

ENVIRONMENTAL AUDIT REPORT

490-492 VICTORIA STREET
BRUNSWICK WEST, VIC

For

WEST WYCK PTY LTD

August 2004

ENVIRONMENTAL AUDIT REPORT

490-492 VICTORIA STREET
BRUNSWICK WEST, VIC

For

WEST WYCK PTY LTD

August 2004

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ENVIRONMENTAL AUDIT REPORT

490-492 VICTORIA STREET
BRUNSWICK WEST, VIC

EXECUTIVE SUMMARY

This report is in response to a request for a Certificate of Environmental Audit (CoEA) for Contaminated Land in accordance with Part IXD of the Environment Protection Act (1970). The details of the land and the request are as follows:

Name of the Auditor:	Anthony Lane
Period of EPA re-appointment:	29 July 2003 - 28 July 2005
Name of Person Requesting Audit:	Ms Lorna Pitt West Wyck Pty Ltd 492 Victoria Street, Brunswick West, VIC 3055 (03) 9380 1459
Date of request:	21 July 1998
Reason for statutory audit:	Development of site for residential purposes
Land Use Zoning	Current: R1Z (Residential 1 Zone) Proposed: R1Z (Residential 1 Zone) (see Appendix H)
Address of the site:	490-492 Victoria Street, Brunswick West, VIC 3055 (see Figure 1)
Certificate of Title:	Vol. 1536 Fol. 113 (Central & Southern Blocks), Vol. 7631 Fol. 017 (Eastern Block), Vol. 1816 Fol. 109 (Western Block), see Appendix G
Municipality:	Moreland City Council
Site Area:	Total site area (Central, Southern, Eastern & Western Blocks) is approximately 5,470m ²
Completion Date of the Audit:	11 August 2004
Assessment Consultant:	CMPS&F, Egis, OTEK & Meinhardt
EPA Reference No.:	36111/27987

The protracted duration of this audit was largely due to delays in the implementation of the clean up work necessary to complete this audit.

Site Definition and History

The site at 490-492 Victoria Street, Brunswick West has most recently been used as a Primary School. The site history review revealed the site had been used for education purposes. For development and audit purposes, the site was divided into four (4) areas.

Central Block

The Central Block consists of the former school building and surrounding open area and is bounded by Victoria St to the north, and the Southern, Eastern and Western Blocks to the south, east and west respectively. The Central Block is identified as part of Plan of Subdivision [PS 412559W](#) and consists of Lots 1, 2, 3, 4, 5, 6, 7 (and associated courtyards), Lot S2 and the open areas to the north, east and west of Lot S2.

Southern Block

The Southern Block is bounded by the Central Block to the north, Hunter St to the south and residential premises to the east and west. The Southern Block is identified as part of [Plan of Subdivision PS 412559W](#) and consists of Lots 8, 9, 10, 11, 12 and the area marked as 'Common Property'.

The Central and Southern Blocks (PS 412559W) comprise a total area of approximately 4,290m².

Eastern Block

The Eastern Block is bounded by Victoria St to the north, residential premises to the east and south, and the Central Block to the west. The Eastern Block is identified as [Certificate of Title, Volume 7631, Folio 017](#), and is approximately 800m² in size.

Western Block

The Western Block is bounded by Victoria St to the north, Central Block to the east, and residential premises to the south and west. The Western Block is identified as [Certificate of Title, Volume 1816, Folio 109](#), and is approximately 380m² in size.

Appendix B includes the relevant Certificate of Titles and Plan of Subdivision. A site plan is included as Figure 2.

The Central block contains the former school building which is currently being converted into several Apartments (Lots 1 to 7). The Southern, Eastern and Western blocks are vacant.

Site Development Plan

The proposed development consists of the conversion of parts of the former school building (Central Block) into Apartments and the construction of five (5) two-storey townhouses along Hunter Street (Southern Block), consistent with the current zoning. The proposed development plans for the Eastern and Western blocks were not available at the time of writing.

Site Assessments & Clean Up

Soil samples were collected by Egis Consulting Australia (Egis) during the Stage 1 (1993) and Stage 2 (1998) ESA works; consisting of 15 and 54 samples respectively. The results from the [Stage 2 ESA report \(Egis 1999\)](#) indicated that the site contained widespread PAH and some metals contaminations most likely associated with "Tarmac" asphalt pavements throughout the site and the use of imported fill.

The Stage 2 ESA conducted by Egis included limited sampling in the Eastern and Western Blocks and did not detect any significant contamination in these areas.

The areas with PAH and metals which exceeded NEPM HIL A and EIL criteria have been removed from site during the clean up works, except for the locations under the school building (Central Block).

No direct investigation of groundwater was undertaken at the site on the basis of a desk top hydrogeological assessment.

Land Contamination and Risks

The site has been assessed against the beneficial uses and applicable quality objectives set out in *SEPP Prevention and Management of Contaminated Land*.

Previously identified PAH and metals contamination remains in place beneath the school building floors/pavements (in the Central Block only). The Auditor is of the view that the soil beneath the school building does not present an unacceptable risk to future occupants of the site, however appropriate management practices are required to assure it remains unexposed, or is managed appropriately if disturbed.

Soil at the remainder of the site (Southern, Eastern and Western Blocks), complies, on average, with the quality objectives set out in *SEPP Prevention and Management of Contaminated Land* and are therefore suitable to protect all beneficial uses of the land.

Groundwater Contamination and Risks

It is the Auditor's opinion that groundwater at the site is not polluted. Based upon the site history the Auditor considered that a groundwater investigation at the site was not necessary. The condition of the groundwater is based on a desk top hydrogeological assessment. The groundwater quality is likely to be greater than 2,000 mg/L TDS and have limited beneficial uses, none of which would be likely in an urban environment. The only relevant protected beneficial use is considered to be maintenance of aquatic ecosystems. The groundwater quality would not restrict the beneficial use of the land.

Audit Outcome - Southern, Eastern and Western Blocks

The Auditor is of the opinion that the condition of the land is neither detrimental nor potentially detrimental to any beneficial use of the site for the Southern Block, the Eastern Block and the Western Block areas of the site. In accordance with EPA guidelines and regulations, the Auditor has issued a Certificate of Environmental Audit (CoEA) for these areas of the site. The certificates are presented in Appendix A of this report.

"Other related information" included in the CoEA for these areas are as follows:

Southern Block : *None*

Eastern Block: *None*

Western Block: *None*

Audit Outcome - Central Block

In accordance with EPA guidelines and regulations, the Auditor has declined to issue a Certificate of Environmental Audit for the Central Block and has issued a Statement of

Audit Outcome - Central Block

In accordance with EPA guidelines and regulations, the Auditor has declined to issue a Certificate of Environmental Audit for the Central Block and has issued a Statement of Environmental Audit (SoEA) for this area of the site (presented in Appendix A of this report). The reasons are as follows:

Contaminated fill and asphalt pavements remain beneath the school building & apartments (including courtyards). This material is contaminated with PAHs and metals in exceedance of ecological and human health criteria.

The Central Block is considered by the Auditor to be suitable for the following land uses and their related beneficial uses in accordance with the SEPP (Prevention and Management of Contamination of Land):

- ❑ Residential (High Density)
- ❑ Residential (Medium & Low Density)
- ❑ Recreation/Open Space
- ❑ Commercial
- ❑ Industrial

Subject to the following conditions being met for the Central Block (no conditions apply to the other areas of the site):

- a) *Soil / fill remaining on site within the building footprint, including courtyards, shall be covered by a permanent barrier layer such as a concrete slab and / or pavement or the timber floor where present at the time of the audit.*
- b) *The permanent pavements, floors and slabs referred to in Condition a) shall be maintained at all times, otherwise replaced with equivalent barriers to minimise exposure of people and plants to the soil.*
- c) *A Health, Safety and Environmental (HS&E) Management Plan shall be implemented to address any future activities (such as excavations for underground services) in the part of the site which may expose contaminated soil. Such activities shall be conducted in accordance with the HS&E Management Plan to minimise human exposure to the contaminants in the soil below the barrier layer and provide for proper disposal and/or reuse of the soil/fill. The plan presented in Appendix F of the Environmental Audit Report would comply with this condition, if implemented. Normal good practice in occupational health and safety management should provide adequate protection for workers engaged in excavations exposing the soil.*

In accordance with section 53Z (2) of the Environment Protection Act, the Auditor must specify in a SoEA the “terms and conditions” that would need to be complied with before a Certificate of Environmental Audit may be issued, should a further request for a CoEA be made. In this case, these include the following:

- a) *Removal of asphalt pavements, and clean up and validation of PAH and metals contaminated material (soil and fill) within the building footprint, including courtyards.*
- b) *A further audit would be required if a Certificate of Environmental Audit is to be issued.*

It should be noted that the Central Block is currently suitable for the beneficial uses listed in the SoEA (subject to the conditions of the SoEA), and these terms and conditions do not need to be implemented at this time, and are for information purposes only.

"Other related information" included in the SoEA is as follows: (none)

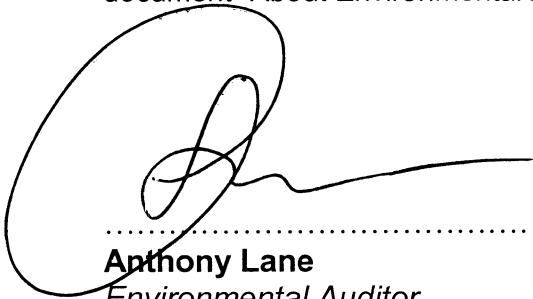
Read in Conjunction with Audit Report

This Executive Summary shall be read in conjunction with the full report of the Auditor (*Environmental Audit Report, 490-492 Victoria Street, Brunswick West, Vic, Lane Consulting, 185Report01.doc, 11 August 2004*), and the Statement/Certificate of Environmental Audit, presented in Appendix A of that report.

The full audit report and appendices is presented in electronic format on CD-ROM. Summary Information comprising a copy of the CoEA/SoEA, a plan of the site and the Executive Summary of the Report are provided separately in paper copies.

About this Environmental Audit Report

While this Environmental Audit has been undertaken in accordance with the EPA Auditor Guidelines and current industry practice, there may be some limitations on the meaning and use of this report. The reader is advised to read this report in conjunction with the attached document "About Environmental Audits and Reports".



.....
Anthony Lane

Environmental Auditor

(appointed pursuant to the *Environment Protection Act 1970*)

11 August 2004

ENVIRONMENTAL AUDIT REPORT

490-492 VICTORIA STREET BRUNSWICK WEST, VIC

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Appendix B	<u>Assessor's Report (Egis)</u>
Appendix C	<u>Assessor's Report (OTEK)</u>
Appendix D	<u>Additional Correspondence (OTEK)</u>
Appendix E	<u>Assessor's Report (Meinhardt)</u>
Appendix F	<u>Assessor's Environmental Health and Safety Plan (Meinhardt)</u>
Appendix G	<u>Certificate of Title & Plan of Subdivision</u>
Appendix H	<u>Land Use Zone Plans</u>

LIST OF ABBREVIATIONS AND UNITS

Chemical Names

PAHs	Polycyclic Aromatic Hydrocarbons
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons (= TPH)
BTEX	Benzene, Toluene, Ethylbenzene & Xylenes
MAH	Monocyclic Aromatic Hydrocarbons (= BTEX)
OCp	Organochlorine Pesticides
OPp	Organophosphate Pesticides
PCB	Polychlorinated biphenyls
CHC	Chlorinated hydrocarbons
TDS	Total Dissolved Solids (salinity of water)

Technical Terms

PID	Photo-ionisation detector (measures in ppm)
UST	Underground Storage Tank
GCMS	Gas Chromatograph - Mass Spectrometer
UCL	Upper confidence Limit ("95% UCL of the mean" is a value for the mean concentration from sampling which has only a 5% chance of being greater than the true mean value.)
PQL	Practical Quantitation Limit
RL	Reduced Level
QA	Quality Assurance
QC	Quality Control
CoEA	Certificate of Environmental Audit
SoEA	Statement of Environmental Audit
NEPM	National Environmental Protection Measure
EILs	Environmental Investigation Levels
HILs	Health Investigation Levels
GDB	Groundwater Database (Department of Natural Resources and Environment)
LNAPL	Light Non-Aqueous Phase Liquid

Units

mg/kg	milligram per kilogram (approximately equivalent to ppm)
mg/L	milligram per litre
ppm	parts per million
uS/cm	microSeimens per centimetre (electrical conductivity - water)

ENVIRONMENTAL AUDIT REPORT

490-492 VICTORIA STREET
BRUNSWICK WEST, VIC

1 INTRODUCTION

1.1 SUMMARY INFORMATION

This report is in response to a request by the site owner for a Certificate of Environmental Audit (CoEA) for contaminated land in accordance with Part IXD of the Environment Protection Act 1970. The details of the land and the request are presented in Table 1.1.

