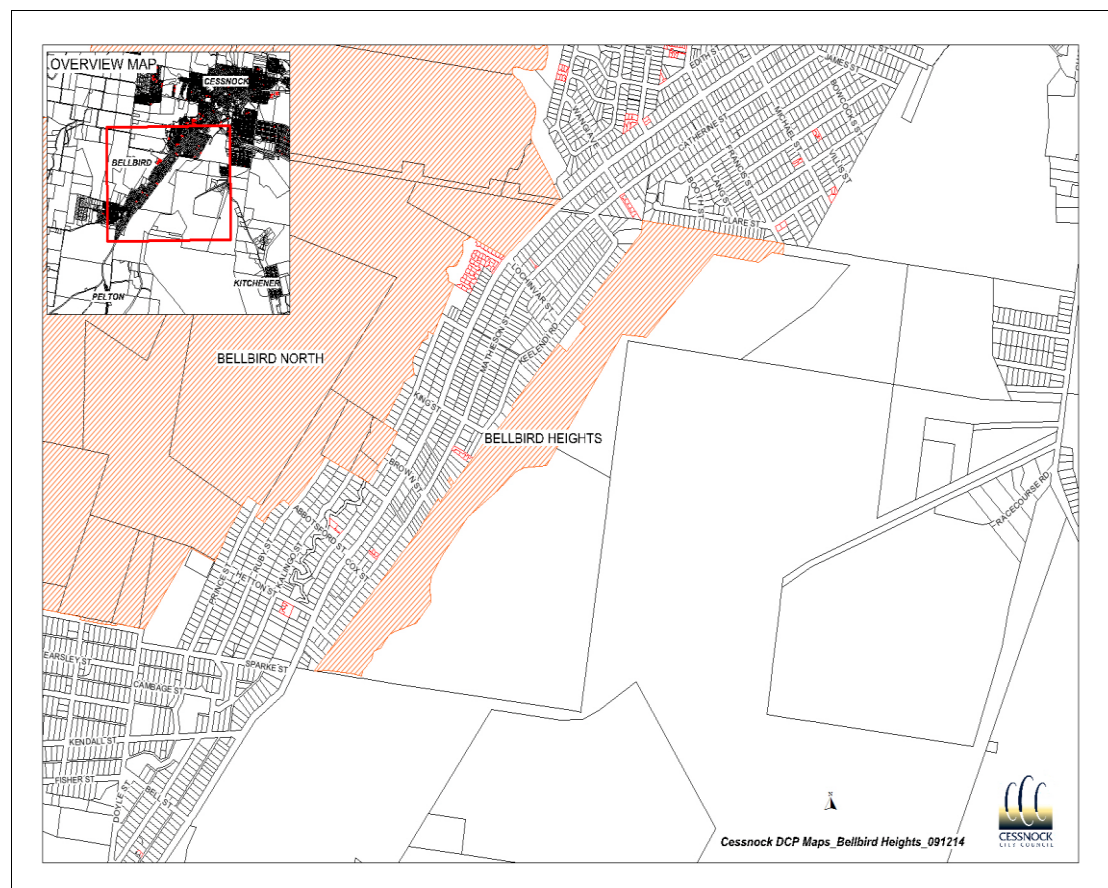


F.6 – North Ridge - Bellbird Heights Urban Release Area

DESCRIPTION



The Bellbird Heights Urban Release Area includes approximately 121.5 ha of land adjoining the suburb of Bellbird Heights, to the south of Cessnock CBD. The area represents a natural extension of the suburb of Bellbird Heights with approximately 305 residential lots to be provided along the western area of the site.

An E2 Environmental Conservation zone is located to the east of the residential land. The area is ecologically significant and will be managed in perpetuity to maintain and improve its conservation values.

The area to the north of the site will be zoned RU2 - Rural Landscape, retained for continued mining operations until Austar Coal Mining Lease (ML) 1345 expires.

Through the implementation of the Bellbird Heights Urban Release Area, Cessnock City Council wishes to establish controls and guidelines to facilitate high quality residential development that considers the constraints of the area. Specific development controls are included to ensure that the development will complement the character of the existing locality and will have minimal adverse impacts on the natural environment.

Development Requirements

All development applications shall demonstrate consistency with the following requirements.

1 Staging Plan

Staging of the Urban Release Area should be consistent with the 'North Ridge' Bellbird Heights Staging Plan (as shown in Figure 1). The 'North Ridge' Bellbird Heights Staging Plan is to be read in conjunction with the Bellbird Heights Voluntary Planning Agreement.

Sub-stages may be considered provided that they are consistent with infrastructure provision and sequencing.

Subdivision Certificates within Stages 6 or 7 shall not be released until chitter emplacement and capping layer, subsurface drainage layer and storm water diversion drains have been completed in ML1345, MPL 233 and MPL204.

No construction certificate is to be issued for any residential dwelling within ML1345 or the 100m buffer zone whilst ever the mining lease remains in place

2 Transport Movement Hierarchy

The road layout should be consistent with the Indicative Layout Plan as shown in Figure 2. Development applications for subdivisions must ensure that road networks connect to other development areas in a logical hierarchy of street function.

Shared footpath/cycleway shall be constructed to Wollombi Road as shown in the Indicative Layout Plan.

Suitable transport access and connectivity within the site and to adjoining areas shall be maintained at all times for motor vehicles, pedestrians and cyclists.

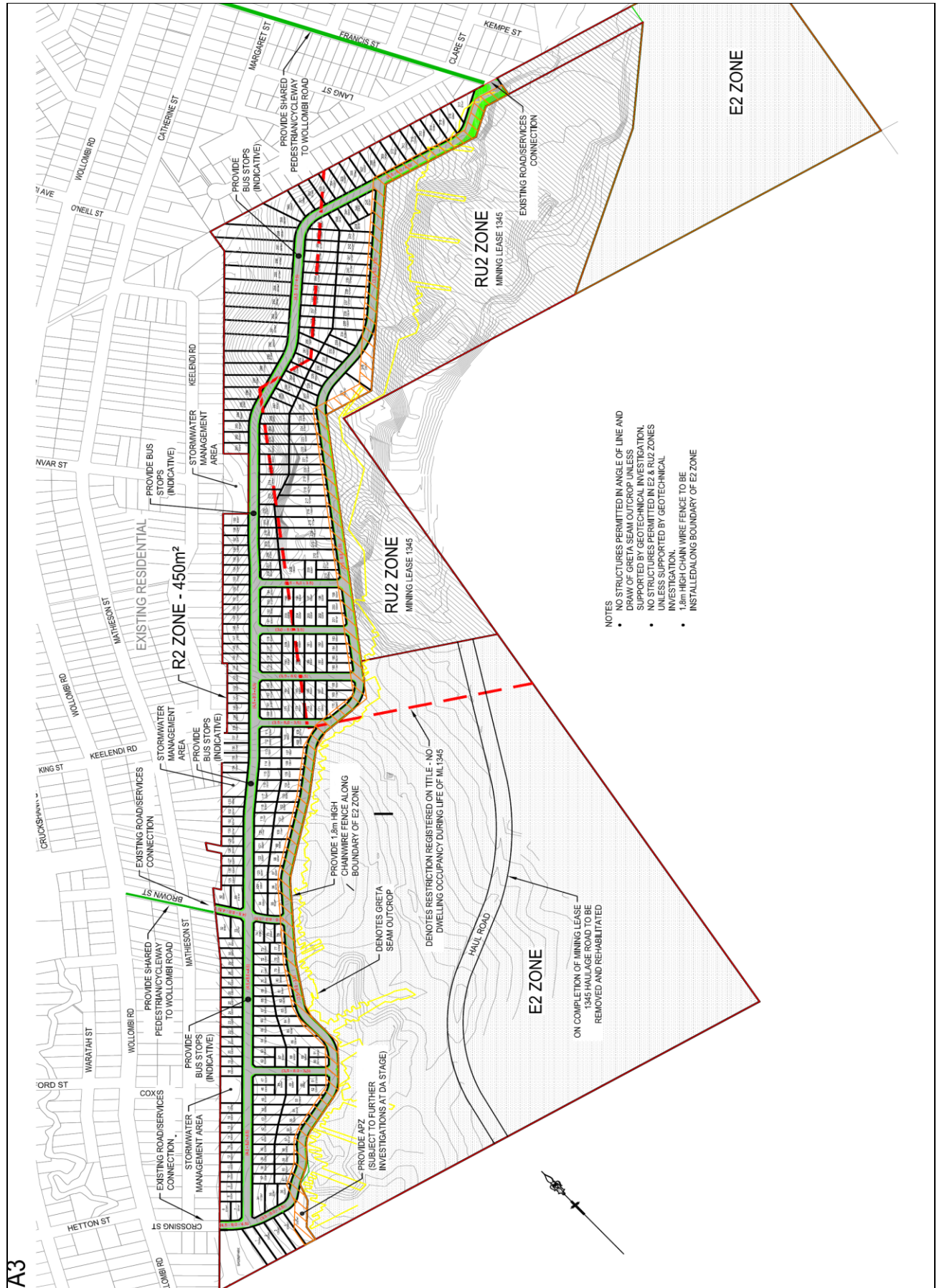
3 Overall Landscaping Strategy

A Vegetation Management Plan (VMP) must be submitted with the first development application to subdivide the land for residential purposes.

The VMP shall identify a strategy to appropriately manage the natural watercourse and incorporate a landscaping plan to enhance the retention of on site vegetation. Any future landscaping should aim to utilise locally occurring species

The subdivision design is to provide for lot frontages addressing streets, and drainage reserves.

A 1.8m high chain link fence shall be erected for the full length of the boundary between the residential land and the conservation and rural zoned land to prevent unauthorized motorbike and pedestrian access to this area. The fence is required to protect the public from potential mine subsidence and to assist with the long term conservation of the land.



