout

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft; VSt very stiff	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft; H hard	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm; Fb friable	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	➲ Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample	VM very moist		VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample				WL Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

BORE LOG

Bore No: T5
Job No: **EA1375**
Date: ...18/06/02...
Sheet: ..17. of .17..

PROJECT:..............Environmental Site Assessment..
TYPE OF SITE:.......School Grounds..
SITE ADDRESS:....1 Roma Street, Fawkner..
CLIENT:.................Darul Ulum College of Victoria...

Scientist: M. Feher
Drilled By: C. French
Logged By: G. Foster
Sampling Method: Grab Samples

Drill Rig: Jacro 200 | Drill Method: Solid Flight Auger | Bore Diameter: 95 mm

Surface/Surrounds: Concrete Pavement (100 mm) / Vicinity of Tank 3 (refer to Figure 1) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
	FILL	Admixed sand, silt, clay & gravel, dark grey-dark brown	MD	M-W				*PID Readings:* BG: 0.0 ppm
					0.0-0.1	Soil/J	T5-2606-1	BS: 0.0 ppm (0.1m) HS: 0.0 ppm (0.0-0.1m)
0.5					0.3-0.5	Soil/J	T5-2606-2	BS: 0.0 ppm (0.1m) HS: 0.0 ppm (0.0-0.1m)
		REFUSAL on Stormwater Pipe at 0.5m						No Hydrocarbon Odour throughout

Sample Type		Moisture Condition		Consistency				Relative Density		Testing	
U50	Tube Sample (Undisturbed)	D	dry	VS	very soft	VSt	very stiff	VL	very loose	PID	Photoionization Detector
U63	Tube Sample (Undisturbed)	M	moist	S	soft	H	hard	L	loose	BG	Background Reading (PID)
SSP	Split Spoon Sample (Undist.)	W	wet	F	firm	Fb	friable	MD	moderately dense	BS	Borespace Reading (PID)
Auger	Grab (Flight Auger)	➲	Seepage entering	St	stiff					HS	Headspace Reading (PID)
J	Jar, Zero-Headspace Sample							D	dense	PP	Pocket Penetrometer Reading
V	Vial, Headspace Sample							VD	very dense	WL	Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

MONITORING WELL LOG

Bore No:	MW2
Job No:	EA1375
Date:	...11/07/02..
Sheet:	..2.. of ..3..
Scientist:	G. Foster
Driller:	C. Hannaker
Logged By:	G. Foster
Sampling Method:	Grab Samples

PROJECT:..................Environmental Site Assessment...

TYPE OF SITE:..........School Grounds..

SITE ADDRESS:.......1 Roma Street, Fawkner..

CLIENT:....................Darul Ulum College of Victoria..

Drill Rig: Mobile B80	Drill Method: Solid Auger/Air Hammer	Bore Diameter: 95 mm

Surface/Surrounds: Asphalt Pavement / North east of Tank 2 (refer to Figure 5) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
	Pavement	Bitumen, 100mm						PID Readings: BG: 0.0 ppm
0.5	FILL	Admixed sand, silt & clay	MD	M-D	1.0			BS: 0.0 ppm HS: 0.0 ppm (1.0m)
	SOIL PROFILE	Silty CLAY, light grey-light brown, stiff, homogeneous, moderate plasticity	St	M-D	2.0			BS: 0.0 ppm HS: 0.0 ppm (2.0m)
					3.0			BS: 0.0 ppm HS: 0.0 ppm (3.0m)
					4.0			BS: 0.0 ppm HS: 0.0 ppm (4.0m)
					5.0			BS: 0.0 ppm HS: 0.0 ppm (5.0m)
					6.0			BS: 0.0 ppm HS: 0.0 ppm (6.0m)
					7.0			BS: 0.0 ppm HS: 0.0 ppm (7.0m)
					8.0			BS: 0.0 ppm HS: 0.0 ppm (8.0m)
8.5					9.0			BS: 0.0 ppm HS: 0.0 ppm (9.0m)
		Sandy SILT/silty SAND, coarse grained, stiff, low plasticity, orange-grey, slightly damp at 11m	St	D-M	10.0			BS: 0.0 ppm HS: 0.0 ppm (10.0m)
					11.0			BS: 0.0 ppm HS: 0.0 ppm (11.0m)
					12.0			BS: 0.0 ppm HS: 0.0 ppm (12.0m)
					13.0			BS: 0.0 ppm HS: 0.0 ppm (13.0m
					14.0			BS: 0.0 ppm HS: 0.0 ppm (14.0m
15.0					15.0			BS: 0.0 ppm HS: 0.0 ppm (15.0m
		WELL INSTALLED at 15.0m						No Hydrocarbon Odours throughout

Sample Type		Moisture Condition		Consistency				Relative Density		Testing	
U50	Tube Sample (Undisturbed)	D	dry	VS	very soft	VSt	very stiff	VL	very loose	PID	Photoionization Detector
U63	Tube Sample (Undisturbed)	M	moist	S	soft	H	hard	L	loose	BG	Background Reading (PID)
SSP	Split Spoon Sample (Undist.)	W	wet	F	firm	Fb	friable	MD	moderately dense	BS	Borespace Reading (PID)
Auger	Grab (Flight Auger)	➲	Seepage entering	St	stiff			D	dense	HS	Headspace Reading (PID)
J	Jar, Zero-Headspace Sample							VD	very dense	PP	Pocket Penetrometer Reading
V	Vial, Headspace Sample	VM	very moist							WL	Water Level

GeoPollution Management

Environmental Scientists and Engineers PO BOX 441 RINGWOOD 3134

Bore No: MW3
Job No: **EA1375**
Date: ...11/07/02..
Sheet: ..3.. of ..3..

MONITORING WELL LOG

PROJECT:..................Environmental Site Assessment..
TYPE OF SITE:..........School Grounds...
SITE ADDRESS:.......1 Roma Street, Fawkner..
CLIENT:....................Darul Ulum College of Victoria..

Scientist: G. Foster
Driller: C. Hannaker
Logged By: G. Foster
Sampling Method: Grab Samples

Drill Rig: Mobile B80 | Drill Method: Solid Auger/Air Hammer | Bore Diameter: 95 mm

Surface/Surrounds: Exposed Ground / East of Suspected Tank 1 (refer to Figure 5) | Topography: approx. level

Depth [m]	Material Type	Material Description	Consistency/ Density	Ground Water/ Moisture	Samples Depth [m]	Samples Type	Samples No.	PID Test Data/ Observations
0.5	FILL	Admixed, silt, sand & coarse gravel, with occasional root matter & organics	MD	D				PID Readings: BG: 0.0 ppm
9.0	SOIL PROFILE	Silty CLAY, light grey-light brown, stiff, moderate plasticity	St	D-M	1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0			BS: 0.0 ppm HS: 0.0 ppm (1.0m) BS: 0.0 ppm HS: 0.0 ppm (2.0m) BS: 0.0 ppm HS: 0.0 ppm (3.0m) BS: 0.0 ppm HS: 0.0 ppm (4.0m) BS: 0.0 ppm HS: 0.0 ppm (5.0m) BS: 0.0 ppm HS: 0.0 ppm (6.0m) BS: 0.0 ppm HS: 0.0 ppm (7.0m) BS: 0.0 ppm HS: 0.0 ppm (8.0m)
12.0		Sandy SILT/silty SAND, coarse grained, orange-brown, stiff, moderate-low plasticity, moister at 10-10.5m	St	M	9.0 10.0 11.0 12.0			BS: 0.0 ppm HS: 0.0 ppm (9.0m) BS: 0.0 ppm HS: 0.0 ppm (10.0m) BS: 0.0 ppm HS: 0.0 ppm (11.0m) BS: 0.0 ppm HS: 0.0 ppm (12.0m)
		WELL INSTALLED at 12.0m						No Hydrocarbon Odours throughout

Sample Type	Moisture Condition	Consistency	Relative Density	Testing
U50 Tube Sample (Undisturbed)	D dry	VS very soft; VSt very stiff	VL very loose	PID Photoionization Detector
U63 Tube Sample (Undisturbed)	M moist	S soft; H hard	L loose	BG Background Reading (PID)
SSP Split Spoon Sample (Undist.)	W wet	F firm; Fb friable	MD moderately dense	BS Borespace Reading (PID)
Auger Grab (Flight Auger)	➲ Seepage entering	St stiff	D dense	HS Headspace Reading (PID)
J Jar, Zero-Headspace Sample	VM very moist		VD very dense	PP Pocket Penetrometer Reading
V Vial, Headspace Sample				WL Water Level

APPENDIX F

CHAIN OF CUSTODY DOCUMENTATION

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375
Request No. 664
Project: Fawkner
Date: 19-06-02
Laboratory: MGT Environmental Consulting Pty
Sheet 1 of 7

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G1-1706-1	G1	0.0-0.1	Soil/J	G2-1706-1 G3-1706-1	Comp F1	Comp: Heavy Metals (8)* & PAH's
				G3-1706-1 G5-1706-1	Comp EPA1	Comp: Heavy Metals (9)***, Phenols (Total), Cyanide (Total), Fluoride, Sulphate, Semi-Vol Chlorinated Hydrocarbons, OC/OP^ Pesticides & PCB's^
G1-1706-2	G1	0.2-0.4	Soil/J	-	-	Please Hold
G2-1706-1	G2	0.0-0.1	Soil/J	G1-1706-1 G3-1706-1	Comp F1	Comp: As shown
G2-1706-2	G2	0.2-0.4	Soil/J	-	-	Please Hold
G3-1706-1	G3	0.0-0.1	Soil/J	G1-1706-1 G2-1706-1	Comp F1	Indiv: Asbestos Comp: As shown
				G1-1706-1 G5-1706-1	Comp EPA1	Comp: As shown
G3-1706-2	G3	0.2-0.4	Soil/J	-	-	Please Hold
G4-1706-1	G4	0.0-0.1	Soil/J	-	-	Heavy Metals(8)* & PAH's
G4-1706-2	G4	0.2-0.4	Soil/J	-	-	Please Hold
G5-1706-1	G5	0.0-0.1	Soil/J	G6-1706-1 G9-1706-1	Comp F2	Comp: Heavy Metals (8)* & PAH's
				G1-1706-1 G3-1706-1	Comp EPA1	Comp: As shown
G5-1706-2	G5	0.2-0.4	Soil/J	-	-	Please Hold
G6-1706-1	G6	0.0-0.1	Soil/J	G5-1706-1 G9-1706-1	Comp F2	Comp: As shown
G6-1706-2	G6	0.2-0.4	Soil/J	-	-	Please Hold
G7-1706-1	G7	0.0-0.1	Soil/J	G9-1706-1 G14-1706-1	Comp EPA2	Indiv: Heavy Metals(8)* & PAH's Comp: Heavy Metals (9)***, Phenols (Total), Cyanide (Total), Fluoride, Sulphate, Semi-Vol Chlorinated Hydrocarbons, OC/OP^ Pesticides & PCB's^
G7-706-2	G7	0.2-0.4	Soil/J	-	-	Please Hold
G8-1706-1	G8	0.0-0.1	Soil/J	G10-1706-1 G12-1706-1	Comp F3	Indiv: pH Comp: Heavy Metals (8)* & PAH's
G8-1706-2	G8	0.2-0.4	Soil/J	-	-	Please Hold

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same scan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround:
STANDARD TURNAROUND

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02
Despatch Method: Courier

Requested By: *Marisa Feher*
Date Requested: 19/06/02
Marfull (signed)

Received By: C Mills
Date: 19/6/02

Please return signed form to this office (Fax 9873 2889)

ISSUE: 6
REVISION: 28/01/98

FORM E/102
Issued By: KBS

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pt

Request No. 664 Date: 19-06-02 Sheet 2 of 7

SAMPLE No.	Location No.	DEPTH (m)	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G9-1706-1	G9	0.0-0.1	Soil/J	G5-1706-1 G6-1706-1	Comp F2	Comp: As shown
				G7-1706-1 G14-1706-1	Comp EPA2	Comp: As shown
G9-1706-2	G9	0.2-0.4	Soil/J	-	-	Please Hold
G10-1706-1	G10	0.0-0.1	Soil/J	G8-1706-1 G12-1706-1	Comp F3	Comp: As shown
G10-1706-2	G10	0.3-0.5	Soil/J	-	-	Please Hold
G10-1706-3	G10	0.8-1.0	Soil/J	-	-	Please Hold
G10-1706-4	G10	1.1-1.3	Soil/J	-	-	Please Hold
G11-1706-1	G11	0.0-0.1	Soil/J	G13-1706-1 G15-1706-1	Comp F4	Comp: Heavy Metals (8)* & PAH's
G11-1706-2	G11	0.2-0.3	Soil/J	-	-	Please Hold
G11-1706-3	G11	0.4-0.6	Soil/J	-	-	Please Hold
G12-1706-1	G12	0.0-0.1	Soil/J	G8-1706-1 G10-1706-1	Comp F3	Comp: As shown
G12-1706-2	G12	0.2-0.4	Soil/J	-	-	Please Hold
G13-1706-1	G13	0.0-0.1	Soil/J	G11-1706-1 G15-1706-1	Comp F4	Comp: As shown
G13-1706-2	G13	0.2-0.4	Soil/J	-	-	Please Hold
G13-1706-3	G13	0.5-0.7	Soil/J	-	-	Please Hold
G14-1706-1	G14	0.0-0.1	Soil/J	G7-1706-1 G9-1706-1	Comp EPA2	Indiv: Heavy Metals (8)* & PAH's Comp: As shown
G14-1706-2	G14	0.2-0.4	Soil/J	-	-	Please Hold
G14-1706-3	G14	0.5-0.7	Soil/J	-	-	Please Hold
G15-1706-1	G15	0.0-0.1	Soil/J	G11-1706-1 G13-1706-1	Comp F4	Comp: As shown

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same scan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround: **STANDARD TURNAROUND**

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02 Despatch Method: Courier

Requested By: *Marisa Feher* Date Requested: 19/06/02

(signed)

Received By: C M... Date: 19/6/02

Please return signed form to this office (Fax 9873 2899)

ISSUE: 6
REVISION: 29/01/98

FORM E/102
Issued By: KBS

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pty l

Request No. 664 Date: 19-06-02 Sheet 3 of 7

SAMPLE No.	Location No.	DEPTH (m)	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G15-1706-2	G15	0.2-0.4	Soil/J	-	-	Please Hold
G15-1706-3	G15	0.5-0.7	Soil/J	-	-	Please Hold
G16-1706-1	G16	0.0-0.1	Soil/J	G19-1706-1 G20-1706-1	Comp F5	Comp: Heavy Metals (8)* & PAH's
				G23-1806-1 G26-1806-1	Comp EPA3	Comp: Heavy Metals (9)***, Phenols (Total), Cyanide (Total), Fluoride, Sulphate, Semi-Vol Chlorinated Hydrocarbons, OC/OP^ Pesticides & PCB's^
G16-1706-2	G16	0.2-0.4	Soil/J	-	-	Please Hold
G16-1706-3	G16	0.5-0.7	Soil/J	-	-	Please Hold
G17-1706-1	G17	0.0-0.1	Soil/J	G24-1806-1 G25-1806-1	Comp EPA4	Indiv: Heavy Metals(8)* & PAH's Comp: Heavy Metals (9)***, Phenols (Total), Cyanide (Total), Fluoride, Sulphate, Semi-Vol Chlorinated Hydrocarbons, OC/OP^ Pesticides & PCB's^
G17-1706-2	G17	0.3-0.5	Soil/J	-	-	Please Hold
G18-1706-1	G18	0.0-0.1	Soil/J	G30-1806-1 G33-1806-1	Comp EPA5	Indiv: Heavy Metals(8)* & PAH's Comp: Heavy Metals (9)***, Phenols (Total), Cyanide (Total), Fluoride, Sulphate, Semi-Vol Chlorinated Hydrocarbons, OC/OP^ Pesticides & PCB's^
G18-1706-2	G18	0.3-0.5	Soil/J	-	-	Please Hold
G19-1706-1	G19	0.0-0.1	Soil/J	G16-1706-1 G19-1706-1	Comp F5	Indiv: pH Comp: As shown
G19-1706-2	G19	0.2-0.4	Soil/J	-	-	Please Hold
G20-1706-1	G20	0.05-0.15	Soil/J	G16-1706-1 G19-1706-1	Comp F5	Indiv: TPH's**, MAH's** & Volatile Halogenated hydrocarbons Comp: As shown
G20-1706-2	G20	0.3-0.5	Soil/J	-	-	Please Hold
G21-1806-1	G21	0.0-0.1	Soil/J	-	-	Heavy Metals (8)*, PAH's, TPH's**, MAH's** & Volatile Halogenated hydrocarbons
G21-1806-2	G21	0.2-0.4	Soil/J	-	-	Please Hold
G22-1806-1	G22	0.0-0.1	Soil/J	G26-1806-1 G27-1806-1	Comp F6	Indiv: Asbestos Comp: Heavy Metals (8)* & PAH's

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same scan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround: **STANDARD TURNAROUND**

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02 Despatch Method: Courier

Requested By: *Marisa Feher* Date Requested: 19/06/02 (signed)

Received By: C Mills Date: 19/6/02

Please return signed form to this office (Fax 9873 2699)

ISSUE: 6
REVISION: 28/01/98

FORM E/102
Issued By: KBS

ADVERTISED PLAN

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375
Request No. 584

Project: Fawkner
Date: 19-06-02

Laboratory: MGT Environmental Consulting Pty L
Sheet 4 of 7

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G22-1806-2	G22	0.2-0.4	Soil/J	-	-	Please Hold
G23-1806-1	G23	0.0-0.1	Soil/J	G16-1706-1 G26-1806-1	Comp EPA3	Indiv: Heavy Metals (8)* & PAH's Comp: As shown,
G23-1806-2	G23	0.2-0.4	Soil/J	-	-	Please Hold
G24-1806-1	G24	0.0-0.1	Soil/J	G25-1806-1 G30-1806-1	Comp F7	Comp: Heavy Metals (8)* & PAH's
				G17-1706-1 G28-1806-1	Comp EPA4	Comp: As shown
G24-1806-2	G24	0.3-0.5	Soil/J	-	-	Please Hold
G24-1806-3	G24	0.7-0.9	Soil/J	-	-	Please Hold
G25-1806-1	G25	0.0-0.2	Soil/J	G24-1806-1 G30-1806-1	Comp F7	Indiv: Asbestos Comp: As shown
G25-1806-2	G25	0.3-0.5	Soil/J	-	-	Please Hold
G26-1806-1	G26	0.0-0.1	Soil/J	G22-1806-1 G27-1806-1	Comp F6	Indiv: TPH's** & MAH's** Comp: As shown
				G16-1706-1 G23-1806-1	Comp EPA3	Comp: As shown
G27-1806-1	G27	0.0-0.1	Soil/J	G22-1806-1 G26-1806-1	Comp F6	Indiv: TPH's** & MAH's** Comp: As shown
G27-1806-2	G27	0.2-0.4	Soil/J	-	-	Please Hold
G28-1806-1	G28	0.0-0.1	Soil/J	G17-1706-1 G24-1806-1	Comp EPA4	Indiv: Heavy Metals (8)*, PAH's & pH Comp: As shown
G29-1806-1	G29	0.0-0.1	Soil/J	-	-	Heavy Metals (8)* & PAH's
G29-1806-2	G29	0.2-0.4	Soil/J	-	-	Please Hold
G30-1806-1	G30	0.0-0.1	Soil/J	G24-1806-1 G25-1806-1	Comp F7	Comp: As shown
				G18-1706-1 G33-1806-1	Comp EPA5	Comp: As shown
G30-1806-2	G30	0.2-0.4	Soil/J	-	-	Please Hold
G31-1806-1	G31	0.0-0.1	Soil/J	-	-	Heavy Metals (8)* & PAH's

Comments/Special instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same scan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround:
STANDARD TURNAROUND

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02
Despatch Method: Courier

Requested By: *Marisa Feher*
Date Requested: 19/06/02
(signed)

Received By: C Mui...
Date: 19/6/02

Please return signed form to this office (Fax 9873 2899)

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375
Request No. 864
Project: Fawkner
Date: 19-06-02
Laboratory: MGT Environmental Consulting Pty
Sheet 5 of 7

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G31-1806-2	G31	0.3-0.5	Soil/J	-	-	Please Hold
G32-1806-1	G32	0.0-0.1	Soil/J	G33-1806-1 G35-1806-1	Comp F8	Comp: Heavy Metals (8)* & PAH's
G32-1806-2	G32	0.3-0.5	Soil/J	-	-	Please Hold
G32-1806-3	G32	0.6-0.8	Soil/J	-	-	Please Hold
G33-1806-1	G33	0.0-0.2	Soil/J	G32-1806-1 G35-1806-1	Comp F8	Comp: As shown
				G18-1706-1 G30-1806-1	Comp EPA8	Comp: As shown
G33-1806-2	G33	0.3-0.5	Soil/J	-	-	Please Hold
G34-1806-1	G34	0.0-0.1	Soil/J	-	-	Heavy Metals (8)* & PAH's
G34-1806-2	G34	0.2-0.4	Soil/J			Please Hold
G34-1806-3	G34	0.6-0.8	Soil/J	-	-	Please Hold
G35-1806-1	G35	0.0-0.1	Soil/J	G32-1806-1 G33-1806-1	Comp F8	Indiv: TPH's**, MAH's** & Volatile Halogenated hydrocarbons Comp: As shown
G35-1806-2	G35	0.3-0.5	Soil/J	-	-	Please Hold
T1-1806-1	T1	0.0-0.1	Soil/J	-	-	TPH's** and MAH's**
T1-1806-2	T1	0.3-0.5	Soil/J	-	-	Please Hold
T1-1806-3	T1	0.6-0.8	Soil/J	-	-	Please Hold
T1-1806-4	T1	1.3-1.5	Soil/J	-	-	Please Hold
T1-1806-5	T1	1.8-2.0	Soil/J			Please Hold
T1-1806-6	T1	2.3-2.5	Soil/J	-	-	Please Hold
T1-1806-7	T1	2.8-3.0	Soil/J	-	-	Please Hold

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same scan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02
Despatch Method: Courier

Requested By: Marisa Feher
Date Requested: 19/06/02
(signed)

Received By: C Mills
Date: 19/6/02

Please return signed form to this office (Fax 9873 2089)

ISSUE: 6
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GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pty Ltd

Request No. 884 Date: 19-06-02 Sheet 6 of 7

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
T1-1806-8	T1	3.6-3.8	Soil/J	-	-	TPH's** and MAH's**
T2-1806-1	T2	0.0-0.1	Soil/J	-	-	TPH's**, MAH's**, PAH's and Heavy Metals (8)*
T2-1806-2	T2	0.3-0.5	Soil/J	-	-	Please Hold
T2-1806-3	T2	0.6-0.8	Soil/J	-	-	Please Hold
T2-1806-4	T2	1.0-1.2	Soil/J	-	-	Please Hold
T2-1806-5	T2	1.5-1.7	Soil/J	-	-	Please Hold
T2-1806-6	T2	2.0-2.2	Soil/J	-	-	Please Hold
T2-1806-7	T2	2.5-2.7	Soil/J	-	-	Please Hold
T2-1806-8	T2	3.0-3.2	Soil/J	-	-	Please Hold
T2-1806-9	T2	3.8-4.0	Soil/J	-	-	TPH's** and MAH's**
T3-1806-1	T3	0.0-0.2	Soil/J	-	-	PAH's
T3-1806-2	T3	0.3-0.5	Soil/J	-	-	Please Hold
T3-1806-3	T3	0.8-1.0	Soil/J	-	-	TPH's** & MAH's**
T3-1806-4	T3	1.3-1.5	Soil/J	-	-	TPH's** & MAH's**
T3-1806-5	T3	1.8-2.0	Soil/J	-	-	TPH's** & MAH's**
T3-1806-6	T3	2.3-2.5	Soil/J	-	-	TPH's** & MAH's**
T3-1806-7	T3	2.8-3.0	Soil/J	-	-	Please Hold
T3-1806-8	T3	3.3-3.5	Soil/J	-	-	Please Hold
T3-1806-9	T3	3.8-4.0	Soil/J	-	-	TPH's** & MAH's**

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same soan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02 Despatch Method: Courier

Requested By: Marisa Feher Date Requested: 19/06/02

(signed)

Received By: C Muis Date: 19/6/02

Please return signed form to this office (Fax 9873 2899)

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375
Request No. 664

Project: Fawkner
Date: 19-06-02

Laboratory: MGT Environmental Consulting Pty Ltd

Sheet 7 of 7

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
M-1806	-	-	Soil/J	-	-	Heavy Metals (8)* & PAH's
GF-1806	-	-	Soil/J	-	-	Heavy Metals (8)* & PAH's
CF-1806	-	-	Soil/J	-	-	Please Hold
EQ-1706	-	-	Water: 1 x plastic (HNO_3), 1 x 1000mL amber (H_2SO_4),			Heavy Metals (8)*, PAH's, TPH's** & MAH*
TP-1706	-	-	Water: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p)			Please Hold
EQ-1806	-	-	Water: 1 x plastic (HNO_3), 1 x 1000mL amber (H_2SO_4),			Heavy Metals (8)*, PAH's, TPH's** & MAH**
TP-1806	-	-	Water: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p)			Please Hold

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

**TPH's C6-C9 and MAH's by Purge & Trap please.

***Sb, Ba, Be, Co, Mn, Mo, Sn, Se, V

^: From the same scan please

Note: Analyse Tin using aqua regia digestible metals (Method 201) or X-Ray Fluorescence (XRF)

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02

Despatch Method: Courier

Requested By: Marisa Feher

Date Requested: 19/06/02

(signed)

Received By: Chris

Date: 19/6/02

Please return signed form to this office (Fax 9873 2899)

ISSUE: 5

REVISION: 28/01/98

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GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: **EA 1375** Project: Fawkner Laboratory: Gribbles Analytical Laboratories

Request No. 378 Date: 19-06-02 Sheet 1 of 1

SAMPLE No.	Bore No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G7-1706-1DUP	G7	0.0-0.1	Soil/J	-	-	Heavy Metals (8)* & PAH's
G23-1806-1DUP	G23	0.0-0.1	Soil/J	-	-	Heavy Metals (8)* & PAH's
T1-1806-1DUP	T1	0.0-0.1	Soil/J	-	-	TPH's^ & MAH's^

GEOPOLL Rec:19/06/02
97-1706-1DUP
9211821/001

Comments/Special Instructions:

*As, Cd, Cr, Cu, Ni, Zn, Pb, Hg

^TPH's C6-C9 and MAH's by Purge & Trap please.