Table 1.1 Summary of Audit Information

Name of the Auditor:	Anthony Lane
Period of EPA re-appointment:	29 July 2003 - 28 July 2005
Name of Person Requesting Audit:	Ms Lorna Pitt West Wyck Pty Ltd 492 Victoria Street, Brunswick West, VIC 3055 (03) 9380 1459
Date of request:	21 July 1998
Reason for statutory audit:	Development of site for residential purposes
Land Use Zoning	Current: R1Z (Residential 1 Zone) Proposed: R1Z (Residential 1 Zone) (see Appendix H)
Address of the site:	490-492 Victoria Street, Brunswick West, VIC 3055 (see Figure 1)
Certificate of Title:	Vol. 1536 Fol. 113 (Central & Southern Blocks), Vol. 7631 Fol. 017 (Eastern Block), Vol. 1816 Fol. 109 (Western Block), see Appendix G
Municipality:	Moreland City Council
Site Area:	Total site area (Central, Southern, Eastern & Western Blocks) is approximately 5,470m ²
Completion Date of the Audit:	11 August 2004
Assessment Consultant:	CMPS&F, Egis, OTEK & Meinhardt
EPA Reference No.:	36111/27987

1.2 BACKGROUND INFORMATION ON AUDIT SCOPE

1.2.1 Status of Site

The site consists of the former West Brunswick Primary School located at 490-492 Victoria Street, Brunswick West. For site development and audit purposes, the site was divided into four (4) areas as follows:

Central Block

The Central Block consists of the former school building and surrounding open area and is bounded by Victoria St to the north, and the Southern, Eastern and Western Blocks to the south, east and west respectively. The Central Block is identified as part of [Plan of Subdivision PS 412559W](#) and consists of Lots 1, 2, 3, 4, 5, 6, 7 (and associated courtyards), Lot S2 and the open areas to the north, east and west of Lot S2.

Southern Block

The Southern Block is bounded by the Central Block to the north, Hunter St to the south and residential premises to the east and west. The Southern Block is identified as part of [Plan of Subdivision PS 412559W](#) and consists of Lots 8, 9, 10, 11, 12 and the area marked as 'Common Property'.

The Central and Southern Blocks (PS 412559W) comprise a total area of approximately 4,290m².

Eastern Block

The Eastern Block is bounded by Victoria St to the north, residential premises to the east and south, and the Central Block to the west. The Eastern Block is identified as [Certificate of Title, Volume 7631, Folio 017](#), and is approximately 800m² in size.

Western Block

The Western Block is bounded by Victoria St to the north, Central Block to the east, and residential premises to the south and west. The Western Block is identified as [Certificate of Title, Volume 1816, Folio 109](#), and is approximately 380m² in size.

Appendix E includes the relevant Certificate of Titles and Plan of Subdivision. A site plan is included as [Figure 2](#).

The Central block contains the former school building which is currently being converted into several Apartments (Lots 1 to 7). The Southern, Eastern and Western blocks are vacant.

1.2.2 Proposed Site Development and Audit Strategy

The proposed development consists of the conversion of parts of the former school building (Central Block) into Apartments and the construction of five (5) two-storey townhouses along Hunter Street (Southern Block). The proposed development plans for the Eastern and Western blocks were not available at the time of writing.

Based on information provided by the site owner it is likely that each of the blocks (Central, South, Eastern and western) will be transferred to separate owners and therefore separate CoEA/SoEA for each may be desirable.

1.2.3 Scope and Sequence of Assessment & Audit

Table 1.2 summarises the tasks and sequences of events to arrive at an assessment and audit of this site.

Table 1.2 Site Assessment & Audit Tasks Sequence

Date	Activity
June 1993	Stage 1 Environmental Site Assessment report (CMPS&F)
21 July 1998	Auditor formally appointed by West Wyck Pty Ltd
23 & 29 July 1998	Phase 1 of Stage 2 soil investigation works undertaken by CMPS&F.
29 July 1998	Site inspection by the Auditor
9 December 1998	Phase 2 of Stage 2 soil investigation works undertaken by CMPS&F.
9 December 1998	Site inspection by the Auditor
February 1999	Stage 2 Environmental Site Assessment report (Egis) ¹
01 August 2000	Site inspection by the Auditor
04 July 2001	Site inspection by the Auditor
December 2001	Remediation works commenced by OTEK
19 December 2001	Site inspection by the Auditor
January 2002	Remediation works completed by OTEK
5 March 2002	Site Validation report (OTek) received by the Auditor
June 2002	Additional soil sampling (Meinhardt) in Western Block
21 August 2002	Additional sampling report (Meinhardt) for the Western Block received by the Auditor
Prior to Dec 2002	Demolition and removal of toilet block and excavation of impacted soils in Western Block by West Wyck
Dec 2002 & Jan 2003	Further excavations (West Wyck) and validation sampling (Meinhardt)
4 April 2003	Final validation report for the Western Block (Meinhardt) received by the Auditor
28 May 2004	The Auditor receives a site Environmental Health and Safety Management Plan from Meinhardt.
9 August 2004	Auditor conducts final site inspection.
11 August 2004	Auditor completes the Audit report.

1.2.4 Auditor's Team

Anthony Lane has conducted the audit and prepared this report with assistance from a team of environmental specialists. Table 1.3 identifies the persons assisting in this audit.

¹ CMPS&F changed name to Egis Consulting Australia in 1998.

Table 1.3 Audit Team

Person	Role	Company
Anthony Lane	EPA Auditor (Contaminated. Land) Hydrogeologist	Lane Consulting
Mauro De Thomasis*	EPA Auditor (Industrial Facilities) Regulatory Compliance Specialist	Lane Consulting
Kylie Wells	Environmental Engineer	Lane Consulting
Robert Medley	Environmental Scientist	Lane Consulting

*Indicates a member of the Auditor's expert support team approved by EPA (Mr De Thomasis was employed between 1999 and 2002).

1.2.5 The Audit Process and "Standards of Certification"

Environmental Audits of contaminated land provide certification that a site is suitable for one or more uses. This certification is in the form of either a Certificate of Environmental Audit (CoEA) or a Statement of Environmental Audit (SoEA).

The Environmental Audit has been performed in accordance with the *Environmental Auditor (Contaminated Land) Guidelines for Issue of Certificates and Statements of Environmental Audit*, EPA Publication 759B, June 2002.

A CoEA is issued if the contamination status of the site is not detrimental to any beneficial use of the site. A SoEA is issued where the contamination makes the site suitable for a restricted range of uses. Further detail on the audit process and the limitations on audits is contained in the appended document titled "About Environmental Audits and Reports".

1.2.6 The Audit Report Contents

The remaining sections of this Audit Report contain a summary of the Auditor's assessment of the site condition and provides justification for the audit outcome:

- ❑ Section 2 – Review of Assessments: explains the various phases of site investigations and related assessments;
- ❑ Section 3 – Auditor Verification of Site Condition: describes auditor's verification activities at the site;
- ❑ Section 4 – Land Contamination and Risks: discusses the Auditor's findings on land contamination and risks at the site;
- ❑ Section 5 – Groundwater Contamination and Risks: discusses the Auditor's findings on groundwater contamination and risks at the site;
- ❑ Section 6 – Audit Outcome & "Certification": summarises the audit outcome and explains the conditions of the Statement of Environmental Audit.

2 REVIEW OF ASSESSMENTS

2.1 DOCUMENTS REVIEWED

The documents reviewed for the purposes of this audit are listed in Table 2.1.

Table 2.1 Documentation Reviewed

Author	Date	Document Title
Egis Consulting Australia Pty Ltd	February 1999	Stage 2 - Environmental Site Assessment, Former West Brunswick Primary School, 490-492 Victoria Street, West Brunswick.
Jura Nominees	August 2001	Site Environmental Management Plan (including Remediation Action Plan)
OTEK Australia Pty Ltd	December 2001	Remediation Action Plan
OTEK Australia Pty Ltd	March 2002	Site Validation, Former West Brunswick Primary School, 490-492 Victoria Street, West Brunswick, Victoria
Meinhardt (Vic) Pty Ltd	20 August 2002	West Wyck Site Remediation, Additional Soil Sampling - Western Block
Meinhardt (Vic) Pty Ltd	3 April 2003	West Wyck Site Remediation, Soil Validation Sampling – Toilet Block Area
Meinhardt (Vic) Pty Ltd	28 May 2004	Environmental Health and Safety Management Plan, Brunswick West Primary School.

The Egis 1999 report is included as [Appendix B](#) of the Audit report. OTEK's Site Validation (March 2002) report is reproduced in [Appendix C](#) and subsequent relevant documentation provided by OTEK (Soil Validation Sampling report, April 2003) is included as Additional Correspondence ([Appendix D](#)). Meinhardt's (Soil Validation Sampling report, April 2003) and Environmental Health and Safety Plan are included as [Appendix E](#) and [Appendix F](#) respectively.

2.2 SITE DEFINITION AND PRELIMINARY ASSESSMENTS

2.2.1 Site Definition and Description

The description and setting of the site is summarised in [Table 2.2](#). This information adequately defines the site for the purposes of the Auditor.

Table 2.2 Site Definition and Description Details

Item	Comments
Site Address	The Assessor's report identifies the site as 490-492 Victoria Street, Brunswick West, Victoria. This is confirmed by the Auditor.
Site Title	Certificate of Title and Plan of Subdivision (Appendix G)
Site Locality Plan, Site Plan (including Sampling Locations)	Provided in Assessor's report and reproduced as Figures 1, 2, 3, 4 and 5 respectively in this report.
Land Area	Not stated in Assessor's Validation report but understood by the Auditor to be approximately: □ Central and Southern Blocks - 4,290m² □ Eastern Block - 800m² □ Western Block - 380m² Total Area: 5,470 m ²
Built Environment	The original main school building (which is being converted into apartments) and asphalt pavements beneath the building have been retained on the site. All asphalt pavements outside of the main school building in the Central, Southern and Eastern Blocks have been removed.
Surrounding Land Use	Surrounding land use immediately to the east and west and across Hunter Street is primarily residential. Victoria Street contains a mixture of residential and commercial premises in the vicinity of the site.
Topography	The site is generally flat.
Vegetation	Vegetation, primarily in the Eastern Block and the northern part of the Central Block, appeared healthy.
Photographs	Not provided by the Assessors. The Auditor has photographs from several site inspections.

2.2.2 Site History & Potential Contaminants

The principal potential contaminants of concern identified primarily in the Stage 2 ESA report by Egis and summarised by the Auditor are defined in [Table 2.3](#).

Table 2.3 Site Activities and Potential Contaminants of Concern

Site Activity/Use	Potential Contaminants of Concern	Comments
On Site Sources		
Imported fill material	Metals, PAHs.	Miscellaneous fill
Asphalt pavements	PAHs	Asphalt pavements ('Tarmac' coal tar spray paved type) were used extensively as part of school playground areas. Extensions to main school building were constructed over asphalt paved areas.
Anecdotal evidence of a fire in the school	PAHs, lead	Fire may have resulted in lead paint and ash residues
Off Site Sources		
None identified.		

Based on the site history investigation undertaken as part of the Stage 2 ESA report by Egis, it is considered that an adequate site history review and specification of the potential contaminants of concern has been undertaken for the site.

2.3 CONTAMINATION INVESTIGATIONS & RESULTS

2.3.1 Field Investigations

Field investigations were conducted over three main stages (phases). The site history and preliminary contamination assessment (noted as Phase 1 by the Auditor) and further contamination assessment (noted as Phase 2 by the Auditor) was undertaken by CMPS&F/Egis Consulting Australia (Egis). Site remediation and validation work (noted as Phase 3 by the Auditor) was undertaken by OTEK Australia (OTEK). Further remediation and validation of Western Block (noted as Phase 4 by the Auditor) was undertaken by Meinhardt. [Table 2.5](#) summarises the scope of the field works and [Figure 3](#) shows the various assessor's sampling locations.

Phase 1 – Preliminary Environmental Site Assessment (CMPS&F/Egis)

A preliminary environmental site assessment was completed for the site by CMPS&F in June 1993 on behalf of the Directorate of School Education. This report was not available for review by the Auditor. However, the Stage 2 ESA report by Egis (February 1999) provides a summary of the site investigation works undertaken as follows:

- ❑ The investigation comprised the recovery of soil samples from 15 on-site locations.
- ❑ Samples were recovered at near surface (0.0 to 0.15m), 0.4 to 0.6m and 0.9 to 1.0m depths.
- ❑ Analysis of samples indicated lead and zinc at concentrations exceeding the then adopted investigation levels.

