

11 May 2009

Reference No. 087633060 003

Ms Kim Barry
Environmental Protection Agency
(Contaminated Land Unit)
PO Box 2771
BRISBANE QLD 4001

RECEIVED
12 MAY 2009
ECSU

THIRD PARTY REVIEWER (TPR) REPORT – LOT 2 ON RP 201547 WARWICK ROAD, YAMANTO, QLD

Dear Kim

I am the appointed Third Party Reviewer (TPR) for the above lot.

The lot is listed on the EMR as a result of previous activities including use for notifiable activities consisting of storage of petroleum products or oil. This activity has been discontinued and the site is vacant land and some commercial buildings which are rental out.

The owner, Yamanto Homemakers Centre Property Trust (YHCP) intends to develop the site for commercial/industrial purposes (Reconfiguration). YHCP has appointed Mr Brad May of E3 Consulting Pty Ltd (E3) to conduct the current site investigation of the contamination at the site. Previous work was conducted by CMPS&F Pty Ltd. The following reports were made available for review by the TPR:-

- Site Remediation and validation, Former Circle Depot, Lot 2 Warwick Road, Yamanto, Document No: VQ0478-TR-D001; CMPS&F (1998); and
- Stage 2 Environmental Site Assessment, Lot 2 RP201547 Warwick Road, Yamanto, E3 Consulting P/L, prepared for Urban Insight P/L; April 2009.

The investigations undertaken by E3 indicated that the site is suitable for its current use and as Site Appointed TPR, I recommend to the EPA to issue a Suitability Statement to leave the site on the Environmental Management Register (EMR) with a draft Site Management Plan (SMP) and Remediation Action Plan (RAP) which are attached. A revised SMP will be required should the site's use change from the current use to another use.

Also attached is a copy of the Site Appointed TPR Statutory Declaration recommending that the site remain on the EMR with a draft SMP/RAP.

Yours faithfully,

GOLDER ASSOCIATES PTY LTD

sch 4 - signature

Dr Yin Foong
Site Appointed TPR (Principal Environmental Engineer)

Attachments: Statutory Declaration
E3 Report Cover

j:\env\2008\087633060 tpr yamanto\correspondence out\tp_r sat dec and epa \087633060 003 I rev0 tpr warwick rd yamanto epa letter report.doc

STATUTORY DECLARATION

(EPA APPOINTED THIRD PARTY REVIEWER)

Address of Site Investigated: 411 Warwick Road, Yamanto, QLD

Real Property Description: Lot 2 on RP201547
County of Churchill,
Parish of Purga

Local Authority: Ipswich City Council

Title of Report: Third Party Review Report, (See attached)

I, Yin Kwan Foong of Golder Associates Pty. Ltd., PO Box 1734, Milton BC, 4064 in the State of Queensland, do solemnly and sincerely declare that;

I was the Third Party Reviewer appointed by the DERM (formerly Environmental Protection Agency), Contaminated Lands Unit for the site described above;

I am a member of the Australian Institution of Engineers (Membership No: 958809) and a Fellow of the Australian Institute of Mining and Metallurgy and my qualifications and experience as previously submitted to the Environmental Protection Agency are relevant to this investigation;

I have not knowingly included any false, misleading or incomplete information in the report;

I have not knowingly failed to reveal any relevant information or document to the administering authority

I certify that:

- a) the health and environmental risks associated with the contamination have been assessed; and
- b) I have considered site specific advice provided by DERM; and
- c) the lot will remain on the Environmental Management Register (EMR) with a SMP/RAP applied to the lot.

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the *Oaths Act 1867*

sch 4 - signature

Signature

Name

YIN KWAN FOONG

Taken and Declared before me at Tadewang this 29 day of April 2009

Witness (Justice of the Peace)

sch 4 - signature

Signature

Name (& JP Number if applicable)..... Annie Elizabeth Hosken



ANNEXURE 1 - SITE MANAGEMENT PLAN (SMP)

DATE:

RPD: LOT 2 ON RP201547

EPA FILE: BNE

1.0 SUMMARY OF CONTAMINATION

The site is located at 411 Warwick Road, Yamanto, Queensland. The site operated as a former bulk petroleum depot from the mid 1980s until 1997 and was used as a farm machinery sales and service centre until early 2009. A shed, office, gantry and the concrete hardstand are present on site.