Requested Turnaround: **STANDARD TURNAROUND**

Request Form Prepared By: Marisa Feher

Despatch Date: 19-06-02 Despatch Method: Courier

Requested By: *Marisa Feher* Date Requested: 19/06/02

Marisa Feher (signed)

Received By: Tony F Date: 19/6/02

Please return signed form to this office (Fax 9873 2684 (BH) or 9873 2899, all hours)

GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375
Request No. 666
Project: Fawkner
Date: 26/06/02
Laboratory: MGT Environmental Consulting Pty Ltd
Sheet 1 of 1

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
T4-2606-1	T4	0.0-0.1	SOIL/J	-	-	Hold Sample
T4-2606-2	T4	0.3-0.5	SOIL/J	-	-	Hold Sample
T4-2606-3	T4	0.8-1.0	SOIL/J	-	-	TPH's, MAH's
T4-2606-4	T4	1.3-1.5	SOIL/J	-	-	Hold Sample
T4-2606-5	T4	1.8-2.0	SOIL/J	-	-	Hold Sample
T4-2606-6	T4	2.3-2.5	SOIL/J	-	-	Hold Sample
T4-2606-7	T4	2.8-3.0	SOIL/J	-	-	TPH's, MAH's
T4-2606-8	T4	3.3-3.5	SOIL/J	-	-	Hold Sample
T4-2606-9	T4	3.8-4.0	SOIL/J	-	-	Hold Sample
T5-2606-1	T5	0.0-0.1	SOIL/J	-	-	Hold Sample
T5-2606-2	T5	0.3-0.5	SOIL/J	-	-	Hold Sample
CA-2606	-	-	SOIL/J	-	-	Hold Sample
EQ-2606	-	-	1 x 500ml amber; 2 x vials			Hold Sample
TB-2606	-	-	1 x 500ml amber; 2 x vials			Hold Sample

Comments/Special Instructions:

**TPH's C6-C9 and MAH's by Purge & Trap please.

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Greg Foster

Despatch Date: 26/06/02
Despatch Method: Courier

Requested By: Greg Foster
Date Requested: 26/06/02
(Signed) G Foster

Received By: C Mius
Date: 26/6/02.

Please return signed form to this office (Fax 9873 2899)

ISSUE: 8
REVISION: 28/01/98

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FURTHER
SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pty Ltd
Request No. 669 Date: 05/07/02 Sheet 1 of 2

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G16-1706-1	G16	0.0-0.1	Soil/J	-	-	Nickel Mn ✓
G19-1706-1	G19	0.0-0.1	Soil/J	-	-	Nickel
G20-1706-1	G20	0.0-0.1	Soil/J	-	-	Nickel
G22-1806-1	G22	0.0-0.1	Soil/J	-	-	Nickel and Arsenic
G26-1806-1	G26	0.0-0.1	Soil/J	-	-	Nickel and Arsenic Mn ✓
G27-1806-1	G27	0.0-0.1	Soil/J	-	-	Nickel and Arsenic
G24-1806-1	G24	0.0-0.1	Soil/J	-	-	Nickel and Zinc Mn ✓
G25-1806-1	G25	0.0-0.1	Soil/J	-	-	Nickel and Zinc
G30-1806-1	G30	0.0-0.1	Soil/J	-	-	Nickel and Zinc Mn ✓
G32-1806-1	G32	0.0-0.1	Soil/J	-	-	Nickel and Copper
G33-1806-1	G33	0.0-0.1	Soil/J	-	-	Nickel and Copper Mn ✓
G35-1806-1	G35	0.0-0.1	Soil/J	-	-	Nickel and Copper
G1-1706-1	G1	0.0-0.1	Soil/J	-	-	Manganese and Vanadium
G3-1706-1	G3	0.0-0.1	Soil/J	-	-	Manganese and Vanadium
G5-1706-1	G5	0.0-0.1	Soil/J	-	-	Manganese and Vanadium
G7-1706-1	G7	0.0-0.1	Soil/J	-	-	Vanadium and Arsenic

Comments/Special Instructions:

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Greg Foster

Despatch Date: 19/06/02 Despatch Method: Courier

Requested By: Greg Foster G Foster (signed) Date Requested: 05/07/02

Received By: C Mims Date: 5/7/02

Please return signed form to this office (Fax 9873 2899)

ISSUE 3 REVISION 28/01/98 FORM E/102 Issued By: KSS

GeoPollution Management

COMPS
JN 25829.

FURTHER
SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pty Ltd
Request No. 669 Date: 05/07/02 Sheet 2 of 2

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G9-1705-1	G9	0.0-0.1	Soil/J	-	-	Vanadium
G14-1706-1	G14	0.0-0.1	Soil/J	-	-	Vanadium
~~[illegible]~~	~~G16~~	~~0.0-0.1~~	Soil/J	-	-	~~Manganese and Vanadium~~
G23-1806-1	G23	0.0-0.1	Soil/J	-	-	Manganese, Vanadium, Nickel and PAH's
~~[illegible]~~	~~G20~~	~~0.0-0.1~~	Soil/J	-	-	~~Manganese and Vanadium~~
G17-1706-1	G17	0.0-0.1	Soil/J	-	-	Manganese and Vanadium
~~G24-1806-1~~	~~G24~~	~~0.0-0.1~~	Soil/J	-	-	~~Manganese and Vanadium~~
G28-1806-1	G28	0.0-0.1	Soil/J	-	-	Manganese, Vanadium, Elutriation: Nickel
G18-1706-1	G18	0.0-0.1	Soil/J	-	-	Manganese and Vanadium
~~[illegible]~~	G30	0.0-0.1	Soil/J	-	-	~~Manganese and Vanadium~~
~~[illegible]~~	G33	0.0-0.1	Soil/J	-	-	~~Manganese and Vanadium~~
G29-1806-2	G29	0.2-0.4	Soil/J	-	-	Nickel
T2-1806-2	T2	0.3-0.5	Soil/J	-	-	Nickel
G21-1806-1	G21	0.0-0.1	Soil/J	-	-	Arsenic and Chromium
IA-1806	-	-	Soil/J	-	-	Arsenic and Chromium

Comments/Special Instructions:

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Greg Foster

Despatch Date: 19/06/02 Despatch Method: Courier

Requested By: Greg Foster Date Requested: 05/07/02

G Foster (signed)

Received By: C Mi... Date: 5/7/02.

Please return signed form to this office (Fax 9873 2899)

ISSUE 8 FORM 2/102
REVISION 28/01/98 Issued By: KBS

GeoPollution Management

FURTHER SAMPLE ANALYSIS REQUEST

Job No.: EA 1378
Request No. 378

Project: Fawkner
Date: 05/07/02

Laboratory: Gribbles Analytical Laboratories
Sheet 1 of 1

SAMPLE No.	Bore No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
G7-1706-1DUP	G7	0.0-0.1	Soil/J	-	0211821/1	Arsenic and Zinc
G23-1708-1DUP	G23	0.0-0.1	Soil/J	-	0211821/2	Nickel and PAH's

Comments/Special Instructions:

Requested Turnaround:
STANDARD TURNAROUND

Request Form Prepared By:
Greg Foster

Despatch Date: 19/06/02
Despatch Method: Courier

Requested By: Greg Foster
Date Requested: 5/07/02

Received By: John Fowler
Date: 8/7/02

Please return signed form to this office (Fax 9873 2684 (BH) or 9873 2899, all hours)

VERSION: 28/01/98

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Issued By: KBB

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GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting

Request No. 675 Date: 15/07/02 Sheet 1 of 1

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
MW1-1107-1	MW1	0.0-0.1	Soil/J	-	-	TPH's* and MAH's*
MW1-1107-2	MW1	0.3-0.5	Soil/J	-	-	Please Hold
MW1-1107-3	MW1	0.8-1.0	Soil/J	-	-	Please Hold
MW1-1107-4	MW1	1.8-2.0	Soil/J	-	-	Please Hold
MW1-1107-5	MW1	2.8-3.0	Soil/J	-	-	TPH's* and MAH's*
MW1-1107-6	MW1	3.8-4.0	Soil/J	-	-	Please Hold
C-1107	-	-	Soil/J	-	-	TPH's* and MAH's*
EQ-1107	-	-	Water: 1 x 500mL plastic (nitric) 1 x 500mL amber (H_2SO_4), 2 x vials (n.p)			Please Hold
TB-1107	-	-	Water: 1 x 500mL amber (H_2SO_4), 2 x vials (n.p)			Please Hold
T3-1107	Tank 3	-	Water: 1 x 500mL amber (H_2SO_4), 2 x vials (n.p)			TPH's* and MAH's*, PAH's
T2-1107	Tank 2	-	Water: 1 x 500mL amber (H_2SO_4), 2 x vials (n.p)			TPH's* and MAH's*, PAH's

Comments/Special Instructions:

*TPH's C6-C9 and MAH's by Purge & Trap please.

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Marisa Feher

Despatch Date: 15/07/02 Despatch Method: Courier

Requested By: *Marisa Feher* Date Requested: 15/07/02

Marisa Feher (signed)

Received By: JWD4 Date: 24/7 12.23pm

Please return signed form to this office (Fax 9873 2699)

ISSUE: 6
REVISION: 28/01/98

FORM E/102
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GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA 1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pty Ltd

Invoice No. 678 Date: 19/07/02 Sheet 1 of 1

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
MW1-1907	MW1	15.0	Groundwater: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p) 1 x 500mL (n.p.)			TPH's*, BTEX* and TDS
MW2-1907	MW2	14.2	Groundwater: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p) 1 x 500mL (n.p.)			TPH's*, BTEX* and TDS
MW3-1907	MW3	14.2	Groundwater: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p) 1 x 500mL (n.p.)			TPH's*, BTEX* and TDS
EQ-1907	-	-	Water: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p)			TPH's* & BTEX*
TB-1907	-	-	Water: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p)			Please Hold

Comments/Special Instructions:

*TPH's C6-C9 and BTEX by Purge & Trap please.

As discussed with Onur. Samples delivered to MGT 1445 19 July 2002.

Requested Turnaround: **48 Hours Turnaround***

Request Form Prepared By: Greg Foster

Despatch Date: 19/07/02 Despatch Method: Hand delivered

Requested By: Greg Foster Date Requested: 19/07/02 (signed) G Foster

Received By: [signature] Date: 19/7/02

Please return signed form to this office (Fax 9873 2899)

ISSUE: 8 FORM E/102

REVISION: 28/01/98 Issued By: KBB

CHAIN OF CUSTODY & SAMPLE ANALYSIS REQUEST

...No: EA 1375
...No. 393

Project: Fawkner
Date: 19/07/02

Laboratory: Gribbles Analytical Laboratories
Sheet 1 of 1

SAMPLE No.	BORE No.	DEPTH (m)	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
MW1-1907DUP	MW1	15	Groundwater; 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p) 1 x 500mL (n.p.)			TPH's*, BTEX* and TDS

...s/Special Instructions:

...C6-C9 and BTEX by Purge & Trap please.

...delivered at 1515 on 19 July 2002

Requested Turnaround:
Standard Turnaround

Request Form Prepared By:
Greg Foster

Despatch Date: 19/07/02
Despatch Method: Hand delivered

Requested By: Greg Foster
Date Requested: 19/07/02

Received By:
Date: 22/7/02

...return signed form to this office (Fax 9873 2894 (BH) or 9873 2899, all hours)

...28/01/98

FORM E/102
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GeoPollution Management

CHAIN OF CUSTODY AND SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: AMDEL Laboratories Ltd

Request No. 32 Date: 19/07/02 Sheet 1 of 1

SAMPLE No.	Bore No.	DEPTH [m]	SAMPLE TYPE	Composite with	LAB ID ~~Composite No.~~	PARAMETERS REQUESTED
~~Tank3~~	Tank 3	-	Product	-	E10398	Product Identification
T3 A07						

Comments/Special Instructions:

Please determine product identification.
Sample delivered to Gribbles/Amdel 1515 18 July 2002 and received by Scott Whythe

Requested Turnaround: STANDARD TURN AROUND

Request Form Prepared By: Greg Foster

Despatch Method: Personally Delivered

Despatched By: Greg Foster Date: 19/07/02

Received By: Date:

Please return signed form to this office (Fax 98732899)

Page: 1 of 1

Version: 12/5/06

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GeoPollution Management

FURTHER SAMPLE ANALYSIS REQUEST

Job No.: EA1375
Request No. 681
Project: Fawkner
Date: 22/07/02
Laboratory: MGT Environmental Consulting
Sheet 1 of 1

SAMPLE No.	Location No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
MW1-1107-2	MW1	0.3-0.5	Soil/J	-	-	TPH's* and MAH's*
MW1-1107-3	MW1	0.8-1.0	Soil/J	-	-	TPH's* and MAH's*
EQ-1107	-		Water: 1 x 500mL plastic (nitric) 1 x 500mL amber (H_2SO_4), 2 x vials (n.p)			TPH's* and MAH's*
TB-1107	-		Water: 1 x 500mL amber (H_2SO_4), 2 x vials (n.p)			Please Hold

Comments/Special Instructions:

*TPH's C6-C9 and MAH's by Purge & Trap please.

Requested Turnaround: **48 HOURS**

Request Form Prepared By: Greg Foster

Despatch Date: 15/07/02
Despatch Method: Courier

Requested By: Greg Foster
Date Requested: 22/07/02
9 Foster (signed)

Received By: [illegible]
Date: 22/7/02

Please return signed form to this office (Fax 9873 2889)

Issue: 5
Revision: 28/01/98

FORM E/102
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GeoPollution Management

COMPS JU 2582-94

FURTHER SAMPLE ANALYSIS REQUEST

Job No.: EA1375 Project: Fawkner Laboratory: MGT Environmental Consulting Pty Ltd
Request No. 684 Date: 26/07/02 Sheet 1 of 1

SAMPLE No.	Location No.	DEPTH (m)	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
Q-1107	-	-	Soil/J	-	JJ 2817 (956)	TPH's
G5-1706-2	G5	0.2-0.4	Soil/J	-	-	Vanadium
G16-1706-2	G16	0.25-0.45	Soil/J	-	-	Nickel
G20-1706-2	G20	0.3-0.5	Soil/J	-	-	Nickel
G22-1806-2	G22	0.2-0.4	Soil/J	-	-	Nickel
G23-1806-2	G23	0.2-0.4	Soil/J	-	-	Vanadium
G24-1806-1	G24	0.0-0.1	Soil/J	-	JJ 1094 (930)	Elutriation: Vanadium
G24-1806-2	G24	0.2-0.4	Soil/J	-	-	Vanadium
G25-1806-2	G25	0.3-0.5	Soil/J	-	-	Nickel
G26-1806-1	G26	0.0-0.1	Soil/J	-	JJ 1108 (931)	Elutriation: Arsenic
G27-1806-2	G27	0.2-0.4	Soil/J	-	-	Nickel
G30-1806-1	G30	0.0-0.1	Soil/J	-	-	Elutriation: Manganese
G30-1806-2	G30	0.3-0.5	Soil/J	-	-	Nickel, Manganese
G32-1806-1	G32	0.0-0.1	Soil/J	-	JJ 1097 (930)	Elutriation: Nickel
G33-1806-2	G33	0.3-0.5	Soil/J	-	-	Nickel
G35-1806-2	G35	0.3-0.5	Soil/J	-	-	Nickel
MW1-1107-1	MW1	0.0-0.1	Soil/J	JJ 2817 (956)		TPH's**
T2-1806-3	T2	0.6-0.8	Soil/J	-	-	Nickel
~~MW1-1507~~	MW1	-	Groundwater: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p), 1 x 500mL (n.p.)			~~TPH's* re-analysis*~~

Comments/Special Instructions:

Elutriation using ASLP method (Reagent Water) please
*TPH's C6-C9 by purge and trap method
*Re-analyse sample with new extract please
Samples held by MGT. Refer to Report No.'s 186331P, 166473, 169194P

Requested Turnaround: STANDARD TURNAROUND

Request Form Prepared By: Greg Foster

Despatch Date: 18/06/2002 & 18/07/02 Despatch Method: Courier

Requested By: Greg Foster Date Requested: 26/07/02

Received By: Date:

Please return signed form to this office (Fax 9873 2899)

ISSUE: 6
REVISION: 28/01/98

FORM E/102
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196 / 197

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GeoPollution Management

FURTHER SAMPLE ANALYSIS REQUEST

Job No.: EA 1375 Project: Fawkner Laboratory: Gribbles Analytical Laboratories
Request No. 395 Date: 26/07/02 Sheet 1 of 1

SAMPLE No.	BORE No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
MW1-1907DUP	MW1	15	Groundwater: 1 x 1000mL amber (H_2SO_4), 2 x vials (n.p) 1 x 500mL (n.p.)			'TPH's' Re-analysis

Comments/Special Instructions:

Re-analyse new extract and issue as a separate report please.

Report C6-C9 by Purge & Trap please.

Sample held by Gribbles. Refer Batch No. 0214022

Requested Turnaround: **Standard Turnaround**

Request Form Prepared By: Greg Foster

Despatch Date: 19/07/02 Despatch Method: Hand delivered

Requested By: Greg Foster Date Requested: 26/07/02

Signature: Greg Foster

Received By: Mrank Date: 26/7/02

Please return signed form to this office (Fax 9873 2884 (BH) or 9873 2899, all hours)

Revision: 6
Revision: 28/01/98

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Issued By: KM

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ADVERTISED PLAN

CHAIN OF CUSTODY
SAMPLE ANALYSIS REQUEST

Job No.: EA 1375 Project: Fawkner Laboratory: Gribbles Analytical Laboratories

Request No. 399 Date: 06/08/02 Sheet 1 of 1

SAMPLE No.	BORE No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
MW1-0608	MW1	15	Groundwater: 2 x 500mL amber (H_2SO_4), 4 x vials (n.p)			TPH's & BTEX

GEOPOLL Rec:06/08/02
MW1-0608
0214986/001

Comments/Special Instructions:

TPH's C6-C9 by Purge & Trap please.

Requested Turnaround: Standard Turnaround

Request Form Prepared By: Greg Foster

Despatch Date: 06/08/02 Despatch Method: Hand delivered

Requested By: *Greg Foster* Date Requested: 06/08/02 (signed)

Received By: Jodie Fowler Date: 6/8/02 1:00pm

Please return signed form to this office (Fax 9873 2684 (BH) or 9873 2899, all hours)

GeoPollution Management

EM13197 W 03

CHAIN OF CUSTODY
SAMPLE ANALYSIS REQUEST

Job No.: EA 1375 Project: Fawkner Laboratory: ALS

Request No. 49 Date: 06/08/02 Sheet 1 of 1

SAMPLE No.	BORE No.	DEPTH [m]	Sample Type	COMP. WITH	COMP No.	PARAMETERS REQUESTED
1 MW1-0608DUP	MW1	15	Groundwater: 2 x 1000mL amber (H_2SO_4), 2 x vials (n.p)			TPH's* & BTEX

Comments/Special Instructions:

*TPH's C6-C9 by Purge & Trap please.

Requested Turnaround: Standard Turnaround

Request Form Prepared By: Greg Foster

Despatch Date: 06/08/02 Despatch Method: Courier Hand delivered

Requested By: Greg Foster Date Requested: 06/08/02 (signed)

Received By: S. Mather Date:

Please return signed form to this office (Fax 9873 2684 (BH) or 9873 2899, all hours)

ISSUE: 6
REVISION: 28/01/98

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APPENDIX G.1

FINAL NATA LABORATORY REPORTS (Primary Laboratory) – Soil and Groundwater

mgt Environmental Consulting Pty. Ltd.
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: + 61 3 9564 7055
Fax + 61 3 9564 7190
Email: mgt@mgtenv.com.au

2 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Ms M. Feher

Dear Marisa

MGT ANALYTICAL REPORT NO 155473

Please find attached the analysis results for the FAWKNER EA1375 samples received 19/06/02

Yours faithfully

Michael Wright
Laboratory Manager

NATA

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 155473

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA1375

DATE RECEIVED :- 19/06/02

DATE EXTRACTED OR PREPARED :- 19/06/02 - 20/06/02

DATE REPORTED :- 02/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 155473
A total of 15 duplicate, 8 matrix spike % recovery and 12 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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

CHLORINATED HYDROCARBONS US EPA SW846 METHOD 8021B & 8081A.

Sample	COMP EPA1	COMP EPA1 Dup	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5
Lab. No. / Sample matrix	JN2590#Soil	JN2590D#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#Soil
Benzyl chloride	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Chloronaphthalene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobutadiene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorocyclopentadiene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachlorobenzenes	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

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

Date received 19/06/02 Date Reported 02/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

CHLORINATED HYDROCARBONS US EPA SW846 METHOD 8021B & 8081A.

Sample	Meth.Bl.(mg/l)					
Lab. No. / Sample matrix						
Benzyl chloride	<0.005					
2-Chloronaphthalene	<0.005					
1,2-Dichlorobenzene	<0.005					
1,3-Dichlorobenzene	<0.005					
1,4-Dichlorobenzene	<0.005					
Hexachlorobenzene	<0.005					
Hexachlorobutadiene	<0.005					
Hexachlorocyclopentadiene	<0.005					
Hexachloroethane	<0.005					
Tetrachlorobenzenes	<0.005					
1,2,4-Trichlorobenzene	<0.005					

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

Date received 19/06/02 Date Reported 02/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

HALOGENATED VOLATILE ORGANICS US EPA SW846 METHODS 8021B, 8260B & MGT 400A.

Sample	G20-1706-1	G21-1706-1	G35-1806-1	Meth.Bl. (mg/l)		
Lab. No. / Sample matrix	JN2557#Soil	JN2558#Soil	JN2568#Soil			
Bromodichloromethane	<0.01	<0.01	<0.01	<0.001		
Bromoform	<0.01	<0.01	<0.01	<0.001		
Carbon tetrachloride	<0.01	<0.01	<0.01	<0.001		
Chlorobenzene	<0.01	<0.01	<0.01	<0.001		
Chloroethane	<0.01	<0.01	<0.01	<0.001		
Chloroform	<0.01	<0.01	<0.01	<0.001		
1,2-Dichlorobenzene	<0.01	<0.01	<0.01	<0.001		
1,3-Dichlorobenzene	<0.01	<0.01	<0.01	<0.001		
1,4-Dichlorobenzene	<0.01	<0.01	<0.01	<0.001		
Dichloromethane	<0.01	<0.01	<0.01	<0.001		
trans-1,3-Dichloropropylene	<0.01	<0.01	<0.01	<0.001		
1,1,2,2-Tetrachloroethane	<0.01	<0.01	<0.01	<0.001		
1,1,1,2-Tetrachloroethane	<0.01	<0.01	<0.01	<0.001		
Tetrachloroethylene	<0.01	<0.01	<0.01	<0.001		
1,1,1-Trichloroethane	<0.01	<0.01	<0.01	<0.001		
1,1,2-Trichloroethane	<0.01	<0.01	<0.01	<0.001		
Trichloroethylene	<0.01	<0.01	<0.01	<0.001		
Trichlorofluoromethane	<0.01	<0.01	<0.01	<0.001		
1,2,3-Trichloropropane	<0.01	<0.01	<0.01	<0.001		
Iodomethane	<0.01	<0.01	<0.01	<0.001		
Dibromomethane	<0.01	<0.01	<0.01	<0.001		
cis-1,3 Dichloropropene	<0.01	<0.01	<0.01	<0.001		
Chlorodibromomethane	<0.01	<0.01	<0.01	<0.001		

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

HALOGENATED VOLATILE ORGANICS US EPA SW846 METHODS 8021B, 8260B & MGT 400A.

Sample	G20-1706-1	G21-1706-1	G35-1806-1	Meth.Bl.(mg/l)		
Lab. No. / Sample matrix	JN2557#Soil	JN2558#Soil	JN2568#Soil			
1,2-Dibromoethane	<0.01	<0.01	<0.01	<0.001		

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

Date received 19/06/02 Date Reported 02/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	G4-1706-1	G4-1706-1 Dup	G7-1706-1	G14-1706-1	G17-1706-1	G18-1706-1
Lab. No. / Sample matrix	JN2550#Soil	JN2550D#Soil	JN2551#Soil	JN2553#Soil	JN2554#Soil	JN2555#Soil
Antimony	-	-	-	-	-	-
Arsenic	<2	<2	3.3	2.8	3.5	2.5
Barium	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	19	16	13	12	35	14
Cobalt	-	-	-	-	-	-
Copper	11	13	6.5	9.3	22	14
Lead	15	18	16	22	16	34
Manganese	-	-	-	-	-	-
Mercury	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	-	-	-	-	-	-
Nickel	25	27	5.1	5.7	30	12
Selenium	-	-	-	-	-	-
Tin	-	-	-	-	-	-
Vanadium	-	-	-	-	-	-
Zinc	35	37	22	52	68	68

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

Date received 19/06/02 Date Reported 02/07/02

Report No. 155473

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	G21-1706-1	G23-1706-1	G28-1806-1	G28-1806-1 Dup	G29-1806-1	G31-1806-1
Lab. No. / Sample matrix	JN2558#Soil	JN2560#Soil	JN2564#Soil	JN2564D#Soil	JN2565#Soil	JN2566#Soil
Antimony	-	-	-	-	-	-
Arsenic	12	2.7	2.2	2.0	<2	3.1
Barium	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	50	15	20	18	8.2	<5
Cobalt	-	-	-	-	-	-
Copper	24	5.2	36	39	34	5.2
Lead	76	11	14	14	10	7.8
Manganese	-	-	-	-	-	-
Mercury	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	-	-	-	-	-	-
Nickel	46	<5	83	86	74	7.7
Selenium	-	-	-	-	-	-
Tin	-	-	-	-	-	-
Vanadium	-	-	-	-	-	-
Zinc	120	18	55	58	78	41

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

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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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	G34-1806-1	T2-1806-1	M-1806	GF-1806	EQ-1706	EQ-1806
Lab. No. / Sample matrix	JN2567#Soil	JN2570#Soil	JN2578#Soil	JN2579#Soil	JN2580#Water	JN2581#Water
Antimony	-	-	-	-	-	-
Arsenic	2.9	<2	2.5	<2	<0.02	<0.02
Barium	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.02	<0.02
Chromium	14	26	14	20	<0.05	<0.05
Cobalt	-	-	-	-	-	-
Copper	24	35	12	37	<0.05	<0.05
Lead	18	15	43	9.8	<0.05	<0.05
Manganese	-	-	-	-	-	-
Mercury	<0.1	<0.1	<0.1	<0.1	<0.001	<0.001
Molybdenum	-	-	-	-	-	-
Nickel	50	73	30	91	<0.05	<0.05
Selenium	-	-	-	-	-	-
Tin	-	-	-	-	-	-
Vanadium	-	-	-	-	-	-
Zinc	92	57	66	60	<0.05	<0.05

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

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Fax+ 61 3 9564 7190
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HEAVY METALS USEPA 6010B (ICP), 7470/1 (CVAA)

Sample	COMP F1	COMP F1 Dup	COMP F2	COMP F3	COMP F4	COMP F5
Lab. No. / Sample matrix	JN2582#Soil	JN2582D#Soil	JN2583#Soil	JN2584#Soil	JN2585#Soil	JN2586#Soil
Antimony	-	-	-	-	-	-
Arsenic	<2	<2	<2	2.5	<2	2.5
Barium	-	-	-	-	-	-
Beryllium	-	-	-	-	-	-
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	26	24	20	19	40	17
Cobalt	-	-	-	-	-	-
Copper	11	10	14	11	18	21
Lead	15	15	23	20	20	13
Manganese	-	-	-	-	-	-
Mercury	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	-	-	-	-	-	-
Nickel	15	14	16	13	17	47
Selenium	-	-	-	-	-	-
Tin	-	-	-	-	-	-
Vanadium	-	-	-	-	-	-
Zinc	30	32	50	42	38	43

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	COMP F6	COMP F7	COMP F8	COMP EPA1	COMP EPA2	COMP EPA3
Lab. No. / Sample matrix	JN2587#Soil	JN2588#Soil	JN2589#Soil	JN2590#Soil	JN2591#Soil	JN2592#Soil
Antimony	-	-	-	<10	<10	<10
Arsenic	11	<2	<2	-	-	-
Barium	-	-	-	90	50	30
Beryllium	-	-	-	<2	<2	<2
Cadmium	<0.5	<0.5	<0.5	-	-	-
Chromium	25	19	21	-	-	-
Cobalt	-	-	-	10	<5	11
Copper	26	32	39	-	-	-
Lead	9.7	13	12	-	-	-
Manganese	-	-	-	170	89	230
Mercury	<0.1	<0.1	<0.1	-	-	-
Molybdenum	-	-	-	<10	<10	<10
Nickel	50	82	80	-	-	-
Selenium	-	-	-	<2	<2	<2
Tin	-	-	-	<10	<10	<10
Vanadium	-	-	-	40	41	41
Zinc	49	89	52	-	-	-

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

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ADVERTISED PLAN

NATA Accredited Laboratory
Number: 1261
This laboratory is accredited by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its

Report No. 155473

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

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P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	COMP EPA4	COMP EPA5	Spike % Recov	Meth.Bl.(mg/l)		
Lab. No. / Sample matrix	JN2593#Soil	JN2594#Soil	JN2594S#Soil			
Antimony	<10	<10	-	<0.5		
Arsenic	-	-	90%	<0.02		
Barium	45	25	-	<0.5		
Beryllium	<2	<2	-	<0.02		
Cadmium	-	-	89%	<0.02		
Chromium	-	-	97%	<0.05		
Cobalt	15	16	-	<0.05		
Copper	-	-	98%	<0.05		
Lead	-	-	102%	<0.05		
Manganese	350	380	-	<0.05		
Mercury	-	-	103%	<0.001		
Molybdenum	<10	<10	-	<0.5		
Nickel	-	-	88%	<0.05		
Selenium	<2	<2	-	<0.02		
Tin	<10	<10	-	<0.5		
Vanadium	82	27	-	<0.5		
Zinc	-	-	95%	<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	G8-1706-1	G19-1706-1	G28-1806-1	COMP EPA1	COMP EPA2	COMP EPA3
Lab. No. / Sample matrix	JN2552#Soil	JN2556#Soil	JN2564#Soil	JN2590#Soil	JN2591#Soil	JN2592#Soil
Fluoride (total)	-	-	-	80	58	28
Sulphate (S)	-	-	-	120	180	110
pH (units) (1:5 aqueous extract)	7.71	8.46	10.03	-	-	-

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

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Sample	COMP EPA4	COMP EPA5				
Lab. No. / Sample matrix	JN2593#Soil	JN2594#Soil				
Fluoride (total)	56	59				
Sulphate (S)	90	120				
pH (units) (1:5 aqueous extract)	-	-				

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CYANIDE (CN-) US EPA SW846 METHOD 9010B.