Phase 2 – Further Environmental Site Assessment

During July and December 1998 further site investigation works included:

- ❑ Drilling 16 on-site hand auger holes to an approximate depth of 0.5m to characterise the fill material and in-situ (natural) soils
- ❑ Drilling one (1) off-site hand auger hole to an approximate depth of 0.5m to assess the regional soil conditions
- ❑ Excavation of four (4) backhoe test pits to depths between 1.3 and 1.6m to further characterise the fill material and in-situ (natural) soils
- ❑ Recovery of soil samples at near surface (0.0 to 0.1m) and 0.5m depth from each of the 17 hand auger holes and from the fill and natural soils from the test pits
- ❑ Recovery of two samples of debris from within the floor void beneath the school building.

A total of 54 soil samples were taken from the 16 hand auger and 4 test pit locations (including three blind duplicate and three split duplicate samples), and one rinsate sample and one trip blank sample were also taken.

The density of sampling was in accordance with guidance provided in the Australian Standard (AS4482.1).

Phase 3 – Remediation (Southern, Eastern and Western Blocks)

Remediation works were undertaken at the site by OTEK during December 2001 and January 2002 to remove asphalt pavements and underlying contaminated soil.

Phase 4 – Further Remediation (Western Block)

Further remediation works were undertaken at the Western Block by West Wyck, with validation sampling undertaken by Meinhardt, during December 2002 and January 2003. Refer section 2.5 for further detail regarding remediation and validation works

2.3.2 Soils & Hydrogeology

Soils

Egis described the soil profile in each of the soil sample locations and provided field log descriptions. The subsurface profile generally comprised of fill material (sand, silt and clay) overlying natural red and brown mottled clays. Fill material was encountered in each of the locations tested and ranged in depth from 0.1m to at least 0.5m below ground. Fill material was generally more extensive in the southern part of the site and was noted to include brick fragments, coke, crushed rock and glass. The layers are summarised in Table 2.4.

Table 2.4 Soil Profile Description

Typical Depth Interval (mBGL)	Material	Description
0.0-0.5	Fill	Asphalt, crushed rock, ash, brick, coke and glass fragments
0.1-1.5	Sandy Silt and Clay	Brown/yellow/red, slightly moist, low plasticity
1.0-1.5	Siltstone	Light grey/orange flecks, dry, hard (Silurian)

Hydrogeology

Geology & Aquifers: The Melbourne 1:63,360 Geological Map shows the site located on Tertiary aged Red Bluff Sands of the Brighton Group Formation. The Assessor noted that the field observations were consistent with this description.

The hydrogeology of the site and locality has not been addressed by the Assessor, to the standard normally preferred by the Auditor. The following provides the Auditor's brief assessment of this aspect.

The site is located on the eastern margin of the Western Plains. The stratigraphic sequence of the site from oldest to youngest is: the Melbourne Formation (consolidated Silurian sedimentary rocks), the Brighton Group (unconsolidated silt, sand and clay) and the Newer Volcanics (basalt and basaltic clays). The Newer Volcanics extend from depths of 10 to 15 meters.

Information on the groundwater occurrence was obtained from the Department of Natural Resources and Environment and from published reports on the hydrogeology of Melbourne. Groundwater in the Brighton Group varies and is confined where the geological unit is saturated and the overlying Newer Volcanic Basalts are present.

Groundwater Flow System:

Groundwater was not encountered in any of the soil bores drilled as part of the site investigation. The deepest bore/testpit was 1.5m in depth. Considering the site elevation and the information available on the regional water table the groundwater is estimated to occur at depths of greater than 10 meters below ground level. The direction of groundwater flow at the site cannot be inferred from the geological information available. The nearest surface water body to the site is the Moonee Ponds Creek which is located approximately 350m to the west of the site. The Merri Creek is located approximately 3.4km to the east of the site. The Auditor concludes that groundwater in the vicinity of the site is more likely to discharge to the Moonee Ponds Creek due to its proximity to the site.

Groundwater Quality & Beneficial Use: The Brighton Group sediments are of relatively low permeability due to the high silt and clay content. Hydraulic conductivity is estimated at less than 0.5m/day and the salinity at 2,000 mg/L TDS (Leonard 2000).

There was no information provided by the Assessors with regard to a search of the State Groundwater Database. Information obtained from the Department of Natural Resources & Environment (DNRE) from a previous audit in the vicinity of the site revealed a groundwater well approximately 1.9 km west of the site, near the Moonee Valley Racecourse. The reported standing water level of this bore is approximately 7.6m. Minimal information regarding chemical properties of the groundwater was provided in the bore composite report provided by DNRE.

2.3.3 Laboratory Testing

The testing program was designed to enable characterisation of the contamination status of the surface fill material and the underlying natural soil.

Egis used the following laboratories:

- ❑ *Primary Laboratory:* MGT Environmental Consulting Pty Ltd
- ❑ *Secondary Laboratory:* WSL Consultants Pty Ltd

OTek used the following laboratories:

- ❑ *Primary Laboratory:* AMDEL Pty Ltd
- ❑ *Secondary Laboratory:* MGT Environmental Consulting Pty Ltd

Meinhardt used the following laboratory:

- ❑ MGT Environmental Consulting Pty Ltd

Each of these laboratories is NATA accredited for the analyses undertaken. All laboratory results contain the NATA certified stamp.

The Assessor's sampling and analytical program is summarised below in Table 2.5.

Table 2.5 Summary of Assessor's Sampling and Analytical Program

Phase	Target	Sampling			Testing	
		No. sample locations	Sample depth (m)	No. samples collected	No samples tested	Analytes
2	Grid based sampling	16				
	Fill		0.0-0.1	16	4 composites	Broad screen
			0.0-0.1	16	16	Metals, PAH, TPH
			0.4-0.5	14	14	Metals, PAH, TPH
	Natural Soil		0.4-0.5	2	2	Metals, PAH, TPH
	Targeted sampling	4				
	Fill		0.0-0.45	2	2	Metals, PAH, TPH
	Natural Soil		0.1-1.5	12	10	Metals, PAH, TPH
3	Background	1	0.0-0.5	2	2	Metals, PAH
	QA/QC			8	7	Metals, PAH
	Remediation and Validation					
	Central Block	10	0.0-0.5	14	14	Metals, PAH, TPH, BTEX
	Southern Block	11	0.0-0.5	15	15	Metals, PAH, TPH, BTEX
	Eastern Block	8	0.0-0.5	18	18	Metals, PAH, TPH, BTEX
4	Western Block	3	0.0-0.5	7	7	Metals, PAH, TPH, BTEX
	Backfill Material (stockpiles)	2		2	2	Broad screen
	Remediation and Validation					
	Western Block	14	Surface & walls	14	14	PAH, lead
	Stockpiles	2		2	2	Broad screen
	QA/QC	2		2	2	PAH, lead

The laboratory testing program was sufficient to identify potential contaminants of concern, (especially due to the use of broad EPA Audit Screens) and for the purposes of the audit.

2.3.4 Quality Assurance/Quality Control Program Review

This section reviews the Quality Assurance (QA) and Quality Control (QC) documentation. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation should also include an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work will include the internal laboratory testing as well as results of QC samples submitted by the Assessor such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

The Auditor undertook a review of the Assessor's QA/QC as part of the data validation exercise. The findings are summarised in Table 2.6.

Table 2.6 Reviews of QA/QC Aspects

QA/QC Aspects	Evidence & Evaluation
QA Documentation	
Project Quality Plan/Work Plan and Data Quality Objectives	The Assessor provided a generic field investigation protocols/QA plan. The Assessor's work was carried out in accordance with the written work plan, and a quality control program was implemented. The quality assurance procedures used are also reiterated in the Assessor's report.
Data Validation Report	The results of the soil investigations and the NATA Certified Laboratory Reports can be found in the appendices of the Assessor's reports.
Data Representativeness	
Use of Composites	Composites were used for analysis of grid samples. Modified criteria were used to assess results. Volatile analyses were conducted on individual samples. Included in Assessor's report
Holding Times	The chain of custody and laboratory reports show that holding times for samples collected by the Assessor were in conformance with Table 4 in AS4482.1-1997.
Background	Egis collected one background sample as part of the Stage 2 ESA. Fill material indicated the presence of slightly elevated PAH, copper and zinc. Natural soil indicated arsenic at 30 mg/kg. Sample was taken too close to site boundary to be considered representative of natural background conditions.
Verification of field procedures	The Auditor witnessed the sampling procedures and decontamination methods of the Assessor (CMPS&F) in the field. The Auditor is assured that the proposed QA plan was followed. The Auditor witnessed test pit sampling conducted by the Auditor's representative (at the request of the Auditor).
Data Precision and Accuracy	
QC Testing -Blind replicates	Egis - A total of 3 blind replicates were analysed for metals & PAH. All RPDs were within the accepted error band, except for one arsenic and one PAH result. These analytical results were low and this can result in exaggerated RPD values. OTEK - A total of 3 blind replicates were analysed for lead, PAH, MAH, TPH. All RPDs were within the accepted error band except for one result for lead and TPH. Meinhardt - A total of 2 blind replicates were analysed for lead, PAH. All RPDs were within the accepted error band.
QC Testing -Field splits	Egis - A total of 2 field splits were analysed (QA4 not analysed) for metals, PAH, OCP, and PCB. All RPDs were within the accepted error band, except for one arsenic, nickel, zinc and PAH result. These analytical results were low and this can result in exaggerated RPD values. OTEK and Meinhardt did not collect field split duplicate samples
Trip Blanks	Egis collected one trip blank sample. All results were below laboratory reporting limits. OTEK and Meinhardt did not collect trip blanks.

QA/QC Aspects	Evidence & Evaluation
Laboratory Internal QC	Evidence of the laboratories internal QC testing is present and complete in the Assessor's reports. Both MGT and AMDEL performed internal QC with adequate testing and satisfactory results for matrix spikes, method blanks and laboratory duplicates.
Laboratory Method Detection Limit	MGT and AMDEL laboratory detection limits for the soil sampling is less than the criteria. Provided as attachments to the Assessors' reports.
NATA endorsement of laboratory reports	All laboratory reports contain the NATA endorsement stamp and signature, covering all tests performed.
Calibration of Field Equipment	The Auditor did not witness the sampling procedures and decontamination methods of the Assessors in the field. The Auditor is assured that the proposed QA plans were followed in the field.
Decontamination and Equipment Blanks	All analytes were below the laboratory detection limits in the rinsate blank. Provided as attachments to the Assessors' reports.
Data Comparability	
Standard Procedures	The Assessors provided generic field investigation protocols as attachments to their reports. These procedures are consistent with current industry practise.
Qualified Personnel	The Assessors have specified the staff involved in managing and reviewing the project. The Auditor is satisfied that the personnel involved in the project are qualified to conduct the work.
Volatile Losses	The use of appropriate field and sample transport methods would limit the loss of volatiles from samples. A PID was used to check samples in the field for evidence of VOCs and all were very low. Standard Procedures included in Assessor's report.
Sample Integrity	Chain of Custody forms for the transmission of samples to primary and secondary laboratories are present in the Assessor's reports.
Data Completeness and Validity	
Completion of test program	The Assessor's work was carried out as described in their report, and a quality control program was implemented. The quality assurance procedures used are also reiterated in the Assessor's report.
Completeness and Validity of Data Set	The laboratory test results presented by the Assessor are valid and the data set is considered complete.

2.3.5 Review of Contamination Investigations

The Auditor considers that the scope of works, methodology of the site investigations and laboratory analytical program undertaken by the Assessor have been appropriate in order to characterise the nature and extent of contamination at the site. Hence, the field assessment and data is considered to be of an acceptable quality as the basis for the Audit.

3 AUDITOR'S VERIFICATION OF SITE CONDITION

3.1 VERIFICATION TASKS SUMMARY

The Auditor has undertaken work to verify that the environmental quality of the site is as reported by the Assessor. Tasks undertaken by the Auditor verifying the site conditions are summarised in Table 3.1.