- NOTES
- NO STRUCTURES PERMITTED IN ANGLE OF LINE AND DRAW OF GRETA SEAM OUTCROP UNLESS SUPPORTED BY GEOTECHNICAL INVESTIGATION.
 - NO STRUCTURES PERMITTED IN E2 & R2 ZONES UNLESS SUPPORTED BY GEOTECHNICAL INVESTIGATION.
 - 1.8m HIGH CHAIN WIRE FENCE TO BE INSTALLED ALONG BOUNDARY OF E2 ZONE

Figure 2: Indicative Layout Plan

4 Passive and Active Recreational Areas

There are no specific requirements in this regard.

5 Stormwater and Water Quality Management Controls

There are no specific requirements in this regard. The Cessnock DCP 2010 generally applies.

6 Amelioration of Natural and Environmental Hazards

Natural Hazards

Bushfire

Future development shall be assessed in accordance with the NSW Rural Fire Service's 'Planning for Bushfire Protection Guidelines' 2006 and provide Asset Protection Zones (APZs) configured in accordance with the Guidelines. In particular, the future subdivision must have regard to the following requirements:

- APZs of 20 - 25m is required between retained Open Forest vegetation and future dwellings within the site.
- Assessment in accordance with AS3959 - 2009 is required to confirm that future dwellings within the lots will be able to comply with the required BALs. Future applications are to be assessed under Section 79BA of EP&A Act for each individual dwelling upon application.
- The proposed internal access roads are to comply with PBP as detailed in Section 6 of this report.
- Reticulated water is extended into the site. The development will be linked to the water pressure mains and the proposed internal fire hydrant spacing, sizing and pressures are to comply with AS 2419.1-2005 Fire Hydrant Installations - System design, installation and commissioning (2005).

Environmental Hazards

Contamination

Any future development of the site shall have regard for the provisions of SEPP 55 – Remediation of Land. In particular, future development shall have regard for the findings and recommendations of the Phase 2 Contamination Assessment Bellbird Heights NSW prepared by Coffey Environments, dated 13 June 2013, which is reproduced as Appendix A.

Geotechnical

Prior to any subdivision taking place, further details are to be provided to the Mine Subsidence Board confirming that developable land does not encroach into the area of shallow mine works by applying an 'angle of draw and factor of safety' from Greta seam sub-crop line.

No development is to occur within the 'angle of draw and factor of safety' from Greta seam sub-crop line, unless supported by detailed geotechnical investigations.

No development is to occur within the RU2 or E2 zones unless supported by detailed geotechnical investigations.

Entry to the E2 Environmental Conservation zoned land shall be restricted to:

- use of the Austar Mine haulage road;
- subsidence management; and
- conservation management.

Prior to any subdivision taking place a long term management plan shall be prepared and approved by the Mine Subsidence Board addressing the issue of shallow mining across the entire site. The management plan needs to:

- a) Take into account the implications of developing the western unmined section of the R2 - Low Density Residential land to the eastern section of the site; and
- b) Identify fencing and signposting methods to restrict unauthorised access to the subsidence area and address the regular monitoring and remediation of subsidence events.

Mining Lease (ML) 1345

The site contains an operational spoil emplacement pit operated by ML 1345 (see Figure 3).

A haulage road currently extends across the site for access to the spoil emplacement pit.

To protect the ongoing operation of ML 1345, the following is required:

- a section 88B Restriction to prevent any residential development within a 100m buffer zone around ML 1345 until the rehabilitation of the Mining Lease is completed.
- a carriageway (ROW) in favour of ML 1345 will be required over the haulage road to provided unrestricted access to and from the spoil emplacement pit.

The section 88B and ROW cannot be varied, modified or released without the agreement of Council and the NSW Department of Resources and Energy.

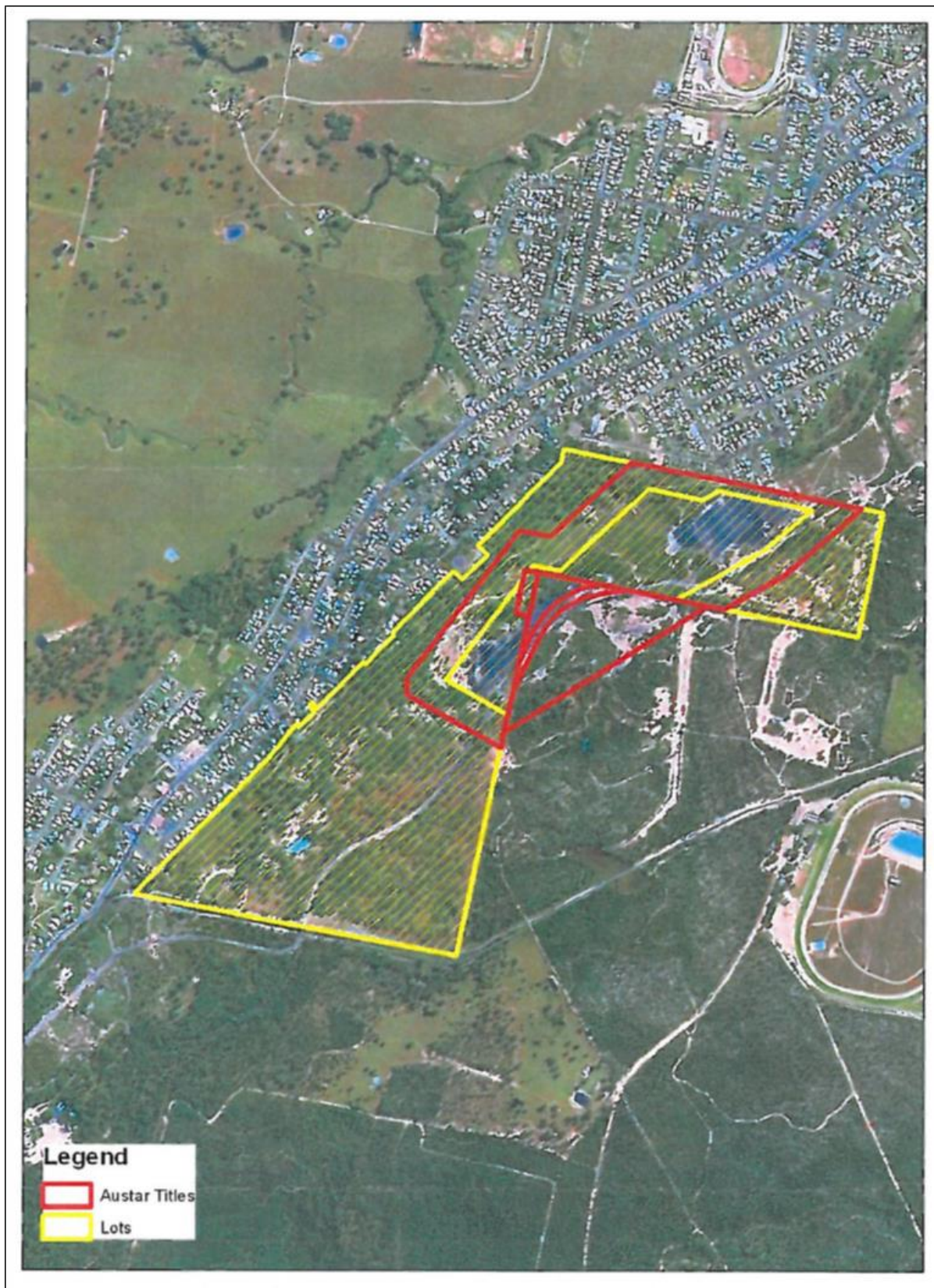


Figure 3 – Austar Coal Mining Lease 1345 – 100m buffer zone identified in red.

7 Significant Development Sites

There are no specific requirements in this regard.

8 Residential Densities

There are no specific requirements in this regard.

9 Neighbourhood Commercial and Retail Uses

There are no specific requirements in this regard.

10 Provision of Public Facilities and Services

Future staging plans must be prepared in consultation with service authorities. In particular, Hunter Water must be consulted to ensure that the 390 Equivalent Tenements (ET) development cap on the Pelton Reservoir sub-system is not exceeded.

11 Sewer and Water Reticulation

Sewer and water reticulation shall be provided in accordance with the requirements of the Hunter Water Corporation.

12 Voluntary Planning Agreements

Any future development must have regard for the Planning Agreements applying to the land:

- Local Infrastructure - Planning Agreement 19 November 2014; and
- On-site Biodiversity Offset - Planning Agreement 19 November 2014.

REFERENCES

APPENDIX A Phase 2 Contamination Assessment Bellbird Heights NSW (Coffey Environments, 13 June 2013)

APPENDIX A

Phase 2 Contamination Assessment Bellbird Heights NSW
(Coffey Environments, 13 June 2013)



PHASE 2 CONTAMINATION ASSESSMENT BELLBIRD HEIGHTS, NSW

Winton Partners Bellbird Pty Ltd

ENAUWARA04363AA-R01

13 June 2013

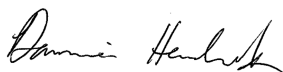


**PHASE 2 CONTAMINATION
ASSESSMENT
BELLBIRD HEIGHTS, NSW**

Winton Partners Bellbird Pty Ltd

ENAUWARA04363AA-R01
13 June 2013

Written/Submitted by:



Damien Hendrickx
Environmental Scientist

Reviewed by:



Laurie Fox
Principal Environmental Geologist

13 June 2013

Winton Partners Bellbird Pty Ltd
Level 1, 106 King Street
SYDNEY NSW 2000

Attention: Jamie Boswell

Dear Jamie

**RE: PHASE 2 CONTAMINATION ASSESSMENT
BELLBIRD HEIGHTS, NSW**

Coffey Environments Pty Ltd (Coffey) is pleased to present the findings of our Phase 2 Contamination Assessment for the above site.

We draw your attention to the enclosed sheet entitled "*Important Information about Your Coffey Environmental Report*", which should be read in conjunction with the report.

We trust that our report meets with your requirements. If you have any questions regarding this matter please contact Damien Hendrickx or the undersigned in our Warabrook Office.