Sample	COMP EPA1	COMP EPA1 Dup	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5
Lab. No. / Sample matrix	JN2590#Soil	JN2590D#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#Soil
Cyanide (total)	<5	<5	<5	<5	<5	<5

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

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CYANIDE (CN-) US EPA SW846 METHOD 9010B.

Sample	Spike % Recov	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JN2594S#Soil					
Cyanide (total)	92%	<0.05				

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

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

Sample	G20-1706-1	G21-1706-1	G26-1806-1	G27-1806-1	G35-1806-1	T1-1806-1
Lab. No. / Sample matrix	JN2557#Soil	JN2558#Soil	JN2562#Soil	JN2563#Soil	JN2568#Soil	JN2569#Soil
Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethyl Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenes	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

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

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

Sample	T2-1806-1	T2-1806-9	T3-1806-3	T3-1806-4	T3-1806-5	T3-1806-6
Lab. No. / Sample matrix	JN2570#Soil	JN2571#Soil	JN2573#Soil	JN2574#Soil	JN2575#Soil	JN2576#Soil
Benzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethyl Benzene	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Xylenes	<0.01	<0.01	0.04	<0.01	<0.01	<0.01

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

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

Sample	T3-1806-9	T3-1806-9 Dup	EQ-1706	EQ-1806	T1-1807-7	Spike % Recov
Lab. No. / Sample matrix	JN2577#Soil	JN2577D#Soil	JN2580#Water	JN2581#Water	JN2598#Soil	JN2598S#Soil
Benzene	<0.01	<0.01	<0.001	<0.001	<0.01	91%
Toluene	<0.01	<0.01	<0.001	<0.001	<0.01	92%
Ethyl Benzene	<0.01	<0.01	<0.001	<0.001	<0.01	90%
Xylenes	<0.01	<0.01	<0.001	<0.001	<0.01	88%

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

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

Sample	Meth.Bl.(mg/l)					
Lab. No. / Sample matrix						
Benzene	<0.001					
Toluene	<0.001					
Ethyl Benzene	<0.001					
Xylenes	<0.001					

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

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ORGANOCHLORINE PESTICIDES US EPA SW846 METHOD 8081A.

Sample	COMP EPA1	COMP EPA1 Dup	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5
Lab. No. / Sample matrix	JN2590#Soil	JN2590D#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#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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3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
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Fax+ 61 3 9564 7190
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Ringwood
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ORGANOCHLORINE PESTICIDES US EPA SW846 METHOD 8081A.

Sample	Spike % Recov	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JN2594S#Soil					
Aldrin	104%	<0.001				
α-BHC	88%	<0.001				
ß-BHC	100%	<0.001				
σ-BHC	99%	<0.001				
Lindane	97%	<0.001				
Chlordane	-	<0.01				
4,4'-DDD	108%	<0.001				
4,4'-DDE	100%	<0.001				
4,4'-DDT	107%	<0.001				
Dieldrin	103%	<0.001				
Endosulfan I	101%	<0.001				
Endosulfan II	102%	<0.001				
Endrin	96%	<0.001				
Heptachlor	107%	<0.001				
Heptachlor epoxide	102%	<0.001				
Methoxychlor	105%	<0.001				
Toxophene	-	<0.01				

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

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Ringwood
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ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.

Sample	COMP EPA1	COMP EPA1 Dup	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5
Lab. No. / Sample matrix	JN2590#Soil	JN2590D#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#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.

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ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.

Sample	Spike % Recov	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JN2594S#Soil					
Azinphos Methyl	-	<0.01				
Bolstar	-	<0.01				
Chlorpyrifos	91%	<0.01				
Coumaphos	90%	<0.01				
Demeton-O	-	<0.01				
Demeton-S	-	<0.01				
Diazinon	88%	<0.01				
Dichlorvos	106%	<0.01				
Disulfoton	103%	<0.01				
Ethoprop	-	<0.01				
Fensulfothion	-	<0.01				
Fenthion	95%	<0.01				
Merphos	-	<0.01				
Mevinphos	-	<0.01				
Naled	-	<0.01				

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

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Victoria 3134

Site : FAWKNER EA1375

ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.

Sample	COMP EPA1	COMP EPA1 Dup	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5
Lab. No. / Sample matrix	JN2590#Soil	JN2590D#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#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 19/06/02 Date Reported 02/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

ORGANOPHOSPHORUS PESTICIDES US EPA SW846 METHOD 8141A.

Sample	Spike % Recov	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JN2594S#Soil					
Parathion Methyl	-	<0.01				
Phorate	-	<0.01				
Ronnel	-	<0.01				
Tokuthion	-	<0.01				
Trichloronate	-	<0.01				

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

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Fax+ 61 3 9564 7190
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Ringwood
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POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	G4-1706-1	G4-1706-1 Dup	G7-1706-1	G14-1706-1	G17-1706-1	G18-1706-1
Lab. No. / Sample matrix	JN2550#Soil	JN2550D#Soil	JN2551#Soil	JN2553#Soil	JN2554#Soil	JN2555#Soil
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	0.31
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthrene	0.18	0.16	<0.1	<0.1	<0.1	0.42
Pyrene	0.14	0.13	<0.1	<0.1	<0.1	0.36
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	0.22
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.1	0.19
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	0.22
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	0.12	0.11	<0.1	<0.1	<0.1	0.32
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	<0.1	<0.1	<0.1	<0.1	<0.1	0.16
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	0.19

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

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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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P.O. Box 441
Ringwood
Victoria 3134

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POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	G21-1706-1	G23-1706-1	G28-1806-1	G28-1806-1 Dup	G29-1806-1	G31-1806-1
Lab. No. / Sample matrix	JN2558#Soil	JN2560#Soil	JN2564#Soil	JN2564D#Soil	JN2565#Soil	JN2566#Soil
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<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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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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

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POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	G34-1806-1	T2-1806-1	T3-1806-1	M-1806	GF-1806	EQ-1706
Lab. No. / Sample matrix	JN2567#Soil	JN2570#Soil	JN2572#Soil	JN2578#Soil	JN2579#Soil	JN2580#Water
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Acenaphthylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Acenaphthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Fluorene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Fluoranthrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Benzo(g,h,i)perylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.001

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

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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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

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POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	EQ-1806	COMP F1	COMP F1 Dup	COMP F2	COMP F3	COMP F4
Lab. No. / Sample matrix	JN2581#Water	JN2582#Soil	JN2582D#Soil	JN2583#Soil	JN2584#Soil	JN2585#Soil
Naphthalene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthrene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	<0.001	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<0.001	<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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Fax+ 61 3 9564 7190
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POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	COMP F5	COMP F6	COMP F7	COMP F8	Meth.Bl.(mg/l)	Spike % Recov
Lab. No. / Sample matrix	JN2586#Soil	JN2587#Soil	JN2588#Soil	JN2589#Soil		
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.001	96%
Acenaphthylene	<0.1	<0.1	<0.1	<0.1	<0.001	90%
Acenaphthene	<0.1	<0.1	<0.1	<0.1	<0.001	88%
Fluorene	<0.1	<0.1	<0.1	<0.1	<0.001	106%
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.001	106%
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.001	98%
Fluoranthrene	<0.1	<0.1	<0.1	<0.1	<0.001	112%
Pyrene	<0.1	<0.1	<0.1	<0.1	<0.001	112%
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.001	86%
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.001	97%
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.001	86%
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.001	90%
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1	<0.001	108%
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1	<0.001	86%
Benzo(g,h,i)perylene	<0.1	<0.1	<0.1	<0.1	<0.001	88%
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1	<0.1	<0.001	104%

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

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

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Ringwood
Victoria 3134

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POLYCHLORINATED BIPHENYLS (PCB's) US EPA SW846 METHOD 8082.

Sample	COMP EPA1	COMP EPA1 Dup	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5
Lab. No. / Sample matrix	JN2590#Soil	JN2590D#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#Soil
Total PCB's as Arochlor 1260	<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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P.O. Box 441
Ringwood
Victoria 3134

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POLYCHLORINATED BIPHENYLS (PCB's) US EPA SW846 METHOD 8082.

Sample	Meth.Bl.(mg/l)					
Lab. No. / Sample matrix						
Total PCB's as Arochlor 1260	<0.01					

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

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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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Ringwood
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PHENOLS & CRESOLS - HPLC- JRNL. CHROM 464(1989) 405-410

Sample	COMP EPA1	COMP EPA2	COMP EPA3	COMP EPA4	COMP EPA5	Spike % Recov
Lab. No. / Sample matrix	JN2590#Soil	JN2591#Soil	JN2592#Soil	JN2593#Soil	JN2594#Soil	JN2594S#Soil
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	109%
Cresols (total)	<0.1	<0.1	<0.1	<0.1	<0.1	106%

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

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PHENOLS & CRESOLS - HPLC- JRNL. CHROM 464(1989) 405-410

Sample	Meth.Bl.(mg/l)					
Lab. No. / Sample matrix						
Phenol	<0.01					
Cresols (total)	<0.01					

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	G20-1706-1	G20-1706-1 Dup	G21-1706-1	G26-1806-1	G27-1806-1	G35-1806-1
Lab. No. / Sample matrix	JN2557#Soil	JN2557D#Soil	JN2558#Soil	JN2562#Soil	JN2563#Soil	JN2568#Soil
T.R.H. C_6-C_9 Fraction by GC	<20	<20	<20	<20	<20	<20
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	<50	<50	<50	<50
T.R.H. C_{15}-C_{28} Fraction by GC	<100	<100	<100	<100	<100	<100
T.R.H. C_{29}-C_{36} Fraction by GC	<100	<100	<100	<100	<100	<100

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

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

Sample	T1-1806-1	T2-1806-1	T2-1806-9	T3-1806-3	T3-1806-4	T3-1806-5
Lab. No. / Sample matrix	JN2569#Soil	JN2570#Soil	JN2571#Soil	JN2573#Soil	JN2574#Soil	JN2575#Soil
T.R.H. C_6-C_9 Fraction by GC	<20	<20	<20	<20	<20	<20
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	<50	50	<50	<50
T.R.H. C_{15}-C_{28} Fraction by GC	<100	<100	<100	370	<100	<100
T.R.H. C_{29}-C_{36} Fraction by GC	<100	<100	<100	<100	<100	<100

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

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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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P.O. Box 441
Ringwood
Victoria 3134

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

Sample	T3-1806-6	T3-1806-9	T3-1806-9 Dup	EQ-1706	EQ-1806	T1-1807-7
Lab. No. / Sample matrix	JN2576#Soil	JN2577#Soil	JN2577D#Soil	JN2580#Water	JN2581#Water	JN2598#Soil
T.R.H. C_6-C_9 Fraction by GC	<20	<20	<20	<0.02	<0.02	<20
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	<50	<0.05	<0.05	<50
T.R.H. C_{15}-C_{28} Fraction by GC	<100	<100	<100	<0.1	<0.1	<100
T.R.H. C_{29}-C_{36} Fraction by GC	<100	<100	<100	<0.1	<0.1	<100

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	Spike % Recov	Meth.Bl.(mg/l)			
Lab. No. / Sample matrix	JN2598S#Soil				
T.R.H. C_6-C_9 Fraction by GC	-	<0.02			
T.R.H. C_{10}-C_{14} Fraction by GC	93%	<0.05			
T.R.H. C_{15}-C_{28} Fraction by GC	-	<0.1			
T.R.H. C_{29}-C_{36} Fraction by GC	-	<0.1			

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

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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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

ASBESTOS CONTENT -POLARIZED LIGHT MICROSCOPY AND/OR X-RAY DIFFRACTION

Sample	G3-1706-1	G22-1706-1	G25-1806-1			
Lab. No. / Sample matrix	JN2549#Soil	JN2559#Soil	JN2561#Soil			
Asbestos	#	#	#			

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

Date received 19/06/02 Date Reported 02/07/02

Comment: # See Attached

A division of Enviro Net Australia Pty. Ltd
ABN 39 067 499 384 ACN 067 499 385 NATA Reg. 3110
8 Hall Street, Newport, Victoria 3015
Ph: (03) 9398 0277 Fax: (03) 9398 0351
Email: esp@esplabs.com.au

esp
Environmental &
Safety Professionals

Melbourne
Sydney
Newcastle
Launceston

DATE: 26TH JUNE, 2002

ESP JOB NUMBER: 3090L

NAME: MGT ENVIRONMENTAL CONSULTING PTY LTD

ADDRESS: P.O BOX 276
OAKLEIGH, VIC. 3166

SAMPLED FROM: AS RECEIVED

SAMPLED BY: AS RECEIVED   RECEIVED ON: 21ST JUNE, 2002

TEST METHOD: Qualitative identification of asbestos types in bulk samples by polarised light Microscopy (PLM), including dispersion staining using ESP in-house Method No. 2.

ESP LAB. NO.	SAMPLE DESCRIPTION	RESULT
E99945	JN 2549: SOIL (120 x 65 x 3mm)	NO ASBESTOS DETECTED
E99946	JN 2559: SOIL (120 x 65 x 3mm)	NO ASBESTOS DETECTED
E99947	JN 2561: SOIL (120 x 65 x 3mm)	NO ASBESTOS DETECTED

Samples analysed on an as-received basis.

Approved Identifier

Approved Signatory

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CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

The continuing validity and reliability of results is accomplished by monitoring a number of factors:

1. Analysis of duplicates. Duplicates run at a minimum of 5%
2. Recovery of known additions. Spikes run at a minimum of 5% with each batch of samples.
3. Analysis of reagent blanks run with each batch of samples.

1. Analysis of Duplicates

Duplicates are analysed as a matter of course and the data analysed by means of a range chart type system. The range for each duplicate pair is determined and 'normalised' by dividing by the average of the duplicate results.
Once enough data has been gathered control data for each method can be developed. The mean range(R) is determined as:

$$R = \frac{(\Sigma R_i)}{n}$$

Where n = number of observations
and R_i = normalised range

and the variance (square of the standard deviation) is determined as:

$$s_r^2 = \frac{(\Sigma R_i^2 - nR^2)}{n - 1}$$

The control criteria thus become:

Average range	R
Warning Limit	$R + 2s_r$
Control Limit	$R + 3s_r$

The normalised range for each duplicate pair is calculated and compared with the above criteria. (This can be achieve either graphically or by visual comparison of the data).
Since the limits are based on 95% and 90% confidence levels respectively, the following actions are taken, based on these statistical parameters.

Control Limit

If one measurement exceeds the C.L. repeat the analysis. If the repeat is within the C.L. continue analyses. If it exceeds the C.L. discontinue analyses and correct the problem.

Warning Limit

If two out of three successive points exceed the W.L. analyse another sample. If the next point is less than the W.L. continue analyses, if the next point exceeds the W.L. discontinue analyses and correct the problem.

*** Particular care needs to be taken with some soil samples with regard to sample homogeneity, especially with regard to 'organics' analyses. Statistical analysis may indicate a problem exists when in fact the problem is really only sample homogeneity.

2. Recovery of known additions.

The recovery of known additions is used to verify the absence of matrix effects and absence of interferences. Recovery from standards is used to verify method performance. Recovery data is compared against acceptance criteria published in Standards Methods for Examination of Water and Waste water, or appropriate U.S. EPA Methods.

If recoveries fall outside acceptance criteria, analyses should be discontinued and the problem rectified.

3. Analysis of Reagent Blanks

Reagent blanks are used to monitor purity of reagents and the overall procedural blank.
Reagent blanks are run as a matter of course with each batch for analysis. Unusual or out of the 'norm' results for blanks are investigated and corrective action taken before analysis of any batch is completed.

M. Wright
Laboratory Manager

mgt Environmental Consulting Pty. Ltd.
A.B.N. 50 005 085 521

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2 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr G. Foster

Dear Greg

MGT ANALYTICAL REPORT NO 155670

Please find attached the analysis results for the FAWKNER EA1375 samples received 26/06/02

Yours faithfully

Michael Wright
Laboratory Manager

NATA

mgt Environmental Consulting Pty. Ltd.
3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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Telephone: + 61 3 9564 7055
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Email: mgt@mgtenv.com.au

MGT ANALYSIS REPORT 155670

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA1375

DATE RECEIVED :- 26/06/02

DATE EXTRACTED OR PREPARED :- 26/06/02 - 27/06/02

DATE REPORTED :- 02/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 155670

A total of 1 duplicate, 2 matrix spike % recovery and 2 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

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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	T4-2606-3	T4-2606-3 Dup	T4-2606-7	Spike % Recov	Meth.Bl.(mg/l)	
Lab. No. / Sample matrix	JN4167#Soil	JN4167D#Soil	JN4168#Soil	JN4168S#Soil		
Benzene	<0.01	<0.01	<0.01	101%	<0.001	
Toluene	<0.01	<0.01	<0.01	102%	<0.001	
Ethyl Benzene	<0.01	<0.01	<0.01	102%	<0.001	
Xylenes	<0.01	<0.01	<0.01	106%	<0.001	

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

Date received 26/06/02 Date Reported 02/07/02

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Geo Pollution Management
P.O. Box 441
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Site : FAWKNER EA1375

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

Sample	T4-2606-3	T4-2606-7	Spike % Recov	Meth.Bl.(mg/l)		
Lab. No. / Sample matrix	JN4167#Soil	JN4168#Soil	JN4168S#Soil			
T.R.H. C_6-C_9 Fraction by GC	<20	<20	-	<0.02		
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	101%	<0.05		
T.R.H. C_{15}-C_{28} Fraction by GC	<100	<100	-	<0.1		
T.R.H. C_{29}-C_{36} Fraction by GC	<100	<100	-	<0.1		

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

Date received 26/06/02 Date Reported 02/07/02

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and R_i = normalised range

and the variance (square of the standard deviation) is determined as:

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The control criteria thus become:

Average range	R
Warning Limit	$R + 2s_r$
Control Limit	$R + 3s_r$

The normalised range for each duplicate pair is calculated and compared with the above criteria. (This can be achieve either graphically or by visual comparison of the data).
Since the limits are based on 95% and 90% confidence levels respectively, the following actions are taken, based on these statistical parameters.

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M. Wright
Laboratory Manager

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29 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr G. Foster

Dear Greg

MGT ANALYTICAL REPORT NO 155952

Please find attached the analysis results for the FAWKNER ESA1375 samples received 05/07/02

Yours faithfully

Michael Wright
Laboratory Manager

NATA

mgt Environmental Consulting Pty. Ltd.
3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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MGT ANALYSIS REPORT 155952

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER ESA1375

DATE RECEIVED :- 05/07/02

DATE EXTRACTED OR PREPARED :- 05/07/02 - 06/07/02

DATE REPORTED :- 29/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 155952

A total of 1 duplicate and 1 method blank analyses or sets of analyses were carried out on this batch of samples.

All QA/QC results for duplicates, method blank 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

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3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER ESA1375

HEAVY METALS ELUTRIATE ANALYSIS-METHOD USEPA 6010B (ICP), 7470/1 (CVAA)

Sample	G28-1806-1	G28-1806-1 Dup	Meth.Bl.(mg/l)			
Lab. No. / Sample matrix	JY1114#Soil	JY1114D#Soil				
Nickel	<0.05	<0.05	<0.05			

Results in ppm (mg/l) in leachate.

Date received 05/07/02 Date Reported 29/07/02

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3 Kingston Town Close, Oakleigh, Victoria, 3166, Australia
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CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

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Where n = number of observations
and R_i = normalised range

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M. Wright
Laboratory Manager

NATA

This Laboratory is registered by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in

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A.B.N. 50 005 085 521

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29 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr G. Foster

Dear Greg

MGT ANALYTICAL REPORT NO 155950

Please find attached the analysis results for the FAWKNER ESA1375 samples received 05/07/02

Yours faithfully

Michael Wright
Laboratory Manager

mgt Environmental Consulting Pty. Ltd.
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MGT ANALYSIS REPORT 155950

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER ESA1375

DATE RECEIVED :- 05/07/02

DATE EXTRACTED OR PREPARED :- 05/07/02 - 06/07/02

DATE REPORTED :- 29/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 155950
A total of 1 duplicate, 2 matrix spike % recovery and 2 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

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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER ESA1375

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

Sample	G16-1706-1	G19-1706-1	G20-1706-1	G22-1806-1	G26-1806-1	G27-1806-1
Lab. No. / Sample matrix	JY1088#Soil	JY1089#Soil	JY1090#Soil	JY1091#Soil	JY1092#Soil	JY1093#Soil
Arsenic	-	-	-	<2	27	<2
Chromium	-	-	-	-	-	-
Copper	-	-	-	-	-	-
Manganese	390	-	-	-	150	-
Nickel	110	22	75	140	31	63
Vanadium	15	-	-	-	55	-
Zinc	-	-	-	-	-	-

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

Date received 05/07/02 Date Reported 29/07/02

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Geo Pollution Management
P.O. Box 441
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Victoria 3134

Site : FAWKNER ESA1375

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

Sample	G24-1806-1	G25-1806-1	G25-1806-1 Dup	Spike % Recov	G30-1806-1	G32-1806-1
Lab. No. / Sample matrix	JY1094#Soil	JY1095#Soil	JY1095D#Soil		JY1096#Soil	JY1097#Soil
Arsenic	-	-	-	-	-	-
Chromium	-	-	-	-	-	-
Copper	-	-	-	-	-	91
Manganese	110	-	-	-	830	-
Nickel	24	150	140	90%	160	190
Vanadium	120	-	-	-	34	-
Zinc	10	61	60	103%	120	-

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

Date received 05/07/02 Date Reported 29/07/02

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Geo Pollution Management
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Site : FAWKNER ESA1375

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

Sample	G33-1806-1	G35-1806-1	G1-1706-1	G3-1706-1	G5-1706-1	G7-1706-1
Lab. No. / Sample matrix	JY1098#Soil	JY1099#Soil	JY1100#Soil	JY1101#Soil	JY1102#Soil	JY1103#Soil
Arsenic	-	-	-	-	-	<2
Chromium	-	-	-	-	-	-
Copper	22	49	-	-	-	-
Manganese	230	-	60	180	330	-
Nickel	48	110	-	-	-	-
Vanadium	20	-	39	82	52	38
Zinc	-	-	-	-	-	-

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

Date received 05/07/02 Date Reported 29/07/02

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Site : FAWKNER ESA1375

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

Sample	G9-1706-1	G14-1706-1	G23-1806-1	G17-1706-1	G28-1806-1	G18-1806-1
Lab. No. / Sample matrix	JY1104#Soil	JY1105#Soil	JY1106#Soil	JY1107#Soil	JY1108#Soil	JY1109#Soil
Arsenic	-	-	-	-	-	-
Chromium	-	-	-	-	-	-
Copper	-	-	-	-	-	-
Manganese	-	-	79	340	810	110
Nickel	-	-	14	-	-	-
Vanadium	40	48	72	34	42	21
Zinc	-	-	-	-	-	-

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

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Site : FAWKNER ESA1375

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

Sample	G29-1806-2	T2-1806-2	G21-1806-1	M-1806	Meth.Bl.(mg/l)	
Lab. No. / Sample matrix	JY1110#Soil	JY1111#Soil	JY1112#Soil	JY1113#Soil		
Arsenic	-	-	5.3	7.7	<0.02	
Chromium	-	-	45	43	<0.05	
Copper	-	-	-	-	<0.05	
Manganese	-	-	-	-	<0.05	
Nickel	8.6	83	-	-	<0.05	
Vanadium	-	-	-	-	<0.5	
Zinc	-	-	-	-	<0.05	

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

Date received 05/07/02 Date Reported 29/07/02

NATA Accredited Laboratory
Number: 1261
This laboratory is accredited by the National Association of Testing Authorities, Australia. The tests reported herein have been performed in accordance with its

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Geo Pollution Management
P.O. Box 441
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Victoria 3134

Site : FAWKNER ESA1375

POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	G23-1806-1	Meth.Bl.(mg/l)	Spike % Recov			
Lab. No. / Sample matrix	JY1106#Soil					
Naphthalene	<0.1	<0.001	110%			
Acenaphthylene	<0.1	<0.001	104%			
Acenaphthene	<0.1	<0.001	112%			
Fluorene	<0.1	<0.001	106%			
Phenanthrene	<0.1	<0.001	112%			
Anthracene	<0.1	<0.001	112%			
Fluoranthrene	<0.1	<0.001	110%			
Pyrene	<0.1	<0.001	112%			
Benzo(a)anthracene	<0.1	<0.001	108%			
Chrysene	<0.1	<0.001	110%			
Benzo(b)fluoranthene	<0.1	<0.001	88%			
Benzo(k)fluoranthene	<0.1	<0.001	98%			
Benzo(a)pyrene	<0.1	<0.001	88%			
Dibenzo(a,h)anthracene	<0.1	<0.001	92%			
Benzo(g,h,i)perylene	<0.1	<0.001	112%			
Indeno(1,2,3-cd)pyrene	<0.1	<0.001	110%			

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

Date received 05/07/02 Date Reported 29/07/02

mgt Environmental Consulting Pty. Ltd.
3 Kingston Town Close, Oakleigh, Victoria, 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: (03) 9564 7055
Fax: (03) 9564 7190

CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

The continuing validity and reliability of results is accomplished by monitoring a number of factors:

1. Analysis of duplicates. Duplicates run at a minimum of 5%
2. Recovery of known additions. Spikes run at a minimum of 5% with each batch of samples.
3. Analysis of reagent blanks run with each batch of samples.