Investigations undertaken in February 2009 found soil contamination between depth of 0.3 mBGS and 5.0 mBGS. The contaminants of concern are:

Contaminant	Maximum concentration at 0.3 mBGS
TPH (C10-C14)	1,500 mg/kg
TPH (C15-28)	4,100 mg/kg
Total PAH	29 mg/kg

2.0 OBJECTIVES OF THE SITE MANAGEMENT PLAN

The objective of this Site Management Plan is to manage the chemical contamination on the site in a manner which protects human health and the environment.

3.0 ACHIEVEMENT AND MAINTENANCE OF OBJECTIVES

3.1 Responsibility.

The owner of the land (as defined in the *Environmental Protection Act 1994* (EP Act)) is to ensure that this SMP and any variations to the SMP approved or required by the administering authority are complied with. The obligations and conditions set out in this SMP bind the owner, from time to time, of the land.

3.2 Third Party Reviewer.

A Third Party Reviewer (TPR) approved by the EPA and operating in accordance with the EPA's Terms of Reference for TPR (February 2008) must be appointed for the duration of the site assessment and remediation activities.

3.3 Site Use.

Providing the conditions of this approved SMP are complied with, the subject land is suitable for a commercial/industrial land use.

3.4 Provision of SMP to appropriate persons.

Sch 4 -
signature

RTI 14-378

THOMAS WILLIAM PEARSON
for & on behalf of Alfred Enterprises Limited (ACN 096 077 575) in its capacity
as Yamanto Homeowner Centre Property Trust

File F - Release

Page 3 of 21

RECEIVED
12 MAY 2009
ECSU

The owner must provide all persons involved in building design and planning and all contractors and lessees conducting building and/or excavation works with a copy of the SMP prior to commencement of works. All persons occupying or working on the site must comply with the requirements of the SMP.

3.5 Site Capping and Protective Barriers.

A capping layer consisting of a concrete slab, bitumen/asphalt paving on 150mm compacted roadbase, or compacted clay to a minimum depth of 0.5m and/or other equivalent impermeable cover is to be installed over the managed area (refer to the attached figure 1) to maintain a barrier between the contamination and site users.

The capping layer is to be maintained in sound condition until such time as any remediation works proceed.

3.6 Underground Services Trenches

Where underground service trenches are constructed in contaminated areas, the trenches must be surrounded by a minimum of 0.3m of uncontaminated fill for minor services (<100mm in diameter) and 0.5m of uncontaminated fill for services greater than 100mm in diameter. Clean fill must also be placed above any services to the surface of the site. Maintenance of existing services should be conducted in accordance with this SMP.

3.7 Soil Excavation and Removal.

Any soil excavated on the site must be assessed for contaminants of concern to determine if the material is contaminated and to identify appropriate management and disposal/re-use options. Representative sampling and analysis of soil from excavation in contaminated areas should be undertaken under an appropriate Remediation Action Plan (RAP) prepared by a suitably qualified person in accordance with Section 381 of the *Environmental Protection Act 1994* (EP Act). See Appendix 1 for Site RAP.

Contaminated soil must not be removed off-site without a disposal permit in accordance with Section 424 of the EP Act (or equivalent).

3.8 Unexpected Contamination.

If during any site earthworks or excavation, offensive or noxious odours and/or evidence of gross contamination not previously detected is observed, site works are to cease in that area and action taken to immediately abate the environmental harm. The administering authority is to be notified in writing within two (2) business days of detection and advised of appropriate remedial action.

Any remedial action is to be developed by an appropriately qualified and experienced person in accordance with Section 381 of the EP Act.

3.9 General Environmental Protection

Any earthworks are to be undertaken in accordance with general environmental protection measures and Construction Environmental Management Plan (CEMP) to avoid unwanted migration and deposition of soil. These measures include the control of dust, noise, stormwater or sediment runoff, erosion, spillage from haulage trucks and odour releases involving the handling or movement of contaminated material.

3.10 Workplace Health and Safety.

A Workplace Health and Safety Plan (WH&S plan), which conforms to the requirements of the *Workplace Health and Safety Act 1995*, is to be developed for any excavation works at the site. The WH&S plan must address site-specific contaminants of concern identified in Section 1.0 of this SMP. The Workplace Health and Safety Plan must also specifically address dermal and inhalation exposures to site contaminants.