For and on behalf of Coffey Environments Australia Pty Ltd



Laurie Fox
Principal Environmental Geologist

RECORD OF DISTRIBUTION

No of copies	Report File Name	Report Status	Date	Prepared for	Initials
1	ENAUWARA04363AA-R01.pdf	Final	13 June 2013	Winton Partners Bellbird Pty Ltd	
1	ENAUWARA04363AA-R01.doc	Final	13 June 2013	Coffey Environments Australia Pty Ltd	

CONTENTS

1	INTRODUCTION	1
1.1	General	1
1.2	Objectives	1
1.3	Scope of Work	2
2	SITE DESCRIPTION	3
2.1	Site Location and Identification	3
2.2	Site Observations	3
2.3	Interview	4
2.4	Site Topography and Drainage	4
2.5	Soils and Geology	4
2.6	Hydrogeology	5
3	SUMMARY OF CONTAMINATION ASSESSMENT	6
4	POTENTIAL AREAS AND CHEMICALS OF ENVIRONMENTAL CONCERN	7
5	ASSESSMENT CRITERIA	8
6	FIELD AND LABORATORY PROGRAMME	9
6.1	Sampling Plan	9
6.2	Soil Sampling	10
6.3	Laboratory Analysis	10
7	QUALITY ASSURANCE / QUALITY CONTROL AND DATA USABILITY	11
8	RESULTS OF INVESTIGATION	12
8.1	Subsurface Conditions	12
8.2	Laboratory Results	13

CONTENTS

9	DISCUSSION	13
9.1	Fill / Mining Overburden Area	13
9.2	Building Footprints	14
9.3	Car Body and Low-Lying Areas	14
9.4	Management of Mine Overburden	14
9.4.1	Offsite Disposal of Soils	14
10	CONCLUSION AND RECOMMENDATIONS	15
11	LIMITATIONS	16
	REFERENCES	17

LIST OF ATTACHMENTS

Important Information about your Coffey Environmental Report

Tables

- Table LR1: Soil Analytical Results
- Table LR2: Duplicates and Triplicates
- Table LR3: Rinsates and Trip Blanks

Figures

- Figure 1: Site Location
- Figure 2: Investigation Areas
- Figure 3A: Fill / Mine Overburden Area – Sample Locations
- Figure 3B: Building Footprint 1 – Sample Locations
- Figure 3C: Building Footprint 2 – Sample Locations
- Figure 3D: Building Footprint 3 – Sample Locations
- Figure 3E: Low Lying Areas and Car Body – Sample Locations

Appendices

- Appendix A: Site Photographs
- Appendix B: Data Validation Report
- Appendix C: Test Pit Logs and Explanation Sheets
- Appendix D: Laboratory Reports and Chain of Custody Documentation

ABBREVIATIONS

AEC	Area Of Environmental Concern
AHD	Australian Height Datum
C6-C36	Hydrocarbon chainlength fraction
Bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
COC	Chemical of Concern
µg/L	micrograms per litre
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
NATA	National Association of Testing Authorities
NEHF	National Environmental Health Forum
NEPM	National Environment Protection Measure
NSW EPA	Environment Protection Authority of New South Wales
NSW DEC	Department of Environment and Conservation Of New South Wales
NSW DECC	Department of Environment and Climate Change of New South Wales
NSW DECCW	Department of Environment, Climate Change and Water of New South Wales
NSW OEH	Office of Environment and Heritage of New South Wales
OCP	Organochlorine Pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
Ppm	parts per million
PQL	Practical Quantitation Limit
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percent Difference
SOP	Standard Operating Procedures

ABBREVIATIONS

SS	Surface Sample
TP	Test Pit
TPH	Total Petroleum Hydrocarbon

EXECUTIVE SUMMARY

Coffey Environments Australia Pty Ltd (Coffey) was commissioned by Winton Partners Bellbird Pty Ltd (Winton) to undertake a Phase 2 Contamination Assessment (CA) at the proposed land rezoning site at Bellbird Heights, NSW. The objectives of the CA were to assess the soil contamination status across the filled areas and footprints of former buildings, assess the dumped household waste at the site for the presence of Asbestos Containing Materials (ACM), and assess the contamination status of surface water or sediment in the low-lying areas at the site.

Based on Coffey's previous contamination assessments undertaken at the site, four Areas of Environmental Concern (AECs) were identified. The AECs related to former buildings, and mine infrastructure, placement of mine overburden, fill and household waste stockpiles and existing low lying areas. It was assessed that these AECs represented a low to medium risk of soil contamination.

In order to assess the contamination status of the areas of environmental concerns, a sampling programme was undertaken, involving the excavation of test pits, the collection of surface soil and sediment samples, and collection of a potential asbestos fragment sample. Selected samples were analysed for a suite of potential COC's, including heavy metals, hydrocarbons, pesticides and asbestos. In order to assess potential acid mine drainage issues at the site, selected samples were also analysed for pH values.

The laboratory results indicated low concentrations of chemicals of concern and no asbestos in soil was identified. Minor exceedences of the phototoxicity criteria for arsenic, cadmium, nickel and zinc were also recorded. Low soil pH (<4.0) was recorded in areas of mine overburden. The exceedences are not considered to represent a risk to the environment given the soil types, though the low pH may inhibit some plant species.

The existing mine overburden material will require management depending on the final lot layout and end use. This would likely include the incorporation of a capping layer, subsurface drainage layer and storm water diversion drains.

Based on the results of the investigations, the site is considered suitable, from a contamination point of view, for the proposed residential development.

1 INTRODUCTION

1.1 General

This report presents the findings of a Phase 2 Contamination Assessment (CA) undertaken by Coffey Environments Australia Pty Ltd (Coffey) for the proposed land rezoning at Bellbird Heights, NSW. The “site” is defined as the area of the proposed land rezoning, as shown on Figure 1.

The Phase 2 CA was commissioned by Winton Partners Bellbird Pty Ltd (Winton) in response to a Coffey proposal (Reference ENAUWARA04363AA-P02 dated 2 April 2013) and following the recommendations provided in the Supplementary Contamination Assessment undertaken by Coffey at the site (Reference ENAUWARA04363AA-L01 dated 15 March 2013).

The site occupies part of Lot 1 DP 11643334, and is approximately 39 hectares in area. Coffey understands that Winton is proposing to rezone the site as low density residential as part of the “Gateway” process applied by Cessnock City Council.

Coffey’s Supplementary Contamination Assessment involved a review of previous investigations, a desktop study and a site walkover to identify Areas of Environmental Concern (AECs). Four AECs were identified, relating to footprints of former buildings, placement of mine overburden, fill and household waste, low lying areas.

Following review of the draft supplementary environmental assessment, Winton requested further investigations be undertaken to assess the potential impact the AECs may have on the proposed rezoning.

This draft report has been written in accordance with the relevant sections in the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*. This report must be read in conjunction with the attached sheet entitled “*Important Information about your Coffey Environmental Report*”, which can be found at the end of this report.

1.2 Objectives

The objectives of the Phase 2 CA were to:

- Assess the soil contamination status across the filled areas and footprints of former buildings;
- Assess the dumped household waste at the site for the presence of Asbestos Containing Materials (ACM); and
- Assess the contamination status of surface water or sediment in the low-lying areas at the site.

1.3 Scope of Work

To achieve the objectives, the following scope of work was undertaken:

- A brief review of the previous contamination assessments undertaken at the site;
- A site walkover by a Coffey Principal Environmental Geologist;
- Carry out and interview with a former mine employee;
- Field investigations, involving:
 - Excavation of 15 test pits, and soil sampling;
 - Collection of 32 surface soil samples;
 - Collection of two sediment samples from low-lying areas; and
 - Collection of one fragment sample of potential Asbestos Containing Materials (ACM).
- Laboratory analysis of selected samples; and
- Data assessment and preparation of this Phase 2 CA report.

2 SITE DESCRIPTION

2.1 Site Location and Identification

General site information is provided below in Table 1.

TABLE 1 – SUMMARY OF SITE DETAILS

Site Address:	The property address is 40-42 Francis Street, Bellbird Heights NSW. The 'site' for the purpose of this report is defined as the area proposed for residential land rezoning, as shown on Figure 1 with access from Francis Street and Brown Street.
Approximate Total Site Area:	39 hectares.
Title Identification Details	The site occupies part of Lot 1 DP 11643334, in the Parish of Cessnock and the County of Northumberland.
Previous Landuse:	Historical evidence indicates that previously the site was part of mining operations associated with the Aberdare Extended Colliery and Bellbird Colliery.
Current Landuse:	The site is vacant and consists mainly of a grass cover and remnant bushland.
Proposed Landuse:	The site is proposed to be rezoned for low-density residential purposes.
Adjoining Site Uses:	<ul style="list-style-type: none"> • Residential properties to the north and west; and • Vacant land, bushland and former mining operations to the east and south.
Site Co-ordinates:	The centre of the site is located approximately at 32°51'00"S, 151°19'57"E.

2.2 Site Observations

The site description is based on the site observations made during Coffey's Supplementary Contamination Assessment and a site walkover undertaken by a Coffey Principal Environmental Geologist and Coffey Principal Geotechnical Engineer on 15 April 2013.

Site photographs are presented in Appendix A. Observations relevant to this report are outlined below:

- Test pits TP4 to TP9 were excavated within mine overburden which consisted of weathered rock that showed evidence of oxidation of sulphides (straw coloured mineral jarosite, on exposed surfaces (Photo 1 and 2)
- The mine overburden zone extended about 100m west of the Austar coal washery reject emplacement;
- A supply of lime (assumed to be agricultural lime) and evidence of lime spreading over the emplacement area was apparent (Photo 3)
- There was little visual evidence of sulphide oxidation within the exposed rocks along the cliff line (Photo 4)

2.3 Interview

A phone interview with Mr Peter Turnbull, a former mine employee, was carried out on 2 May 2013. Mr Turnbull worked as a clerk from 1968 for 12 months and a surveyor from 1976 for approximately 2 years. Mr Turnbull indicated the following:

- The former buildings located in the eastern portion of the site (Building footprint 1 and Building footprint 2) were managers' residences
- The manager's residences were constructed with brick piers and timber cladding.
- The residences were removed between 1976 and 1978 and the site was cleaned for cattle farming.
- Mr Turnbull had no knowledge of Building footprint 3, located along the eastern boundary of the site, indicating that it must have been removed prior to 1968.
- The pillars (located offsite approximately 150m to the south west of Building footprint 1) are remnants of the former coal bins used for the loading of coal into trucks.
- Also located offsite (in the vicinity of the pillars) were a former bathhouse and workshops for maintenance and metal works.