1. Analysis of Duplicates

Duplicates are analysed as a matter of course and the data analysed by means of a range chart type system. The range for each duplicate pair is determined and 'normalised' by dividing by the average of the duplicate results.
Once enough data has been gathered control data for each method can be developed. The mean range(R) is determined as:

$$R = \frac{(\Sigma R_i)}{n}$$

Where n = number of observations
and R_i = normalised range

and the variance (square of the standard deviation) is determined as:

$$s_r^2 = \frac{(\Sigma R_i^2 - nR^2)}{n - 1}$$

The control criteria thus become:

Average range	R
Warning Limit	$R + 2s_r$
Control Limit	$R + 3s_r$

The normalised range for each duplicate pair is calculated and compared with the above criteria. (This can be achieve either graphically or by visual comparison of the data). Since the limits are based on 95% and 90% confidence levels respectively, the following actions are taken, based on these statistical parameters.

Control Limit

If one measurement exceeds the C.L. repeat the analysis. If the repeat is within the C.L. continue analyses. If it exceeds the C.L. discontinue analyses and correct the problem.

Warning Limit

If two out of three successive points exceed the W.L. analyse another sample. If the next point is less than the W.L. continue analyses, if the next point exceeds the W.L. discontinue analyses and correct the problem.

*** Particular care needs to be taken with some soil samples with regard to sample homogeneity, especially with regard to 'organics' analyses. Statistical analysis may indicate a problem exists when in fact the problem is really only sample homogeneity.

2. Recovery of known additions.

The recovery of known additions is used to verify the absence of matrix effects and absence of interferences. Recovery from standards is used to verify method performance. Recovery data is compared against acceptance criteria published in Standards Methods for Examination of Water and Waste water, or appropriate U.S. EPA Methods.

If recoveries fall outside acceptance criteria, analyses should be discontinued and the problem rectified.

3. Analysis of Reagent Blanks

Reagent blanks are used to monitor purity of reagents and the overall procedural blank. Reagent blanks are run as a matter of course with each batch for analysis. Unusual or out of the 'norm' results for blanks are investigated and corrective action taken before analysis of any batch is completed.

M. Wright
Laboratory Manager

mgt Environmental Consulting Pty. Ltd.
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: + 61 3 9564 7055
Fax + 61 3 9564 7190
Email: mgt@mgtenv.com.au

26 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr T. Russell

Dear Tim

MGT ANALYTICAL REPORT NO 156194

Please find attached the analysis results for the FAWKNER EA1375 samples received 15/07/02

Yours faithfully

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

MGT ANALYSIS REPORT 156194

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA1375

DATE RECEIVED :- 15/07/02

DATE EXTRACTED OR PREPARED :- 15/07/02 - 16/07/02

DATE REPORTED :- 26/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 156194

A total of 2 matrix spike % recovery and 3 method blank analyses or sets of analyses were carried out on this batch of samples.

All QA/QC results for 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

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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
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	MW1-1107-1	MW1-1107-5	C-1107	T3-1107	Spike % Recov	Meth.Bl. (mg/l)
Lab. No. / Sample matrix	JY2817#Soil	JY2818#Soil	JY2819#Soil	JY2820#Water	JY2820S#Water	
Benzene	<0.01	<0.01	<0.01	<0.001	107%	<0.001
Toluene	<0.01	<0.01	<0.01	<0.001	104%	<0.001
Ethyl Benzene	<0.01	<0.01	<0.01	<0.001	97%	<0.001
Xylenes	<0.01	<0.01	<0.01	<0.01	103%	<0.001

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

Date received 15/07/02 Date Reported 26/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	T3-1107	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JY2820#Water					
Naphthalene	<0.001	<0.001				
Acenaphthylene	<0.001	<0.001				
Acenaphthene	<0.001	<0.001				
Fluorene	<0.001	<0.001				
Phenanthrene	<0.001	<0.001				
Anthracene	<0.001	<0.001				
Fluoranthrene	<0.001	<0.001				
Pyrene	<0.001	<0.001				
Benzo(a)anthracene	<0.001	<0.001				
Chrysene	<0.001	<0.001				
Benzo(b)fluoranthene	<0.001	<0.001				
Benzo(k)fluoranthene	<0.001	<0.001				
Benzo(a)pyrene	<0.001	<0.001				
Dibenzo(a,h)anthracene	<0.001	<0.001				
Benzo(g,h,i)perylene	<0.001	<0.001				
Indeno(1,2,3-cd)pyrene	<0.001	<0.001				

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

Date received 15/07/02 Date Reported 26/07/02

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Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	MW1-1107-1	MW1-1107-5	C-1107	T3-1107	Spike % Recov	Meth.Bl.(mg/l)
Lab. No. / Sample matrix	JY2817#Soil	JY2818#Soil	JY2819#Soil	JY2820#Water	JY2820S#Water	
T.R.H. C_6-C_9 Fraction by GC	<20	<20	<20	<0.02	-	<0.02
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	<50	0.46	102%	<0.05
T.R.H. C_{15}-C_{28} Fraction by GC	160	<100	<100	0.80	-	<0.1
T.R.H. C_{29}-C_{36} Fraction by GC	980	<100	580	<0.1	-	<0.1

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

Date received 15/07/02   Date Reported 26/07/02

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CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

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3. Analysis of Reagent Blanks

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M. Wright
Laboratory Manager

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A.C.N. 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
Fax (03) 9564 7190
Email: mgt@majestic.com.au

30 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Dr K. Schwab

Dear Karin

MGT ANALYTICAL REPORT NO 156331

Please find attached the analysis results for the FAWKNER EA 1375 samples received 19/07/02

Yours faithfully

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

MGT ANALYSIS REPORT 156331

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA 1375

DATE RECEIVED :- 19/07/02

DATE EXTRACTED OR PREPARED :- 19/07/02 - 20/07/02

DATE REPORTED :- 30/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 156331

A total of 2 method blank analyses or sets of analyses were carried out on this batch of samples.

All QA/QC results for 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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	MW1-1907	MW2-1907	MW3-1907			
Lab. No. / Sample matrix	JY3605#Water	JY3606#Water	JY3607#Water			
Total Dissolved Solids	8200	7500	7400			

Results in ppm (soils mg/kg dry, waters mg/1.) except where specified otherwise.

Date received 19/07/02 Date Reported 30/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	MW1-1907	MW2-1907	MW3-1907	EQ-1907	Methd Blk	
Lab. No. / Sample matrix	JY3605#Water	JY3606#Water	JY3607#Water	JY3608#Water		
Benzene	<0.001	<0.001	<0.001	<0.001	<0.001	
Toluene	<0.001	<0.001	<0.001	<0.001	<0.001	
Ethyl Benzene	<0.001	<0.001	<0.001	<0.001	<0.001	
Xylenes	<0.001	<0.001	<0.001	<0.001	<0.001	

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

Date received 19/07/02 Date Reported 30/07/02

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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	MW1-1907	MW2-1907	MW3-1907	EQ-1907	Methd Blk	
Lab. No. / Sample matrix	JY3605#Water	JY3606#Water	JY3607#Water	JY3608#Water		
T.R.H. C_6-C_9 Fraction by GC	<0.02	<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	<0.05	
T.R.H. C_{15}-C_{28} Fraction by GC	<0.1	<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	<0.1	

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

Date received 19/07/02 Date Reported 30/07/02

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3 Kingston Town Close, Oakleigh, Victoria, 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
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CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS
VALIDITY AND RELIABILITY OF TEST RESULTS

The continuing validity and reliability of results is accomplished by monitoring a number of factors:

1. Analysis of duplicates. Duplicates run at a minimum of 5%
2. Recovery of known additions. Spikes run at a minimum of 5% with each batch of samples.
3. Analysis of reagent blanks run with each batch of samples.

1. Analysis of Duplicates

Duplicates are analysed as a matter of course and the data analysed by means of a range chart type system. The range for each duplicate pair is determined and 'normalised' by dividing by the average of the duplicate results.
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$$R = \frac{(\Sigma R_i)}{n}$$

Where n = number of observations
and R_i = normalised range

and the variance (square of the standard deviation) is determined as:

$$s_r^2 = \frac{(\Sigma R_i^2 - nR^2)}{n-1}$$

The control criteria thus become:

Average range	R
Warning Limit	$R + 2s_r$
Control Limit	$R + 3s_r$

The normalised range for each duplicate pair is calculated and compared with the above criteria. (This can be achieve either graphically or by visual comparison of the data).
Since the limits are based on 95% and 90% confidence levels respectively, the following actions are taken, based on these statistical parameters.

Control Limit

If one measurement exceeds the C.L. repeat the analysis. If the repeat is within the C.L. continue analyses. If it exceeds the C.L. discontinue analyses and correct the problem.

Warning Limit

If two out of three successive points exceed the W.L. analyse another sample. If the next point is less than the W.L. continue analyses, if the next point exceeds the W.L. discontinue analyses and correct the problem.

*** Particular care needs to be taken with some soil samples with regard to sample homogeneity, especially with regard to 'organics' analyses. Statistical analysis may indicate a problem exists when in fact the problem is really only sample homogeneity.

2. Recovery of known additions.

The recovery of known additions is used to verify the absence of matrix effects and absence of interferences. Recovery from standards is used to verify method performance. Recovery data is compared against acceptance criteria published in Standards Methods for Examination of Water and Waste water, or appropriate U.S. EPA Methods.

If recoveries fall outside acceptance criteria, analyses should be discontinued and the problem rectified.

3. Analysis of Reagent Blanks

Reagent blanks are used to monitor purity of reagents and the overall procedural blank.
Reagent blanks are run as a matter of course with each batch for analysis. Unusual or out of the 'norm' results for blanks are investigated and corrective action taken before analysis of any batch is completed.

M. Wright
Laboratory Manager

ADVERTISED
PLAN

mgt Environmental Consulting Pty. Ltd.
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: + 61 3 9564 7055
Fax + 61 3 9564 7190
Email: mgt@mgtenv.com.au

30 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr G. Foster

Dear Greg

MGT ANALYTICAL REPORT NO 156350

Please find attached the analysis results for the FAWKNER EA1375 samples received 22/07/02

Yours faithfully

Michael Wright
Laboratory Manager

NATA

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 156350

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA1375

DATE RECEIVED :- 22/07/02

DATE EXTRACTED OR PREPARED :- 22/07/02 - 23/07/02

DATE REPORTED :- 30/07/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 156350
A total of 1 duplicate, 2 matrix spike % recovery and 2 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
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Fax+ 61 3 9564 7190
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	MW1-1107-2	MW1-1107-2Dup	MW1-1107-3	EQ-1107	Spike % Recov	Meth.Bl.(mg/l)
Lab. No. / Sample matrix	JY3750#Soil	JY3750D#Soil	JY3751#Soil	JY3752#Water	JY3752S#Water	
Benzene	<0.01	<0.01	<0.01	<0.001	103%	<0.001
Toluene	<0.01	<0.01	<0.01	<0.001	99%	<0.001
Ethyl Benzene	<0.01	<0.01	<0.01	<0.001	95%	<0.001
Xylenes	<0.01	<0.01	<0.01	<0.001	102%	<0.001

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

Date received 22/07/02   Date Reported 30/07/02

mgt Environmental Consulting Pty. Ltd.
3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
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Email: mgt@mgtenv.com.au

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	MW1-1107-2	MW1-1107-3	EQ-1107	Spike % Recov	Meth.Bl.(mg/l)	
Lab. No. / Sample matrix	JY3750#Soil	JY3751#Soil	JY3752#Water	JY3752S#Water		
T.R.H. C_6-C_9 Fraction by GC	<20	<20	<0.02	-	<0.02	
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	<0.05	96%	<0.05	
T.R.H. C_{15}-C_{28} Fraction by GC	<100	<100	<0.1	-	<0.1	
T.R.H. C_{29}-C_{36} Fraction by GC	<100	<100	<0.1	-	<0.1	

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

Date received 22/07/02 Date Reported 30/07/02

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CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

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Average range	R
Warning Limit	$R + 2s_r$
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Fax (03) 9564 7190
Email: mgt@majestic.com.au

30 July 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Dr K. Schwab

Dear Karin

MGT ANALYTICAL REPORT NO 156418

Please find attached the analysis results for the FAWKNER EA1375 samples received 24/07/02

Yours faithfully

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

MGT ANALYSIS REPORT 156418

CLIENT :-	Geo Pollution Management P.O. Box 441 Ringwood Victoria 3134
SITE :-	FAWKNER EA1375
DATE RECEIVED :-	24/07/02
DATE EXTRACTED OR PREPARED :-	24/07/02 - 25/07/02
DATE REPORTED :-	30/07/02
QA/QC DETAILS :-	The QA/QC for these samples is detailed in this report no : 156418 A total of 3 method blank analyses or sets of analyses were carried out on this batch of samples. All QA/QC results for 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

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Telephone: + 61 3 9564 7055
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	T2-1107	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JY4262#Water					
Benzene	<0.001	<0.001				
Toluene	<0.001	<0.001				
Ethyl Benzene	<0.001	<0.001				
Xylenes	<0.001	<0.001				

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

Date received 24/07/02 Date Reported 30/07/02

mgt Environmental Consulting Pty. Ltd.
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Telephone: + 61 3 9564 7055
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

POLYNUCLEAR AROMATIC HYDROCARBONS US EPA SW846 METHOD 8310(HPLC) & 8270C(GC/MS).

Sample	T2-1107	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JY4262#Water					
Naphthalene	<0.001	<0.001				
Acenaphthylene	<0.001	<0.001				
Acenaphthene	<0.001	<0.001				
Fluorene	<0.001	<0.001				
Phenanthrene	<0.001	<0.001				
Anthracene	<0.001	<0.001				
Fluoranthrene	<0.001	<0.001				
Pyrene	<0.001	<0.001				
Benzo(a)anthracene	<0.001	<0.001				
Chrysene	<0.001	<0.001				
Benzo(b)fluoranthene	<0.001	<0.001				
Benzo(k)fluoranthene	<0.001	<0.001				
Benzo(a)pyrene	<0.001	<0.001				
Dibenzo(a,h)anthracene	<0.001	<0.001				
Benzo(g,h,i)perylene	<0.001	<0.001				
Indeno(1,2,3-cd)pyrene	<0.001	<0.001				

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

Date received 24/07/02 Date Reported 30/07/02

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Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

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

Sample	T2-1107	Meth.Bl.(mg/l)				
Lab. No. / Sample matrix	JY4262#Water					
T.R.H. C_6-C_9 Fraction by GC	0.11	<0.02				
T.R.H. C_{10}-C_{14} Fraction by GC	0.68	<0.05				
T.R.H. C_{15}-C_{28} Fraction by GC	1.8	<0.1				
T.R.H. C_{29}-C_{36} Fraction by GC	<0.1	<0.1				

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

Date received 24/07/02 Date Reported 30/07/02

Report No. 156418

mgt Environmental Consulting Pty. Ltd.
3 Kingston Town Close, Oakleigh, Victoria, 3166, Australia
Postal Address: P.O. Box 276, Oakleigh, Victoria, 3166, Australia
Telephone: (03) 9564 7055
Fax: (03) 9564 7190

CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

The continuing validity and reliability of results is accomplished by monitoring a number of factors:

1. Analysis of duplicates. Duplicates run at a minimum of 5%
2. Recovery of known additions. Spikes run at a minimum of 5% with each batch of samples.
3. Analysis of reagent blanks run with each batch of samples.

1. Analysis of Duplicates

Duplicates are analysed as a matter of course and the data analysed by means of a range chart type system. The range for each duplicate pair is determined and 'normalised' by dividing by the average of the duplicate results.
Once enough data has been gathered control data for each method can be developed. The mean range(R) is determined as:

$$R = \frac{(\Sigma R_i)}{n}$$

Where n = number of observations
and R_i = normalised range

and the variance (square of the standard deviation) is determined as:

$$s_r^2 = \frac{(\Sigma R_i^2 - nR^2)}{n-1}$$

The control criteria thus become:

Average range	R
Warning Limit	$R + 2s_r$
Control Limit	$R + 3s_r$

The normalised range for each duplicate pair is calculated and compared with the above criteria. (This can be achieve either graphically or by visual comparison of the data). Since the limits are based on 95% and 90% confidence levels respectively, the following actions are taken, based on these statistical parameters.

Control Limit

If one measurement exceeds the C.L. repeat the analysis. If the repeat is within the C.L. continue analyses. If it exceeds the C.L. discontinue analyses and correct the problem.

Warning Limit

If two out of three successive points exceed the W.L. analyse another sample. If the next point is less than the W.L. continue analyses, if the next point exceeds the W.L. discontinue analyses and correct the problem.

*** Particular care needs to be taken with some soil samples with regard to sample homogeneity, especially with regard to 'organics' analyses. Statistical analysis may indicate a problem exists when in fact the problem is really only sample homogeneity.

2. Recovery of known additions.

The recovery of known additions is used to verify the absence of matrix effects and absence of interferences. Recovery from standards is used to verify method performance. Recovery data is compared against acceptance criteria published in Standards Methods for Examination of Water and Waste water, or appropriate U.S. EPA Methods.

If recoveries fall outside acceptance criteria, analyses should be discontinued and the problem rectified.

3. Analysis of Reagent Blanks

Reagent blanks are used to monitor purity of reagents and the overall procedural blank. Reagent blanks are run as a matter of course with each batch for analysis. Unusual or out of the 'norm' results for blanks are investigated and corrective action taken before analysis of any batch is completed.

M. Wright
Laboratory Manager

mgt Environmental Consulting Pty. Ltd.
A.C.N. 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
Fax (03) 9564 7190
Email: mgt@majestic.com.au

6 August 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr G. Foster

Dear Greg

MGT ANALYTICAL REPORT NO 156487

Please find attached the analysis results for the FAWKNER EA 1375 samples received 26/07/02

Yours faithfully

Michael Wright
Laboratory Manager

NATA

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 156487

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA 1375

DATE RECEIVED :- 26/07/02

DATE EXTRACTED OR PREPARED :- 26/07/02 - 27/07/02

DATE REPORTED :- 06/08/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 156487
A total of 2 duplicate, 2 matrix spike % recovery and 2 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

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	G5-1706-2	G5-1706-2 Dup	G16-1706-2	G20-1706-2	G22-1806-2	G23-1806-2
Lab. No. / Sample matrix	JY4726#Soil	JY4726D#Soil	JY4727#Soil	JY4728#Soil	JY4729#Soil	JY4730#Soil
Manganese	-	-	-	-	-	-
Nickel	-	-	15	46	7.5	-
Vanadium	49	48	-	-	-	37

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

Date received 26/07/02 Date Reported 06/08/02

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
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Email: mgt@mgtenv.com.au

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	G24-1806-2	G25-1806-2	G27-1806-2	G30-1806-2	G33-1806-2	G35-1806-2
Lab. No. / Sample matrix	JY4731#Soil	JY4732#Soil	JY4733#Soil	JY4734#Soil	JY4735#Soil	JY4736#Soil
Manganese	-	-	-	16	-	-
Nickel	-	96	25	<5	43	95
Vanadium	37	-	-	-	-	-

Extraction with H2O2, HNO3 & HCl. Results in ppm (soils mg/kg dry, waters mg/1).

Date received 26/07/02 Date Reported 06/08/02

mgt Environmental Consulting Pty. Ltd.
3 Kingston Town Close, Oakleigh, Victoria 3166, Australia
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	T2-1806-3	Meth.Bl.(mg/l)	Spike % Recov			
Lab. No. / Sample matrix	JY4737#Soil					
Manganese	-	<0.05	97%			
Nickel	35	<0.05	98%			
Vanadium	-	<0.5	109%			

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

Date received 26/07/02 Date Reported 06/08/02

mgt Environmental Consulting Pty. Ltd.
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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA 1375

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

Sample	C-1107	C-1107 Dup	Meth.Bl.(mg/l)	MW1-1107-1	Spike % Recov	
Lab. No. / Sample matrix	JY4725#Soil	JY4725D#Soil		JY4738#Soil		
T.R.H. C_6-C_9 Fraction by GC	<20	<20	<0.02	<20	-	
T.R.H. C_{10}-C_{14} Fraction by GC	<50	<50	<0.05	<50	91%	
T.R.H. C_{15}-C_{28} Fraction by GC	120	130	<0.1	160	-	
T.R.H. C_{29}-C_{36} Fraction by GC	490	500	<0.1	760	-	

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

Date received 26/07/02 Date Reported 06/08/02

Report No. 156487

mgt Environmental Consulting Pty. Ltd.
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CRITERIA USED TO ASSESS QUALITY CONTROL RESULTS VALIDITY AND RELIABILITY OF TEST RESULTS

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Where n = number of observations
and R_i = normalised range

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Average range	R
Warning Limit	$R + 2s_r$
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M. Wright
Laboratory Manager

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6 August 2002

Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Att: Mr G. Foster

Dear Greg

MGT ANALYTICAL REPORT NO 156488

Please find attached the analysis results for the FAWKNER EA1375 samples received 26/07/02

Yours faithfully

Michael Wright
Laboratory Manager

NATA

mgt Environmental Consulting Pty. Ltd.
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MGT ANALYSIS REPORT 156488

CLIENT :- Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

SITE :- FAWKNER EA1375

DATE RECEIVED :- 26/07/02

DATE EXTRACTED OR PREPARED :- 26/07/02 - 27/07/02

DATE REPORTED :- 06/08/02

QA/QC DETAILS :- The QA/QC for these samples is detailed in this report no : 156488

A total of 1 duplicate and 1 method blank analyses or sets of analyses were carried out on this batch of samples.

All QA/QC results for duplicates, method blank 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

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Geo Pollution Management
P.O. Box 441
Ringwood
Victoria 3134

Site : FAWKNER EA1375

HEAVY METALS ELUTRIATE ANALYSIS-METHOD USEPA 6010B (ICP), 7470/1 (CVAA)

Sample	G24-1806-1	G24-1806-1Dup	G28-1806-1	G30-1806-1	G32-1806-1	Meth.Bl.(mg/l)
Lab. No. / Sample matrix	JY4739#Soil	JY4739D#Soil	JY4740#Soil	JY4741#Soil	JY4742#Soil	
Arsenic	-	-	<0.02	-	-	<0.02
Manganese	-	-	-	<0.05	-	<0.05
Nickel	-	-	-	-	<0.05	<0.05
Vanadium	<0.5	<0.5	-	-	-	<0.5

Results in ppm (mg/l) in leachate.

Date received 26/07/02 Date Reported 06/08/02

Report No. 156488

mgt Environmental Consulting Pty. Ltd.
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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3. Analysis of reagent blanks run with each batch of samples.

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Once enough data has been gathered control data for each method can be developed. The mean range(R) is determined as:

$$R = \frac{(\Sigma R_i)}{n}$$

Where n = number of observations
and R_i = normalised range

and the variance (square of the standard deviation) is determined as:

$$s_r^2 = \frac{(\Sigma R_i^2 - nR^2)}{n - 1}$$

The control criteria thus become:

Average range	R
Warning Limit	$R + 2s_r$
Control Limit	$R + 3s_r$

The normalised range for each duplicate pair is calculated and compared with the above criteria. (This can be achieve either graphically or by visual comparison of the data).
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M. Wright
Laboratory Manager

APPENDIX G.2

FINAL NATA LABORATORY REPORTS
(Secondary Laboratory) – QA Split Duplicates

Explosives
Water & Waste Water
Environmental
Food & Pharmaceuticals
Biological

GRIBBLES
Analytical Laboratories
A.C.N. 006 823 089
585 Blackburn Road
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Analytical Report

GEOPOLLUTION MANAGEMENT
24/107-113 HEATHERDALE ROAD
P.O BOX 441
RINGWOOD
VIC 3134

Contact	:	MARISA FEHER
Batch Number	:	0211821
Job Ref	:	EA 1375
Sample(s) Received	:	19/06/2002
Report No	:	67612

Methods:

100 Moisture Content
404FIMS Mercury by Vapour AAS, Dry Weight
406-MS Elements by ICP-MS, Dry Weight
501-FID Total Petroleum Hydrocarbons, Dry Weight
504P&T BTEX/MAH (Purge & Trap), Dry Weight
504P&T MAH/TPH, Surrogate
512-MS Polyaromatic Hydrocarbons, Dry Weight
512-MS Polyaromatic Hydrocarbons, Surrogates
512-MS Total Polyaromatic Hydrocarbons, Dry Weight
513P&T C6-C9 (Purge & Trap), Dry Weight

Attached Results Approved by:

George Michaloudis
B.Sci. (Hons)
Senior Analyst - Volatiles

Anthony Crane
B.App.Sci. (Environmental)
Laboratory Manager

John Levvey
Dip.App.Sci (Chemistry)
Senior Analyst - Metals

Daniel Dam
B.App.Sci (Chemistry)
Senior Analyst - Semi-Volatiles

This Laboratory is accredited by the National Association of Testing Authorities, Australia. The tests reported herin have been performed in accordance with its terms of accreditation.

NATA ENDORSED DOCUMENT

Document may not be reproduced except in full.

NATA Accreditation No. 1645 (Chemical Testing) NATA Accreditation No. 14278 (Biological Testing)

** This is the Final Report which supersedes any reports previously issued relating to the sample(s) included.*

All samples tested as submitted by client.