Table 3.1 Auditor's Verification Activities

Activities	Comment
Inspect Site Conditions	Site inspections were conducted on 29 July 1998, 9 December 1998, 1 August 2000, 4 July 2001 and 19 December 2001, 13 December 2002 and 9 August 2004.
Observe Assessor Sampling	The Auditor did not observe the Assessors sampling, however is assured that compliance with their work plan was achieved.
Confirm QA/QC of Assessors field work	The Assessors demonstrated adequate documentation of QA/QC, facilities and procedures for equipment decontamination, proper sampling technique and sample handling.
Inspect Borings / Test Pits	Bores / test pits were located and observed.
Collection of Independent Samples	Based on the level of investigation undertaken and the QA/QC measures undertaken by the Assessors - independent verification was not required.
Photographs	Site photos collected for Site Audit file and/or report.

3.2 AUDITOR'S SITE VISIT

The Auditor's site activities conducted during the Audit included:

- ☐ Discussions with the owner and the Assessor(s).
- ☐ Observation of sample collection by the Assessor (CMPS&F/Egis).
- ☐ Inspection of borings and test pits.
- ☐ Confirmation of Assessor's QA/QC program for field work.
- ☐ Inspection of potential onsite pollution sources including boiler ash, asphalt pavement

Independent verification sampling was not undertaken by the Auditor for the following reasons:

- ☐ The site visit enabled the Auditor to interview the owner and Assessor, view sample collection, inspect borings, testpits and potential sources of contaminants and confirm the QA/QC program.
- ☐ The high proportion of sealed surfaces would make verification sample collection by the Auditor difficult and given the large number of samples taken by three environmental Assessors further sample collection was considered unnecessary.

4 AUDITOR'S EVALUATION OF CONTAMINATION AND RISKS

This section summarises the Auditor's assessment of the significance of the contamination documented by the Assessor's reports, and justifies the issue of a CoEA and SoEA in this case.

4.1 BENEFICIAL USES TO BE PROTECTED

The beneficial uses considered during this audit were those, which were conducive to the use of the land for public benefit, welfare, safety, health and aesthetic enjoyment.

The beneficial uses considered during this audit were those, which were conducive to the use of the land for public benefit, welfare, safety, health and aesthetic enjoyment, and include all those listed in the *SEPP (Prevention and Management of Contamination of Land)* are:

- ☐ Maintenance of Ecosystems (Natural, Modified and Highly Modified Ecosystems)
- ☐ Human Health
- ☐ Buildings and Structures
- ☐ Aesthetics
- ☐ Production of Food, Flora and Fibre

The land uses that may be relevant to the protection of all or some of those beneficial uses are:

- ☐ Parks and Reserves
- ☐ Agricultural
- ☐ Sensitive Use² (High density residential)
- ☐ Sensitive Use (Other)
- ☐ Recreation/Open Space
- ☐ Commercial
- ☐ Industrial

[Table 4.1](#) summarises the protected beneficial uses and relevant land uses defined in the *SEPP (Prevention and Management of Contamination of Land)* June 2002.

² Sensitive Use as defined in the *SEPP (Prevention and Management of Contamination of Land)* June 2002 means "a residential use, a child care centre, a pre-school centre or a primary school as defined in Minister's Direction no. 1 as amended from time to time under section 12(2)(a) of the Planning and Environment Act 1987"

Table 4.1 Protected Beneficial Uses of Land

Beneficial Use	Land Use							Explanation
	Parks & Reserves	Agricultural	Sensitive Use (High density residential)	Sensitive Use (Other)	Recreation / Open space	Commercial	Industrial	
Maintenance of Natural Ecosystems	✓							Contamination must not adversely affect the maintenance of relevant ecosystems. Natural ecosystems include parks and forested areas. These are generally undisturbed by human activity and mainly occur in non-urban areas.
Maintenance of Modified Ecosystems	✓	✓		✓	✓			These land uses may contain ecosystems disturbed by human activity but with significant ecosystems remaining. Includes public open space and low density residential allotments.
Maintenance of Highly Modified Ecosystems		✓	✓	✓	✓	✓	✓	These land use areas may contain ecosystems highly modified by human disturbance. These would be expected in any residential, public open space or commercial/industrial area where there are landscaped garden and lawn areas.
Human Health	✓	✓	✓	✓	✓	✓	✓	If persons are exposed directly to soil then their health must be protected. Exposure might occur to residents digging in gardens, workers engaged in excavations for construction or maintenance of underground services. Exposure can also occur from volatile organic vapours migrating through structures.
Buildings & Structures	✓	✓	✓	✓	✓	✓	✓	Contamination must not cause the land to be corrosive to or adversely affect the integrity of structures or building materials.
Aesthetics	✓		✓	✓	✓	✓		Contamination must not cause the land to be offensive to the senses of human beings.
Production of Food, Flora & Fibre	✓	✓		✓				Contamination of the soil in these land use areas should not affect the quality or yield of produce, or affect the level of an indicator in the food, fibre or flora such that it exceeds the Australian and New Zealand Food Authority Standards Code.

4.2 CONTAMINATION ASSESSMENT CRITERIA - SOIL

Table 2 of the SEPP Prevention and Management of Contamination of Land specifies the “Indicators and Objectives” to be applied to the assessment of land contamination. These objectives refer to the (NEPM) National Environment Protection (*Assessment of Site Contamination*) Measure issued in December 1999 by the National Environment Protection Council (NEPC).

The NEPM presents guidelines for soil and groundwater in the assessment of site contamination and specifies *Investigation Levels* at which further assessment of human or ecological risks or management of contamination is required. The human health levels are referred to as HILs, and the ecological levels as EILs. The NEPM-EILs are equivalent to the ANZECC B criteria, with the following exceptions:

- ❑ The NEPM-EIL includes criteria for two additional metals (barium and vanadium) and specifies methyl mercury separately from total mercury.
- ❑ ANZECC B specifies criteria for antimony and tin, not included in NEPM.
- ❑ The criteria for chromium, copper and lead in the NEPM-EIL are higher than the more conservative ANZECC B levels.
- ❑ The NEPM also specifies separate criteria for Chromium III and Chromium VI.

The initial screening criteria for determining the issue of a CoEA, and therefore generally the most conservative of these criteria are the EILs, with the exception of lead where HIL A is lower than the EIL.

Where these criteria do not provide a value for a particular parameter, alternate and equivalent sources of criteria are used including:

- ❑ ANZECC B (1992)
- ❑ Environmental Quality Objectives in the Netherlands (1994) (referred to as Dutch criteria)
- ❑ NSW EPA Guidelines for Assessing Service Station Sites (1994)

“Investigation levels” are not intended to be interpreted as “maximum permissible levels”, “clean up levels” or “safe levels”, rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the “investigation levels” are generally set at conservatively low levels, they are often taken to be the acceptable levels.

The *SEPP Prevention and Management of Contamination of Land* (Table 2) specifies the NEPM EILs and HILs as objectives to be met unless a site-specific assessment of risk yields alternative values.

Where results in excess of NEPM EILs (or equivalent criteria) are noted, these are compared with the NEPM Health Investigation Levels (HILs). The site may not qualify for a CoEA if a significant amount of soil at the site exceeds the NEPM EIL criteria. A CoEA is less likely to result where soil exceeds NEPM HIL criteria.

In cases where excess contamination occurs and where further remediation may not occur, a risk assessment to determine site specific criteria or a regime of management of contamination may be required, and may result in the issue of a CoEA or SoEA depending on site-specific situation.

The following sections provide a summary of those results that exceed NEPM criteria or equivalent.

4.3 MAINTENANCE OF ECOSYSTEMS – LAND

4.3.1 On site Ecological Impact

The site contains no natural unmodified ecosystems. The intended land use of the site is medium to high density residential. Therefore, the soil and fill remaining on the site may reasonably be expected to sustain the "modified ecosystems" and "highly modified ecosystems" found in urban gardens in compliance with the *SEPP (Prevention and Management of Contamination of Land)* (June 2002). The soil must sustain plants including ornamental flowers, shrubs, lawn and possibly small trees in such gardens, as well the soil in-fauna.

The results of soil assessments indicate that the relevant phytotoxicity criteria have not been exceeded and, therefore, soil does not present any significant detriment to ecological receptors at the site.

4.3.2 Off site Ecological Impact

The clean nature of the soils remaining on site indicates a low risk of any off site ecological impacts.

4.4 PROTECTION OF HUMAN HEALTH

Table 4.2 summarises the remaining inorganic and organic contaminants at the site.

Table 4.2 Summary of Locations Exceeding Criteria (mg/kg)

Location	Depth (m)	Fill or Natural	Lead	Arsenic	Zinc	BaP	Total PAHs
NEPM EILs			600	20	200		
NEPM HIL A			300	100	7,000	1	20
NEPM HIL D			1,200	400	28,000	4	80
CENTRAL BLOCK							
HA2	0.1	Fill	890		750	4	30.49
HA4	0.1	Fill				29	287.8
HA4	0.5	Fill				13	196.9
HA6	SS	Fill				4.5	97.3
HA6	0.1	Fill				20	228.75
HA6	0.5	Fill				29	453.3
HA7	0.1	Fill				1.9	
HA7	0.5	Fill				5.4	60.66
WESTERN BLOCK							
WB-S1.1	0.15	Fill				42	360
OFF SITE							
HA8	0.1	Fill		24			
HA8	0.5	Fill				1.2	
BG	0.1	n/a			260	7.3	47.46
BG	0.5	n/a		30			

NOTE: Shaded results > NEPM EIL
Bold results > NEPM HIL A
Underline result > NEPM HIL D

4.4.1 Soil Results – Inorganics

The data set representing the status of the site following completion of remedial work indicates that there are no significant exceedances of criteria for inorganic analytes at the site with the exception of HA2/0.1 which is located under the school building. [Table 4.2](#) summarises the inorganic concentrations remaining at the site. Thus the concentrations of inorganic contaminants remaining on site are not considered to represent a significant risk to the health of future site users if appropriately managed.

4.4.2 Soil Results - Organics

Following remedial works the only significant organic contamination identified in the fill material was that due to PAH. B(a)P is one of the PAH group of compounds. B(a)P is a human carcinogen and is consequently a priority PAH compound for assessment and management. [Table 4.2](#) summarises the total PAH and the B(a)P concentrations remaining at the site.

Asphalt (Tarmac) pavements and associated PAH contaminated soil remain in the Central Block below the school building/apartments.

4.4.3 Evaluation of Soil Contamination – Human Health

The Stage 2 ESA report (Egis 1999) made reference to a Preliminary Health Risk Assessment completed in 1993 for identified elevated concentrations of lead and zinc. Site remediation results indicate that there are no areas remaining, external to the main school building, containing elevated metals.

The Auditor notes that an assessment of the potential risks associated with B(a)P and total PAH contamination to the surrounding environment and to the health of future site users has been prepared by the Assessor. The occupants of the site in the Central Block will be isolated from the fill by the building slab and timber floor barrier (including courtyard areas) and hence exposure to the soil is negligible. The Auditor is satisfied that the residual contamination remaining in the Central Block area presents a negligible risk to human health for occupants of the site.

In the event that the floor or concrete slab is breached there is potential for persons to become exposed to the underlying soil. This is likely during construction work or maintenance work on underground services. Therefore advice is required to be provided to such workers in relation to the hazard presented by these contaminants. However, the short exposure and the use of normal good practice in occupational health and safety should protect such workers from unacceptable health risks. A management plan should be implemented to address this material.

The low values of contaminant concentration (below NEPM HIL-A) remaining elsewhere on site present no significant risk to human health.

4.4.4 Asbestos

Asbestos was not identified in the soil or fill at this site. Minor occurrence of asbestos cement fragments are often found in fill material in urban areas, but should be considered to pose a negligible risk to human health if encountered and minimal disturbance caused.

4.5 PROTECTION OF BUILDINGS AND STRUCTURES

The Auditor has not identified soil or groundwater characteristics that are likely to affect buildings or structures at the site.

4.5.1 Acid Sulphate Soils

The site is not in an area identified as potentially having acid sulphate soils.

4.6 PROTECTION OF AESTHETICS

Aesthetics, especially odour is an important criterion for the Auditor to consider. The objective for “Aesthetics” in the *SEPP (Prevention and Management of Contamination of Land)* (2002) is that “contamination must not cause the land to be offensive to the senses of human beings.”

The assessment considered odours in soil and reported no offensive odours. This issue seems not to represent any significant constraint on site use. Aesthetically unacceptable material including ‘tarry’ and odorous fill and soil associated with tarmac pavements have been removed from the site as part of the site clean up works

4.7 SURFACE WATER CONTAMINATION ASSESSMENT

Surface water was not considered to be impacted by soil contamination at this site due to the generally uncontaminated nature of the surface soils.

4.8 SUMMARY OF AUDITOR’S OPINION ON LAND CONTAMINATION

Following a review of the data provided, and having regard to the SEPP Land, the Auditor is of the opinion that the site is not unacceptably contaminated with respect to the beneficial uses of the land for residential use subject to the application of a management plan to the Central Block.