2.4 Site Topography and Drainage

Reference to the 1:25,000 Cessnock Topographic Map indicates that the site is situated within a region of gently to moderately undulating topography with a broad elongated hilltop along the western boundary. The elevation of the site ranges from approximately 80m AHD to approximately 120m AHD. Site slopes are primarily gentle (<10°), though some steeper slopes are located near the northern and western site boundaries. A vertical cliff line (about 3.0m in height) exists in the eastern half of the site.

Drainage is likely to occur mainly by land infiltration. Excess water is likely to follow the site slopes and accumulate in pools in the eastern and southern sections of the site.

2.5 Soils and Geology

A review of the 1:100,000 Newcastle Coalfield Geological Map indicates the site is underlain by the Branxton Formation of the lower Maitland Group overlying the Greta Coal Measures. The underlying bedrock is likely to consist of sandstone, conglomerate and siltstone intersected with coal seams. These rocks typically weather to sandy clays and clays of low to medium plasticity.

The Greta Coal Measures are known to have a high sulphide content having formed during a marine regression (brackish water conditions). The supply of sulphates from the saline water in combination

with iron and carbon from organic matter, has led to the formation of pyrite (an iron disulphide FeS_2) within the coal measures. Upon exposure the pyrite (sulphide) can oxidise and produce acid mine drainage as water percolates through mine wastes and overburden.

2.6 Hydrogeology

Perched groundwater beneath the site is anticipated to be present in residual soils between approximately 5m and 10m below ground surface (bgs). Regional groundwater is anticipated to be present in the underlying bedrock at depths greater than 20m bgs. Groundwater flow direction from beneath the site is anticipated to flow to the west and discharge to Bellbird Creek, located approximately 500m west of the site.

A search of registered groundwater bores located within a 2km radius of the site was undertaken. The search revealed that there are three bores registered within this radius. Details were provided for these bores, and are summarised below in Table 2.

TABLE 2 – SUMMARY OF GROUNDWATER BORE DATA

BORE ID	STATUS	PURPOSE	APPROXIMATE DISTANCE FROM SITE	STANDING WATER LEVEL (mbgl)
GW200873	Equipped	Monitoring Bore	2km north-east (hydraulically cross or up gradient)	4.50
GW200874	Supply Obtained	Monitoring Bore	2km north-east (hydraulically cross or up gradient)	4.10
GW200875	Equipped	Monitoring Bore	2km north-east (hydraulically cross or up gradient)	5.20
<p><i>NOTES:</i> <i>mbgl= metres below ground level</i></p>				

3 SUMMARY OF CONTAMINATION ASSESSMENT

Coffey undertook a supplementary contamination assessment in 2013 (Reference ENAUWARA04363AA-L01 dated 15 March 2013). That report should be read in conjunction with the current Phase 2 Contamination Report. The assessment was undertaken in order to assess if the land contamination status of the site had significantly changed since two previous contamination assessments were undertaken.

The objectives of the assessment were to:

- Assess whether the land contamination status of the site is likely to have changed since the two previous environmental assessments were undertaken; and
- Provide recommendations on the need for further stages of assessment, if required.

In order to meet the above objectives, the following works were undertaken:

- A review of Coffey's two previous assessments undertaken on the site in light of current NSW EPA Guidelines for assessing contaminated land and the NSW regulatory framework;
- A review of supplementary historical information including aerial photographs, section 149 planning certificate and NSW Office and Environment and Heritage (OEH) records;
- A site walkover to assess current site conditions; and
- Preparation of a letter report.

Based on the findings of the supplementary contamination assessment, four AECs were identified based on historical use of the site for coal mining. These AECs included former buildings, and mine infrastructure, placement of mine overburden, fill and household waste stockpiles and former and existing low lying areas. It was assessed that these AECs represented a low to medium risk of soil contamination.

The site was considered to be suitable for the proposed residential subdivision provided the following recommendations were carried out:

- Further soil sampling and analysis of the fill materials near the former buildings, infrastructure and overburden;
- Sampling and analysis of stockpiles and existing low lying areas; and
- Further assessment of the potential for acid mine drainage to impact the site.

4 POTENTIAL AREAS AND CHEMICALS OF ENVIRONMENTAL CONCERN

The potential AECs and chemicals of concern (COCs) identified based on the results of the previous assessments are outlined below in Table 3.

TABLE 3 – POTENTIAL AECS AND COCS

AEC	POTENTIAL CONTAMINATING ACTIVITY	POTENTIAL COCS	LIKELIHOOD OF CONTAMINATION*	COMMENT
1 (Former buildings and mining infrastructure)	Hazardous materials used in the construction of buildings	Asbestos, Lead in Paint, Heavy Metals	Low to Medium	No evidence of former buildings was identified during the site walkover.
2 (Mined areas and overburden)	Mining operations and stockpiling of CWR	Heavy Metals, TPH, BTEX, PAH, Acidic Leachate	Low to Medium	Coffey's previous assessment indicates that CWR in former mining areas to the east may produce acidic leachate. No CWR was observed on the site.
3 (Fill mounds and household waste)	Importation of fill from unknown sources. Uncontrolled dumping of household waste possibly containing ACM	Heavy Metals, TPH, BTEX, PAH, OCP, PCB, Asbestos	Low	Coffey's previous assessments indicate that significant contamination is unlikely to be encountered in fill.
4 (Low lying areas)	Potentially contaminated surface water draining from the former mining areas	Heavy Metals, TPH, BTEX, PAH	Low	The quality of the surface water in the low lying areas is not known.

NOTES:

* = It is important to note that this is not an assessment of the financial risk associated with the AEC in the event contamination is detected, but a qualitative assessment of the probability of contamination being detected at the potential AEC.

Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc; OCP - Organochlorine Pesticides; OPP – Organophosphorus Pesticides; TPH – Total Petroleum Hydrocarbons; BTEX – Benzene, Toluene, Ethylbenzene and Total Xylenes; PAH – Polycyclic Aromatic Hydrocarbons.

5 ASSESSMENT CRITERIA

The investigation levels for soil were established based on the following references:

- NSW DEC Guidelines for the NSW Auditor Scheme (Second Edition) (DEC, 2006);
- NSW EPA, Guidelines for Assessing Service Station Sites, (NSW EPA, 1994); and

National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (NEPC, 1999).

The NSW DEC (2006) and NEPC (1999) present health based investigation levels for different land uses (eg. industrial / commercial, residential, recreational etc.) as well as provisional phytotoxicity based investigation levels.

The proposed land use is residential, with potentially some open space areas. Therefore, the following investigation levels have been adopted as assessment criteria:

- Health-based investigation levels *for residential land use with accessible soils* (Column 1 of Appendix II in DEC 2006);
- Health-based investigation levels *for open space and recreational land use* (Column 3 of Appendix II in DEC 2006); and
- Provisional phytotoxicity-based investigation levels (Column 5 of Appendix II in DEC 2006).

The NSW DEC (2006) Guidelines do not provide investigation levels for volatile petroleum hydrocarbon compounds. The NSW EPA (1994) Guidelines for Assessing Service Station Sites provide an indication of acceptable threshold levels for cleanup of total petroleum hydrocarbons (TPH) compounds at service station sites to be reused for sensitive land uses. For semi-volatile petroleum hydrocarbons (C16 – C35 and >C35) investigation levels are provided in the NSW DEC (2006) guidelines, however, these are based on the NEPC 1999 health-based investigation levels, which require the laboratory analysis to unequivocally differentiate between aromatic and aliphatic compounds. Where the NSW EPA 1994 Guidelines are exceeded further comparison will be made to criteria presented in the CRC Care (2011) *Technical Report – Health Screening levels for Petroleum Hydrocarbons in Soil and Groundwater*.

The NSW DEC (2006) guidelines state that there are currently no national or NSW DEC endorsed guidelines relating to human health or environmental investigation of material containing asbestos on sites. Site Auditors must exercise their judgement when assessing if a site is suitable for a specific use in the light of evidence that asbestos may be a chemical of concern. Enhealth (2005) *Guidelines for Asbestos in the Non-Occupational Environment* provides some guidance on assessing and managing asbestos in soil although does not provide a threshold concentration or investigation level for asbestos. For this site, Coffey propose to adopt conservative criteria for asbestos (both fibrous and cemented fragments) of 'no detectable asbestos present in surface soils'.

The relevant soil investigation levels are summarised in Table LR1.

6 FIELD AND LABORATORY PROGRAMME

6.1 Sampling Plan

The field investigations for the site were developed in order to target the AECs identified in Coffey's Supplementary Contamination Assessment. The sampling locations were assessed by test pitting, collection of surface soil and sediment samples, and collection of fragments of potential ACM.

The general investigation areas are shown on Figure 2, and the sampling locations are shown on Figures 3A to 3E. The sampling locations were positioned at the locations as described below in Table 4.

TABLE 4 – SAMPLING PLAN

INVESTIGATION AREA	SAMPLING LOCATIONS
Fill / Mining Overburden Area	15 Test Pits (TP1 to TP15) in an approximate grid pattern across the investigation area 17 Surface Soil Samples (SS1 to SS17) collected in an approximate grid pattern across the investigation area. The fill/mining overburden area is approximately 2.2 hectares. Based on the NSW EPA (1995) Sampling Design Guidelines a sufficient number of sampling points have been carried out to characterise the site.
Building Footprint 1	Surface Soil Samples SS18 to SS25 collected in an approximate grid pattern across the investigation area.
Building Footprint 2	Surface Soil Samples SS26 to SS29 collected in an approximate grid pattern across the investigation area.
Building Footprint 3	Surface Soil Samples SS30 and SS31 collected in an approximate grid pattern across the investigation area. Potential ACM fragment sample ASF1 collected from dumped rubbish in the investigation area.
Car Body	Surface Soil Sample CB1 collected adjacent to the car body in the investigation area.
Low Lying Area 1	Sediment Sample DS1 collected from low-lying area corresponding to a low lying area.
Low Lying Area 2	Sediment Sample DS2 collected from low-lying area corresponding to a low lying area.