 # Denotes methods not covered by NATA terms of accreditation

GRIBBLES Analytical Laboratories
A.C.N. 006 823 08?
585 Blackburn Road
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 033

Results

Report No: 67612

	0211821/001 G7-1706-1DUP SOIL 19/06/2002	0211821/002 G23-1806-1DUP SOIL 19/06/2002	0211821/003 T1-1806-1DUP SOIL 19/06/2002
BTEX/MAH (PURGE & TRAP), DRY WEIGHT			
Method: 504P&T Units: mg/kg			
Benzene	-	-	<0.1
Ethylbenzene	-	-	<0.1
Isopropyl Benzene (Cumene)	-	-	<0.1
Styrene	-	-	<0.1
Toluene	-	-	<0.1
Xylenes	-	-	<0.1
ELEMENTS by ICP-MS, DRY WEIGHT			
Method: 406-MS Units: mg/kg			
Arsenic	<2.0	4.4	-
Cadmium	<1.0	<1.0	-
Chromium	21	39	-
Copper	5.9	11	-
Lead	13	13	-
Nickel	7.9	26	-
Zinc	13	19	-
HYDROCARBONS (C6-C9), DRY WEIGHT			
Method: 513P&T Units: mg/kg			
TPH C6 - C9	-	-	<20
HYDROCARBONS (TPH), DRY WEIGHT			
Method: 501-FID Units: mg/kg			
TPH C10 - C14	-	-	<20
TPH C15 - C28	-	-	<20
TPH C29 - C36	-	-	<20
MERCURY by VAPOUR-AAS, DRY WEIGHT			
Method: 404FIMS Units: mg/kg			
Mercury	<0.01	<0.01	-
OVEN MOISTURE CONTENT			
Method: 100 Units: % w/w			
Moisture	10.5	9.1	14.2
POLYAROMATIC HYDROCARBONS, DRY WEIGHT			
Method: 512-MS Units: mg/kg			
Acenaphthene	<0.1	<0.1	-
Acenaphthylene	<0.1	<0.1	-
Anthracene	<0.1	<0.1	-
Benz(a)anthracene	<0.1	0.2	-
Benzo(a)pyrene	<0.05	0.28	-
Benzo(b)fluoranthene	<0.1	0.2	-
Benzo(g,h,i)perylene	<0.1	0.2	-
Benzo(k)fluoranthene	<0.1	0.2	-
Chrysene	<0.1	0.3	-

Explosives
Water & Waste Water
Environmental
Food & Pharmaceuticals
Biological

GRIBBLES
Analytical Laboratories
A.C.N. 006 823 089
585 Blackburn Road
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Results

Report No: 67612

	0211821/001 G7-1706-1DUP SOIL 19/06/2002	0211821/002 G23-1806-1DUP SOIL 19/06/2002	0211821/003 T1-1806-1DUP SOIL 19/06/2002
Dibenz(a,h)anthracene	<0.1	<0.1	-
Fluoranthene	<0.1	0.6	-
Fluorene	<0.1	<0.1	-
Indeno(1,2,3-c,d)pyrene	<0.1	0.2	-
Naphthalene	<0.1	<0.1	-
Phenanthrene	<0.1	0.4	-
Pyrene	0.1	0.6	-
Total PAH's	<2	4	-
POLYAROMATIC HYDROCARBONS, SURROGATE RECOVERIES			
Method: 512-MS Units: % Recovered			
Pyrene-d10, Surrogate Rec.	97.0	96.0	-
VOLATILES (PURGE & TRAP), SURROGATE RECOVERIES			
Method: 504P&T Units: % Recovered			
Toluene-d8, Surrogate Rec.	-	-	114

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A.C.N. 006 823 08
585 Blackburn Roac
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 033

Quality Results

Report No: 67612

	0211821Q004 QCBlank METHOD BLANK 21/06/2002	0211821Q005 Spike Recovery LAB CONTROL 21/06/2002	0211821Q006 Spike Recovery SOIL 21/06/2002	0211821Q007 QCBlank METHOD BLANK 24/06/2002	0211821Q008 QCBlank METHOD BLANK 24/06/2002
BTEX/<MAH (PURGE & TRAP), AS RECEIVED					
Method: 504P&T Units: mg/kg					
Benzene	-	-	-	-	<0.1
Ethylbenzene	-	-	-	-	<0.1
Isopropyl Benzene (Cumene)	-	-	-	-	<0.1
Toluene	-	-	-	-	<0.1
Vinyl Benzene (Styrene)	-	-	-	-	<0.1
Xylenes	-	-	-	-	<0.1
HYDROCARBONS (C6-C9), AS RECEIVED					
Method: 513P&T Units: mg/kg					
TPH C6 - C9	-	-	-	<20	-
HYDROCARBONS, AS RECEIVED					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	<20	-	-	-	-
TPH C15 - C28	<20	-	-	-	-
TPH C29 - C36	<20	-	-	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
TPH C10 - C14	-	105	96.7	-	-
TPH C15 - C28	-	98.0	94.4	-	-
TPH C29 - C36	-	99.5	88.8	-	-

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A.C.N. 006 823 089
585 Blackburn Road
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Quality Results

Report No: 67612

	0211821Q009 Spike Recovery RECOVERY 24/06/2002	0211821Q010 Spike Recovery lab control 24/06/2002	0211821Q011 Duplicate 0211821/001 25/06/2002	0211821Q012 Spike Recovery 0211821/001 24/06/2002	0211821Q013 Spike Recovery Lab Control 25/06/2002
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Arsenic	-	-	4.4	-	-
Cadmium	-	-	17.0	-	-
Copper	-	-	17.2	-	-
Lead	-	-	3.0	-	-
Zinc	-	-	25.0	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Arsenic	-	-	-	101	111
Cadmium	-	-	-	97.3	97.6
Chromium	-	-	-	-	125
Copper	-	-	-	118	114
Lead	-	-	-	102	100
Nickel	-	-	-	124	117
Zinc	-	-	-	102	110
TPH C6 - C9	66.3	81.8	-	-	-
Benzene	62.0	80.0	-	-	-
Ethylbenzene	66.0	79.0	-	-	-
Isopropyl Benzene (Cumene)	63.0	76.0	-	-	-
Toluene	65.0	81.6	-	-	-
Vinyl Benzene (Styrene)	65.0	75.0	-	-	-
Xylenes	67.5	79.3	-	-	-

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585 Blackburn Road
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 033

Quality Results

Report No: 67612

	0211821Q014 QCBlank METHOD BLK 21/06/2002	0211821Q015 Spike Recovery LAB CONTROL 21/06/2002	0211821Q016 Spike Recovery SOIL 21/06/2002
POLYAROMATIC HYDROCARBONS, AS RECEIVED			
Method: 512-MS Units: mg/kg			
Acenaphthene	<0.05	-	-
Acenaphthylene	<0.05	-	-
Anthracene	<0.05	-	-
Benz(a)anthracene	<0.05	-	-
Benzo(a)pyrene	<0.05	-	-
Benzo(b)fluoranthene	<0.05	-	-
Benzo(g,h,i)perylene	<0.05	-	-
Benzo(k)fluoranthene	<0.05	-	-
Chrysene	<0.05	-	-
Dibenz(a,h)anthracene	<0.05	-	-
Fluoranthene	<0.05	-	-
Fluorene	<0.05	-	-
Indeno(1,2,3-c,d)pyrene	<0.05	-	-
Naphthalene	<0.05	-	-
Phenanthrene	<0.05	-	-
Pyrene	<0.05	-	-
QC RESULTS - SPIKED SAMPLES			
Percent Recovery, %			
Acenaphthene	-	102	105
Acenaphthylene	-	106	122
Anthracene	-	89.0	97.5
Benz(a)anthracene	-	99.0	92.5
Benzo(a)pyrene	-	98.0	92.5
Benzo(b)fluoranthene	-	105	85.0
Benzo(g,h,i)perylene	-	98.0	82.5
Benzo(k)fluoranthene	-	119	122
Chrysene	-	102	100
Dibenz(a,h)anthracene	-	101	72.5
Fluoranthene	-	98.0	97.5
Fluorene	-	97.0	90.0
Indeno(1,2,3-c,d)pyrene	-	90.0	108
Naphthalene	-	113	112
Phenanthrene	-	104	95.0
Pyrene	-	101	97.5

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Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Analytical Report

GEOPOLLUTION MANAGEMENT
24/107-113 HEATHERDALE ROAD
P.O BOX 441
RINGWOOD
VIC 3134

Contact	:	GREG FOSTER
Batch Number	:	0214022
Job Ref	:	EA1375
Sample(s) Received	:	22/07/2002
Report No	:	70218

Methods:

238/246 Solids - Suspended & Dissolved, mg/L
501-FID Total Petroleum Hydrocarbons, mg/L
504P&T BTEX/MAH (Purge & Trap), mg/L
504P&T MAH/TPH, Surrogate
513P&T C6-C9 (Purge & Trap), mg/L

Attached Results Approved by:

George Michaloudis
B.Sci. (Hons)
Senior Analyst - Volatiles

Susan Groth
B.Sc.
Senior Analyst - Waters

Anthony Crane
B.App.Sci. (Environmental)
Laboratory Manager

Daniel Dam
B.App.Sci (Chemistry)
Senior Analyst - Semi-Volatiles

NATA

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All samples tested as submitted by client.

 # Denotes methods not covered by NATA terms of accreditation

Reported: Friday, 26 July 2002

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Analytical Laboratories
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Fax (03) 9562 03

Results

Report No: 70218

	0214022/001 *MW1-* *1907DUP* *Water* *19/07/2002*
BTEX/MAH (PURGE & TRAP)	
Method: 504P&T Units: mg/L	
Benzene	<0.001
Ethylbenzene	<0.001
Toluene	<0.001
Xylenes	<0.001
HYDROCARBONS (C6-C9) in SOLUTION	
Method: 513P&T Units: mg/L	
TPH C6 - C9	<0.05
HYDROCARBONS in SOLUTION	
Method: 501-FID Units: mg/L	
TPH C10 - C14	0.06
TPH C15 - C28	<0.1
TPH C29 - C36	<0.1
SOLIDS CONTENT ANALYSIS	
Method: 238/246 Units: mg/L	
Total Dissolved Solids	5300
VOLATILES (PURGE & TRAP), SURROGATE RECOVERIES	
Method: 504P&T Units: % Recovered	
Toluene-d8, Surrogate Rec.	130

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Quality Results

Report No: 70218

	0214022Q002 QCBlank METHOD BLANK 23/07/2002	0214022Q003 Spike Recovery LAB CONTROL 23/07/2002	0214022Q004 Spike Recovery WATER 23/07/2002	0214022Q005 QCBlank METHOD BLANK 25/07/2002	0214022Q006 QCBlank METHOD BLANK 25/07/2002
BTEX/MAH (PURGE & TRAP)					
Method: 504P&T Units: mg/L					
Benzene	-	-	-	-	<0.001
Ethylbenzene	-	-	-	-	<0.001
Isopropyl Benzene (Cumene)	-	-	-	-	<0.001
meta & para-Xylenes	-	-	-	-	<0.001
ortho-Xylene	-	-	-	-	<0.001
Styrene	-	-	-	-	<0.001
Toluene	-	-	-	-	<0.001
Xylenes	-	-	-	-	<0.001
HYDROCARBONS (C6-C9) in SOLUTION					
Method: 513P&T Units: mg/L					
TPH C6 - C9	-	-	-	<0.05	-
HYDROCARBONS in SOLUTION					
Method: 501-FID Units: mg/L					
TPH C10 - C14	<0.04	-	-	-	-
TPH C15 - C28	<0.1	-	-	-	-
TPH C29 - C36	<0.1	-	-	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
TPH C10 - C14	-	97.2	92.4	-	-
TPH C15 - C28	-	84.5	84.0	-	-
TPH C29 - C36	-	87.2	76.0	-	-

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585 Blackburn Roa
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Telephone (03) 9562 5899
Fax (03) 9562 03

Quality Results

Report No: 70218

	0214022Q007 Spike Recovery RECOVERY	0214022Q008 Spike Recovery lab control
	25/07/2002	25/07/2002
QC RESULTS - SPIKED SAMPLES		
Percent Recovery, %		
meta & para-Xylenes	89.0	106
ortho-Xylene	92.0	71.0
TPH C6 - C9	100	91.0
Benzene	98.0	93.0
Ethylbenzene	88.0	83.0
Isopropyl Benzene (Cumene)	88.0	-
Toluene	92.0	94.0
Vinyl Benzene (Styrene)	92.0	77.0
Xylenes	91.0	89.0

Quality Results provided in this report are for laboratory Quality Control purposes.

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Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Replacement Analytical Report

Replacement for Report no: 67612, issued on: 26 Jun 2002

GEOPOLLUTION MANAGEMENT
24/107-113 HEATHERDALE ROAD
P.O BOX 441
RINGWOOD
VIC 3134

Contact	: MARISA FEHER
Batch Number	: 0211821
Job Ref	: EA 1375
Sample(s) Received	: 19/06/2002 .. 08/07/2002
Replacement Report No	: 68988

Methods:

100 Moisture Content
404FIMS Mercury by Vapour AAS, Dry Weight
406-MS Elements by ICP-MS, Dry Weight
501-FID Total Petroleum Hydrocarbons, Dry Weight
504P&T BTEX/MAH (Purge & Trap), Dry Weight
504P&T MAH/TPH, Surrogate
512-MS Polyaromatic Hydrocarbons, Dry Weight
512-MS Polyaromatic Hydrocarbons, Surrogates
512-MS Total Polyaromatic Hydrocarbons, Dry Weight
513P&T C6-C9 (Purge & Trap), Dry Weight

Attached Results Approved by:

George Michaloudis
B.Sci. (Hons)
Senior Analyst - Volatiles

John Levvey
Dip.App.Sci (Chemistry)
Senior Analyst - Metals

Anthony Crane
B.App.Sci. (Environmental)
Laboratory Manager

Daniel Dam
B.App.Sci (Chemistry)
Senior Analyst - Semi-Volatiles

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All samples tested as submitted by client.

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Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Results

Replacement Report No: 68988

	0211821/001 G7-1706-1DUP SOIL 19/06/02	0211821/002 G23-1806-1DUP SOIL 19/06/02	0211821/003 T1-1806-1DUP SOIL 19/06/02	0211821/017 G7-1706-1DUP RETEST SOIL 08/07/02	0211821/018 G23-1806-1DUP RETEST SOIL 08/07/02
BTEX/MAH (PURGE & TRAP), DRY WEIGHT					
Method: 504P&T Units: mg/kg					
Benzene	-	-	<0.1	-	-
Ethylbenzene	-	-	<0.1	-	-
Isopropyl Benzene (Cumene)	-	-	<0.1	-	-
Styrene	-	-	<0.1	-	-
Toluene	-	-	<0.1	-	-
Xylenes	-	-	<0.1	-	-
ELEMENTS by ICP-MS, DRY WEIGHT					
Method: 406-MS Units: mg/kg					
Arsenic	<2.0	4.4	-	<2.0	-
Cadmium	<1.0	<1.0	-	-	-
Chromium	21	39	-	-	-
Copper	5.9	11	-	-	-
Lead	13	13	-	-	-
Nickel	7.9	26	-	-	37
Zinc	13	19	-	14	-
HYDROCARBONS (C6-C9), DRY WEIGHT					
Method: 513P&T Units: mg/kg					
TPH C6 - C9	-	-	<20		
HYDROCARBONS (TPH), DRY WEIGHT					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	-	-	<20		
TPH C15 - C28	-	-	<20		
TPH C29 - C36	-	-	<20		
MERCURY by VAPOUR-AAS, DRY WEIGHT					
Method: 404FIMS Units: mg/kg					
Mercury	<0.01	<0.01	-	-	-
OVEN MOISTURE CONTENT					
Method: 100 Units: % w/w					
Moisture	10.5	9.1	14.2	11.8	9.8
POLYAROMATIC HYDROCARBONS, DRY WEIGHT					
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.1	<0.1	-	-	<0.1
Acenaphthylene	<0.1	<0.1	-	-	<0.1
Anthracene	<0.1	<0.1	-	-	<0.1
Benz(a)anthracene	<0.1	0.2	-	-	<0.1
Benzo(a)pyrene	<0.05	0.28	-	-	<0.05
Benzo(b)fluoranthene	<0.1	0.2	-	-	<0.1
Benzo(g,h,i)perylene	<0.1	0.2	-	-	<0.1
Benzo(k)fluoranthene	<0.1	0.2	-	-	<0.1
Chrysene	<0.1	0.3	-	-	<0.1

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A.C.N. 006 823 089
585 Blackburn Road
Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Results

Replacement Report No: 68988

	0211821/001 G7-1706-1DUP SOIL 19/06/02	0211821/002 G23-1806-1DUP SOIL 19/06/02	0211821/003 T1-1806-1DUP SOIL 19/06/02	0211821/017 G7-1706-1DUP RETEST SOIL 08/07/02	0211821/018 G23-1806-1DUP RETEST SOIL 08/07/02
Dibenz(a,h)anthracene	<0.1	<0.1	-	-	<0.1
Fluoranthene	<0.1	0.6	-	-	<0.1
Fluorene	<0.1	<0.1	-	-	<0.1
Indeno(1,2,3-c,d)pyrene	<0.1	0.2	-	-	<0.1
Naphthalene	<0.1	<0.1	-	-	<0.1
Phenanthrene	<0.1	0.4	-	-	<0.1
Pyrene	0.1	0.6	-	-	<0.1
Total PAH's	<2	4	-	-	<2
POLYAROMATIC HYDROCARBONS, SURROGATE RECOVERIES					
Method: 512-MS Units: % Recovered					
Pyrene-d10, Surrogate Rec.	97.0	96.0	-	-	77.0
VOLATILES (PURGE & TRAP), SURROGATE RECOVERIES					
Method: 504P&T Units: % Recovered					
Toluene-d8, Surrogate Rec.	-	-	114	-	-

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Fax (03) 9562 0336

Quality Results

Replacement Report No: 68988

	0211821Q004 QCBlank METHOD BLANK 21/06/02	0211821Q005 Spike Recovery LAB CONTROL 21/06/02	0211821Q006 Spike Recovery SOIL 21/06/02	0211821Q007 QCBlank METHOD BLANK 24/06/02	0211821Q008 QCBlank METHOD BLANK 24/06/02
BTEX/<MAH (PURGE & TRAP), AS RECEIVED					
Method: 504P&T Units: mg/kg					
Benzene	-	-	-	-	<0.1
Ethylbenzene	-	-	-	-	<0.1
Isopropyl Benzene (Cumene)	-	-	-	-	<0.1
Toluene	-	-	-	-	<0.1
Vinyl Benzene (Styrene)	-	-	-	-	<0.1
Xylenes	-	-	-	-	<0.1
HYDROCARBONS (C6-C9), AS RECEIVED					
Method: 513P&T Units: mg/kg					
TPH C6 - C9	-	-	-	<20	-
HYDROCARBONS, AS RECEIVED					
Method: 501-FID Units: mg/kg					
TPH C10 - C14	<20	-	-	-	-
TPH C15 - C28	<20	-	-	-	-
TPH C29 - C36	<20	-	-	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
TPH C10 - C14	-	105	96.7	-	-
TPH C15 - C28	-	98.0	94.4	-	-
TPH C29 - C36	-	99.5	88.8	-	-

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Notting Hill, Victoria, Australia 3168
Telephone (03) 9562 5899
Fax (03) 9562 0336

Quality Results

Replacement Report No: 68988

	0211821Q009 Spike Recovery RECOVERY 24/06/02	0211821Q010 Spike Recovery lab control 24/06/02	0211821Q011 Duplicate 0211821/001 25/06/02	0211821Q012 Spike Recovery 0211821/001 24/06/02	0211821Q013 Spike Recovery Lab Control 25/06/02
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Arsenic	-	-	4.4	-	-
Cadmium	-	-	17.0	-	-
Copper	-	-	17.2	-	-
Lead	-	-	3.0	-	-
Zinc	-	-	25.0	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Arsenic	-	-	-	101	111
Cadmium	-	-	-	97.3	97.6
Chromium	-	-	-	-	125
Copper	-	-	-	118	114
Lead	-	-	-	102	100
Nickel	-	-	-	124	117
Zinc	-	-	-	102	110
TPH C6 - C9	66.3	81.8	-	-	-
Benzene	62.0	80.0	-	-	-
Ethylbenzene	66.0	79.0	-	-	-
Isopropyl Benzene (Cumene)	63.0	76.0	-	-	-
Toluene	65.0	81.6	-	-	-
Vinyl Benzene (Styrene)	65.0	75.0	-	-	-
Xylenes	67.5	79.3	-	-	-

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585 Blackburn Road
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Fax (03) 9562 0336

Quality Results

Replacement Report No: 68988

	0211821Q014 QCBlank METHOD BLK 21/06/02	0211821Q015 Spike Recovery LAB CONTROL 21/06/02	0211821Q016 Spike Recovery SOIL 21/06/02	0211821Q019 Duplicate 0211821/017 10/07/02	0211821Q020 Spike Recovery 0211821/017 09/07/02
POLYAROMATIC HYDROCARBONS, AS RECEIVED					
Method: 512-MS Units: mg/kg					
Acenaphthene	<0.05	-	-	-	-
Acenaphthylene	<0.05	-	-	-	-
Anthracene	<0.05	-	-	-	-
Benz(a)anthracene	<0.05	-	-	-	-
Benzo(a)pyrene	<0.05	-	-	-	-
Benzo(b)fluoranthene	<0.05	-	-	-	-
Benzo(g,h,i)perylene	<0.05	-	-	-	-
Benzo(k)fluoranthene	<0.05	-	-	-	-
Chrysene	<0.05	-	-	-	-
Dibenz(a,h)anthracene	<0.05	-	-	-	-
Fluoranthene	<0.05	-	-	-	-
Fluorene	<0.05	-	-	-	-
Indeno(1,2,3-c,d)pyrene	<0.05	-	-	-	-
Naphthalene	<0.05	-	-	-	-
Phenanthrene	<0.05	-	-	-	-
Pyrene	<0.05	-	-	-	-
QC RESULTS - DUPLICATES					
Relative Percent Difference, %					
Arsenic	-	-	-	<1.0	-
Chromium	-	-	-	12.9	-
Nickel	-	-	-	7.5	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
Arsenic	-	-	-	-	79.8
Chromium	-	-	-	-	106
Nickel	-	-	-	-	90.6
Acenaphthene	-	102	105	-	-
Acenaphthylene	-	106	122	-	-
Anthracene	-	89.0	97.5	-	-
Benz(a)anthracene	-	99.0	92.5	-	-
Benzo(a)pyrene	-	98.0	92.5	-	-
Benzo(b)fluoranthene	-	105	85.0	-	-
Benzo(g,h,i)perylene	-	98.0	82.5	-	-
Benzo(k)fluoranthene	-	119	122	-	-
Chrysene	-	102	100	-	-
Dibenz(a,h)anthracene	-	101	72.5	-	-
Fluoranthene	-	98.0	97.5	-	-
Fluorene	-	97.0	90.0	-	-
Indeno(1,2,3-c,d)pyrene	-	90.0	108	-	-
Naphthalene	-	113	112	-	-
Phenanthrene	-	104	95.0	-	-

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Biological

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Fax (03) 9562 0336

Quality Results

Replacement Report No: 68988

	0211821Q014 QCBlank METHOD BLK 21/06/02	0211821Q015 Spike Recovery LAB CONTROL 21/06/02	0211821Q016 Spike Recovery SOIL 21/06/02	0211821Q019 Duplicate 0211821/017 10/07/02	0211821Q020 Spike Recovery 0211821/017 09/07/02
Pyrene	-	101	97.5	-	-

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Quality Results

Replacement Report No: 68988

	0211821Q021 Spike Recovery Lab Control 10/07/02	0211821Q022 QCBlank METHOD BLK 08/07/02	0211821Q023 Spike Recovery LAB CONTROL 08/07/02	0211821Q024 Spike Recovery SOIL 08/07/02
POLYAROMATIC HYDROCARBONS, AS RECEIVED				
Method: 512-MS Units: mg/kg				
Acenaphthene	-	<0.05	-	-
Acenaphthylene	-	<0.05	-	-
Anthracene	-	<0.05	-	-
Benz(a)anthracene	-	<0.05	-	-
Benzo(a)pyrene	-	<0.05	-	-
Benzo(b)fluoranthene	-	<0.05	-	-
Benzo(g,h,i)perylene	-	<0.05	-	-
Benzo(k)fluoranthene	-	<0.05	-	-
Chrysene	-	<0.05	-	-
Dibenz(a,h)anthracene	-	<0.05	-	-
Fluoranthene	-	<0.05	-	-
Fluorene	-	<0.05	-	-
Indeno(1,2,3-c,d)pyrene	-	<0.05	-	-
Naphthalene	-	<0.05	-	-
Phenanthrene	-	<0.05	-	-
Pyrene	-	<0.05	-	-
QC RESULTS - SPIKED SAMPLES				
Percent Recovery, %				
Arsenic	95.5	-	-	-
Chromium	96.3	-	-	-
Nickel	91.7	-	-	-
Acenaphthene	-	-	88.0	100
Acenaphthylene	-	-	99.0	112
Anthracene	-	-	115	128
Benz(a)anthracene	-	-	105	100
Benzo(a)pyrene	-	-	94.0	102
Benzo(b)fluoranthene	-	-	102	80.0
Benzo(g,h,i)perylene	-	-	87.0	97.5
Benzo(k)fluoranthene	-	-	115	115
Chrysene	-	-	108	125
Dibenz(a,h)anthracene	-	-	97.0	97.5
Fluoranthene	-	-	108	112
Fluorene	-	-	92.0	102
Indeno(1,2,3-c,d)pyrene	-	-	110	115
Naphthalene	-	-	98.0	112
Phenanthrene	-	-	96.0	100
Pyrene	-	-	107	112

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Results

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Analytical Report

GEOPOLLUTION MANAGEMENT
24/107-113 HEATHERDALE ROAD
P.O BOX 441
RINGWOOD
VIC 3134

Contact : GREG FOSTER
Batch Number : 0214382
Job Ref : EA1375
Sample(s) Received : 26/07/2002
Report No : 70766

Methods:

501-FID Total Petroleum Hydrocarbons, mg/L
513P&T C6-C9 (Purge & Trap), mg/L

Attached Results Approved by:

George Michaloudis
B.Sci. (Hons)
Senior Analyst - Volatiles

Anthony Crane
B.App.Sci. (Environmental)
Laboratory Manager

Daniel Dam
B.App.Sci (Chemistry)
Senior Analyst - Semi-Volatiles

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All samples tested as submitted by client.

 # Denotes methods not covered by NATA terms of accreditation

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Results

Report No: 70766

	0214382/001 MW1-1907DUP
	Water
	19/07/2002
HYDROCARBONS (C6-C9) in SOLUTION	
Method: 513P&T Units: mg/L	
TPH C6 - C9	<0.05
HYDROCARBONS in SOLUTION	
Method: 501-FID Units: mg/L	
TPH C10 - C14	0.04
TPH C15 - C28	<0.1
TPH C29 - C36	<0.1

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Quality Results

Report No: 70766

	0214382Q002 QCBlank METHOD BLANK 29/07/2002	0214382Q003 Spike Recovery LAB CONTROL 29/07/2002	0214382Q004 Spike Recovery WATER 29/07/2002	0214382Q005 QCBlank METHOD BLANK 1/08/2002	0214382Q006 Spike Recovery lab control 1/08/2002
HYDROCARBONS (C6-C9) in SOLUTION					
Method: 513P&T Units: mg/L					
TPH C6 - C9	-	-	-	<0.05	-
HYDROCARBONS in SOLUTION					
Method: 501-FID Units: mg/L					
TPH C10 - C14	<0.04	-	-	-	-
TPH C15 - C28	<0.1	-	-	-	-
TPH C29 - C36	<0.1	-	-	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
TPH C6 - C9	-	-	-	-	79.0
TPH C10 - C14	-	114	92.0	-	-
TPH C15 - C28	-	100	84.0	-	-
TPH C29 - C36	-	102	80.0	-	-

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Quality Results

Report No: 70766

	0214382Q007
	Spike
	Recovery
	RECOVERY
	1/08/2002
QC RESULTS - SPIKED SAMPLES	
Percent Recovery, %	
TPH C6 - C9	91.0

Quality Results provided in this report are for laboratory Quality Control purposes.