3.11 Imported Fill Material.

Any fill material that may be imported to the site in the future should be sampled and submitted for analysis by a suitably qualified and experienced person prior to delivery to the site. The frequency of the sampling and analysis required, and the acceptance criteria adopted for potential contaminants will depend on the source of the fill.

4.0 MONITORING AND REPORTING

A biennial inspection is to be undertaken to ensure that capping and protective barriers remain in sound condition at all times in accordance with Section 3.5.

Records are to be kept of all inspections, any soil excavation in contaminated areas, validation testing, disposal permits and site management plan compliance for review by the administering authority from time to time.

The biennial period is to commence from the effective date of this plan.

This Site Management Plan (SMP) has been developed to manage site contamination risks present at the issue date. Subsequent uses of the site may result in the need to review the plan.

This SMP makes reference to a plan attachment that is available from the Administering Authority if required.

This SMP makes reference to an appendix titled Remediation Action Plan (RAP) that is available from the administrative authority if required.

Sch 4 - signature

Appendix 1 – Remediation Action Plan

DATE:

EPA File:

RPD: Lot 2 on RP201547

1.0 INTRODUCTION

This Remediation Action Plan (RAP) has been prepared for the property nominated as Lot 2 RP201547 located at 411 Warwick Road, Yamanto, Queensland (The Site). The Site operated as a bulk petroleum depot from mid 1980s to 1997. The depot provided fuels including diesel, kerosene, unleaded and leaded fuels. The seven storage tanks were removed from the Site in 1997. Subsurface borehole surveys have identified materials located within the former tank farm, triple interceptor and fill gantry areas to be impacted. The Site is currently unoccupied.

Previous soil investigations identified impacted fill present at the Site. The proposed remediation work involves the removal of potentially contaminated material around and within the former tank farm, triple interceptor and fill gantry areas, backfilling excavated areas with suitable fill and characterisation of the site soils.

The Site owner proposes to re-profile and re-develop the Site in the future and wish to have the Site removed from the EMR.

1.1 Purpose of the RAP

The purpose of this RAP is to provide an outline plan of activities, procedures and objectives for the effective and controlled remediation of the Site for the proposed redevelopment of the Site. It describes the methodologies and standards to be followed throughout the project to facilitate successful remediation and ensure protection of human health and the environment.

Following the remedial works and validation reporting it will be appropriate that the Site be removed from the EMR.

1.2 Objective

The primary objectives of the remediation program at the Site are:

- To prevent the potential long-term generation and release of contaminated soils impacting on the environment of adjoining land and aquifers and to ensure the protection of the community and local environment.
- To summarise remediate or manage impact on the Site in a manner that protects human health and the environment and ensures the Site is suitable for the proposed redevelopment for unrestricted use through the full removal of the identified soil contamination.
- Remove the Site from the Environment Management Register.

Sch 4 -
signature

1.3 Third Party Reviewer

A Third Party Reviewer may be appointed in accordance with the EPA Terms of Reference for the duration of the remediation and validation of the Site. The role of the TPR is to review and certify all relevant documentation associated with proposed remediation strategies and control measures forming the RAP, and when appropriate to certify to the Environmental Protection Agency that the Site is suitable for the intended use.

1.4 Suitably Qualified Person to Conduct / Supervise Works

A person qualified in accordance with Section 381 and Section 395 of the Environmental Protection Act (1994) must conduct all investigations, supervise all remediation works and compile report/s required to remediate the Site.

2.0 BACKGROUND

The Site is located at 411 Warwick Road, Yamanto, Queensland, approximately 5 km southwest of Ipswich. The Site is approximately 14,200 m² in size and is shown in **Figure 1**.

2.1 Site Location, Layout and Topography

The property is on undulating topography, which generally slopes down from south to north.

Prior to their removal the Site was occupied by a number of aboveground storage tanks, pumps and pipework including four 118,000 litre semi buried tanks, one 55,000 litre semi buried tank and two 2,000 litre aboveground tanks. The tanks including their pumps and associated pipework were removed in 1997.

The property is currently occupied by two main structures:

- Administration Office; and
- Workshop.

The remainder of the Site is predominantly grassed, with a bitumen driveway encircling the section where the former tank farm was located. A former Cased Oil Store, Triple Interceptor Pit, fill gantry, and concrete pad remain on the Site from previous land use activities.

No known above ground or below ground storage tanks presently exist on the Site.