6.2 Soil Sampling

Field work was undertaken on 15 and 16 April 2013 and 1 and 2 May 2013 by a Coffey Environmental Scientist. Fifteen test pits (TP1 to TP15) were excavated with a 20-tonne excavator, 32 surface soil samples (SS1 to SS31 and CB1) were collected, two sediment samples (DS1 and DS2) were collected and one potential ACM fragment sample (ASF1) was collected.

The 15 test pits were excavated to depths ranging from approximately 0.3m below ground surface (bgs) (in TP13) to approximately 4.0m bgs (in TP1). Surface soil and sediment samples were collected using hand tools (stainless steel shovels and trowels). The potential ACM fragment sample was collected directly by hand.

Environmental soil samples collected from the test pits were collected at the surface, at approximately 0.5m bgs, at approximately 1.0m bgs and then at approximate 1m intervals until the test pits were terminated. The samples were collected from the centre of the excavator bucket in order to minimise the potential for cross-contamination. A clean pair of disposable gloves was used for each discrete sample.

The soil samples were divided into two subsamples. The first subsamples were placed into 250mL laboratory supplied glass jars for laboratory analysis. The second subsamples were placed into zip-lock plastic bags for asbestos analysis. Each sample was placed directly into an ice-chilled esky and remained chilled during transportation to the laboratory.

6.3 Laboratory Analysis

Selected soil samples were analysed for the respective COCs. The soil samples selected for analysis targeted layers/horizons associated with the likely mode of contaminant deposition and/or visual evidence of potential contamination. Samples were selected based on field evidence of potential contamination (if present).

Selected samples were also analysed for pH values in order to assess the potential for acid mine drainage issues at the site.

The samples were dispatched to the NATA-accredited Eurofins-MGT laboratory in Lane Cove West, NSW. The samples were dispatched to the laboratory under chain of custody conditions.

The samples were analysed for the following:

- Heavy Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) – 55 samples;
- pH – 48 samples;
- Polycyclic Aromatic Hydrocarbons (PAH) – 28 samples;
- Total Petroleum Hydrocarbons (TPH) – 24 samples;
- Benzene, Toluene, Ethylbenzene and Total Xylenes; (BTEX) – 24 samples;
- Asbestos – 23 samples;
- Organochlorine Pesticides (OCP) – six samples; and
- Polychlorinated Biphenyls (PCB) – six samples.

7 QUALITY ASSURANCE / QUALITY CONTROL AND DATA USABILITY

Sampling activities were undertaken in accordance with Coffey's Standard Operating Procedures (SOPs), which are based on industry accepted practice. The assessment of field and laboratory quality assurance / quality control (QA / QC) procedures is included in a data validation report, which is attached in Appendix B.

In order to assess field QA / QC procedures, five duplicate samples (QC1, QC4, QC6, QC8 and QC9) and three triplicate samples (QC5, QC7 and QC10) were collected and dispatched with the primary samples. The duplicate samples were dispatched to the NATA-accredited Eurofins-MGT laboratory in Lane Cove West, NSW. The triplicate samples were dispatched to the NATA-accredited Envirolab laboratory in Chatswood, NSW. Additionally, one rinsate blank sample was collected and dispatched with the soil samples. Also, one trip blank sample was dispatched with the primary samples to the laboratory.

Samples were received by the laboratories within the recommended holding times except for some samples for pH analysis. Copies of the Chain of Custody documentation are included in Appendix D.

Table LR2 presents the relative percentage differences (RPDs) between the primary sample and the duplicate and triplicate samples analysed. Table LR3 presents the results of the laboratory analysis performed on the rinsate blanks, trip spike and trip blank. A review of the Coffey QA / QC results indicates that RPDs for a number of heavy metals exceeded the control limits of 50%. Concentrations of toluene and xylenes were recorded in both the rinsate and trip blank blank samples.

The RPD exceedences recorded are considered to be likely due to the heterogeneous nature of the fill material sampled. The concentrations of heavy metals in the duplicate and triplicate samples and associated primary samples were recorded below the adopted investigation levels. Therefore, Coffey considers the RPD results are unlikely to have had a significant impact on the laboratory results.

The concentrations of toluene and xylenes detected in the rinsate blank and trip blank samples are considered to be due to the quality of the water used in the blank and not a result of cross contamination. The concentrations of BTEX in the soil samples analysed were well below the adopted soil investigation levels and the detection of BTEX in the blank samples is unlikely to have had a significant impact on the laboratory results.

The laboratory internal QA/QC reports indicated that the appropriate laboratory QA / QC procedures and rates were undertaken for contamination studies, and that:

- Surrogate, matrix spike and laboratory control sample recoveries were within the acceptable range of 70 to 130%;
- Method blanks were free of contamination; and
- Some laboratory duplicate RPDs exceeded the acceptable ranges. Eurofins-MGT indicated that these exceedences passed their acceptance criteria as stipulated in their SOP-05.

Based on the assessment presented in Appendix B it is considered that the field and laboratory methods for soil are appropriate and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling. As the holding times for pH analysis were exceeded for some samples, the pH results recorded during this assessment should be assessed as representative only.

8 RESULTS OF INVESTIGATION

8.1 Subsurface Conditions

Test pit logs and explanation sheets are included in Appendix C. The subsurface conditions encountered are summarised below in Tables 5 and 6.

TABLE 5 – SUMMARY OF SUBSURFACE SOIL TYPES – FILL / MINING OVERBURDEN AREA

SOIL TYPE	DESCRIPTION	APPROXIMATE DEPTH RANGE (m bgs)
FILL / TOPSOIL	Silty Sand and Sand, fine to medium grained, brown to dark brown, some fine to coarse grained gravel	0.0-0.15
FILL (MINE OVERBURDEN)	Sandy Gravel, fine to coarse grained, brown/grey, some yellow mottling some boulders and cobbles, some coal chitter Sandy Clay, low to medium plasticity, red/brown, medium to coarse grained gravel	0.15-3.2
EXTREMELY WEATHERED SANDSTONE	Sandy gravel, fine to coarse grained, red brown, some sand	3.2->4.0

TABLE 6 – SUMMARY OF SUBSURFACE SOIL TYPES – SURROUNDING AREAS

SOIL TYPE	DESCRIPTION	APPROXIMATE DEPTH RANGE (m bgs)
TOPSOIL	Silty Sand and Sand, fine to medium grained, brown to dark brown, some fine to coarse grained gravel	0.0-0.15
EXTREMELY WEATHERED SANDSTONE	Gravel, fine to coarse grained, red, some sand	0.15->2.0

Groundwater inflow was recorded in TP1 at approximately 2.5m depth. This was inferred to be perched groundwater located within the mine overburden and not representative of the regional groundwater beneath the site.

8.2 Laboratory Results

Soil analytical results are summarised in Table LR1. The laboratory analytical reports are included in Appendix D.

The laboratory results were compared to the investigation levels described in Section 5. The analytical results indicated that:

- Concentrations of BTEX, OCP, PCB and PAH were recorded below the adopted assessment criteria;
- Concentrations of cadmium exceeded the provisional phytotoxicity-based investigation levels in samples SS10 and SS22;
- Concentrations of nickel exceeded the provisional phytotoxicity-based investigation levels in sample TP4 0.4-0.5;
- Concentrations of zinc exceeded the provisional phytotoxicity-based investigation levels in samples SS12 and SS13;
- Concentrations of TPH (C10-C36) exceeded the adopted assessment criteria in sample SS30. Concentrations of TPH were recorded below the adopted assessment criteria in the other samples analysed;
- Asbestos was not detected in the samples analysed; and
- pH levels ranged from 3.4 to 7.3.

Due to the concentrations of TPH recorded in sample SS30, the laboratory result was compared to the Health Screening Levels (HSL's) for direct contact presented in the CRC Care (2011) *Technical Report – Health Screening levels for Petroleum Hydrocarbons in Soil and Groundwater*. The TPH concentrations recorded in sample SS30 were below the HSL's for low-density residential land use and recreational / open space land use.

9 DISCUSSION

9.1 Fill / Mining Overburden Area

Concentrations of heavy metals (cadmium, nickel and zinc) were recorded above provisional phytotoxicity-based investigation levels in three surface soil samples and in one test pit at approximately 0.5m depth. Concentrations of contaminants were not recorded above the adopted assessment criteria in the other samples analysed from this investigation area.

Given that the results are only slightly above the criteria Coffey considers that no additional investigations are required in this area at this stage. The fill/overburden areas appear to be small in nature and Coffey considers that these can be suitably managed.

9.2 Building Footprints

Hydrocarbon-impacted soils were encountered in one surface soil sample, though below relevant health screening levels for residential land use. One surface soil sample recorded cadmium concentrations slightly exceeding provisional phytotoxicity-based investigation levels.

Based on the results of this investigation, Coffey considers that no additional investigations are required in these areas at this stage.

9.3 Car Body and Low-Lying Areas

The likelihood of significant soil contamination to be present in these areas is considered to be low. Coffey considers that further soil contamination investigations are not required in these areas at this stage. The car bodies and surficial waste should be disposed to landfill and access to the site restricted to discourage illegal dumping.

9.4 Management of Mine Overburden

Mine overburden material from the former open-cut mining operations was encountered in an area located near the central south portion of the site.

The low soil pH (<4.0) plus the evidence of yellow straw coloured mineralisation (jarosite) within the weathered mine overburden are potential indicators of the oxidation of pyrite. Water passing through the overburden wastes may have produced acid rock drainage (ARD) in the past and if not managed appropriately will continue to be a potential source for ARD in the future.

Remediation and management of waste emplacement or stockpiles affected by ARD, typically involves methods that:

- minimise sulphide oxidation through limiting the oxygen supply, water infiltration and leaching; and/or
- maximise the amount and availability of acid neutralising agents.

Depending on the final use of this portion of the site the most practical approach to management should probably involve minimising oxygen supply and infiltration through the use of an appropriately designed cover layer.