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Analytical Report

GEOPOLLUTION MANAGEMENT
24/107-113 HEATHERDALE ROAD
P.O BOX 441
RINGWOOD
VIC 3134

Contact	:	GREG FOSTER
Batch Number	:	0214986
Job Ref	:	EA1375
Sample(s) Received	:	06/08/2002
Report No	:	71472

Methods:

501-FID Total Petroleum Hydrocarbons, mg/L
504P&T BTEX/MAH (Purge & Trap), mg/L
504P&T MAH/TPH, Surrogate
513P&T C6-C9 (Purge & Trap), mg/L

Attached Results Approved by:

George Michaloudis
B.Sci. (Hons)
Senior Analyst - Volatiles

Anthony Crane
B.App.Sci. (Environmental)
Laboratory Manager

Daniel Dam
B.App.Sci (Chemistry)
Senior Analyst - Semi-Volatiles

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 # Denotes methods not covered by NATA terms of accreditation

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Results

Report No: 71472

	0214986/001 MW1-0608
	WATER 6/08/2002
BTEX/MAH (PURGE & TRAP)	
Method: 504P&T Units: mg/L	
Benzene	<0.001
Ethylbenzene	<0.001
Toluene	<0.001
Xylenes	<0.001
HYDROCARBONS (C6-C9) in SOLUTION	
Method: 513P&T Units: mg/L	
TPH C6 - C9	<0.05
HYDROCARBONS in SOLUTION	
Method: 501-FID Units: mg/L	
TPH C10 - C14	<0.04
TPH C15 - C28	<0.1
TPH C29 - C36	<0.1
VOLATILES (PURGE & TRAP), SURROGATE RECOVERIES	
Method: 504P&T Units: % Recovered	
Toluene-d8, Surrogate Rec.	86.2

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Quality Results

Report No: 71472

	0214986Q002 QCBlank METHOD BLANK 5/08/2002	0214986Q003 Spike Recovery LAB CONTROL 5/08/2002	0214986Q004 Spike Recovery WATER 5/08/2002	0214986Q005 QCBlank METHOD BLANK 8/08/2002	0214986Q006 QCBlank METHOD BLANK 8/08/2002
BTEX/MAH (PURGE & TRAP)					
Method: 504P&T Units: mg/L					
Benzene	-	-	-	-	<0.001
Ethylbenzene	-	-	-	-	<0.001
Toluene	-	-	-	-	<0.001
Xylenes	-	-	-	-	<0.001
HYDROCARBONS (C6-C9) in SOLUTION					
Method: 513P&T Units: mg/L					
TPH C6 - C9	-	-	-	<0.05	-
HYDROCARBONS in SOLUTION					
Method: 501-FID Units: mg/L					
TPH C10 - C14	<0.04	-	-	-	-
TPH C15 - C28	<0.1	-	-	-	-
TPH C29 - C36	<0.1	-	-	-	-
QC RESULTS - SPIKED SAMPLES					
Percent Recovery, %					
TPH C10 - C14	-	100	90.0	-	-
TPH C15 - C28	-	92.0	90.4	-	-
TPH C29 - C36	-	89.0	88.0	-	-

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Quality Results

Report No: 71472

	0214986Q007 Spike Recovery RECOVERY	0214986Q008 Spike Recovery lab control
	8/08/2002	8/08/2002
QC RESULTS - SPIKED SAMPLES		
Percent Recovery, %		
TPH C6 - C9	-	136
Benzene	101	114
Toluene	102	111

Quality Results provided in this report are for laboratory Quality Control purposes.

Batch: EM13197
Sub Batch: 0
Date of Issue: 14/08/2002
Client: GEOPOLLUTION MANAGEMENT P/L
Client Reference: FAWKNER

CERTIFICATE OF ANALYSIS

METHOD	ANALYSIS DESCRIPTION	UNIT	LOR	SAMPLE IDENTIFICATION
		Laboratory I.D.		1
		Date Sampled		07/08/2002
				MW1-0608DUP
EP-071-WS	**TOTAL PETROLEUM HYDROCARBONS**			
EP-071-WS	C6 - C9 Fraction	ug/L	20	<20
EP-071-WS	C10 - C14 Fraction	ug/L	50	<50
EP-071-WS	C15 - C28 Fraction	ug/L	100	<100
EP-071-WS	C29 - C36 Fraction	ug/L	50	<50
EP-080-WS	**BTEX**			
EP-080-WS	Benzene	ug/L	1	<1
EP-080-WS	Toluene	ug/L	2	<2
EP-080-WS	Chlorobenzene	ug/L	2	<2
EP-080-WS	Ethylbenzene	ug/L	2	<2
EP-080-WS	meta- & para-Xylene	ug/L	2	<2
EP-080-WS	ortho-Xylene	ug/L	2	<2
EP-080S-WS	**VOLATILE TPH/BTEX COMPOUND SURROGATES**			
EP-080S-WS	1.2-Dichloroethane-D4	%	1	109
EP-080S-WS	Toluene-D8	%	1	101
EP-080S-WS	4-Bromofluorobenzene	%	1	92

ALS Environmental

CERTIFICATE OF ANALYSIS

CONTACT:	MR GREG FOSTER	**BATCH:**	EM13197
CLIENT:	GEOPOLLUTION MANAGEMENT P/L	**SUB BATCH:**	0
ADDRESS:	PO BOX 441 RINGWOOD VIC 3134	**LABORATORY:**	MELBOURNE
		DATE RECEIVED:	07/08/2002
		DATE COMPLETED:	14/08/2002
		SAMPLE TYPE:	WATER
ORDER No.:	EA 1375	**No. of SAMPLES:**	1
PROJECT:	FAWKNER		

COMMENTS

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number.
All pages of this report have been checked and approved for release.

ISSUING LABORATORY: MELBOURNE

Address
Unit 6 / Adamco Business Park
2 Sarton Road
Clayton VIC 3168

Phone: 61-3-9538 4444
Fax: 61-3-9538 4400
Email: keith.evans@alsenviro.com

Signatory P J Blow

LABORATORIES

AUSTRALASIA
Brisbane, Melbourne, Sydney, Newcastle, Auckland, Hong Kong, Singapore, Kuala Lumpur, Bogor, Mumbai

AMERICAS
Vancouver, Santiago, Antofagasta, Lima

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NATA No. 13785

Australian Laboratory Services Pty Ltd (ABN 84 009 936 029)

A Campbell Brothers Limited Company

Batch: EM13197
Sub Batch: 0
Date of Issue: 14/08/2002
Client: GEOPOLLUTION MANAGEMENT P/L
Client Reference: FAWKNER

QUALITY CONTROL REPORT

METHOD	ANALYSIS DESCRIPTION	UNIT	LOR	1	100	101	102	103	104				
	Laboratory I.D.			1	100	101	102	103	104				
	Date Sampled			07/08/2002	07/08/2002	07/08/2002	07/08/2002	07/08/2002	07/08/2002				
	SAMPLE IDENTIFICATION			MW1-0608DUP CHK	METHOD BLANK	VTPHW698 SCS	VTPHW698 DCS	VTPHW698 MS	VTPHW698 MSD				
	CHECKS AND SPIKES												
EP-071-WS	TOTAL PETROLEUM HYDROCARBONS												
EP-071-WS	C6 - C9 Fraction	ug/L	20	<20	<20	97.0%	94.0%	22.0%	22.0%				
EP-071-WS	C10 - C14 Fraction	ug/L	50	<50	<50	74.0%	75.0%	----	----				
EP-071-WS	C15 - C28 Fraction	ug/L	100	<100	<100	92.0%	94.0%	----	----				
EP-071-WS	C29 - C36 Fraction	ug/L	50	<50	<50	88.0%	92.0%	----	----				
EP-080-WS	BTEX												
EP-080-WS	Benzene	ug/L	1	<1	<1	99.9%	98.7%	84.8%	90.1%				
EP-080-WS	Toluene	ug/L	2	<2	<2	101%	103%	72.3%	70.7%				
EP-080-WS	Chlorobenzene	ug/L	2	<2	<2	101%	102%	67.5%	71.3%				
EP-080-WS	Ethylbenzene	ug/L	2	<2	<2	101%	101%	----	----				
EP-080-WS	meta- & para-Xylene	ug/L	2	<2	<2	98.3%	99.2%	----	----				
EP-080-WS	ortho-Xylene	ug/L	2	<2	<2	101%	99.5%	----	----				
EP-080S-WS	VOLATILE TPH/BTEX COMPOUND SURROGATES												
EP-080S-WS	1.2-Dichloroethane-D4	%	1	108	95	103	96	120	123				
EP-080S-WS	Toluene-D8	%	1	120	92	100	98	72	71				
EP-080S-WS	4-Bromofluorobenzene	%	1	102	91	101	97	76	75				

ALS Environmental

ORGANICS QUALITY CONTROL REPORT

BATCH NO: EM13197

DATE BATCH RECEIVED: 7/8/02

CLIENT: Geopollution Management

DATE BATCH COMPLETED: 14/8/02

PROJECT: Fawkner

Method Code	Test	Matrix	Method Reference		QC Lot Number	Date Samples Extracted	Date Samples Analysed
			Extraction	Analysis			
EP-071	TPH(SV)	Water	USEPA 3510B	USEPA 8015A	VTPHW698	8/8/02	8/8/02
EP-071/80	TPH(V)/BTEX	Water	USEPA 5030A	USEPA 8260A	VVOCW698	11/8/02	11/8/02

Where applicable, internal standards are added to sample extracts prior to instrumental analysis. Absolute peak areas and retention times fall within the criteria specified in the individual methods. Continuing Calibration (CC) standards are run at the frequency of 1 in every 20 samples.

Abbreviations: SV = semivolatile, V = volatile

*: In-house methods

BATCH QUALITY CONTROL - CONTROL SPIKE/DUPLICATE

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

Vol QC Lot : VVOCW698
Semi-Vol QC Lot : VTPHW698

MATRIX : Water

COMPOUND	BATCH ADJ. (MDL)	Blank Conc.	Spike Conc.	Spike Results				Control Limits		
				SCS Conc.	DCS Conc.	Av. Rec.	RPD	Recovery %		RPD
	ug/L	ug/L	ug/L	ug/L	ug/L	%	%	Low	High	%
C6-C9	20	<LOR	200	194	187	95	4	84	117	20
C10-C14	25	<LOR	399	294	298	74	1	51	114	20
C15-C28	25	<LOR	402	369	377	93	2	66	128	20
C29-C36	25	<LOR	400	353	369	90	4	60	122	20

COMMENTS:

1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
2) * : Recovery or RPD falls outside the recommended control limit.
3) MDL = Method Detection Limit
4) LOR = Level Of Reporting

BATCH QUALITY CONTROL

ALS EP-071 : TOTAL PETROLEUM HYDROCARBONS

Svol QC Lot No : VTPHW698
Vol QC Lot No: VVOCW698
Matrix : WATER

SVol Analyst : PD
Vol Analyst X.LIN

COMPOUND	QC DUPLICATE RESULTS		
	EM13197 -1 ug/L	EM13197 -1D ug/L	RPD %
EP-071 : TOTAL PETROLEUM HYDROCARBONS			
C6-C9	<LOR	<LOR	--
C10-C14	<LOR	<LOR	--
C15-C28	<LOR	<LOR	--
C29-C36	<LOR	<LOR	--

BATCH QUALITY CONTROL - MATRIX SPIKE/DUPLICATE

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

Vol QC Lot : VVOCW698
Semi-Vol QC Lot : VTPHW698

SPIKED SAMPLE : EM13131 1
MATRIX : Water

COMPOUND	Sample Results	Spike Level	Spike Results				Control Limits
			MS Conc	MSD Conc	Av. Rec.	RPD	
	ug/L	ug/L	ug/L	ug/L	%	%	RPD
C6-C9	<LOR	100	22.0	22.0	22	0	20
C10-C14	--	399	--	--	--	--	20
C15-C28	--	402	--	--	--	--	20
C29-C36	--	400	--	--	--	--	20

COMMENTS :
1) LOR: level of reporting
2) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/06)
3) * : Recovery or RPD falls outside of the recommended control limits.
4) # : Unable to determine result due to sample matrix.
5) Low surrogate recoveries due to matrix interferences. Repeat analysis confirmed recoveries.

ADVERTISED PLAN

BATCH QUALITY CONTROL - CONTROL SPIKE/DUPLICATE

ALS EP-080 : BTEX ANALYSIS

QC Lot No. : VVOCW698 MATRIX : Water

COMPOUND	BATCH ADJ. (MDL)	Blank Conc.	Spike Conc.	Spike Results				Control Limits		
				SCS Conc.	DCS Conc.	Av. Rec.	RPD	Recovery %		RPD
	ug/L	ug/L	ug/L	ug/L	ug/L	%	%	Low	High	%
Benzene	1.0	<LOR	20	19.97	19.74	99	1	87	117	20
Toluene	1.0	<LOR	20	20.23	20.52	102	1	92	115	20
Chlorobenzene	1.0	<LOR	20	20.11	20.38	101	1	91	116	20
Ethylbenzene	1.0	<LOR	20	20.21	20.25	101	0	92	114	20
m- & p-Xylene	1.0	<LOR	40	39.33	39.69	99	1	89	120	20
o-Xylene	1.0	<LOR	20	20.13	19.90	100	1	91	117	20

COMMENTS :

1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
2) * : Recovery or RPD falls outside the recommended control limit.
3) MDL = Method Detection Limit
4) LOR = Level Of Reporting

BATCH QUALITY CONTROL

ALS EP-071 : TOTAL PETROLEUM HYDROCARBONS
ALS EP-080 : BTEX

Vol QC Lot No : VVOCW698 Vol Analyst : X.LIN
Matrix : WATER

COMPOUND	QC DUPLICATE RESULTS		
	EM13197 -1 ug/L	EM13197 -1D ug/L	RPD %
EP-080 : BTEX			
Benzene	<LOR	<LOR	--
Toluene	<LOR	<LOR	--
Chlorobenzene	<LOR	<LOR	--
Ethylbenzene	<LOR	<LOR	--
meta- & para-Xylene	<LOR	<LOR	--
ortho-Xylene	<LOR	<LOR	--

BATCH QUALITY CONTROL - MATRIX SPIKE/DUPLICATE

ALS EP-080 : BTEX ANALYSIS

QC Lot No. : VVOCW698 SPIKED SAMPLE : EM13131 1
MATRIX : Water

COMPOUND	Sample Results	Spike Level	Spike Results				Control Limits
			MS Conc	MSD Conc	Av. Rec.	RPD	
	ug/L	ug/L	ug/L	ug/L	%	%	RPD
Benzene	<LOR	20	17.0	18.0	87	6	20
Toluene	<LOR	20	14.5	14.1	71	2	20
Chlorobenzene	<LOR	20	13.5	14.3	69	5	20

COMMENTS :

1) LOR: level of reporting
2) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/06)
3) * : Recovery or RPD falls outside of the recommended control limits.

APPENDIX G.3

PRODUCT IDENTIFICATION REPORT

amdel

Job Number: 2M0897
Client: GeoPollution Management
Reference: EA1375
Sample Type: PRODUCT

		E7550 Product Identification*
Client's Id	**Amdel's Id**	(Not NATA accredited for this parameter)
T31907	E10398	**DIESEL**

ND - Unable to identify product
* Product identifications are indicative only

ADVERTISED PLAN

ADVERTISED
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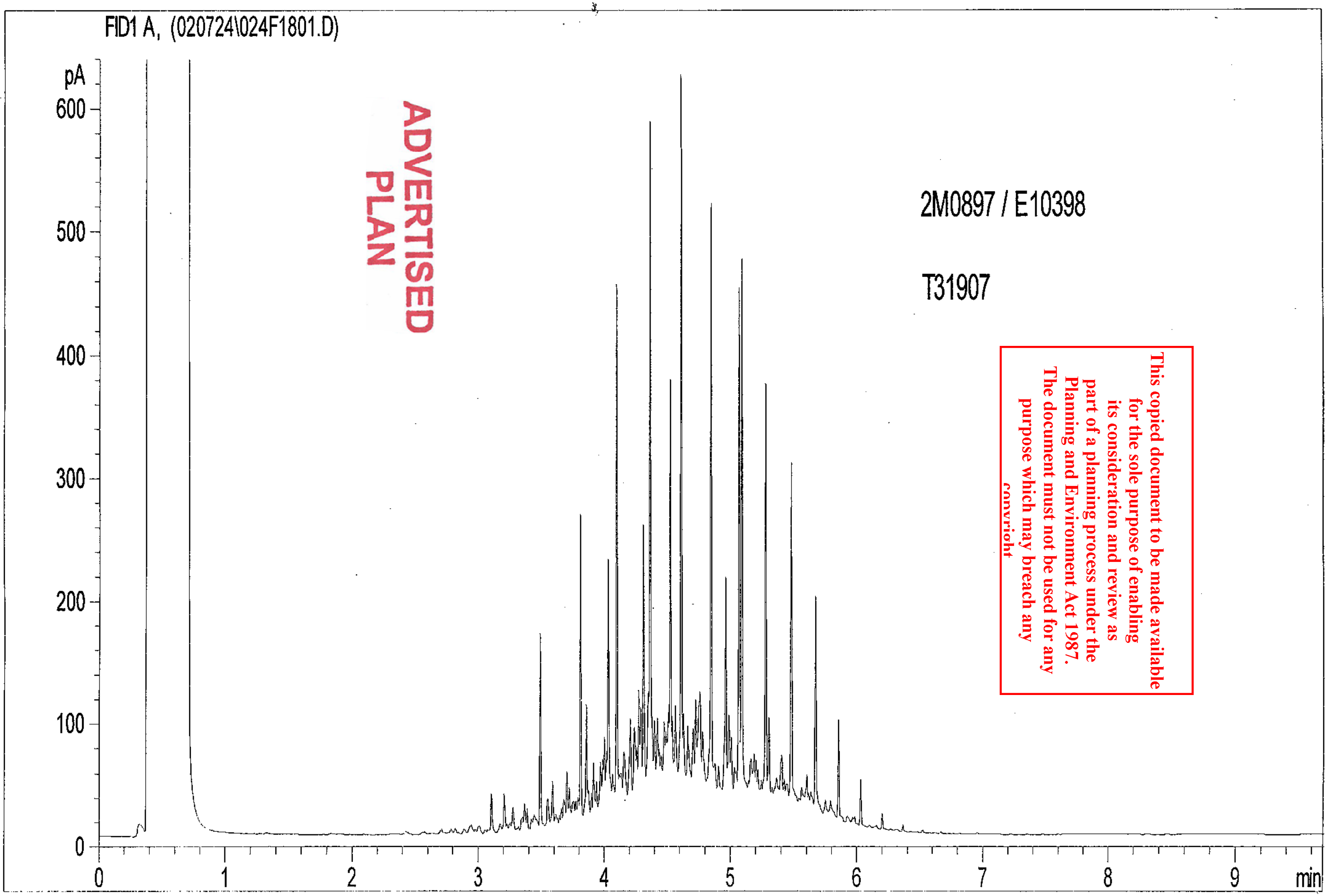
FID1 A, (020724\024F1801.D)
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APPENDIX H

STATISTICAL DATA EVALUATION

GeoPollution Management

95% UCL CALCULATIONS

As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P	Total PAH's	Mn	V
1	0.25	19	11	25	0.05	15	35	0.12	1.09	60	39
3.3	0.25	13	6.5	5.1	0.05	16	22	0.05	1	180	32
2.8	0.25	12	9.3	5.7	0.05	22	52	0.05	1	330	52
3.5	0.25	35	72	30	0.05	16	68	0.05	1	390	38
2.5	0.25	14	14	12	0.05	34	68	0.32	2.74	340	40
12	0.25	50	24	46	0.05	76	120	0.05	1	110	48
2.7	0.25	15	5.2	2.5	0.05	11	18	0.05	1	79	15
2.2	0.25	20	36	86	0.05	14	55	0.05	1	110	34
1	0.25	8.2	34	74	0.05	10	78	0.05	1	150	21
3.1	0.25	2.5	5.2	7.7	0.05	7.8	41	0.05	1	810	72
2.9	0.25	14	24	50	0.05	18	92	0.05	1	830	120
1	0.25	26	35	73	0.05	15	57	0.05	1	230	55
1		45		110			10				42
1				22			61				34
1				75			120				20
27				140							37
				24							
				150							
				31							
				63							
				160							
				190							
				48							
				110							
				96							
				95							

	As	Cd	Cr	Cu	Ni	Hg	Pb	Zn	B(a)P	Total PAH's	Mn	V
MEAN	4.25	0.25	21.05	23.02	66.58	0.05	21.23	59.80	0.08	1.15	301.58	47.17
STD DEV	6.62	0.00	14.22	19.44	52.74	0.00	18.51	33.24	0.08	0.50	264.92	27.52
Variation Coeff CV	1.6	0.0	0.7	0.8	0.8	0.0	0.9	0.6	1.0	0.4	0.9	0.6

CV must be less than 1.2 for Procedure D. If CV >1.2, 95% UCL's were calculated manually using Procedure G**

95% UCL CALC	NA	0.3	28.1	33.1	84.2	0.1	30.8	74.9	0.1	1.4	438.9	59.2
PEAK	27.00	0.25	50.00	72.00	190.00	0.05	76.00	120.00	0.32	2.74	830.00	120.00

NOTE: Where results are below the limit of detection, half the value of detection limit is used for the statistical calculations.

*: NSW EPA (1994) Contaminated Sites Sampling Design Guidelines

Arsenic - Lognormal Distribution

<u>UCL Average</u> 7.185 mg/kg

Total No. of samples 16

Analysis Results (Xi)	Yi	Y (mean)		Sy^2	Sy	H
1.0	0.0000	0.8844	0.7822	0.8959	0.9465	2.6170
3.3	1.1939		0.0958			
2.8	1.0296		0.0211			
3.5	1.2528		0.1357			
2.5	0.9163		0.0010			
12.0	2.4849		2.5615			
2.7	0.9933		0.0118			
2.2	0.7885		0.0092			
1.0	0.0000		0.7822			
3.1	1.1314		0.0610			
2.9	1.0647		0.0325			
1.0	0.0000		0.7822			
1.0	0.0000		0.7822			
1.0	0.0000		0.7822			
1.0	0.0000		0.7822			
27.0	3.2958		5.8148			
Total	14.1512	Total	13.4378			

Value 'H' is taken from Table E in NSW EPA Sampling and Design Guidelines. Calculated from the Sy value and n = total number of samples

APPENDIX I

GROUNDWATER DATA (Victorian Groundwater Database), BORE CONSTRUCTION LICENCE, BORE COMPLETION REPORTS AND WELL DIAGRAMS

EA1375 Fawkner - Victorian Groundwater Database Data - LOCATION REPORT

BORE ID	OLD BORE NO.	RIG NO./ LIC NO.	BORE AUTH	AMG SHEET	AMG ZONE	EAST	NORTH	DATE COMPLETED	TOTAL DEPTH (m)	RLNS	BORE TYPE	USES	DRILL METHOD	LOG	GSD	AQUIF FROM (m)	AQUIF TO (m)	TSS mg/L
Parish of Keelbundora																		
69868	10001	3126	LAND	782212	55	323116	5823807	09/02/73	91.44		GW	NK	ROT	N	Y			
69869	10002	13279	LAND	782212	55	319870	5826840	26/05/80	58		GW	DM	DHH	N	Y	42.5	58	2385
121425	*****	40110	NKN	782212	55	322820	5826400	19/08/92	9		GW	IV	ROA	N	Y			
121426	*****	40110	NKN	782212	55	322810	5826400	19/08/92	11		GW	IV	ROA	N	Y			
121427	*****	40110	NKN	782212	55	322800	5826400	28/10/92	8		GW	IV	DHH	N	Y			
142408	*****	55504	NKN	782222	55	321872	5826287	20/03/00	8		GW	IV	AGH	N	Y			
142409	*****	55504	NKN	782222	55	321868	5826307	20/03/00	8		GW	IV	AGH	N	Y			
142410	*****	55504	NKN	782222	55	321893	5826287	20/03/00	8		GW	IV	AGH	N	Y			
310945	1	NONE	DEM	782212	55	322556	5824267	31/12/55	10.66		NK	NG		N	N			
310946	2	NONE	DEM	782212	55	322556	5824267	31/12/55	9.14		NK	NG		N	N			
310947	3	NONE	DEM	782212	55	322556	5824267	31/12/55	12.19		NK	NG		N	N			
310948	4	NONE	DEM	782212	55	322556	5824267	31/12/60	4.87		NK	NG		N	N			
310949	5	NONE	DEM	782212	55	322556	5824267	31/12/60	18.59		NK	NG		N	N			
310950	6	NONE	DEM	782212	55	322556	5824267	31/12/60	14.02		NK	NG		N	N			
310951	7	NONE	DEM	782212	55	322556	5824267	31/12/60	12.49		NK	NG		N	N			
310952	8	NONE	DEM	782212	55	322556	5824267	31/12/60	4.87		NK	NG		N	N			
310953	9	NONE	DEM	782212	55	322556	5824267	31/12/60	16.15		NK	NG		N	N			
310954	10	NONE	DEM	782212	55	322556	5824267	31/12/60	15.54		NK	NG		N	N			
310955	11	NONE	DEM	782212	55	322556	5824267	31/12/60	15.54		NK	NG		N	N			
310956	12	NONE	DEM	782212	55	322556	5824267	31/12/60	15.54		NK	NG		N	N			
310957	13	NONE	DEM	782212	55	322556	5824267	31/12/60	7.31		NK	NG		N	N			
310958	14	NONE	DEM	782212	55	322556	5824267	31/12/60	7.62		NK	NG		N	N			
310959	15	NONE	DEM	782212	55	322556	5824267	31/12/60	27.12		NK	NG		N	N			
310960	16	NONE	DEM	782212	55	322556	5824267	31/12/60	10.36		NK	NG		N	N			
310961	17	NONE	DEM	782212	55	322556	5824267	31/12/60	17.37		NK	NG		N	N			
310962	18	NONE	DEM	782212	55	322556	5824267	31/12/60	18.28		NK	NG		N	N			
310963	19	NONE	DEM	782212	55	322556	5824267	31/12/60	18.59		NK	NG		N	N			
310964	20	NONE	DEM	782212	55	322556	5824267	31/12/60	19.81		NK	NG		N	N			
310965	21	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310966	22	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310967	23	NONE	SEC	782212	55	322556	5824267	21/07/66	2.13		NK	SE		N	N			
310968	24	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310969	25	NONE	SEC	782212	55	322556	5824267	21/07/66	1.45		NK	SE		N	N			
310970	26	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310971	27	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310972	28	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			