2.2 Geology

The regional geology of the area was interpreted from the Australian 1:100 000 geological map series (Ipswich Sheet 9442, First Edition 1981). The Site is located on the Marburg formation which comprises lithic or feldspathic, labile to sublabile,

sch 4 -
signature

sandstone, siltstone, shale and coal. This formation is underlain by Ripely Road Sandstone (sublabile to quartzose).

The uppermost strata was identified as to be a sandy-clay through investigations conducted in 2008.

2.3 Hydrogeology

Groundwater was not encountered during the investigations, however information obtained at the time of the investigation indicated the water table was expected to be at depth of between 10 m and 100 m.

Groundwater flow direction was expected to be to the north, towards the Bremer River (approximately 1.5 kilometres to the north of the Site). The nearest body of water is Deebing Creek, located approximately 700 metres to the north east.

2.4 Description of Proposed Development

It is proposed to prepare the Site for future development as part of a much larger development that includes up to 19.8 ha of land. The development will include the creation of several allotments. It is proposed to provide easy access to these lots from the surrounding road network. The development is a commercial/industrial development and roadways.

In order to facilitate the redevelopment and lot reconfiguration it is intended to remove Lot 2 RP201547 from the EMR.

2.5 Previous Investigations

This RAP has been based on the following contamination assessment reports:

- CMPS&F (1998); "Site Remediation and Validation, Former Circle Depot, Lot 2 Warwick Road, Yamanto"; Document No. VQ0478-TR-D001.
- E3Consult Australia Pty Ltd (2008) Lot 2 RP 201547 Warwick Road, Yamanto – Limited Environmental Site Assessment.
- E3 Consult Australia Pty Ltd (2009) Lot 2 RP 201547 Warwick Road, Yamanto – Stage 2 Environmental Site Assessment.

2.6 Current Impact

Based on the findings of the investigations, the following conclusions were made:

Soil Contamination

The soil contamination identified was found between depths of 0.3 mBGS and 5.0 mBGS. The soil contaminants of concern are:

Contaminant	Maximum concentration at 3.0 mBGS
TPH (C10-C14)	1,500 mg/kg
TPH (C15-28)	4,100 mg/kg

Sch 4 - signature

Total PAH

29 mg/kg

3.0 ENVIRONMENTAL GUIDELINES

The remedial activities to be undertaken at the Site will be performed in accordance with the following guidelines:

- *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Qld EPA May (1998);*
- *Australian Standard, Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, (2005) (AS4482.1-2005);*
- *Australian Standard, Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile and semi-volatile compounds, (1997) (AS4482.2-1999);*
- *Department of Environment and Heritage (DEH) Guidelines for Hydrocarbons (1999).*
- *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC guidelines) published by the Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council, January 1992.*

4.0 REMEDIAL CRITERIA

The purpose of this remediation program is to make the Site suitable for unrestricted land use. Consequently the Ecologically Based Investigation Levels (EILs) and Health Investigation Level A, (HIL A) outlined in *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Qld EPA (May 1998)*, will be used as the adopted criteria.

TPH fractions and BTEX are not covered in the Qld Draft Guidelines (1998) HIL-A. Criteria for petroleum hydrocarbons have been given by the Department of Environment and Heritage (DEH) Guidelines for Hydrocarbons (1999)

Parameter	Assessment Criteria HIL - A
Petroleum Hydrocarbons	
TPH C ₆ - C ₉	100 mg/kg ⁽¹⁾
TPH C ₁₀ - C ₁₄	100 mg/kg ⁽¹⁾
TPH C ₁₅ - C ₂₈	1000 mg/kg ⁽²⁾
TPH C ₂₉ - C ₃₆	1000mg/kg ⁽²⁾
Polycyclic aromatic hydrocarbons (PAH)	
Total	20 mg/kg ⁽²⁾
Benzo(a)pyrene	1 mg/kg ⁽²⁾

sch 4 -
signature

Notes:

1. Department of Environment and Heritage (DEH) Guidelines for Hydrocarbons (1999)
2. Health Based Investigation Levels for Exposure Setting "A" ('Standard Residential) – Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Queensland Department of Environment (1998).

5.0 STRATEGIES APPLIED

The remediation strategy proposed for the Site will involve the bulk excavation of materials from the historical Petroleum Depot area, if required, backfilling of these areas with suitably engineered fill. The excavated material will be transported offsite to an appropriately licensed landfill. Approval of the disposal permit is required from the administering authority under section 424 of the EPA Act 1994 or equivalent and the TPR is required prior to off-site disposal of the soil.