5 GROUNDWATER CONTAMINATION AND RISKS

5.1 BENEFICIAL USES TO BE PROTECTED – GROUNDWATER

Table 5.1 presents the classification of beneficial uses of groundwater protected in accordance with *SEPP Groundwater of Victoria*.

Table 5.1 Protected Beneficial Uses of Groundwater Segments

Beneficial Uses	Segments (mg/L TDS)				
	A1 (0-500)	A2 (501-1,000)	B (1,001-3,500)	C (3,501-13,000)	D (greater than 13,000)
1. Maintenance of ecosystems	✓	✓	✓	✓	✓
2. Potable water supply					
Desirable	✓				
Acceptable		✓			
3. Potable mineral water supply	✓	✓	✓		
4. Agriculture, parks & gardens	✓	✓	✓		
5. Stock watering	✓	✓	✓	✓	
6. Industrial water use	✓	✓	✓	✓	✓
7. Primary contact recreation (eg. Bathing, swimming)	✓	✓	✓	✓	
8. Buildings and structures	✓	✓	✓	✓	✓

Based on the information presented in [section 2.3.2](#), (a desktop hydrogeological assessment) the average groundwater salinity is likely to be 2,000 mg/L. It should therefore be classified as Segment B.

The protected beneficial uses of this quality groundwater are:

- Maintenance of ecosystems
- Potable mineral water supply (although groundwater would not conform to this definition)
- Agriculture parks and gardens
- Stock watering
- Industrial water use
- Primary contact recreation
- Buildings and structures

5.2 CONTAMINATION ASSESSMENT CRITERIA - GROUNDWATER

The water quality guidelines applying to the assessment of groundwater contamination in Victoria are those specified in Table 3 of the *SEPP Groundwaters of Victoria*. These are presented in Table 5.2:

Table 5.2 Water Quality Criteria for Groundwater

Beneficial Use Category	Applicable Water Quality Criteria
Maintenance of Aquatic Ecosystem	Those applicable under the relevant SEPP for receiving waters. In this case the <i>SEPP Waters of Victoria</i> (Yarra Catchment) applies and the water quality guidelines are found in: Chapter 2 of the ANZECC (1992) <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i>
Potable Water Supply	Chapter 4 of the ANZECC (1992) <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i>
Agriculture, Parks & Gardens	Chapter 5 of the ANZECC (1992) <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i>
Stock Watering	Chapter 5 of the ANZECC (1992) <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i>
Industrial Water use	Chapter 6 of the ANZECC (1992) <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i>
Primary Contact Recreation	Chapter 3 of the ANZECC (1992) <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i>
Potable Mineral Water	Australian Food Standards Code (1987) – <i>Standard 08 Mineral Water</i>
Buildings & Structures	No criteria – “shall not be corrosive to structures”.

It is noted that more recent guidelines are available for drinking water (ANZECC/ARMCANZ, 1996) and for other uses (ANZECC/ARMCANZ, 2000). However, the EPA has not adopted these at this time.

5.3 GROUNDWATER POLLUTION ASSESSMENT PROTOCOL

In conducting this assessment the Auditor has referred to *SEPP Groundwaters of Victoria* and had regard to section 13 of the *Environmental Auditor (Contaminated Land) Guidelines for Issue of Certificates and Statements of Environmental Audit, June 2002* and has addressed the key questions posed by the guideline.

Is groundwater likely to be polluted?

That is to say, is there any significant risk that groundwater at the site is contaminated to the extent it may be polluted from sources on-site or off-site?

The former use of the site as a primary school, lack of any USTs or off-site sources of contamination indicates that it is unlikely to be a cause of polluted groundwater at the site.

Therefore the groundwater investigation was not justified on this basis.

Is Groundwater Polluted?

That is to say - Does any groundwater contamination found at the site constitute pollution of groundwater in accordance with the *SEPP Groundwaters of Victoria*?

The Auditor considers that no groundwater investigation was considered necessary for the site and has offered the following justifications:

- ❑ The past land use indicates that the site was used as a school. The predominant source of contamination at the site was derived from asphalt and imported fill material, which impacted upon soil at the site. The Auditor considers that this asphalt and fill is unlikely to impact upon groundwater at the site.
- ❑ The ESA did not reveal any USTs or other possible sources of groundwater contamination. The Assessor indicated that the site had been serviced by mains gas for heating from an early stage of the previous development.
- ❑ Low permeability soils (0.5m/day) combined with the depth to water table (approximately 10 m) is likely to impede the ability of groundwater contaminants to pass from the surface to the water table.

Therefore a groundwater investigation was not justified on this basis.

5.4 SUMMARY OF AUDITOR'S OPINION ON GROUNDWATER CONTAMINATION

An assessment of groundwater pollution is provided in Table 5.3.

Table 5.3 Summary of Groundwater Pollution Assessment

Beneficial Use Category	Protected Beneficial Uses of this Segment of groundwater	Polluted	Existing Use	Likely Use	Un-likely Use	Comment
Maintenance of Aquatic Ecosystem	✓			✓		The nearest potential receiving body is Moonee Ponds Creek located approximately 350m to the west of the site.
Potable Water Supply	✓				✓	The poor quality, low aquifer yield makes these uses unlikely.
Potable Mineral Water	✓				✓	It is not a mineral water or a recognised mineral water province, therefore this is not a protected beneficial use.
Agriculture, Parks & Gardens	✓				✓	The poor quality, low aquifer yield and the urban setting (consistent with the designated zoning specified by the planning authority) make these uses unlikely. Also, the house lots are small and the proposed development does not include swimming pools.
Stock Watering	✓				✓	
Industrial Water use	✓				✓	
Primary Contact Recreation	✓				✓	
Buildings & Structures	✓				✓	There is no reason to believe that groundwater quality will affect buildings and structures. However the expected depth of the water table makes this interaction unlikely.

No direct investigation of groundwater was undertaken at the site. The condition of the groundwater is based on desk based information. The groundwater quality is likely to be poor (greater than 2,000mg/L TDS) and have limited beneficial uses in an urban environment. The only relevant protected beneficial use is considered to be maintenance of aquatic ecosystems.

The groundwater quality will not restrict the beneficial use of the land.

6 AUDIT OUTCOME & “CERTIFICATION”

6.1 SUMMARY OF OUTCOME

The site at 490-492 Victoria Street, Brunswick West, has been divided into four areas for the purpose of the Audit outcomes. Table 6.1 summarises the Audit outcomes for each area of the site. The respective SoEA and CoEA are presented in Appendix A of this Audit Report.

Table 6.1 Audit Strategy

Area	Proposed Audit Outcome
Central Block	Statement of Environmental Audit
Southern Block	Certificate of Environmental Audit
Eastern Block	Certificate of Environmental Audit
Western Block	Certificate of Environmental Audit

6.2 CONDITIONS OF THE STATEMENT OF ENVIRONMENTAL AUDIT

Given the risks identified above ([section 4](#)), the conditions considered relevant to the protection of the beneficial uses at the site are outlined in Table 6.2.

Table 6.2 Summary of Statement Conditions at the Site

Factor Affecting Beneficial Uses Of The Site	Conditions
CENTRAL BLOCK	
Soil contamination	Soil / fill remaining on site within the building footprint, including courtyards, shall be covered by a permanent barrier layer such as a timber floor, concrete slab and / or pavement.
	The permanent pavements, floors and slabs referred to above shall be maintained at all times, otherwise replaced with equivalent barriers to minimise exposure of people and plants to the soil.
	A Health, Safety and Environmental (HS&E) Management Plan shall be implemented to address any future activities (such as excavations for underground services) that occur in the part of the site which may expose contaminated soil. Such activities shall be conducted in accordance with the HS&E Management Plan to minimise human exposure to the contaminants in the soil below the barrier layer and provide for proper disposal and reuse. The plan presented in Appendix F would comply with this condition if implemented. Normal good practice in occupational health and safety management should provide adequate protection for such workers from soil exposure.

Given the Audit findings above ([section 4](#)), the Southern, Eastern and Western Blocks qualify for a CoEA and, therefore, there no conditions are considered relevant to the protection of the beneficial uses at the site.

6.3 CONDITIONS FOR ISSUE OF A CERTIFICATE OF ENVIRONMENTAL AUDIT

Section 53Z Part 2(c) of the Environment Protection Act 1970 requires an audit report to specify the terms and conditions that need to be complied with before a Certificate of Environmental Audit (CoEA) may be issued. It should be noted that the site is currently suitable for the beneficial uses listed in the [Statement of Environmental Audit](#) (SoEA) (subject to the conditions of the statement), and the requirements for issue of a CoEA are for information purposes only. In order to gain a CoEA, validation testing and a re-audit of the site would be necessary.

If a CoEA were requested for the Central Block, the terms and conditions that need to be complied with before the CoEA may be issued for the site would include:

Central Block

- a) Removal of asphalt pavements, and clean up and validation of PAH and metals contaminated material (soil and fill) within the building footprint, including courtyards.
- b) A further audit would be required if a Certificate of Environmental Audit is to be issued.

6.4 OTHER RELATED INFORMATION

Related environmental issues arising during the course of an environmental audit, but which do not affect issue of a CoEA or SoEA, should be noted by the Auditor and included in the CoEA or SoEA in the section titled "Other Related Information". Other related information on the SoEA for the Central Block includes:

Central Block

None

Southern Block

None

Eastern Block

None

Western Block

None

About your environmental audit report

While this Environmental Audit has been undertaken in accordance with the EPA Auditor Guidelines and current industry practice, there may be some limitations on the meaning and use of this report. The reader is advised to read this report in conjunction with the attached document "About Environmental Audits and Reports".

Lane Consulting

7 REFERENCES

1. Australian & New Zealand Environment & Conservation Council (1992) *Guidelines for the Assessment & Management of Contaminated Sites*
2. Australian & New Zealand Environment & Conservation Council (1992) *Australian Water Quality Guidelines for Fresh and Marine Waters*. National Water Quality Management Strategy.
3. Australian & New Zealand Environment & Conservation Council and Agriculture & Resource Management Council of Australia and New Zealand (1996). *Australian Drinking Water Guidelines*. National Water Quality Management Strategy.
4. Australian & New Zealand Environment & Conservation Council and Agriculture & Resource Management Council of Australia and New Zealand (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. National Water Quality Management Strategy.
5. EPA (2002) *State Environmental Protection Policy (Prevention and Management of Contamination of Land)* Environment Protection Authority, Victoria.
6. EPA (2001) *Environmental Auditor (Contaminated Land) Guidelines for Issue of Certificates and Statements of Environmental Audit*, Publication 759A June 2001
7. Geological Survey of Victoria (1972). 1:63,360 Melbourne Geological Map Sheet
8. Leonard, (1992) *Port Phillip Region Groundwater Resources – Future Use and Management*. Department of Water Resources Victoria.
9. Ministry of Housing and Spatial Planning (1994) *Environmental Quality Objectives in the Netherlands* .
10. National Environment Protection Council (1999) *National Environment Protection (Assessment of Site Contamination) Measure*, December 1999.
11. National Environmental Health Forum (1998) *Health-based Soil Investigation Levels*, Soil Series No 1, 1996 and 1998.
12. NSW EPA (1994) *Guidelines for Assessing Service Station Sites*. Environment Protection Authority, New South Wales.
13. Standards Australia (1997) *Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*. AS4482.1-1997.