9.4.1 Offsite Disposal of Soils

Soils that are proposed to be disposed offsite during construction works will need to be assessed by a suitably qualified environmental consultant in accordance with the NSW DECCW (2009) *Waste Classification Guidelines*. Given the low pH of the mine overburden material, it may not meet the definition of VENM or ENM as defined in the NSW EPA (2009) *Waste Guidelines*.

Should the overburden material be disposed off site, it may require neutralisation with lime, similar to the requirements for acid sulfate soils. Clarification should be sought with the NSW EPA prior to excavation and classification of the material.

10 CONCLUSION AND RECOMMENDATIONS

Coffey was commissioned by Winton to undertake a Phase 2 CA at the proposed land rezoning site at Bellbird Heights, NSW. The objectives of the CA were to assess the soil contamination status across the filled areas and footprints of former buildings, assess the dumped household waste at the site for the presence of Asbestos Containing Materials (ACM), and assess the contamination status of surface water or sediment in the low-lying areas at the site.

The laboratory results indicated low concentrations of chemicals of concern and no asbestos in soil was identified. Minor exceedences of the phototoxicity criteria for arsenic, cadmium, nickel and zinc were also recorded. Low soil pH (<4.0) was recorded in areas of mine overburden. The exceedences are not considered to represent a risk to the environment given the soil types, though the low pH may inhibit some plant species.

The existing mine overburden material will require management depending on the final lot layout and end use. This would likely include the incorporation of a capping layer, subsurface drainage layer and storm water diversion drains.

Based on the results of the investigations, the site is considered suitable, from a contamination point of view, for the proposed residential development.

11 LIMITATIONS

The findings within this report are the result of discrete/specific sampling practices used in accordance with normal practices and standards. To the best of our knowledge they represent a reasonable interpretation of the general conditions of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

It is the nature of contaminated site investigations that the degree of variability in site conditions cannot be known completely and no sampling and analysis program can eliminate all uncertainty concerning the condition of the site. Professional judgement must be exercised in the collection and interpretation of the data.

The investigations undertaken were limited by the nature of this assessment, and are considered to provide an assessment of the likely contamination conditions at the locations sampled.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. This work has been conducted in good faith in accordance with Coffey Environments understanding of the client's brief and general accepted practice for environmental consulting.

This report was prepared for Winton Partners Bellbird Pty Ltd with the objectives of assessing the soil contamination status across the filled areas and footprints of former buildings, assessing the dumped household waste at the site for the presence of Asbestos Containing Materials (ACM), and assessing the contamination status of surface water or sediment in the low-lying areas at the site. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation.

This report does not cover hazardous building materials issues. Information within the report including test pit logs should not be used for geotechnical investigation purposes.

REFERENCES

- Central Mapping Authority (1979)** Cessnock 1:25,000 Topographic Map, Sheet 9132-II-N.
- Coffey Environments Australia (2013)** Supplementary Contamination Assessment, Bellbird Heights, NSW, Reference ENAUWARA04363AA-L01 dated 15 March 2013.
- Coffey Environments Australia (2013)** Fee Proposal for Phase 2 Environmental Site Assessment, Bellbird Heights, NSW, Reference ENAUWARA04363AA-P02 dated 2 April 2013.
- Coffey Geosciences (2001)** Rezoning for Civic Centre and Retirement Village – Off Vincent St Cessnock, Environmental Assessment, Reference N7719/2-AC dated 14 June 2001.
- Coffey Geosciences (2005)** Rezoning for Residential Development – Bellbird Heights, off Vincent St Cessnock, Environmental Assessment, Reference N09693/01-AB dated 9 November 2005.
- CRC Care (2011)** Technical Report – Health Screening levels for Petroleum Hydrocarbons in Soil and Groundwater.
- Department of Mineral Resources (1995)** Newcastle 1:100,000 Coalfield Geological Map, Series 9231, Edition 1.
- National Environmental Protection Council (1999)** National Environmental Protection (Assessment of Site Contamination) Measure 1999, Schedule B (1) – Guideline on the Investigation Levels for Soil and Groundwater.
- NSW DEC (2006)** Guidelines for the NSW Site Auditor Scheme. ISBN 0-7313 0177 3.
- NSW DECCW (2009)** Waste Classification Guidelines: Part 1 – Classifying Waste.
- NSW EPA (1995)** Sampling Design Guidelines. ISBN 0-7310-3756-1.
- NSW OEH (2011)** Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites, OEH 2011/0650, ISBN 0 7310 3892 4, Office of Environment and Heritage, Sydney.
- NSW EPA (1994)** Guidelines for Assessing Service Station Sites. ISBN 0-7310-3712-X.

Important information about Coffey Environmental Report

Uncertainties as to what lies below the ground on potentially contaminated sites can lead to remediation costs blow outs, reduction in the value of the land and to delays in the redevelopment of land. These uncertainties are an inherent part of dealing with land contamination. The following notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report has been written for a specific purpose

Your report has been developed on the basis of a specific purpose as understood by Coffey and applies only to the site or area investigated. For example, the purpose of your report may be:

- To assess the environmental effects of an on-going operation.
- To provide due diligence on behalf of a property vendor.
- To provide due diligence on behalf of a property purchaser.
- To provide information related to redevelopment of the site due to a proposed change in use, for example, industrial use to a residential use.
- To assess the existing baseline environmental, and sometimes geological and hydrological conditions or constraints of a site prior to an activity which may alter the sites environmental, geological or hydrological condition.

For each purpose, a specific approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible, quantify risks that both recognised and unrecognised contamination pose to the proposed activity. Such risks may be both financial (for example, clean up costs or limitations to the site use) and physical (for example, potential health risks to users of the site or the general public).

Scope of Investigations

The work was conducted, and the report has been prepared, in response to specific instructions from the client to whom this report is addressed, within practical time and budgetary constraints, and in reliance on certain data and information made available to Coffey. The analyses, evaluations, opinions and conclusions presented in this report are based on those instructions, requirements, data or information, and they could change if such instructions etc. are in fact inaccurate or incomplete.

Subsurface conditions can change Interpretation of factual data

Subsurface conditions are created by natural processes and the activity of man and may change with time. For example, groundwater levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project and/or on the property.

Interpretation of factual data

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from indirect field measurements and sometimes other reports on the site are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of Coffey through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered with redevelopment or on-going use of the site. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. In particular, a due diligence report for a property vendor may not be suitable for satisfying the needs of a purchaser. Your report should not be applied for any purpose other than that originally specified at the time the report was issued.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other professionals who are affected by the report. Have Coffey explain the report implications to professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs

(assembled by field personnel), field testing and laboratory evaluation of field samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Contact Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to land development and land use. It is common that not all approaches will be necessarily dealt with in your environmental site assessment report due to concepts proposed at that time. As a project progresses through planning and design toward construction and/or maintenance, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

Environmental reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

Tables

Table LR1
Soil Analytical Results
Bellbird Gateway Determination

Field ID	DS1	DS2	SS1	SS2	SS3	SS4	SS5	SS6	SS7	SS8	SS9	SS10	SS11	SS12	SS13	SS14	SS15	SS16	SS17								
Sampled Date-Time	15/04/2013	15/04/2013	16/04/2013	16/04/2013	16/04/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013								
Method_Type	ChemName	Units	EQL	Residential with access	Service Station Guidelines	Open space and recreational	Phytotoxicity based investigation levels																				
Heavy Metal	Arsenic	mg/kg	2	100		200	20	5.3	4.2	7.7	3.9	3.1	<2	4.2	4.3	3.8	2.4	4.8	2.3	<2	6.7	7.7	3.4	2.8	2.4	3.9	
	Cadmium	mg/kg	0.4	20		40	3	<0.4	0.7	<0.4	<0.4	0.8	<0.4	<0.4	<0.4	<0.4	1	5.9	<0.4	0.5	1.8	0.5	<0.4	<0.4	<0.4	<0.4	
	Chromium	mg/kg	5					15	18	16	13	18	11	9.3	14	24	15	18	19	16	16	47	13	24	22	11	
	Copper	mg/kg	5	1000		2000	100	6.3	16	18	23	16	12	7.3	17	<5	<5	19	34	12	64	13	24	<5	12	6.5	
	Lead	mg/kg	5	300		600	300	16	50	24	14	25	16	22	<5	7	13	57	58	35	170	180	57	6	17	13	
	Mercury	mg/kg	0.05	15		30	1	<0.05	<0.05	0.06	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	0.18	<0.05	<0.05	<0.05	<0.05
	Nickel	mg/kg	5	600		600	60	7.8	18	22	18	21	11	33	19	13	5.1	19	14	6.2	9.9	13	11	11	19	9.1	
	Zinc	mg/kg	5	7000		14000	200	27	140	35	25	54	18	60	27	21	7.3	160	150	95	580	960	120	24	32	35	
	Asbestos	Asbestos Fibres							-	-	Nondetect	Nondetect	Nondetect	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganic	Moisture Content (dried @ 103°C)	%	0.1					34	35	32	17	19	11	3.3	5	9.7	9.5	7.6	13	7.8	19	14	17	17	6.1	19	
	pH (aqueous extract)	pH_Units	0.1					-	-	-	-	-	4.4	3.7	3.6	5.2	5	5.7	6.9	5.8	6.1	6.6	6.5	6.2	6.2	6	
PCB	Aroclor 1016	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1232	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1242	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1248	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1254	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1260	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	PCBs (Sum of total)	mg/kg	0.5	10		20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Volatile	Benzene	mg/kg	0.1		1			<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Toluene	mg/kg	0.1		1.4			<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Ethylbenzene	mg/kg	0.1		3.1			<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Xylene Total	mg/kg	0.3		14			<0.3	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OCP	4,4-DDE	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	a-BHC	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aldrin	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	b-BHC	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	cis-Chlordane	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	d-BHC	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DDD	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DDT	mg/kg	0.2					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Dieldrin	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Endrin	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Endrin ketone	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	g-BHC (Lindane)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.05	10		20			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heptachlor epoxide	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methoxychlor	mg/kg	0.2						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
trans-chlordane	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Organic	F2-NAPHTHALENE	mg/kg	50					<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C6 - C9	mg/kg	20	65				<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Naphthalene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C6-C10 less BTEX (F1)	mg/kg	20					<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C10 - C16	mg/kg	50					<50	<50	55	<50	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C16 - C34	mg/kg	100					<100	140	280	210	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C34 - C40	mg/kg	100					<100	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	C6 - C10	mg/kg	20					<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
PAH	Acenaphthene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Acenaphthylene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Benzo(a)anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Benzo(a)pyrene	mg/kg	0.5	1		2	1	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Benzo(b)&(k)fluoranthene	mg/kg	1					<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Benzo(g,h,i)perylene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Chrysene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Dibenz(a,h)anthracene	mg/kg	0.5					<0.																			