A reporting and monitoring framework will be developed to ensure the environmental and safety goals of the RAP are achieved.

6.0 REMEDIATION PROGRAM

6.1 SITE EXCAVATION

Remediation of the soil contamination must be carried out as follows:

- Excavation and stockpiling of areas identified with impacted soil;
- Off-site disposal (of soils identified as contaminated through sampling and laboratory analysis) under an EPA issued Disposal Permit (as required);
- Validation and characterisation of residual soils and excavations will be carried out; and
- A qualified professional, in accordance with S.381 and S.395 must supervise all remediation works involving the excavation and disposal of waste and contaminated material.

6.1.1 Site Clearing

It is anticipated that all above ground structures will be removed from site after the current occupier vacates the premises.

The Site will be cleared and grubbed of vegetation including trees, shrubs and roots as necessary to undertake site remediation works, with green waste being disposed off site.

6.1.2 Excavations

Areas of Environmental Concern identified from previous investigations (refer to the attached figure 1) are to be initially excavated to natural material (extending between

Sch 4 -
signature

0.0 mBGS and 4.0 mBGS) and retained onsite in discreet stockpiles (volume estimated to be between 4000m³ to 6000m³). Validation samples will be collected at a rate of 1 per 25 m² within excavations to assess the presence of contaminants of concern.

Further excavation (laterally and vertically) will be conducted should the results obtained from initial samples collected indicate the exceedance of remedial criteria. The extent of further excavations will be overseen by a suitably qualified environmental consultant.

6.2 On-Site Reuse

Validation samples for stockpiles will be collected at a rate of 1 per 50 m³ surface to assess the presence of contaminants of concern.

Stockpiles that are deemed to satisfy the remedial criteria may be reused onsite should they satisfy the engineering requirements, as determined by the building engineers and building codes relevant for the development.

Stockpiles that are deemed unsuitable may be remediated onsite (e.g. 'land farming') until it satisfies the acceptance criteria as an alternative to offsite disposal

6.3 Off-Site Disposal of Contaminated Soil

Materials that are assessed to be unsuitable to remain onsite will be disposed of in accordance with Section 424 of the Environmental Protection Act (1994).

6.4 Contingency Plans

In the event unexpected contamination is discovered, work in that area shall cease immediately and be isolated until an assessment of the suspected contamination can be carried out by a suitably qualified environmental consultant. Work will resume when an appropriate management or remedial strategy has been put in place.

6.5 Imported Fill

Any imported material to be used as backfill (if required) may be obtained from a designated licensed quarry or certified clean fill and must satisfy the relevant remedial criteria as discussed in **Section 4.0** and site engineering requirements, as determined by the building engineers and building codes relevant for the development.

Alternatively imported fill from each source other than licensed facilities shall be assessed for suitability in consultation with the TPR. The source site shall be assessed based on historical activities, site inspections and analytical testing rate in agreement with the TPR and is dependent upon the source of the material. The parameters and sampling rate shall be determined in consultation with the TPR.

6.6 Tracking and Documentation

Movement of materials both on-site and off-site will be tracked as follows:

sch 4 -
signature

- The contractor will maintain a manifest to track every truckload of contaminated soil removed from site;
- The landfill site will provide a weighbridge print-out for the received contaminated soil; and
- Weighbridge print outs will be compared with the manifest of contaminated soil removed from the site.

7.0 OPERATIONAL CONTROL

7.1 Construction Environment Management Plan

A Construction Environmental Management Plan (CEMP) for the Site shall be prepared incorporating detailed elements covering environmental management of the Site to ensure environmental effects of the remediation work are kept to a minimum and in compliance with all relevant Acts of Parliament and Environmental Regulations.

The CEMP shall contain management approaches for but not limited to the following areas:

Land Disturbance

- Erosion and sediment control devices;
- Management of potentially contaminated stormwater;
- Management of excavation of potentially contaminated soils;
- Dust control;
- Management of stockpiles including large pieces of construction and demolition material; and
- Management of groundwater.

Noise and Vibration

- Operating hours;
- Vehicles and equipment;
- Traffic;
- Noise abatement; and
- Vibration.

Other

- Odour
- Air quality;
- Litter;
- Storage of chemicals and fuel;
- Road cleaning and truck wash; and

sch 4 - signature

- Protecting infrastructure.