FIGURES

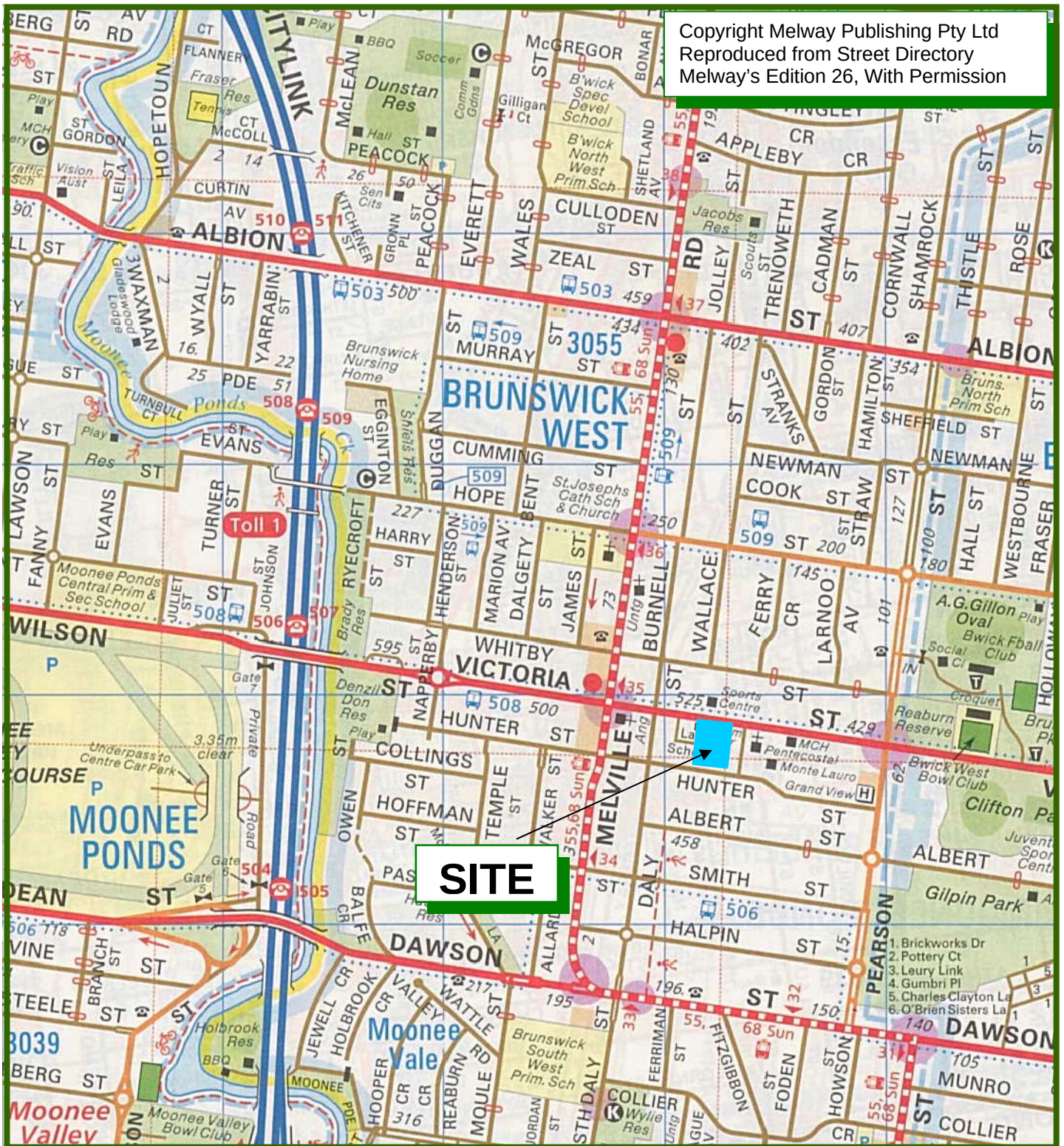


Figure 1: SITE LOCALITY

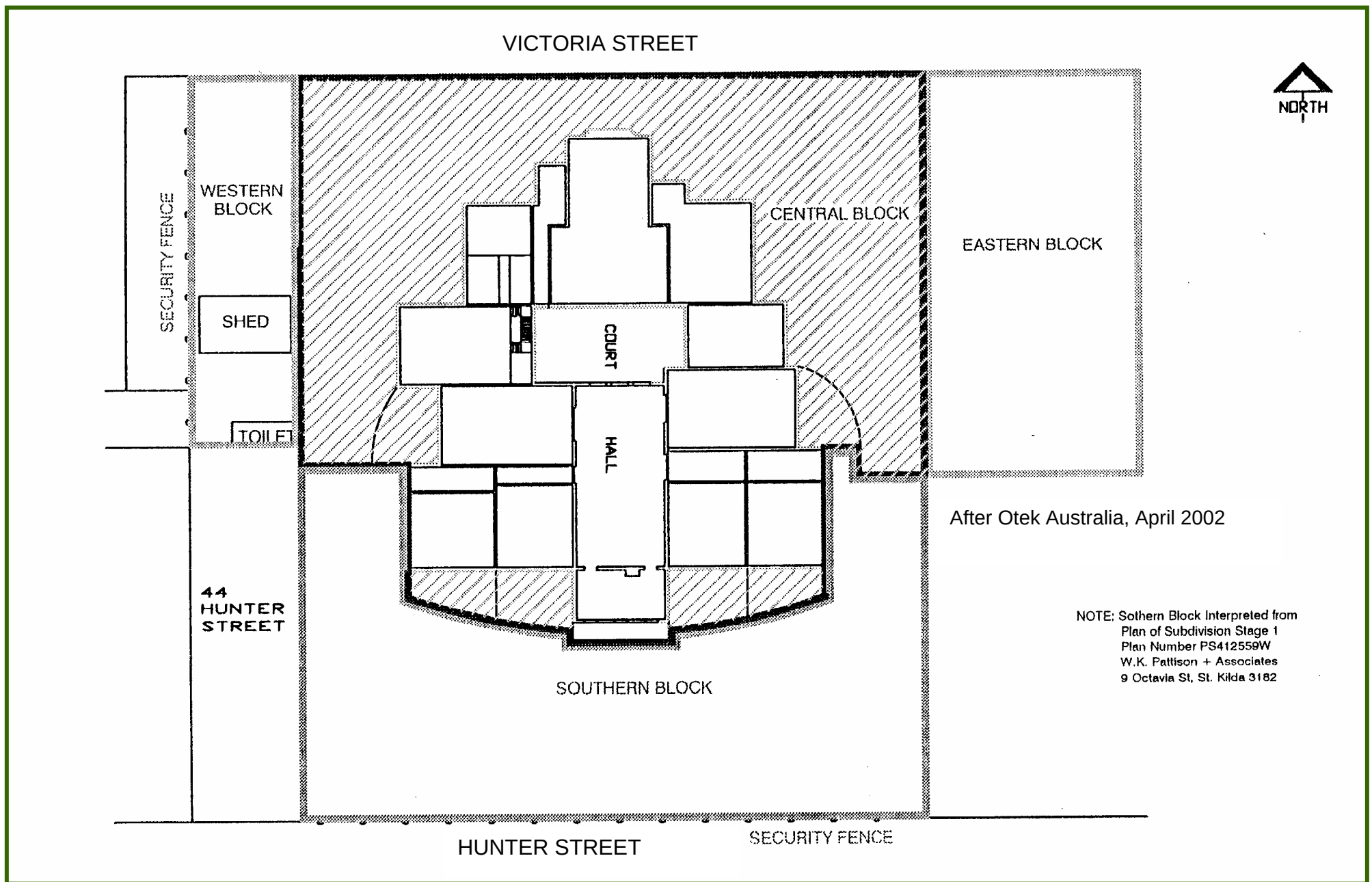


Figure 2: SITE PLAN

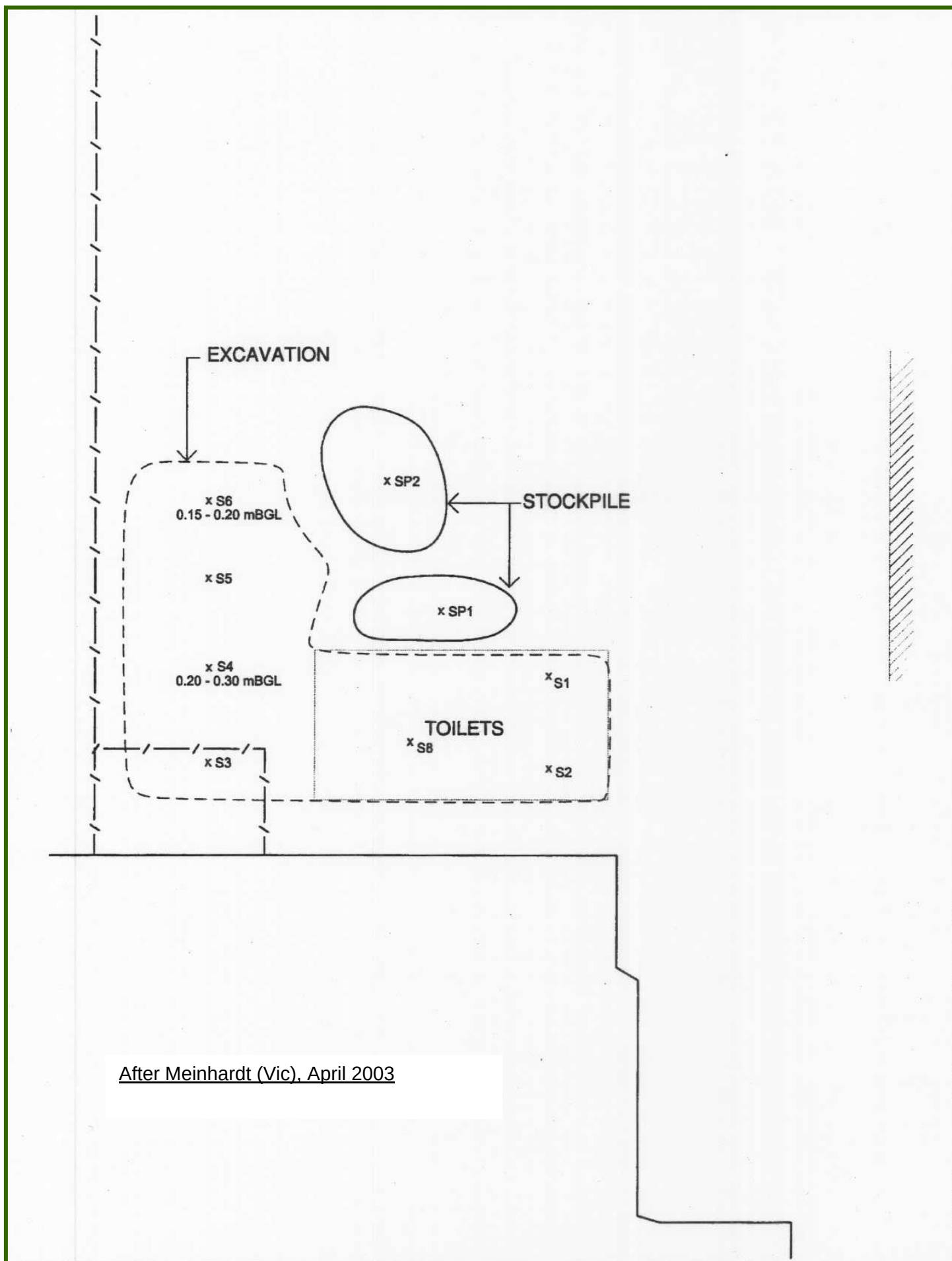


Figure 4: SAMPLING PLAN – DECEMBER 2002

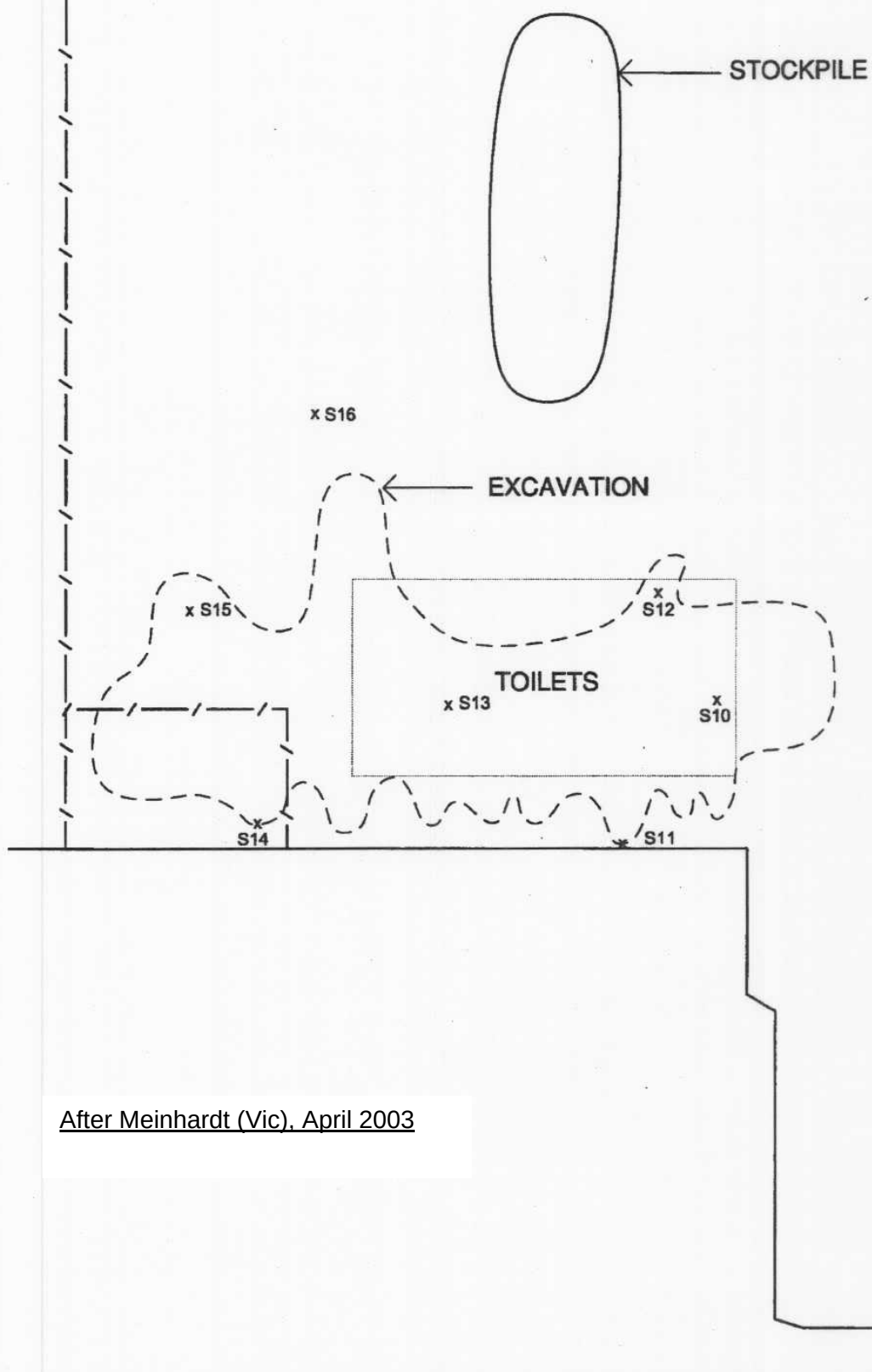


Figure 5: SAMPLING PLAN – JANUARY 2003

ABOUT ENVIRONMENTAL AUDITS AND REPORTS

About Environmental Audits and Reports

1. Introduction

This document explains the Environmental Audit (Contaminated Land) process in Victoria and resultant certificate or statement, and the context that applies to the use of Environmental Audit Reports issued by Lane Consulting.

2. What is an Environmental Audit?

Environmental Audits are undertaken in accordance with the provisions of Part IXD of the *Environment Protection Act 1970* (EP Act), administered by the Environment Protection Authority (EPA). However, the local planning authority (city or shire council) has the responsibility for approval of any specific land use, in accordance with the provisions of the *Planning and Environment Act of 1987*.

The EPA has delegated the role of auditing contaminated land to a number of experienced contaminated land practitioners, including Anthony Lane of Lane Consulting. A list of EPA-appointed environmental auditors (contaminated land) is available from the EPA (see the EPA website). The roles and responsibilities of the Auditor are described in the EP Act and the Auditor Guidelines (EPA Publication 759). EPA have also issued an explanatory note on the use of the audit system that should be consulted – *Environmental Auditing of Contaminated Land Publication 860 July 2002*.

Environmental Audits of contaminated land provide certification that a site is suitable for one or more uses. This certification is in the form of either a Certificate of Environmental Audit (CoEA) or a Statement of Environmental Audit (SoEA).

A CoEA is issued if the contamination status of the site is not detrimental to any beneficial use of the site. A SoEA is issued where the level of contamination makes the site suitable for a restricted range of uses. See section 5 for a further explanation of a SoEA/CoEA.

3. Reasons for Conducting an Environmental Audit

An Audit of Contaminated Land is usually undertaken where there is a statutory requirement – a statutory Audit. This is most commonly as a requirement of the local Planning Authority when a change to a more sensitive use is proposed or where an Environmental Audit Overlay has been applied under the local Planning Scheme. EPA may also require an audit where contaminating activities have resulted in the issue of a Clean Up Notice under the EP Act. Removal of such notices generally requires an environmental audit to be completed.

The site owner may also undertake audits at other times for due diligence purposes. Such audits (due diligence audits) are undertaken to establish whether the site has been impacted to the extent that some beneficial uses of the site may be precluded. If an EPA-appointed Environmental Auditor is requested to issue a CoEA then the audit is by definition statutory. However, due diligence audits in many cases may be completed as non-statutory Audits (that is, the Auditor is not requested to issue a certificate under the EP Act and the Auditor is not acting in his/her capacity as an EPA-Appointed environmental auditor). A non-statutory audit may follow a similar process to a statutory Audit, however, a SoEA or CoEA must not be issued and the EPA and the Local Planning Authority would not be involved.

4. The Auditing Process

The Client generally initiates the Audit process (the client must be the owner of the land or be acting with the written authority of the owner) by requesting an Auditor to issue a CoEA. The Auditor notifies EPA of the request and commences the audit.

In most cases the Auditor is not permitted to undertake the necessary testing of the soil and groundwater, and this must be by a specialist contaminated land consultant (The Assessor). It is prudent to engage the Auditor and the Assessor at commencement of the audit to allow the Auditor the opportunity of ensuring that the site assessment will be to the required standard and scope.

The Auditor independently reviews the Assessor's work and forms their own conclusions regarding the contamination status of the site. The Auditor is obliged to ensure the Assessor has conducted the investigation in accordance with industry standards and guidelines before reaching any conclusion regarding the status of the land and groundwater (and other elements including water and air, where relevant). Further, the Auditor is generally obliged to undertake some limited sampling and testing to satisfy them of the condition of the site.

A thorough site history assessment (Phase 1 Assessment) is essential to the process of identifying any potential for significant contamination at a site. However, where the history is unclear, a broad screening of chemical parameters can be used to test environmental media. This normally includes a broad range of organic and inorganic compounds and elements, often referred to as the EPA Auditor Screen.

The Assessor undertakes sampling of soil at representative locations across the site. A NATA accredited laboratory does the analysis of soil. It is impractical for all of the soil to be assessed. The Audit is generally based on a statistical method of grid or random sampling, augmented by targeted sampling at locations known or suspected to be contaminated. This methodology provides a level of confidence that the investigation will detect a contaminated "hot spot" of a stated diameter. Increasing the sampling density raises the confidence level and therefore reduces the size of a contaminant hot spot that could be missed. Some guidance on sampling density is provided in Australian Standard AS4482.1-1997. However, some considerable degree of judgment is still required in the application of any sampling and testing regime.

The field program also investigates the likelihood of contamination below the site surface. Field investigations must sample and test the natural soils. If contamination is found then it is common for further work to be undertaken to characterise, to the extent practical, its vertical and horizontal extent. However, where fill is encountered and testing shows it to be uncontaminated, it must be realised that the heterogeneous nature of the material might mean that not all pockets of contaminated material can be detected using normal sampling regimes.

The EPA Auditor Guidelines indicate the need in all cases to consider the potential for groundwater contamination in any site Audit. This does not mean all sites need to be drilled to sample groundwater, but it is most often the case. Some

contaminants and hydrogeological conditions are complex and vary in space and time. Consequently, contamination of the groundwater can also vary significantly in space and time. The condition of groundwater is investigated to identify if any beneficial use of groundwater is precluded due to pollution.