Table LR1
Soil Analytical Results
Bellbird Gateway Determination

Field ID	TP3 0.9-1.0	TP4 0.0-0.1	TP4 0.4-0.5	TP4 1.4-1.5	TP5 0.0-0.1	TP6 0.0-0.1	TP6 0.4-0.5	TP7 0.0-0.1	TP7 0.4-0.5	TP8 0.0-0.1	TP9 0.0-0.1	TP9 0.5-0.6	TP10 0.0-0.1	TP11 0.0-0.1	TP12 0.0-0.1								
Sampled Date-Time	16/04/2013	16/04/2013	16/04/2013	16/04/2013	16/04/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013	1/05/2013								
Method_Type	ChemName	Units	EQL	Residential with access	Service Station Guidelines	Open space and recreational	Phytotoxicity based investigation levels																
Heavy Metal	Arsenic	mg/kg	2	100		200	20	4.8	5.4	<2	3.8	4.9	3.9	6.8	4.9	5.1	<2	4.1	3	3.1	5.4	<2	
	Cadmium	mg/kg	0.4	20		40	3	<0.4	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.6	1.3	
	Chromium	mg/kg	5					23	9.1	31	56	18	9.6	38	23	11	7.1	22	21	22	25	7.9	
	Copper	mg/kg	5	1000		2000	100	<5	12	56	<5	18	8.1	5.5	<5	15	8.7	20	<5	8.3	18	18	
	Lead	mg/kg	5	300		600	300	5.7	6.8	6.7	6.5	15	19	12	7.2	7.7	10	11	5.4	13	77	35	
	Mercury	mg/kg	0.05	15		30	1	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.05	<0.05	<0.05	<0.05	<0.05
	Nickel	mg/kg	5	600		600	60	7.6	7.9	62	28	27	10	12	23	7.2	<5	12	42	16	12	7.4	
	Zinc	mg/kg	5	7000		14000	200	7.3	15	39	21	35	16	23	21	18	18	25	24	39	160	98	
	Asbestos	Asbestos Fibres							-	Nondetect	-	-	Nondetect	-	-	-	-	-	-	-	-	-	-
Inorganic	Moisture Content (dried @ 103°C)	%	0.1					13	15	16	16	13	12	15	13	14	8.4	11	14	18	18	15	
	pH (aqueous extract)	pH_Units	0.1					3.4	3.5	3.5	4	3.6	4.1	3.7	4	3.8	3.5	3.7	3.8	4.9	7.3	6.6	
PCB	Aroclor 1016	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1232	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1242	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1248	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1254	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Aroclor 1260	mg/kg	0.5					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	PCBs (Sum of total)	mg/kg	0.5	10		20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Volatile	Benzene	mg/kg	0.1		1			<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	
	Toluene	mg/kg	0.1		1.4			<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	
	Ethylbenzene	mg/kg	0.1		3.1			<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	
	Xylene (m & p)	mg/kg	0.2					<0.2	<0.2	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-	-	
	Xylene (o)	mg/kg	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	
	Xylene Total	mg/kg	0.3		14			<0.3	<0.3	<0.3	<0.3	<0.3	-	-	-	-	-	-	-	-	-	-	
	OCP	4,4-DDE	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	
a-BHC	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Aldrin	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
b-BHC	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
cis-Chlordane	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
d-BHC	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
DDD	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
DDT	mg/kg	0.2					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dieldrin	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Endosulfan I	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Endosulfan II	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Endosulfan sulphate	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Endrin	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Endrin aldehyde	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Endrin ketone	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
g-BHC (Lindane)	mg/kg	0.05					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Heptachlor	mg/kg	0.05		10		20		-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Heptachlor epoxide	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Hexachlorobenzene	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Methoxychlor	mg/kg	0.2						-	-	-	-	-	-	-	-	-	-	-	-	-	-		
trans-chlordane	mg/kg	0.05						-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Organic	F2-NAPHTHALENE	mg/kg	50					<50	<50	<50	<50	<50	-	-	-	-	-	-	-	-	-	-	
	C6 - C9	mg/kg	20		65			<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-	-		
	Naphthalene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	C6-C10 less BTEX (F1)	mg/kg	20					<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-	-		
	C10 - C16	mg/kg	50					<50	54	<50	<50	<50	-	-	-	-	-	-	-	-	-		
	C16 - C34	mg/kg	100					<100	390	<100	<100	<100	-	-	-	-	-	-	-	-	-		
	C34 - C40	mg/kg	100					<100	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-		
C6 - C10	mg/kg	20					<20	<20	<20	<20	<20	-	-	-	-	-	-	-	-	-			
PAH	Acenaphthene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Acenaphthylene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Benzo(a)anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Benzo(a)pyrene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Benzo(b)&(k)fluoranthene	mg/kg	1		1			<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	-		
	Benzo(g,h,i)perylene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Chrysene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Dibenz(a,h)anthracene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Fluoranthene	mg/kg	0.5					<0.5	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-			
	Fluorene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-		
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-			
	Phenanthrene	mg/kg	0.5					<0.5	1.2	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-			
	Pyrene	mg/kg	0.5					<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-			
	Total PAHs	mg/kg	1		20		40	20	<1	1.8	<1	<1	<1	-	-	-	-	-	-	-	-		
Naphthalene	mg/kg	0.5						<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-			
TPH	C10 - C14	mg/kg	20					<20	38	<20	<20	<20	-	-	-	-	-	-	-	-	-		
	C15 - C28	mg/kg	50					<50	260	<50	<50	57	-	-	-	-	-	-	-	-			
	C29 - C36	mg/kg	50					<50	160	<50	<50	54	-	-	-	-	-						

Table LR1
Soil Analytical Results
Bellbird Gateway Determination

Field ID	TP13 0.0-0.1	TP14 0.0-0.1	TP15 0.0-0.1	ASF1
Sampled Date-Time	1/05/2013	1/05/2013	1/05/2013	2/05/2013

Method_Type	ChemName	Units	EQL	Residential with access	Service Station Guidelines	Open space and recreational	Phytotoxicity based investigation levels	TP13 0.0-0.1	TP14 0.0-0.1	TP15 0.0-0.1	ASF1
Heavy Metal	Arsenic	mg/kg	2	100		200	20	2.7	<2	2.4	-
	Cadmium	mg/kg	0.4	20		40	3	<0.4	<0.4	<0.4	-
	Chromium	mg/kg	5					15	13	16	-
	Copper	mg/kg	5	1000		2000	100	5	<5	<5	-
	Lead	mg/kg	5	300		600	300	15	7.6	9.1	-
	Mercury	mg/kg	0.05	15		30	1	<0.05	<0.05	<0.05	-
	Nickel	mg/kg	5	600		600	60	6.1	<5	10	-
	Zinc	mg/kg	5	7000		14000	200	60	7.6	14	-
Asbestos	Asbestos Fibres							-	-	-	Nondetect
Inorganic	Moisture Content (dried @ 103°C)	%	0.1					9.1	10	12	-
	pH (aqueous extract)	pH Units	0.1					5.7	5.5	5.9	-
PCB	Aroclor 1016	mg/kg	0.5					-	-	-	-
	Aroclor 1232	mg/kg	0.5					-	-	-	-
	Aroclor 1242	mg/kg	0.5					-	-	-	-
	Aroclor 1248	mg/kg	0.5					-	-	-	-
	Aroclor 1254	mg/kg	0.5					-	-	-	-
	Aroclor 1260	mg/kg	0.5					-	-	-	-
	PCBs (Sum of total)	mg/kg	0.5	10		20		-	-	-	-
Volatile	Benzene	mg/kg	0.1		1			-	-	-	-
	Toluene	mg/kg	0.1		1.4			-	-	-	-
	Ethylbenzene	mg/kg	0.1		3.1			-	-	-	-
	Xylene (m & p)	mg/kg	0.2					-	-	-	-
	Xylene (o)	mg/kg	0.1					-	-	-	-
	Xylene Total	mg/kg	0.3		14			-	-	-	-
OCP	4,4-DDE	mg/kg	0.05					-	-	-	-
	a-BHC	mg/kg	0.05					-	-	-	-
	Aldrin	mg/kg	0.05					-	-	-	-
	b-BHC	mg/kg	0.05					-	-	-	-
	cis-Chlordane	mg/kg	0.05					-	-	-	-
	d-BHC	mg/kg	0.05					-	-	-	-
	DDD	mg/kg	0.05					-	-	-	-
	DDT	mg/kg	0.2					-	-	-	-
	Dieldrin	mg/kg	0.05					-	-	-	-
	Endosulfan I	mg/kg	0.05					-	-	-	-
	Endosulfan II	mg/kg	0.05					-	-	-	-
	Endosulfan sulphate	mg/kg	0.05					-	-	-	-
	Endrin	mg/kg	0.05					-	-	-	-
	Endrin aldehyde	mg/kg	0.05					-	-	-	-
	Endrin ketone	mg/kg	0.05					-	-	-	-
	g-BHC (Lindane)	mg/kg	0.05					-	-	-	-
	Heptachlor	mg/kg	0.05	10		20		-	-	-	-
	Heptachlor epoxide	mg/kg	0.05					-	-	-	-
	Hexachlorobenzene	mg/kg	0.05					-	-	-	-
	Methoxychlor	mg/kg	0.2					-	-	-	-
trans-chlordane	mg/kg	0.05					-	-	-	-	
Organic	F2-NAPHTHALENE	mg/kg	50					-	-	-	-
	C6 - C9	mg/kg	20		65			-	-	-	-
	Naphthalene	mg/kg	0.5					-	-	-	-
	C6-C10 less BTEX (F1)	mg/kg	20					-	-	-	-
	C10 - C16	mg/kg	50					-	-	-	-
	C16 - C34	mg/kg	100					-	-	-	-
	C34 - C40	mg/kg	100					-	-	-	-
	C6 - C10	mg/kg	20					-	-	-	-
PAH	Acenaphthene	mg/kg	0.5					-	-	-	-
	Acenaphthylene	mg/kg	0.5					-	-	-	-
	Anthracene	mg/kg	0.5					-	-	-	-
	Benzo(a)anthracene	mg/kg	0.5					-	-	-	-
	Benzo(a)pyrene	mg/kg	0.5				1	-	-	-	-
	Benzo(b)&(k)fluoranthene	mg/kg	1			2		-	-	-	-
	Benzo(g,h,i)perylene	mg/kg	0.5					-	-	-	-
	Chrysene	mg/kg	0.5					-	-	-	-
	Dibenz(a,h)anthracene	mg/kg	0.5					-	-	-	-
	Fluoranthene	mg/kg	0.5					-	-	-	-
	Fluorene	mg/kg	0.5					-	-	-	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					-	-	-	-
	Phenanthrene	mg/kg	0.5					-	-	-	-
	Pyrene	mg/kg	0.5					-	-	-	-
	Total PAHs	mg/kg	1	20		40	20	-	-	-	-
	Naphthalene	mg/kg	0.5					-	-	-	-
TPH	C10 - C14	mg/kg	20					-	-	-	-
	C15 - C28	mg/kg	50					-	-	-	-
	C29 - C36	mg/kg	50					-	-	-	-
	C10 - C36 (Sum of total)	mg/kg	50		1000			-	-	-	-