Development of the details within each of these segments of the CEMP shall incorporate the general management approach, the environmental criteria to be met and specific engineering controls to be used.

Requirements in the following sections shall also be considered and addressed as part of the CEMP.

7.2 Control of Stormwater Run-off

Remediation works must comply with requirements for stormwater management as outlined in Schedule B(9) of the NEPM. This includes stockpiling excavated soil/fill in a manner that shall prevent contamination from being transported off-site by stormwater.

The contractor must control surface waters on the Site as follows:

- Divert clean stormwater run-off outside the Site so that it does not flow through the Site;
- Control drainage on the Site by interception and redirecting clean run-off in a controlled manner;
- Stormwater collected from the Site in trenches and sumps will be appropriately managed; and
- Silt fences will be erected at locations where stormwater may flow from the Site.

Ipswich City Council (ICC) approval must be sought prior to discharge of contaminated water from the Site to either sewer or stormwater. Procedures such as pumping discharge water through hay bales or a silt fence will be required to reduce sediment load before discharge.

7.3 Control of Soil/Fill and Sediment

Sediment released to surface waters must be minimised by the use of sediment controls such as diversion drains and silt fencing. In particular, a silt fence must be located around the perimeter of stockpiled material.

Soil awaiting off-site removal or re-profiling must be stockpiled in a manner and location so that it cannot be spread by wind or rain action. If adverse weather conditions are anticipated, stockpiles of contaminated soil must be covered.

Any plant or equipment that handles contaminated soils must be inspected prior to leaving the Site, and cleaned as necessary.

Sch 4 -
signature

The requirements for the management of sediment and soil described in Schedule B(9) of the NEPM (from which the above control measures are drawn) must be complied with during remedial works.

7.4 Control of Noise

Noise levels must comply with ICC and EPA requirements. The contractor will keep noise levels to a minimum and levels will not exceed limits indicated in AS 2436-1981. In addition, normal working hours will be employed to avoid complaints relating to noise ie 7.00 am to 6.00 pm Monday to Friday and 7.00 am to 2.00 pm Saturday.

7.5 Control of Dust

Generation of dust must be kept to a minimum. Water used for dust suppression will not be allowed to escape off-site by the stormwater system, sewer, or any other means. Compliance with Schedule B (9) of the NEPM, must be achieved, which is in addition to ICC and EPA requirements.

Levels of airborne particulate matter (dust) are likely to increase as a result of earthworks. To minimise the potential for dust generation, dust suppression techniques will be required including, primarily the application of water sprays to the active earthwork areas and any external or uncovered stockpile areas.

Measures will be taken to ensure that dust emanating from within the Site is minimised and remains within acceptable levels. Dust concentrations will be monitored through the excavation works utilising Dustrack units to monitor PM10 concentrations placed at down wind locations and repositioned twice daily if required.

7.6 Odour Control

All equipment used and all facilities constructed are designed and operated to control the emission of smoke, fumes and vapour into the atmosphere. Control measures may include:

- Construction equipment will be properly maintained so that exhaust emissions do not pose an odour nuisance;
- Cleared vegetation, demolition materials and other combustible waste will not be burned onsite; and
- The spraying of a solution odour suppressant or other appropriate product if required to suppress any odours that may be generated by excavated materials through manual or vehicular mists sprays and perimeter systems and relocated to areas of excavation and placement.

All practicable measures will be taken to ensure that fugitive emissions emanating from within the Site are minimised, such that nuisance odours cannot be detected outside the Site boundaries and the ambient air quality is not adversely impacted.

sch 4 - signature

Odour monitoring stations will be established at six locations across the Site and represent prevailing wind directions. The SQP will undertake twice daily inspections of each station and record odour levels on daily logs. If significant complaints are received relating to odour, the monitoring and control requirements will be varied to minimise the reoccurrence of complaints.

7.7 Public Consultation

Community consultation with regard to the proposed remediation process is not considered to be a primary concern due to the current commercial nature and location of the site. However, in accordance with normal construction practice, a public complaints system should be established including the provision of a contact number on boundary fences and a register of complaints maintained on site.

All complaints will be acted on immediately with investigations into the cause of the concern and prompt action taken to rectify the problem.

8.0 VALIDATION PROGRAM

Characterisation of the Site is required to assess the potential for residual ground contamination and to allow the removal of the Site from the EMR. Once removed from the EMR, the Site may be considered suitable for unrestricted land use and allow the proposed redevelopment works to proceed.