As previously stated, all soil and groundwater at the site cannot be tested. The environmental investigations are conducted in accordance with industry standards and guidelines. This provides a level of confidence that an authoritative evaluation of the site condition is achieved regarding land and groundwater.

Where an investigation shows that groundwater is polluted, EPA requires it to be cleaned up to the extent practicable, in accordance with the *SEPP Groundwaters of Victoria*. Only EPA can determine whether clean up has occurred to the extent practicable, after submission of relevant information by the Auditor.

5. Audit Outcome

If the site contamination is not found to preclude any beneficial uses of the land then a Certificate of Environmental Audit (CoEA) is issued. This means the site is suitable for all beneficial uses including sensitive uses such as low and medium density residential.

If the beneficial uses of the site are limited or conditions need to be applied to maintain the beneficial uses, then a Statement of Environmental Audit (SoEA) is issued. The SoEA and Audit Report contain the conditions applying to the management of contamination at the site, necessary to assure the continued suitability of the site for the stated uses.

Where conditions are likely to be included in a SoEA these are generally discussed and agreed between the Client and the relevant Local Planning Authority, prior to the issue of the SoEA and Audit Report. It is noted that these conditions may require actions by the Client and/or council subsequent to the issue of the SoEA and Audit report. In some cases, ongoing management plans to protect people and the environment may be required for an indefinite period.

When complete, the Audit report (containing either a SoEA or CoEA) is forwarded by the Auditor to the Client, the EPA and the Local Planning Authority. The EPA enters the site into a register of audited sites. The Local Planning Authority is responsible for ensuring that SoEA conditions are implemented.

The EP Act also makes the occupier of the site responsible for providing a copy of any SoEA issued for that site to any person who proposes to become the occupier of the site (unless a CoEA has subsequently been issued).

If significant contamination is encountered (where there is an imminent environmental hazard) during a statutory Audit, then the EPA must be notified by the Auditor.

6. Environmental Audit Report

The Environmental Audit Report details the findings of the Audit. It provides summary information on the site definition, the reasons for the audit and other relevant facts. It reviews the scope and quality of the site investigations, laboratory testing and data analyses undertaken by the Assessor. The report also presents the Auditor's independent review of the contamination status of the site, the need for further clean up, and opinion on the suitability of the site for a range of beneficial uses (defined in the *SEPP (Prevention and Management of Contamination of Land)* and land uses such as "residential – low density".

The Audit Report contains the CoEA or SoEA as an appendix. The information contained in the CoEA or SoEA is the result of conclusions reached by interpretation of the data contained in the Environmental Audit Report. It is noted that the CoEA or SoEA are brief documents (2 pages) and presented in the form prescribed by EPA. The CoEA or SoEA provides a summary statement of the Auditor opinion and is necessarily brief. It does not and cannot fully explain the conclusions on which it is based or the details of the site contamination. The CoEA or SoEA must be read in conjunction with the Audit Report so that its conclusions and any SoEA conditions may be fully appreciated.

The Auditor generally includes a copy of the Assessor's report as an appendix to the Audit Report, as this may contain detailed information referred to in the Audit Report that is not practical to summarize or reproduce in the Audit Report. Care should be taken to also read the Assessor's report in full.

Lane Consulting generally issues reports in electronic form on CD Rom. Audit Reports are issued in this format as Acrobat PDF files. However, a paper copy of the CoEA/SoEA and executive summary of the Audit Report are issued to EPA, council and client.

7. Limitations of Environmental Audit Report

The Environmental Audit Report is prepared in a manner that can be read and understood by a person with a legitimate interest in the site, such as the site owner or occupier, EPA and Local Planning Authority, for determining the contamination status of the site. The Audit report is not intended for use by other parties or for other purposes. Anyone who uses the Audit report for purposes other than specified in the report, does so at their own risk.

The site should only be used for one or more of the beneficial uses and land uses identified in the SoEA as suitable.

The conditions applying to the SoEA in each case are the responsibility of the Client to implement. The Auditor and Lane Consulting are only responsible for the issuing of the Environmental Audit Report and associated CoEA or SoEA. The Auditor and Lane Consulting accepts no liability for the costs incurred in the implementation of SoEA conditions. The Audit provides a snapshot of the site conditions at the time of the site investigation. Consequently, the Audit report may not be valid at a later time if there has been any change to the contamination status of the site in that time. Verification of the status of the site may be required in cases where a significant time has elapsed, or site conditions have changed since the assessment and audit.

The Environmental Audit is necessarily limited by constraints such as time, cost and available information; although normal auditing practice at the time has been applied with all due care to prepare the report. A necessary requirement of this process is the horizontal and vertical interpolation of data from discrete locations. However, site conditions are generally not homogenous and some discrepancies will occur between the actual and predicted results at locations not directly sampled. There is a risk that contamination may occur at the site and not be identified by a competent investigation and assessment. The approach adopted in sampling (a combination of statistically based grid and judgmental sampling) seeks to reduce, but cannot eliminate, this risk.

Where unexpected occurrences of contamination arise, subsequent to the issue of the Audit Report, the Auditor should be permitted to make an interpretation of these facts in relation to the Audit Report. Consequently, the Client should inform the Auditor and seek their opinion. The Auditor and Lane Consulting accepts no liability for costs

incurred due to such unexpected occurrences, given the inherent uncertainties in the assessment process.

The Auditor uses information provided by the Assessor as the basis for the audit, and reliance on this information is at the Auditor's discretion. This is generally achieved by review of the Assessors Work Plan/Quality Plan, checking the progress and standard of work, inspecting the site and taking verification samples.