BORE ID	OLD BORE NO.	RIG NO./ LIC NO.	BORE AUTH	AMG SHEET	AMG ZONE	EAST	NORTH	DATE COMPLETED	TOTAL DEPTH (m)	RLNS	BORE TYPE	USES	DRILL METHOD	LOG	GSD	AQUIF FROM (m)	AQUIF TO (m)	TSS mg/L
Parish of Keelbundora (cont'd)																		
310973	29	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310974	30	NONE	SEC	782212	55	322556	5824267	21/07/66	0.84		NK	SE		N	N			
310975	31	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310976	32	NONE	SEC	782212	55	322556	5824267	21/07/66	0.91		NK	SE		N	N			
310977	33	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310978	34	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310979	35	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310980	36	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310981	37	NONE	SEC	782212	55	322556	5824267	21/07/66	0.69		NK	SE		N	N			
310982	38	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310983	39	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310984	40	NONE	SEC	782212	55	322556	5824267	21/07/66	0.46		NK	SE		N	N			
310985	41	NONE	SEC	782212	55	322556	5824267	21/07/66	0.76		NK	SE		N	N			
310986	42	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310987	43	NONE	SEC	782212	55	322556	5824267	21/07/66	0.46		NK	SE		N	N			
310988	44	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310989	45	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310990	46	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310991	47	NONE	SEC	782212	55	322556	5824267	21/07/66	0.53		NK	SE		N	N			
310992	48	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310993	49	NONE	SEC	782212	55	322556	5824267	21/07/66	0.46		NK	SE		N	N			
310994	50	NONE	SEC	782212	55	322556	5824267	21/07/66	0.91		NK	SE		N	N			
310995	51	NONE	SEC	782212	55	322556	5824267	21/07/66	0.46		NK	SE		N	N			
310996	52	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
310997	53	NONE	SEC	782212	55	322556	5824267	21/07/66	0.69		NK	SE		N	N			
310998	54	NONE	SEC	782212	55	322556	5824267	21/07/66	0.76		NK	SE		N	N			
310999	55	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
311000	56	NONE	SEC	782212	55	322556	5824267	21/07/66	0.61		NK	SE		N	N			
311001	57	NONE	SEC	782212	55	322556	5824267	21/07/66	0.69		NK	SE		N	N			
Parish of Will Will Rook																		
103446	10001	11224	LAND	782212	55	319300	5826800	30/01/79	22.5		GW	IV	ROT	N	Y			
103447	10002	11225	LAND	782212	55	319420	5826800	06/02/79	50		GW	IV	ROT	N	Y	15.2		5706
103449	15001	36367	LAND	782212	55	319410	5826710	29/03/90	27		GW	NK	ROT	N	Y			
103450	15002	36368	LAND	782212	55	319130	5826730	26/03/90	28.5		GW	NK	DHH	N	Y			
103453	15005	36371	LAND	782212	55	320550	5826460	04/04/90	34.5		GW	NK	ROT	N	Y			
103454	15006	36372	LAND	782212	55	320930	5826670	04/04/90	46.5		GW	NK	ROT	N	Y			
103455	15007	36373	LAND	782212	55	320750	5826440	03/04/90	36		GW	NK	DHH	N	Y			
114745	*****	38620	NKN	782212	55	319748	5826171	22/08/91	12		GW	IV	AGM	N	Y			
114746	*****	38620	NKN	782212	55	319677	5826167	22/08/91	12.45		GW	IV	AGM	N	Y			
114747	*****	38620	NKN	782212	55	319598	5826168	22/08/91	12.25		GW	IV	AGM	N	Y			

BORE ID	OLD BORE NO.	RIG NO./ LIC NO.	BORE AUTH	AMG SHEET	AMG ZONE	EAST	NORTH	DATE COMPLETED	TOTAL DEPTH (m)	RLNS	BORE TYPE	USES	DRILL METHOD	LOG	GSD	AQUIF FROM (m)	AQUIF TO (m)	TSS mg/L
Parish of Will Will Rook (cont'd)																		
114748	*****	38620	NKN	782212	55	319594	5826238	23/08/91	19.28		GW	IV	ROM	N	Y			
114749	*****	38620	NKN	782212	55	319676	5826249	23/08/91	24.3		GW	IV	ROM	N	Y			
114750	*****	38620	NKN	782212	55	319724	5826257	23/08/91	5		GW	IV	AGM	N	Y			
115646	*****	40715	NKN	782212	55	319760	5826085	11/03/93	7		GW	IV	AGM	N	Y			
115647	*****	40715	NKN	782212	55	319680	5826070	11/03/93	14		GW	IV	AGM	N	Y			
115703	*****	40699	NKN	782212	55	320380	5823090	14/03/93	13		GW	IV	DHH	N	Y			
115704	*****	40699	NKN	782212	55	320380	5823113	14/03/93	13.5		GW	IV	DHH	N	Y			
115705	*****	40699	NKN	782212	55	320388	5823116	14/03/93	13.5		GW	IV	DHH	N	Y			
115706	*****	40699	NKN	782212	55	320388	5823103	14/03/93	4.8		GW	IV	DHH	N	Y			

EA1375 Fawkner - Victorian Groundwater Database Data - AQUIFER REPORT

BORE ID	OLD BORE NO.	WATER/ SCREEN	FROM (m)	TO (m)	LITHOLOGY	CASING DEPTH (m)	DIA (mm)	TYP	APER (mm)	SWL (m)	PUMP DEPTH (m)	PUMP RATE (l/sec)	PUMP TIME (H:M)	DRAW DOWN (m)	REC TIME (H:M)	EC	TEST TYPE	TEST DATE
Parish of Keelbundora																		
69868	10001	SCREEN	67.1	91.4	NOT			NKN		61		1.89		21.33			SUR	09/02/73
		WATER	67.1	91.4	BASA	16.8	152	NKN		61		1.89		21.33				09/02/73
69869	10002	SCREEN	30	58	SAND		127	PSL	3	12		4	01:00				AIR	26/05/80
		WATER	42.5	58	SAND	30	140	PVC		12	58	4					AIR	26/05/80
121425	*****	SCREEN		9	NOT			NKN										19/08/92
		WATER	7.5					NKN										19/08/92
121426	*****	SCREEN		11	NOT			NKN										19/08/92
		WATER	9.5					NKN										19/08/92
121427	*****	SCREEN		8	NOT			NKN										28/10/92
		WATER	6					NKN										28/10/92
142408	*****	SCREEN	5	8			50	PSC										20/03/00
		WATER	7	8		5	50	P18										20/03/00
142409	*****	SCREEN	5	8			50	PSC										20/03/00
		WATER	7	8		5	50	P18										20/03/00
142410	*****	SCREEN	5	8			50	PSC										20/03/00
		WATER	7	8		5	50	P18										20/03/00
Parish of Will Will Rook																		
103446	10001	SCREEN	19	22	NOT		100	PSL	4	15				13			AIR	30/01/79
		WATER	21	21.5	SAND	19	100	PVC		15	22.5			13			AIR	30/01/79
103447	10002	SCREEN	17	50	NOT		100	PSL	4									06/02/79
103448	10003	SCREEN	8.5	67	NOT			OPN		13		2					AIR	08/09/82
		WATER	40	60	SHAL	8.5	152	STL		13	67	2					AIR	08/09/82
103449	15001	SCREEN	9	24	CLAY			PSL	3	10		0.38					AIR	29/03/90
		WATER	10	27	CLAY	27	50	PVC		10	27	0.38					AIR	29/03/90
103450	15002	WATER	20	28.5	SAND	22.5	50	PVC		14	28.5	0.38					AIR	26/03/90
		SCREEN	22.5	28.5	SAND			PSL	3	14		0.38					AIR	26/03/90
103451	15003	SCREEN	9	12	BASA			PSL	3	8.5		0.4					AIR	27/03/90
		WATER	10	13	BASA	9	50	PVC		8.5	28.5	0.4					AIR	27/03/90
103452	15004	WATER			NOT	4.5	50	PVC										05/04/90
		SCREEN	4.5	22.5				PSL	3									05/04/90
103453	15005	WATER	30	34.5	CLAY	31.5	50	PVC		25.5	34.5	0.38					AIR	04/04/90
		SCREEN	31.5	34.5	CLAY			PSL	3	25.5		0.38					AIR	04/04/90
103454	15006	WATER			NOT	19.5	50	PVC										04/04/90
		SCREEN	19.5	46.5				PSL	3									04/04/90

BORE ID	OLD BORE NO.	WATER/ SCREEN	FROM (m)	TO (m)	LITHOLOGY	CASING DEPTH (m)	DIA (mm)	TYP	APER (mm)	SWL (m)	PUMP DEPTH (m)	PUMP RATE (l/sec)	PUMP TIME (H:M)	DRAW DOWN (m)	REC TIME (H:M)	EC	TEST TYPE	TEST DATE
Parish of Will Will Rook (cont'd)																		
103455	15007	SCREEN	28	34	CLAY			PSL	3	22.3		0.5					AIR	03/04/90
		WATER	30	34	CLAY	28	50	PVC		22.3	36	0.5					AIR	03/04/90
103456	15008	SCREEN	11	25.5	MUST			PSL	4									31/05/90
		WATER	19	25.5	MUST	11	50	PVC										31/05/90
114745	*****	WATER			NOT	2	50	P12										22/08/91
		SCREEN	2	12	SIST		50	PSL	3									22/08/91
114746	*****	WATER			NOT	2	50	P12										22/08/91
		SCREEN	2	12.4	SIST		50	PSL	3									22/08/91
114747	*****	WATER			NOT	2	50	P12										22/08/91
		SCREEN	2	12.2	SIST		50	PSL	3									22/08/91
114748	*****	WATER			NOT	2	50	P12										23/08/91
		SCREEN	2	19.2	SIST		50	PSL	3									23/08/91
114749	*****	WATER			NOT	2	50	P12										23/08/91
		SCREEN	2	24.3	SIST		50	PSL	3									23/08/91
114750	*****	WATER			NOT	2	50	P12										23/08/91
		SCREEN	2	5	SIST		50	PSL	3									23/08/91
115647	*****	WATER			NOT	11	40	PVC										11/03/93
		SCREEN	11	14			40	PSL	3									11/03/93
115703	*****	SCREEN	9.5	13			50	PSL										14/03/93
		WATER	12.4			9.5	50	P18										14/03/93
115704	*****	SCREEN	9	13.5			50	PSL										14/03/93
		WATER	11			9	50	P18										14/03/93
115705	*****	SCREEN	9.3	13.5			50	PSL										14/03/93
		WATER	11.6			9.3	50	P18										14/03/93

EA1375 FAWKNER - Victorian Groundwater Database Data - CHEMISTRY REPORT

BORE	OLD BORE	SAMPLE NO	SAMPLE DATE	METH	SAMPLE FROM (m)	SAMPLE TO (m)	TSS	CL	CO3	HCO3	TOT ALK	SO4	N	CA	MG	NA	K	FE	HARD	pH	EC	ORG	PES	HM	MIN	BAC	ISO	NUT	OTH
							<------					-- (mg L) --						--->											
Parish of Keelbundora																													
69869	10002	8874	26/05/80	AIR	42.5	58	2385	862		604		173		47	157	518	12	3	764	8.1	3650								yes
Parish of Will Will Rook																													
103447	10002	21166	03/05/79	AIR	15.2		5706	2220	65	1456		161	1.1	16	337	1422	21		1427	8.42	8400							yes	yes

EA1375 FAWKNER - Victorian Groundwater Database Data - COMPOSITE REPORT

BORE ID	DITR No	Date Completed	Aquif From (m)	Aquif To (m)	Lith	SWL (m)	Pump Rate (l/sec)	Time (h:m)	Draw-down (m)	Latest Chemical Analysis							
										Date Sampled	MTH	TSS	CL	FE Total	PH	EC	Hard
Parish of Keelbundora																	
69868	10001	09/02/73	67.1	91.4	BASA	61	1.9		21.3								
69869	10002	26/05/80	42.5	58	SAND	12	4	01:00		26/05/80	AIR		862	3	8.1	3650	
121425		19/08/92	7.5														
121426		19/08/92	9.5														
121427		28/10/92	6														
142408		20/03/00	7	8													
142409		20/03/00	7	8													
142410		20/03/00	7	8													
310945	1	31/12/55															
310946	2	31/12/55															
310947	3	31/12/55															
310948	4	31/12/60															
310949	5	31/12/60															
310950	6	31/12/60															
310951	7	31/12/60															
310952	8	31/12/60															
310953	9	31/12/60															
310954	10	31/12/60															
310955	11	31/12/60															
310956	12	31/12/60															
310957	13	31/12/60															
310958	14	31/12/60															
310959	15	31/12/60															
310960	16	31/12/60															
310961	17	31/12/60															
310962	18	31/12/60															
310963	19	31/12/60															
Parish of Will Will Rook																	
103446	10001	30/01/79	21	21.5	SAND	15			13								
103447	10002	06/02/79								03/05/79	AIR		2220		8.4	8400	
103449	15001	29/03/90	10	27	CLAY	10	0.4										
103450	15002	26/03/90	20	28.5	SAND	14	0.4										
103453	15005	04/04/90	30	34.5	CLAY	25.5	0.4										
103454	15006	04/04/90			NOT												
103455	15007	03/04/90	30	34	CLAY	22.3	0.5										
114745		22/08/91			NOT												
114746		22/08/91			NOT												

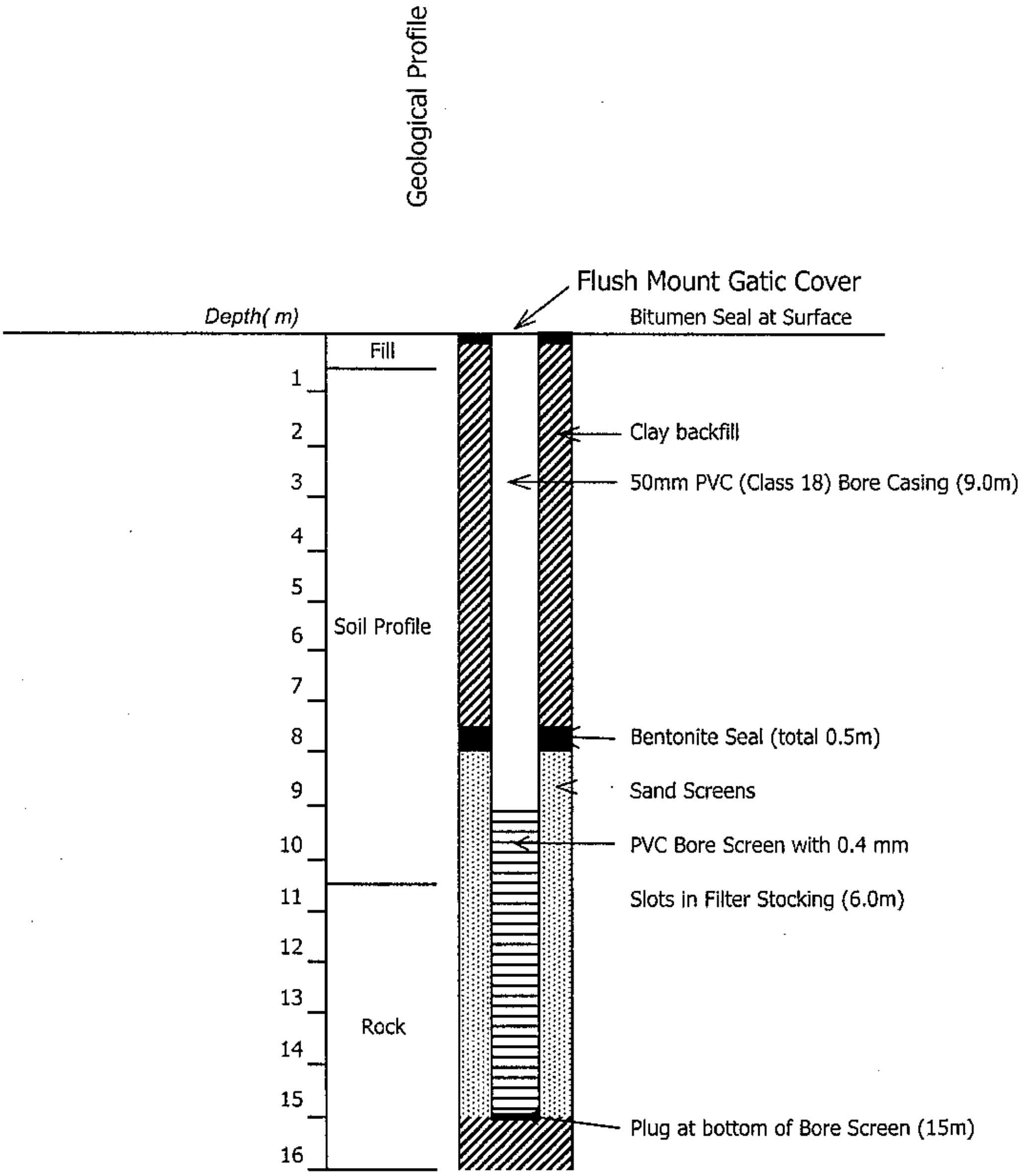
BORE ID	DITR No	Date Completed	Aquif From (m)	Aquif To (m)	Lith	SWL (m)	Pump Rate (l/sec)	Time (h:m)	Draw-down (m)	Latest Chemical Analysis							
										Date Sampled	MTH	TSS	CL	FE Total	PH	EC	Hard
Parish of Will Will Rook (cont'd)																	
114747		22/08/91			NOT												
114748		23/08/91			NOT												
114749		23/08/91			NOT												
114750		23/08/91			NOT												
115646		11/03/93															
115647		11/03/93			NOT												
115703		14/03/93	12.4														
115704		14/03/93	11														
115705		14/03/93	11.6														
115706		14/03/93	2.8														

GeoPollution Management

MW1

Project No.: EA1375

Monitoring Well Construction Details MW1

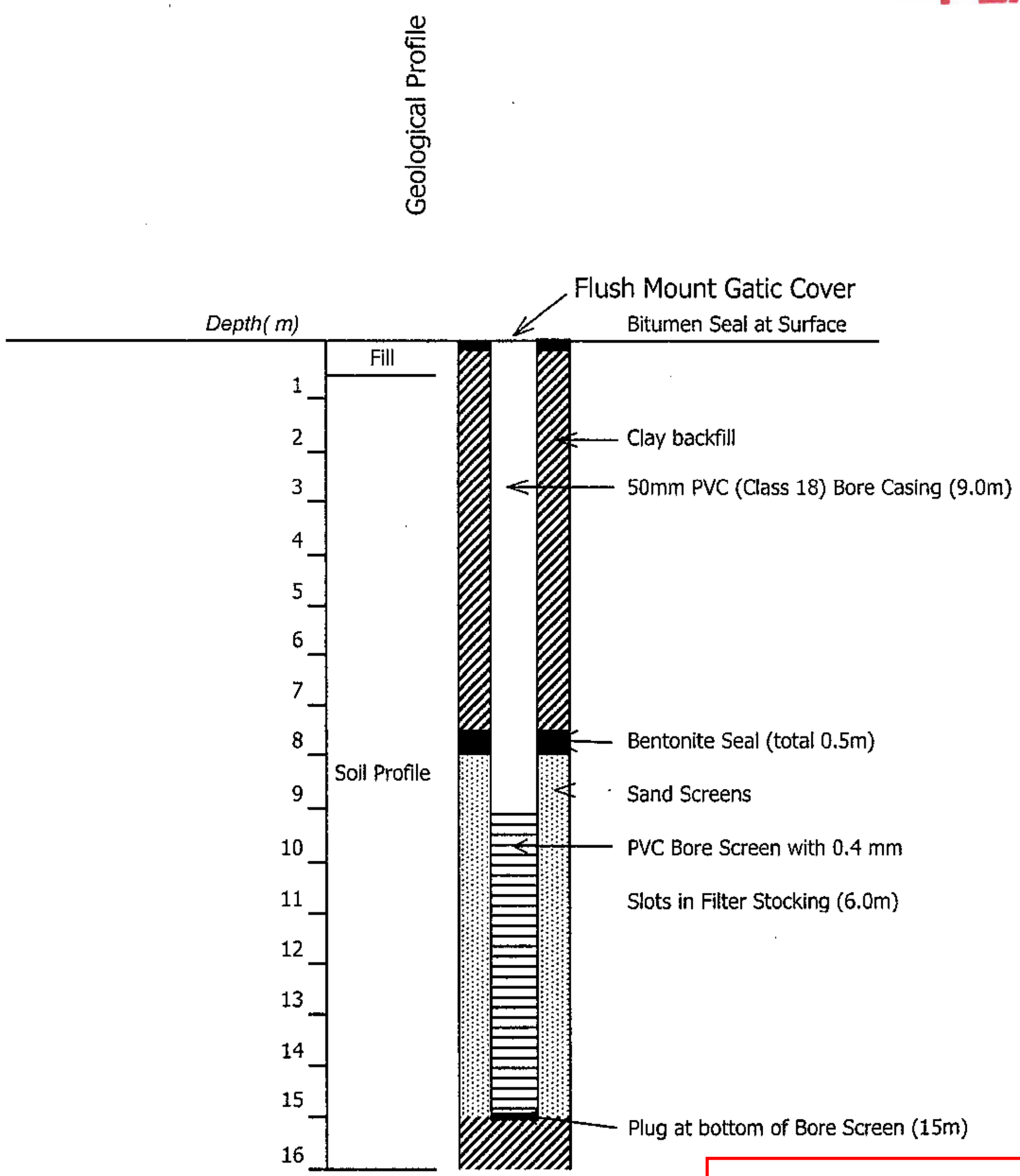


GeoPollution Management

MW2

Project No.: EA1375

Monitoring Well Construction Details MW2

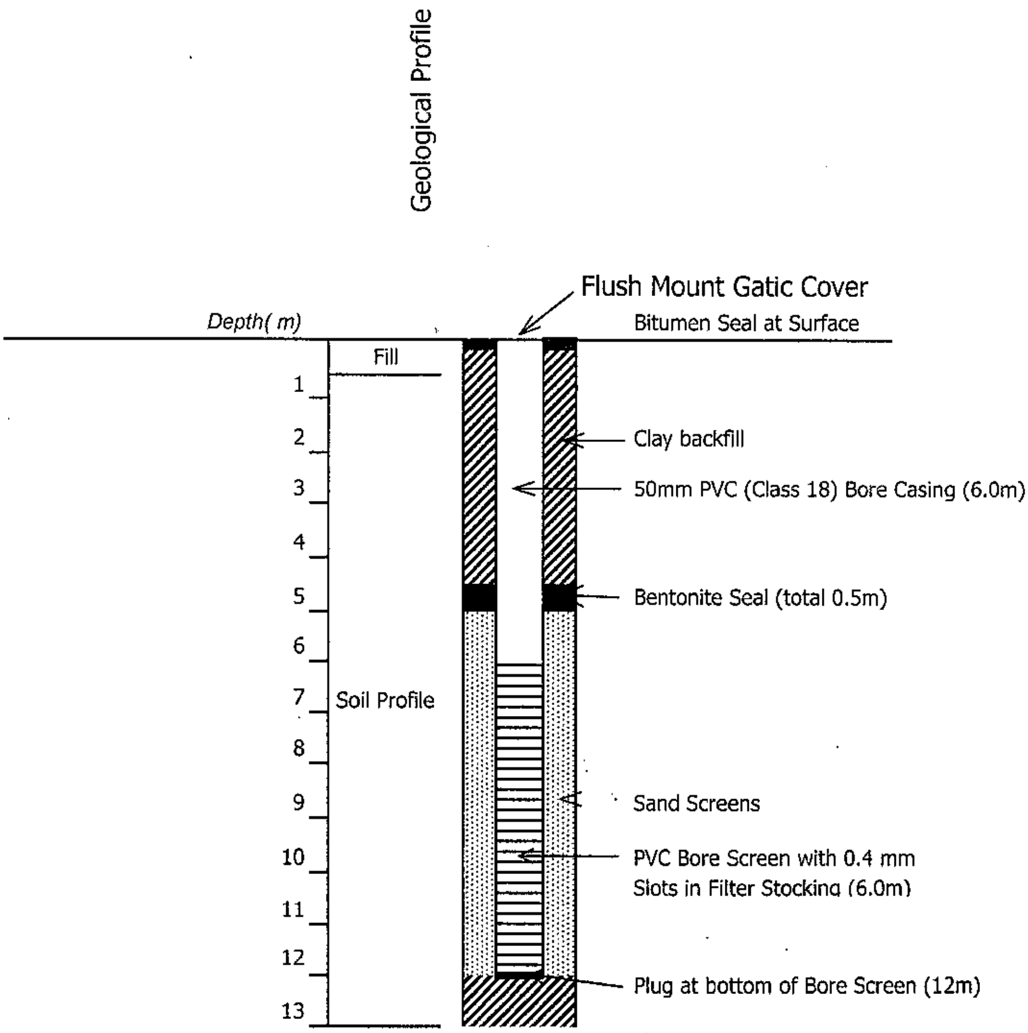


GeoPollution Management

MW3

Project No.: EA1375

Monitoring Well Construction Details MW3



SOUTHERN
Rural Water

12 August 2002

Greg Foster
Geopollution Management PL
PO Box 441
RINGWOOD 3134

Dear Greg

APPLICATION FOR A BORE CONSTRUCTION LICENCE

I refer to the application of 9 August 2002 on behalf of Darul Ulum College to construct 3 groundwater investigation bores. Enclosed is Bore Construction Licence No. 60294 which authorises you to construct the 3 bores at the Fawkner Secondary College, Fawkner in the Parish of Will Will Rook.

Could you please 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 $373.00 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 Southern Rural Water's (SRW) bore construction inspection program, there is a need to inspect the bore, preferably during construction. Could you please contact SRW's Licensing Officer Central ,Col McQuillen on 5987 1610 or mobile 0408 398 565 at least seven days prior to construction commencing on this bore so an inspection can be arranged.

If you have any further enquires then please do not hesitate to contact Bruce Foley, Licensing Officer, on (03) 5139 3152.

Yours sincerely

for TREVOR McDEVITT
Manager Licensing Administration

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

ADVERTISED PLAN

WATER ACT 1989
Section 67

BORE CONSTRUCTION LICENCE No 60294
(Licence to construct and operate a bore)

Southern Rural Water authorises:

DARUL ULUM COLLEGE, C- GEOPOLLUTION MANAGEMENT PL
PO BOX 441
RINGWOOD 3134

To Construct / Alter and operate a bore on the land described below and subject to the conditions stated.

Lot(s)	1	Plan of subdivision no.	402577B
Allotment(s)		Section	
Parish	WILL-WILL-ROOK	Township	FAWKNER

for the purpose specified in the application namely: Groundwater Investigation,

This licence is issued for a period of twelve months and expires on 11.08.2003
Date of issue 12.08.2002

CONDITIONS

1. If the bore is considered unsatisfactory, it may be decommissioned and a replacement bore may then be constructed provided that the unwanted bore is decommissioned prior to the drilling rig leaving the site.(C04)
2. This licence authorises the construction of 3 bore(s) at the site(s) provided by the licensee.(C09)
3. The location of each bore must be given to the Authority as AMG co-ordinates listing 1:100,000 AMG map number, easting and northing.(C10)
4. The bore shall be constructed to a standard not less than the standard specified in the minimum construction requirements for water bores in Australia (ARMCANZ, 1997), and to the satisfaction of the Authority. (C23)
5. Decommissioning of the bore(s) shall be carried out in accordance with the "Standard for decommissioning test bores, partially completed and completed bores".(D01)
6. IMPORTANT NOTICE
   On your application for these bores you indicated a proposed depth of 15 metres. As a result, these bores must be constructed by or under the direct supervision of a Class 1, Class 2 or Class 3 driller licensed under the Water Act 1989. Please note that for this area, a Class 1 driller is only licensed to drill to a depth of 30 metres.