8.1 Rationale for Characterisation Strategy

The rationale for the characterisation strategy has been derived following consideration of the Draft Guidelines for the Assessment and Management of Contaminated Soils in Queensland (1998), and an understanding of the objective of characterisation of residual Site conditions. Thus the sampling strategy is based on:

- A broad targeted sampling density in general areas of the site;
- Intensive sampling in areas of concern and bulk excavation;
- Visual and olfactory inspection and assessment of final excavations;
- and
- Characterisation of imported fill.

8.2 Characterisation Strategy

The characterisation procedure, including sample collection from excavations and stockpiles, preservation, equipment decontamination, sample transportation and documentation will be required to be in accordance with the Qld Draft Guidelines and the National Environment Protection (Assessment of Site Contamination) Measure Schedule B(2) (NEPC, 1999).

Samples across the site will be collected at 1 for every 25m² of exposed surfaces.

The validation and characterisation strategy developed are:

Assessment Criteria

sch 4 -
signature

- HIL - A, EIL

Validation Requirements

- Full excavation of impacted soils;
- Validation of residual soil profile on a systematic grid of 1 sample per 25m²

Analytical / Monitoring Program

- TPH, PAH, BTEX

8.3 Sample Dispatch and Documentation

The general sampling strategy will be as follows:

- Samples will be collected using clean hand tools and nitrile gloves and placed into laboratory supplied glass jars with Teflon lids. The sampling locations will be accurately recorded; and
- Samples will be placed on ice and forwarded to the analytical laboratory for analysis in accordance with chain-of-custody protocols.

8.4 Quality Assurance/Quality Control (QA/QC) Program

All investigations (field sampling etc) will be conducted in accordance with a QA/QC plan, which will be developed prior to the initiation of the remedial works.

Soil sampling are to be undertaken in accordance with the principles described in *AS4482.1-2005: Guide to Sampling and Investigation of Potentially Contaminated Soil (Part 1: Non volatile and Semi volatile Compounds)* and *AS4482.2-1999: Guide to sampling and investigation of potentially contaminated soil (Part 2: Volatile compounds)*.

Samples will be analysed by a National Association of Testing Authorities, Australia (NATA) accredited laboratory. All tests will be undertaken in accordance with ANZECC (1996) '*Guidelines for the Laboratory Analysis of Contaminated Soils*'.

- As part of the quality control program, the following shall be undertaken:
- Field duplicate samples will be collected for intra-laboratory analysis at the rate of one duplicate sample for every 10 original samples;
- Field triplicate samples will be collected at the rate one triplicate sample for every 20 original samples for inter-laboratory analysis;
- Rinsate and field blanks will be collected for each day of soil and groundwater sampling; and
- Trip blanks will be submitted for each esky of samples.

9.0 DECONTAMINATION PROCEDURES

Sch 4 - signature

Decontamination procedures for sampling equipment, personnel and the general Site must be in accordance with the Australian Standard AS4482.1 – (2005) and the NEPM guidelines (Schedule B(9)).

All vehicles will be inspected during loading and unloading of Site equipment and / or soil materials to ensure that no excess soil adheres to the wheels or undercarriage. As public-access roads are to be used for hauling contaminated soil, any accumulation of soil will be removed prior to departure from the loading or disposal location. Onsite traffic movements will be restricted to specifically prepared and designated haul roads.

All truck drivers carting soil from the Site are to be given a safety instruction brief. The brief will be concise and shall detail the procedures to be followed by the truck driver should contaminant incidents occur.

Operating practices that prevent spillage from occurring, such as checking that trucks are not excessively filled, slow driving, covering truck bins with canvas or the like, and careful loading and unloading, will be implemented as required for travel on Public Roads.

9.1 Vehicle Movements and Haul Route

The traffic impacts of the remediation works are considered on both the surrounding streets and on the arterial road network. The following operational protocols will be followed:

- Trucks will observe the nominated traffic routes (both on and off Site) as specified in the CEMP;
- All drivers are to be issued with maps and directions showing nominated and excluded haulage zones;
- All parking of vehicles associated with the works will be within the Site on a suitably prepared and designated area;
- All trucks leaving the Site will pass through a wheel wash bay, if soil material is noted to be adhering to the wheels or undercarriage trucks will be thoroughly cleaned using water jets, brooms, and the like, to ensure that no material is on the truck exterior which could be deposited off-Site; and
- Operating practices for haulage shall include a standard procedure requiring the covering of all loads.