The Audit cannot guarantee any of the facts, findings or conclusions presented by the Assessor but must make a judgment about the validity of information relied upon in the conduct of the Audit. Further, the Auditor will not be liable for the use of information, provided by others that is subsequently found to be intentionally misleading.

The Audit Report is not and does not purport to be anything other than a contaminated land audit within the meaning of the EP Act. It is not a geotechnical report and bore logs produced (in most cases by the Assessor) are for interpretation of the likely distribution of contamination. They are not intended for geotechnical interpretations and may not be adequate for this purpose.

The Audit Report is not intended to be a comprehensive analysis of the presence and associated risk of asbestos in buildings and services. Where asbestos in buildings and services is known or likely, the report may only caution that an appropriately qualified person be engaged to undertake demolition to avoid contamination of the site.

Lane Consulting

11 August 2003

APPENDIX A

STATEMENT & CERTIFICATES OF

ENVIRONMENTAL AUDIT

ENVIRONMENT PROTECTION ACT 1970

STATEMENT OF ENVIRONMENTAL AUDIT

I, *Anthony P. Lane of Lane Consulting Pty Ltd, Suite 1, 241 Blackburn Road, Mt Waverley, Victoria*, a person appointed by the Environment Protection Authority ("the Authority") under the Environment Protection Act 1970 ("the Act") as an environmental auditor for the purposes of the Act, having: -

1. been requested by *Ms Lorna Pitt of West Wyck Pty Ltd* to issue a certificate of environmental audit in relation to the site located at *490-492 Victoria Street, Brunswick West, Victoria, consisting of Lots 1, 2, 3, 4, 5, 6, 7 (and associated courtyards), Lot S2 and adjoining open space to the north, east and west of Lot S2, on Plan of Subdivision PS412559W ("the site") located in the City of Moreland, shown as the "Central Block" on Figure 2 of the Environmental Audit Report (refer attached Figure 2), and owned/occupied by West Wyck Pty Ltd.*
2. had regard to, among other things, -
 - (i) guidelines issued by the Authority for the purposes of Part IXD of the Act;
 - (ii) the beneficial uses that may be made of the site; and
 - (iii) relevant State environment protection policies/industrial waste management policies, namely: *SEPP Groundwaters of Victoria; SEPP Waters of Victoria, SEPP (Prevention and Management of Contamination of Land)*, and *IWMP (Prescribed Industrial Waste)*,

in making a total assessment of the nature and extent of any harm or detriment caused to, or the risk of any possible harm or detriment which may be caused to, any beneficial use made of the site by any industrial process or activity, waste or substance (including any chemical substance); and

completed an environmental audit report in accordance with Section 53X of the Act, a copy of which has been sent to the Authority.

HEREBY STATE that I am of the opinion that:

The site is suitable for the beneficial uses associated with:

- ☐ *Sensitive Use (High Density Residential)*
- ☐ *Sensitive Use (Other - consisting of medium or low density residential, child care centre, pre-school or primary school)*
- ☐ *Recreation/Open Space*
- ☐ *Commercial*
- ☐ *Industrial*

subject to the following conditions attached thereto:

- a) *Soil / fill remaining on site within the building footprint, including courtyards, shall be covered by a permanent barrier layer such as a concrete slab and / or pavement or the timber floor where present at the time of the audit.*

- b) *The permanent pavements, floors and slabs referred to in Condition a) shall be maintained at all times, otherwise replaced with equivalent barriers to minimise exposure of people and plants to the soil.*
- c) *A Health, Safety and Environmental (HS&E) Management Plan shall be implemented to address any future activities (such as excavations for underground services) in the part of the site which may expose contaminated soil. Such activities shall be conducted in accordance with the HS&E Management Plan to minimise human exposure to the contaminants in the soil below the barrier layer and provide for proper disposal and/or reuse of the soil/fill. The plan presented in Appendix F of the Environmental Audit Report would comply with this condition, if implemented. Normal good practice in occupational health and safety management should provide adequate protection for workers engaged in excavations exposing the soil.*

The condition of the site is detrimental or potentially detrimental to any (one or more) beneficial uses of the site. Accordingly, I have not issued a Certificate of Environmental Audit for the site in its current condition, the reasons for which are presented in the environmental audit report. The terms and conditions that need to be complied with before a Certificate of Environmental Audit may be issued are set out as follows:

- a) *Removal of asphalt pavements, and clean up and validation of PAH and metals contaminated material (soil and fill) within the building footprint, including courtyards.*
- b) *A further audit would be required if a Certificate of Environmental Audit is to be issued.*

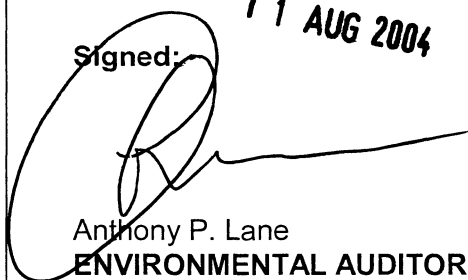
Other related information: (none)

This statement forms part of the environmental audit report (*Environmental Audit Report, 490-492 Victoria Street, Brunswick West, Vic, Lane Consulting, 185Report01.doc, 11 August 2004*). Further details regarding the conditions of the site may be found in the environmental audit report.

DATED:

11 AUG 2004

Signed:



Anthony P. Lane
ENVIRONMENTAL AUDITOR

ENVIRONMENT PROTECTION ACT 1970

CERTIFICATE OF ENVIRONMENTAL AUDIT

I, *Anthony P. Lane of Lane Consulting Pty Ltd, Suite 1, 241 Blackburn Road, Mt Waverley, Victoria*, a person appointed by the Environment Protection Authority ("the Authority") under the Environment Protection Act 1970 ("the Act") as an environmental auditor for the purposes of the Act, having:-

1. been requested by *Ms Lorna Pitt of West Wyck Pty Ltd* to issue a certificate of environmental audit in relation to the site located at *490-492 Victoria Street, Brunswick West, Victoria, consisting of Certificate of Title, Vol. 1816, Fol. 109, ("the site") located in the City of Moreland, shown as the "Western Block" on Figure 2 of the Environmental Audit Report (refer attached Figure 2), and owned/occupied by West Wyck Pty Ltd.*
2. had regard to, among other things:
 - (i) guidelines issued by the Authority for the purposes of Part IXD of the Act;
 - (ii) the beneficial uses that may be made of the site; and
 - (iii) relevant State environment protection policies/industrial waste management policies, namely *SEPP Groundwaters of Victoria; SEPP Waters of Victoria, SEPP (Prevention and Management of Contamination of Land), IWMP (Prescribed Industrial Waste)*in making a total assessment of the nature and extent of any harm or detriment caused to, or the risk of any possible harm or detriment which may be caused to, any beneficial use made of the site by any industrial processes or activity, waste or substance (including any chemical substance); and
3. completed an environmental audit report in accordance with Section 53X of the Act, a copy of which has been sent to the Authority and the relevant planning and responsible authority.

HEREBY CERTIFY that I am of the opinion that the condition of the site is neither detrimental nor potentially detrimental to any beneficial use of the site.

Other related information (*none*).

This certificate forms part of environmental audit report (*Environmental Audit Report, 490-492 Victoria Street, Brunswick West, Vic, Lane Consulting, 185Report01.doc, 11 August 2004*). Further details regarding the condition of the site may be found in the environmental audit report.

DATED:

11 AUG 2004

Signed:

Anthony P. Lane
ENVIRONMENTAL AUDITOR

ENVIRONMENT PROTECTION ACT 1970

CERTIFICATE OF ENVIRONMENTAL AUDIT

I, *Anthony P. Lane of Lane Consulting Pty Ltd, Suite 1, 241 Blackburn Road, Mt Waverley, Victoria*, a person appointed by the Environment Protection Authority ("the Authority") under the Environment Protection Act 1970 ("the Act") as an environmental auditor for the purposes of the Act, having:-

1. been requested by *Ms Lorna Pitt of West Wyck Pty Ltd* to issue a certificate of environmental audit in relation to the site located at *490-492 Victoria Street, Brunswick West, Victoria, consisting of Certificate of Title, Vol. 7631, Fol. 017, ("the site") located in the City of Moreland, shown as the "Eastern Block" on Figure 2 of the Environmental Audit Report (refer attached Figure 2), and owned/occupied by West Wyck Pty Ltd.*
2. had regard to, among other things:
 - (i) guidelines issued by the Authority for the purposes of Part IXD of the Act;
 - (ii) the beneficial uses that may be made of the site; and
 - (iii) relevant State environment protection policies/industrial waste management policies, namely *SEPP Groundwaters of Victoria; SEPP Waters of Victoria, SEPP (Prevention and Management of Contamination of Land), IWMP (Prescribed Industrial Waste)*

in making a total assessment of the nature and extent of any harm or detriment caused to, or the risk of any possible harm or detriment which may be caused to, any beneficial use made of the site by any industrial processes or activity, waste or substance (including any chemical substance); and

3. completed an environmental audit report in accordance with Section 53X of the Act, a copy of which has been sent to the Authority and the relevant planning and responsible authority.

HEREBY CERTIFY that I am of the opinion that the condition of the site is neither detrimental nor potentially detrimental to any beneficial use of the site.

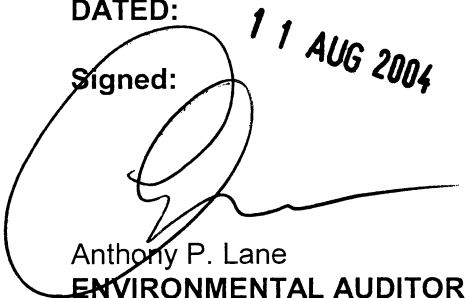
Other related information (*none*).

This certificate forms part of environmental audit report (*Environmental Audit Report, 490-492 Victoria Street, Brunswick West, Vic, Lane Consulting, 185Report01.doc, 11 August 2004*). Further details regarding the condition of the site may be found in the environmental audit report.

DATED:

11 AUG 2004

Signed:



Anthony P. Lane

ENVIRONMENTAL AUDITOR

ENVIRONMENT PROTECTION ACT 1970

CERTIFICATE OF ENVIRONMENTAL AUDIT

I, *Anthony P. Lane of Lane Consulting Pty Ltd, Suite 1, 241 Blackburn Road, Mt Waverley, Victoria*, a person appointed by the Environment Protection Authority ("the Authority") under the Environment Protection Act 1970 ("the Act") as an environmental auditor for the purposes of the Act, having:-

1. been requested by *Ms Lorna Pitt of West Wyck Pty Ltd* to issue a certificate of environmental audit in relation to the site located at *490-492 Victoria Street, Brunswick West, Victoria, consisting of Lots 8, 9, 10, 11, 12 and the area marked as 'Common Property' on Plan of Subdivision PS412559W ("the site") located in the City of Moreland, shown as the "Southern Block" on Figure 2 of the Environmental Audit Report (refer attached Figure 2), and owned/occupied by West Wyck Pty Ltd.*
2. had regard to, among other things:
 - (i) guidelines issued by the Authority for the purposes of Part IXD of the Act;
 - (ii) the beneficial uses that may be made of the site; and
 - (iii) relevant State environment protection policies/industrial waste management policies, namely *SEPP Groundwaters of Victoria; SEPP Waters of Victoria, SEPP (Prevention and Management of Contamination of Land), IWMP (Prescribed Industrial Waste)*in making a total assessment of the nature and extent of any harm or detriment caused to, or the risk of any possible harm or detriment which may be caused to, any beneficial use made of the site by any industrial processes or activity, waste or substance (including any chemical substance); and
3. completed an environmental audit report in accordance with Section 53X of the Act, a copy of which has been sent to the Authority and the relevant planning and responsible authority.

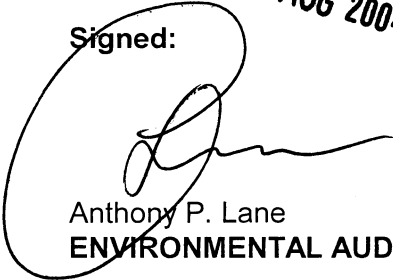
HEREBY CERTIFY that I am of the opinion that the condition of the site is neither detrimental nor potentially detrimental to any beneficial use of the site.

Other related information (*none*).

This certificate forms part of environmental audit report (*Environmental Audit Report, 490-492 Victoria Street, Brunswick West, Vic, Lane Consulting, 185Report01.doc, 11 August 2004*). Further details regarding the condition of the site may be found in the environmental audit report.

DATED: **11 AUG 2004**

Signed:


Anthony P. Lane
ENVIRONMENTAL AUDITOR