See over for further conditions and additional information. Authorising Officer

All communications should be addressed to :

Chief Executive Officer,
Southern Rural Water
PO Box 153, MAFFRA, 3860
Telephone (03) 51393 152
Fax (03) 51393 150

Licensee's copy

SOUTHERN Rural Water

WATER ACT 1989
BORE COMPLETION REPORT

BORE CONSTRUCTION LICENCE No. 602914

GPS CO-ORDS: EASTING

ZONE: 54 / 55 (delete as applicable) NORTHING

Report on site A ☐ B ☐ C ☐ D ☐

Spear Point System Y / N ☐ No ☐

OFFICE USE ONLY
BORE NUMBER
BORE USES
GMA .... ZONE ....

Bore Owner G.P.M

Name of Plant Operator C. HANNAKER

Date Commenced 11/07/02 Date Completed 11/07/02 Total Depth 15.0 (m)

Was Bore Decommissioned? Y / N N If Yes, State Method ....

1. DRILLING AND WATER INTERSECTION DETAILS

DRILLING TECHNIQUE				WATER INTERSECTIONS (while drilling, measurements taken from natural surface)									OFFICE USE
Method	From (m)	To (m)	Bit diam (mm)	From (m)	To (m)	Test Method	Static Level (m)	Est. yield l/sec	Draw down (m)	Casing at test (m)	Depth at test (m)	Ec at 25°C (µS/cm)	Lithology
S	0	10.5	110										
DHH	10.5	15.0	110										

2. CASINGS (CA) SCREENS (SC) SLOTS (SL) OPEN HOLE (OH)

GENERAL			CASING			SCREENS / SLOTS						OFFICE USE
Type CA SC SL OH	From (m)	To (m)	Inner diam (mm)	Outer diam (mm)	Material	Inner diam (mm)	Outer diam (mm)	Material	Aperture (mm)	Filter Y / N	Trade Name	Lithology
SC ☒	15.0	9.0				50		PVC	0.4	O	VINIDEX	
CA ☒	9.0	0.0	50		PVC							

FLUSH MOUNT

WELL HEAD FITTINGS Casing Shoe Y / N ☐ Bullnose / Endcap Y / N ☐

ADVERTISED PLAN

3. CEMENT (C) BENTONITE (B) SEALS (S) PACKERS (P) GRAVEL (G)

Material C B S P G	From (m)	To (m)	Cement (bags)	Water (litres)	Seal / Packer type	Outer diam of seal (mm)	Artifical Gravel Packing Method of placement	Gravel size mesh passing (mm)
S ☒	15.0	8.5						
B ☒	8.5	0.5						
	0.5	0.0			Back fill			

4. FINAL BORE DEVELOPMENT

Method	Yield l/sec	Draw down (m)	Pumping Time (min)	Recovery Time (min)	Final Static Level	Ec at 25°C (µS/cm)

5. DRILLER'S PUMPING TEST

Method	Static Level (m)	Yield l/sec	Pumping Level (m)	Draw down (m)	Pumping Time (min)	Recovery Time (min)	Ec at 25°C (µS/cm)

6. IF NOT A DRILLED BORE

Type	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

7. SAMPLES

Have material samples been taken? Yes ☐ No ☐ If Yes From ....(m)

Have water samples been taken? Yes ☐ No ☐ To ....(m)

Samples taken by: Bore Owner ☐ Driller ☐ Project Geologist ☐

8. DISINFECTION

Was the Bore Disinfected? Yes ☐ No ☐

If yes, state method of disinfection: Chlorine Washed ☐ Steam Cleaned ☐

Other, please specify: ....

9. DRILLER'S LOG

Material	From (m)	To (m)
(Fill) Sand, Silt & Gravel	0.0	0.5
Clay & Silty clay	0.5	10.5
EW Basalt	10.5	15.0

Driller's Name C. HANNAKER Driller's Licence No. 567

Driller's Signature [signature] Date 3/9/02

LICENSEE'S COPY – To be sent to Licensee within 14 days of completion of the bore.

WATER ACT 1989

BORE COMPLETION REPORT

SOUTHERN Rural Water

BORE CONSTRUCTION LICENCE No. 60294

GPS CO-ORDS: EASTING

ZONE: 54 / 55 (delete as applicable) NORTHING

Report on site A ☐ B ☐ C ☐ D ☐

Spear Point System Y / N ☐ No ☐

OFFICE USE ONLY
BORE NUMBER
BORE USES
GMA ZONE

Bore Owner G.P.M.

Name of Plant Operator C. HANNAKER

Date Commenced 11/07/02 Date Completed 11/07/02 Total Depth 15.0 (m)

Was Bore Decommissioned? Y / N N If Yes, State Method

1. DRILLING AND WATER INTERSECTION DETAILS

DRILLING TECHNIQUE				WATER INTERSECTIONS (while drilling, measurements taken from natural surface)									OFFICE USE
Method	From (m)	To (m)	Bit diam (mm)	From (m)	To (m)	Test Method	Static Level (m)	Est. yield l/sec	Draw down (m)	Casing at test (m)	Depth at test (m)	Ec at 25°C (µS/cm)	Lithology
S	0	15.0	110										

2. CASINGS (CA) SCREENS (SC) SLOTS (SL) OPEN HOLE (OH)

GENERAL			CASING			SCREENS / SLOTS						OFFICE USE
Type CA SC SL OH	From (m)	To (m)	Inner diam (mm)	Outer diam (mm)	Material	Inner diam (mm)	Outer diam (mm)	Material	Aperture (mm)	Filter Y / N	Trade Name	Lithology
SC ☒	15.0	9.0				50		PVC	0.4	0	VINIDEX	
CA ☒	9.0	0.0	50		PVC							

ADVERTISED PLAN

FLUSH MOUNT WELL HEAD FITTINGS Casing Shoe Y / N ☐ Bullnose / Endcap Y / N ☐

3. CEMENT (C) BENTONITE (B) SEALS (S) PACKERS (P) GRAVEL (G)

Material C B S P G	From (m)	To (m)	Cement (bags)	Water (litres)	Seal / Packer type	Outer diam of seal (mm)	Artificial Gravel Packing Method of placement	Gravel size mesh passing (mm)
S ☒	15.0	8.5						
B ☒	8.5	0.5						
	0.5	0.0			Backfill			

4. FINAL BORE DEVELOPMENT

Method	Yield l/sec	Draw down (m)	Pumping Time (min)	Recovery Time (min)	Final Static Level	Ec at 25°C (µS/cm)

5. DRILLER'S PUMPING TEST

Method	Static Level (m)	Yield l/sec	Pumping Level (m)	Draw down (m)	Pumping Time (min)	Recovery Time (min)	Ec at 25°C (µS/cm)

6. IF NOT A DRILLED BORE

Type	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

7. SAMPLES

Have material samples been taken? Yes ☐ No ☐ If Yes From ....(m)

Have water samples been taken? Yes ☐ No ☐ To ....(m)

Samples taken by: Bore Owner ☐ Driller ☐ Project Geologist ☐

8. DISINFECTION

Was the Bore Disinfected? Yes ☐ No ☐

If yes, state method of disinfection: Chlorine Washed ☐ Steam Cleaned ☐

Other, please specify: ....

9. DRILLER'S LOG

Material	From (m)	To (m)
(Fill) Sand, Silt & Clay	0.0	0.5
Silty Clay	0.5	8.5
Sandy Silt / Silty Sand	8.5	15.0

Driller's Name C. HANNAKER Driller's Licence No. 567

Driller's Signature [signature] Date 3/9/02

LICENSEE'S COPY – To be sent to Licensee within 14 days of completion of the bore.

SOUTHERN Rural Water

WATER ACT 1989

BORE COMPLETION REPORT

BORE CONSTRUCTION LICENCE No. 60294

GPS CO-ORDS: EASTING

ZONE: 54 / 55 (delete as applicable) NORTHING

Report on site A ☐ B ☐ C ☐ D ☐

Spear Point System Y / N ☐ No ☐

OFFICE USE ONLY

BORE NUMBER

BORE USES

GMA .... ZONE ....

Bore Owner G.P.M.

Name of Plant Operator C. HANNAKER

Date Commenced 11/7/02 Date Completed 11/7/02 Total Depth 12.0 (m)

Was Bore Decommissioned? Y / N N If Yes, State Method ....

1. DRILLING AND WATER INTERSECTION DETAILS

DRILLING TECHNIQUE				WATER INTERSECTIONS (while drilling, measurements taken from natural surface)									OFFICE USE
Method	From (m)	To (m)	Bit diam (mm)	From (m)	To (m)	Test Method	Static Level (m)	Est. yield l/sec	Draw down (m)	Casing at test (m)	Depth at test (m)	Ec at 25°C (µS/cm)	Lithology
S	0	12.0	110										

2. CASINGS (CA) SCREENS (SC) SLOTS (SL) OPEN HOLE (OH)

GENERAL			CASING			SCREENS / SLOTS						OFFICE USE
Type CA SC SL OH	From (m)	To (m)	Inner diam (mm)	Outer diam (mm)	Material	Inner diam (mm)	Outer diam (mm)	Material	Aperture (mm)	Filter Y / N	Trade Name	Lithology
SC ☒	12.0	6.0				50		PVC	0.4	0	VINIDEX	
CA ☒	6.0	0.0	50		PVC							

ADVERTISED PLAN

FLUSH MOUNT

WELL HEAD FITTINGS Casing Shoe Y / N ☐ Bullnose / Endcap Y / N ☐

3. CEMENT (C) BENTONITE (B) SEALS (S) PACKERS (P) GRAVEL (G)

Material C B S P G	From (m)	To (m)	Cement (bags)	Water (litres)	Seal / Packer type	Outer diam of seal (mm)	Artifical Gravel Packing Method of placement	Gravel size mesh passing (mm)
S ☒	12.0	5.5						
B ☒	5.5	0.5						
	0.5	0.0			Backfill			

4. FINAL BORE DEVELOPMENT

Method	Yield l/sec	Draw down (m)	Pumping Time (min)	Recovery Time (min)	Final Static Level	Ec at 25°C (µS/cm)

5. DRILLER'S PUMPING TEST

Method	Static Level (m)	Yield l/sec	Pumping Level (m)	Draw down (m)	Pumping Time (min)	Recovery Time (min)	Ec at 25°C (µS/cm)

6. IF NOT A DRILLED BORE

Type	Length (m)	Width (m)	Diam (m)	Lining Material	From (m)	To (m)

7. SAMPLES

Have material samples been taken? Yes ☐ No ☐ If Yes From ....(m)

Have water samples been taken? Yes ☐ No ☐ To ....(m)

Samples taken by: Bore Owner ☐ Driller ☐ Project Geologist ☐

8. DISINFECTION

Was the Bore Disinfected? Yes ☐ No ☐

If yes, state method of disinfection: Chlorine Washed ☐ Steam Cleaned ☐

Other, please specify: ....

9. DRILLER'S LOG

Material	From (m)	To (m)
(Fill) Silt, Sand & Gravel	0.0	0.5
Silty Clay	0.5	9.0
Sandy Silt / Silty Sand	9.0	12.0

Driller's Name C. H. ANNAKER Driller's Licence No. 567

Driller's Signature [signature] Date 3/9/02

LICENSEE'S COPY – To be sent to Licensee within 14 days of completion of the bore.

Location	Foresight	Intermediate	Backsight	Rise/fall	Reduced Level (TOC mRHD)	Notes	SWL (mBTOC)	SWL (mRHD)
TBM			1.788	0.000	80.440	Top of concrete pit (from site plan supplied by client)		
MW2		1.778		-0.010	80.450		11.645	68.805
MW1		1.623		-0.165	80.605		11.762	68.843
MW3		1.887		0.099	80.341		11.628	68.713
TBM	1.788			0.000	80.440			

APPENDIX J

DOCUMENTATION RELATING TO VERIFICATION OF SUSPECT UNDERGROUND TANK

Environmental Location Systems

Radiodetection (Aust) Pty. Ltd. A.B.N. 12 625 476 231

Telephone: (03) 9314 5335 Facsimile: (03) 9314 1568 Mobile: 0414 352 472
E-mail: radiodetection@ozemail.com.au Web: www.radiodetection.com.au
P.O. Box 2230 Fountain Gate Victoria 3805

20th August 2002

Geopollution Management,
15/21 Eugene Terrace,
RINGWOOD 3134

Att: Mr Greg Foster

Ref: Musilm School, 1 Roma St, FAWKNER

Results: Extensive searching resulted in no tanks being found. Abandoned gas and water services but not a hint of a UST (Underground Storage Tank).

The deputy principal was very helpful and remembered the tanks being pulled.

Yours faithfully,

p.p. Les Cook.

Peter G Lyall & Associates Pty Ltd ▼ Architects
Consultation ♦ Innovation ♦ Communication
Suite 1, 1057 Burwood Highway
PO Box 203, Ferntree Gully
Victoria, 3156

August 19, 2002

GeoPollution Management
24/107-113 Heatherdale Rd
RINGWOOD 3134

Attention: Greg/Karin

Dear Greg/Karin,

Re: Darul Ulum College of Victoria Environmental Audit

We attach a copy of our Engineer's drawing SE3[A] for the above project as requested.

Please note that the builder did not encounter the tank when the footings for the stumps, and in particular the nearby steel column footings, were excavated. These columns had concrete pad footings measuring 1400 x 1400 x 600mm deep, the bottom of which needed to be bedded on solid ground a minimum of 600mm below natural ground in order to achieve the required bearing pressure. In fact, it was decided on site to combine the column pads into one pad per pair of columns since they were only 800mm apart.

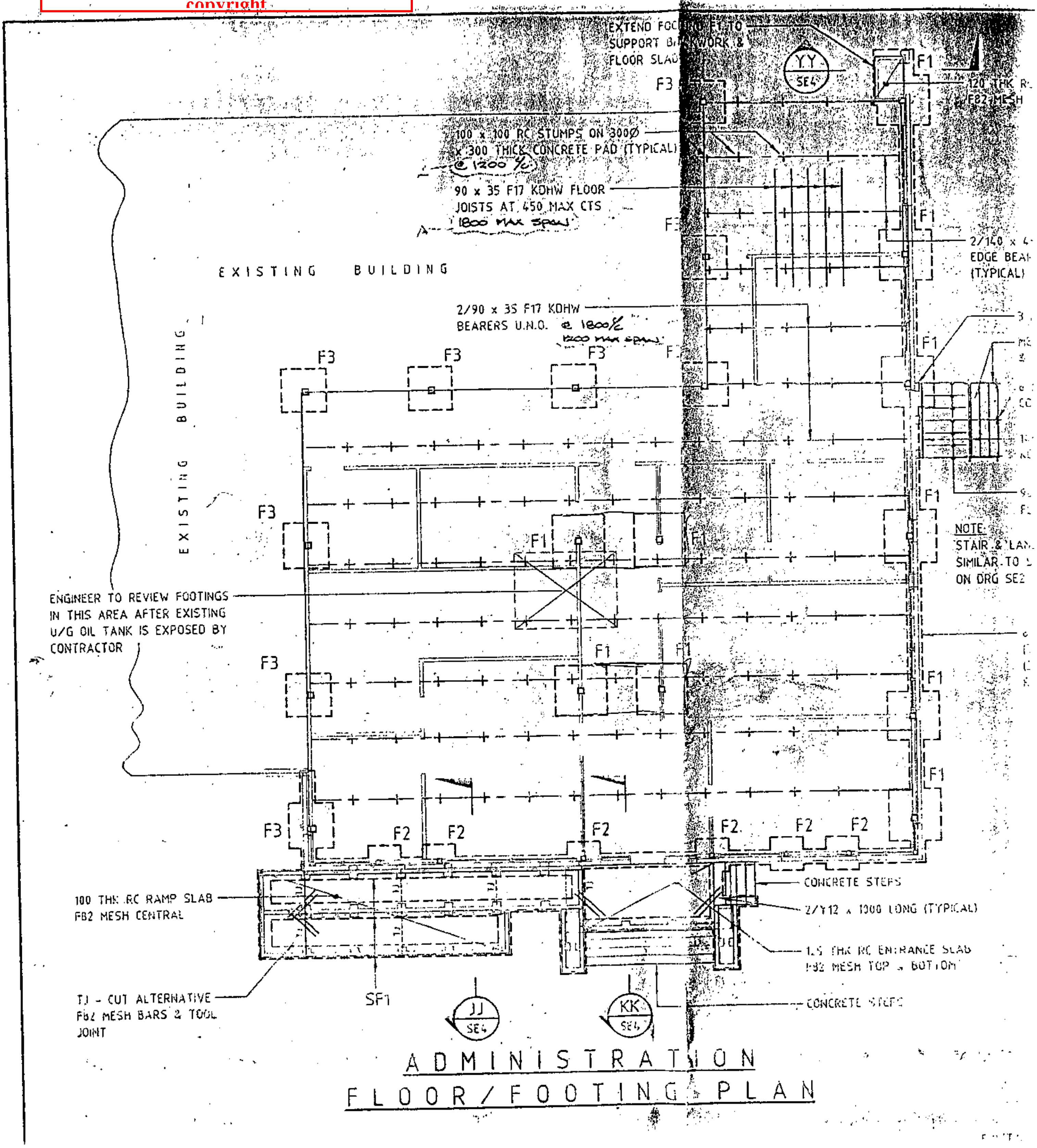
If you have any further queries, please let me know.

Yours Sincerely,

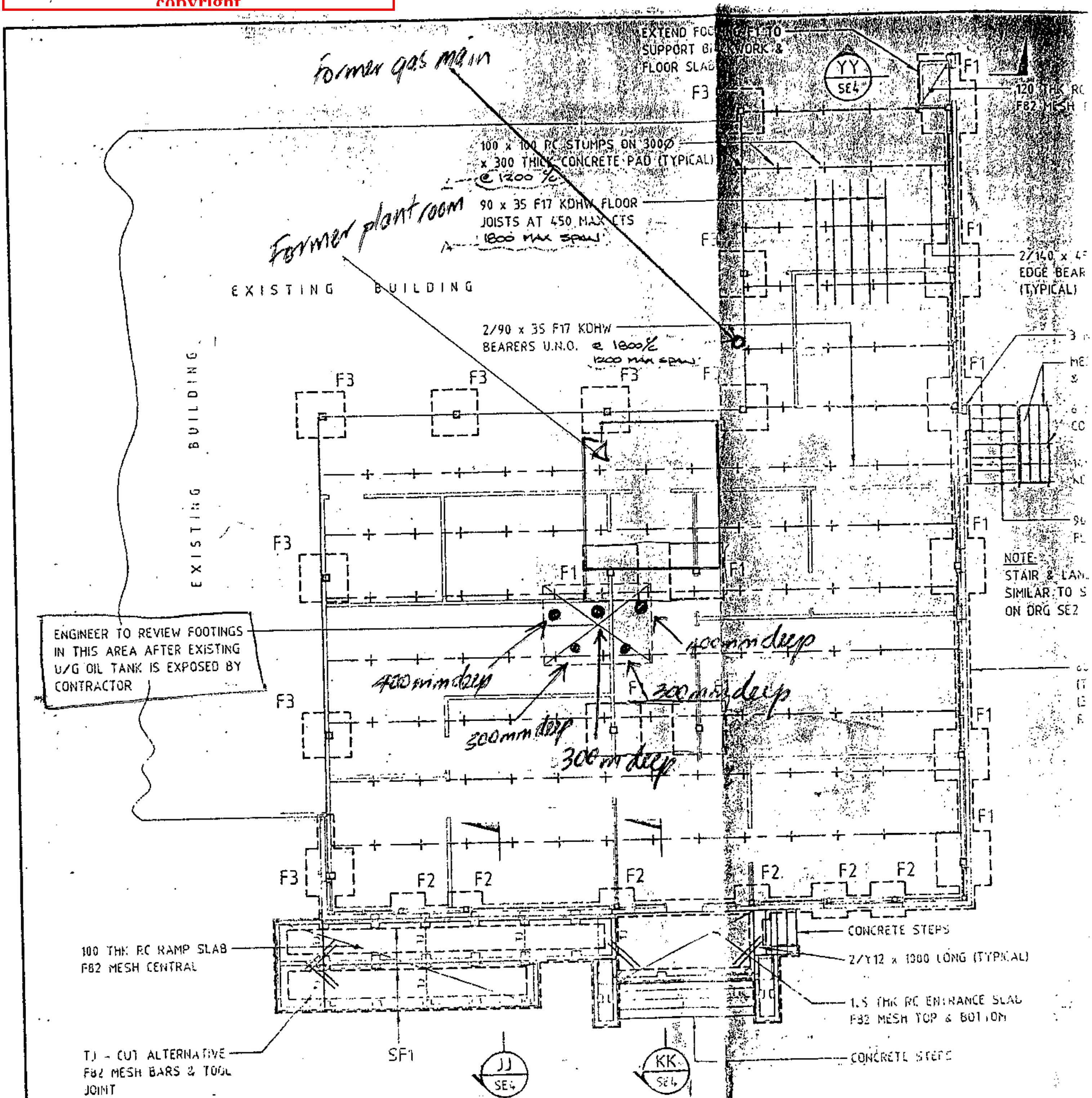
Peter Lyall
PETER G LYALL & ASSOCIATES PTY LTD

c:\my documents\darul ulum college\geom-1.doc

ADVERTISED
PLAN



ADMINISTRATION
FLOOR / FOOTING PLAN



ADMINISTRATION
FLOOR / FOOTING PLAN

• test pits 21/08/02

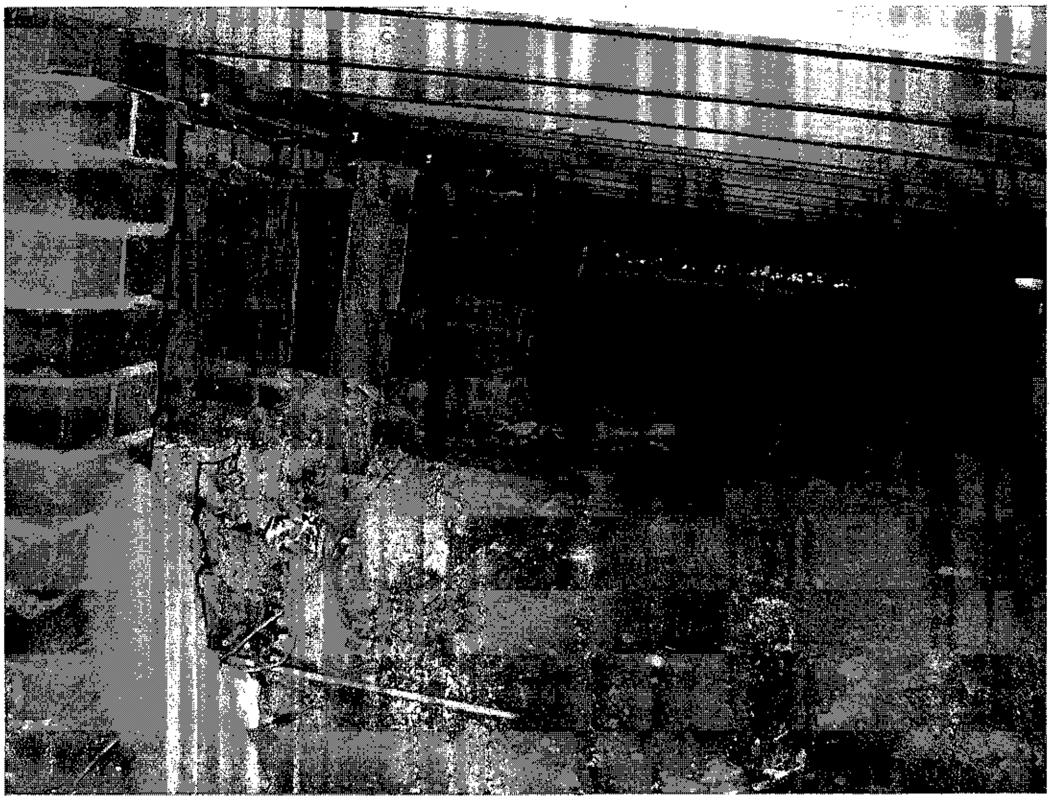


Plate J.1: View looking east under the administration building in the area of the suspected Ttank 1. Note surface fill and rubble.

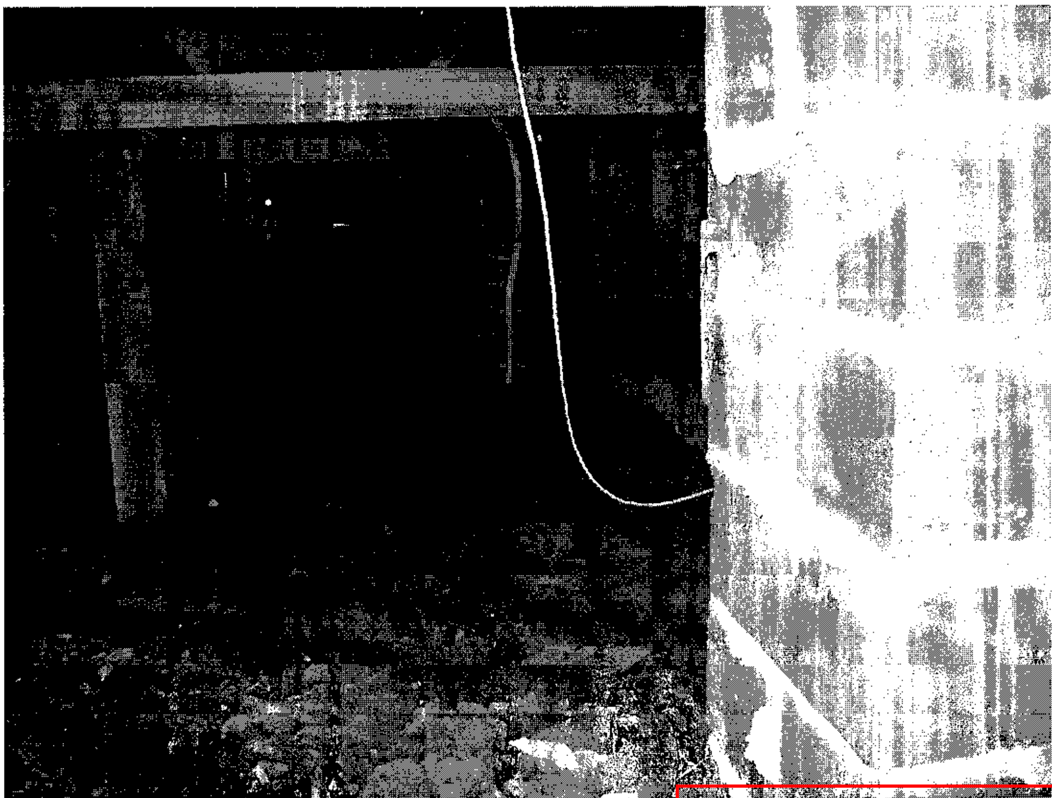


Plate J.2: View looking west under the administration building in the area of the suspected Tank 1.