9.2 Wheel Wash Facilities

Gross soil material should be removed from vehicular tyres prior to leaving the Site. This may be undertaken with the use of decontamination facilities located along the Sites access/egress point/s.

10.0 HEALTH AND SAFETY

A Site Specific Health and Safety Plan will be prepared to address the physical and contamination hazards associated with the remediation works. The Health and Safety

Sch 4 -
signature

Plan shall consider and respond to the specific OHS hazards and issues relevant to the remediation works.

A thorough safety induction process shall be required prior to commencement of works to inform site workers of the health and safety issues on the Site. A site safety induction shall be required for all persons engaged in the remedial works and other persons required to enter the Site during the remediation works.

10.1 OHS Legislation, Regulations and Standards

The works will comply with legislation, regulations and standards to the extent possible. The legislation will include:

- *Environmental Protection Act (1994);*
- *Health Act (1937) / Regulation (1996); and*
- *Workplace Health and Safety Act (1995) / Regulation (1997).*

10.2 Site Induction

All personnel involved in the remediation project, including visitors, contractors and subcontractors will be required to attend a health and safety induction prior to commencing any work on the Site.

10.3 Volatile Organic Vapour Monitoring

The soil gases are to be minimised through the wetting of the excavation areas and if required the use of organic compounds absorbent solutions. Initially a PID will be used on Site at all time to determine the concentrations of volatile organics. Both ambient air and breathing space readings will be taken throughout the course of the works.

Preliminary exposure settings for various volatile substances have been outlined in the Exposure Standards for Atmospheric Contaminants in the Occupational Environment, WorkSafe Australia (May 1995). Preliminary screening trigger levels will; however, be established for PID volatile screening at the excavation face and will include:

- PID 100 ppm – SQP to inspect area to establish possible source of VOC and limit activities until readings reduce to below 50 ppm; and
- PID 250 ppm – immediately cease works for 1 hour in the area to allow through inspection by SQP. Revise works procedures to limit release of VOC compounds in consultation with the TPR.

11.0 REPORTING REQUIREMENTS

All additional works and sampling results will be submitted to the TPR for review and certification. Pending the TPR review additional works may be required in consultation with the TPR.

sch 4 - signature

Upon the completion of remediation and validation works, a validation report must be prepared and submitted to the TPR for review, approval and certification prior to submission to the DERM. A certified validation report must then be submitted to the DERM for review and approval. The report must be prepared in accordance with the Draft Guidelines for the Assessment & Management of Contaminated Land in Queensland, (May 1998) and the Environmental Protection Act (1994).

The report must document remediation and validation program activities including the results of any further excavation and/or validation required by the results of the initial validation testing, an evaluation of the results against the remedial goals and information showing that the conditions of the SMP and RAP have been complied with.

Photographic records and daily site diaries detailing volumes of waste and soil moved, must be kept to ensure that all soil contaminated above the remedial goals has been excavated to the identified extent in each of the remediation areas.

The report must also include visual records and copies of documentation validating the appropriate handling, disposal and treatment of contaminated soil and water in accordance with EPA requirements.

12.0 STATEMENT OF SUITABILITY

Prior to commencement of the proposed land use, a Statement of Suitability must be obtained from DERM. The Statement of Suitability must specify that the site is suitable for the intended use with an approved SMP or removal from the DERM as required.

13.0 REFERENCES

Australian Standard, Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, (2005) (AS4482.1-2005).

Australian Standard, Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile and semi-volatile compounds, (1997) (AS4482.2-1999).

CMPS&F (1998); "Site Remediation and Validation, Former Circle Depot, Lot 2 Warwick Road, Yamanto"; Document No. VQ0478-TR-D001.

Department of Environment and Heritage (DEH) Guidelines for Hydrocarbons (1999).

Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland, Queensland Department of Environmental (1998).

sch 4 -
signature

E3Consult Australia Pty Ltd (2008) Lot 2 RP 201547 Warwick Road, Yamanto –
Limited Environmental Site Assessment.

E3Consult Australia Pty Ltd (2009) Lot 2 RP 201547 Warwick Road, Yamanto –
Stage 2 Environmental Site Assessment.

Released by EHP under the RTI Act 2009

sch 4 -
signature