■ Exceeds NEPM open space and recreational guidelines
■ Exceeds NEPM residential with access to gardens guidelines or NSW EPA service station guidelines
■ Exceeds phytotoxicity based investigation levels

Table LR2
 Duplicates and Triplicates
 Bellbird Gateway Determination

SDG	103127-103128	103127-103128		103130-103133	103130-103133		103130-103133	Interlab_D	
Field_ID	TP4_0.4-0.5	QC1	RPD	SS4	QC4	RPD	SS4	QC5	RPD
Sampled_Date-Time	16/04/2013	16/04/2013		1/05/2013	1/05/2013		1/05/2013	1/05/2013	

Method_Type	ChemName	Units	EQL									
Heavy Metal	Arsenic	mg/kg	2	<2.0	2.5	22	<2.0	5.5	93	<2.0	4.0	67
	Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.4	0
	Chromium	mg/kg	5	31.0	26.0	18	11.0	30.0	93	11.0	25.0	78
	Copper	mg/kg	5	56.0	44.0	24	12.0	19.0	45	12.0	22.0	59
	Lead	mg/kg	5	6.7	10.0	40	16.0	27.0	51	16.0	28.0	55
	Mercury	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0
	Nickel	mg/kg	5	62.0	44.0	34	11.0	23.0	71	11.0	23.0	71
	Zinc	mg/kg	5	39.0	66.0	51	18.0	34.0	62	18.0	31.0	53
Organic	F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	0						
	C6 - C9	mg/kg	20	<20.0	<20.0	0						
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0						
	C6-C10 less BTEX (F1)	mg/kg	20	<20.0	<20.0	0						
	C10 - C16	mg/kg	50	<50.0	<50.0	0						
	C16 - C34	mg/kg	100	<100.0	<100.0	0						
	C34 - C40	mg/kg	100	<100.0	<100.0	0						
	C6 - C10	mg/kg	20	<20.0	<20.0	0						
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0						
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0						
	Anthracene	mg/kg	0.5	<0.5	<0.5	0						
	Benzo(a)anthracene	mg/kg	0.5	<0.5	<0.5	0						
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0						
	Benzo(b)&(k)fluoranthene	mg/kg	1	<1.0	<1.0	0						
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0						
	Chrysene	mg/kg	0.5	<0.5	<0.5	0						
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0						
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0						
	Fluorene	mg/kg	0.5	<0.5	<0.5	0						
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0						
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0						
	Pyrene	mg/kg	0.5	<0.5	<0.5	0						
Total PAHs	mg/kg	1	<1.0	<1.0	0							
Naphthalene	mg/kg	0.5	<0.5	<0.5	0							
TPH	C10 - C14	mg/kg	20	<20.0	<20.0	0						
	C15 - C28	mg/kg	50	<50.0	<50.0	0						
	C29 - C36	mg/kg	50	<50.0	<50.0	0						
	C10 - C36 (Sum of total)	mg/kg	50	<50.0	<50.0	0						
Volatile	Benzene	mg/kg	0.1	<0.1	<0.1	0						
	Toluene	mg/kg	0.1	<0.1	<0.1	0						
	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	0						
	Xylene (m & p)	mg/kg	0.2	<0.2	<0.2	0						
	Xylene (o)	mg/kg	0.1	<0.1	<0.1	0						
	Xylene Total	mg/kg	0.3	<0.3	<0.3	0						

*RPDs have only been considered where a concentration is greater than 5 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 40 (5-20 x EQL); 20 (20-30 x EQL); 50 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table LR2
 Duplicates and Triplicates
 Bellbird Gateway Determination

SDG Field_ID Sampled_Date-Time	103130-103133 TP11_0.0-0.1 1/05/2013	103130-103133 QC6 1/05/2013	RPD	103130-103133 TP11_0.0-0.1 1/05/2013	Interlab_D QC7 1/05/2013	RPD	103130-103133 SS9 1/05/2013	103130-103133 QC8 1/05/2013	RPD
--------------------------------------	--	-----------------------------------	-----	--	--------------------------------	-----	-----------------------------------	-----------------------------------	-----

Method_Type	ChemName	Units	EQL									
Heavy Metal	Arsenic	mg/kg	2	5.4	6.9	24	5.4	<4.0	30	4.8	2.5	63
	Cadmium	mg/kg	0.4	0.6	1.5	86	0.6	0.5	18	1.0	1.4	33
	Chromium	mg/kg	5	25.0	37.0	39	25.0	39.0	44	18.0	27.0	40
	Copper	mg/kg	5	18.0	32.0	56	18.0	17.0	6	19.0	21.0	10
	Lead	mg/kg	5	77.0	93.0	19	77.0	47.0	48	57.0	86.0	41
	Mercury	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0
	Nickel	mg/kg	5	12.0	18.0	40	12.0	13.0	8	19.0	20.0	5
	Zinc	mg/kg	5	160.0	800.0	133	160.0	260.0	48	160.0	230.0	36
Organic	F2-NAPHTHALENE	mg/kg	50									
	C6 - C9	mg/kg	20									
	Naphthalene	mg/kg	0.5									
	C6-C10 less BTEX (F1)	mg/kg	20									
	C10 - C16	mg/kg	50									
	C16 - C34	mg/kg	100									
	C34 - C40	mg/kg	100									
	C6 - C10	mg/kg	20									
PAH	Acenaphthene	mg/kg	0.5									
	Acenaphthylene	mg/kg	0.5									
	Anthracene	mg/kg	0.5									
	Benzo(a)anthracene	mg/kg	0.5									
	Benzo(a)pyrene	mg/kg	0.5									
	Benzo(b)&(k)fluoranthene	mg/kg	1									
	Benzo(g,h,i)perylene	mg/kg	0.5									
	Chrysene	mg/kg	0.5									
	Dibenz(a,h)anthracene	mg/kg	0.5									
	Fluoranthene	mg/kg	0.5									
	Fluorene	mg/kg	0.5									
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5									
	Phenanthrene	mg/kg	0.5									
	Pyrene	mg/kg	0.5									
	Total PAHs	mg/kg	1									
Naphthalene	mg/kg	0.5										
TPH	C10 - C14	mg/kg	20									
	C15 - C28	mg/kg	50									
	C29 - C36	mg/kg	50									
	C10 - C36 (Sum of total)	mg/kg	50									
Volatile	Benzene	mg/kg	0.1									
	Toluene	mg/kg	0.1									
	Ethylbenzene	mg/kg	0.1									
	Xylene (m & p)	mg/kg	0.2									
	Xylene (o)	mg/kg	0.1									
	Xylene Total	mg/kg	0.3									

*RPDs have only been considered where a concentration is greater than 5 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 40 (5-20 x EQL); 20 (20-30 x EQL); 50 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table LR2
 Duplicates and Triplicates
 Bellbird Gateway Determination

SDG	103130-103133	103130-103133	RPD	103130-103133	Interlab_D	RPD
Field_ID	TP14_0.0-0.1	QC9		TP14_0.0-0.1	QC10	
Sampled_Date-Time	1/05/2013	1/05/2013		1/05/2013	1/05/2013	

Method_Type	ChemName	Units	EQL						
Heavy Metal	Arsenic	mg/kg	2	<2.0	<2.0	0	<2.0	<4.0	0
	Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0
	Chromium	mg/kg	5	13.0	11.0	17	13.0	18.0	32
	Copper	mg/kg	5	<5.0	<5.0	0	<5.0	<1.0	0
	Lead	mg/kg	5	7.6	5.6	30	7.6	6.0	24
	Mercury	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.1	0
	Nickel	mg/kg	5	<5.0	6.9	32	<5.0	6.0	18
	Zinc	mg/kg	5	7.6	11.0	37	7.6	5.0	41
Organic	F2-NAPHTHALENE	mg/kg	50						
	C6 - C9	mg/kg	20						
	Naphthalene	mg/kg	0.5						
	C6-C10 less BTEX (F1)	mg/kg	20						
	C10 - C16	mg/kg	50						
	C16 - C34	mg/kg	100						
	C34 - C40	mg/kg	100						
	C6 - C10	mg/kg	20						
PAH	Acenaphthene	mg/kg	0.5						
	Acenaphthylene	mg/kg	0.5						
	Anthracene	mg/kg	0.5						
	Benzo(a)anthracene	mg/kg	0.5						
	Benzo(a)pyrene	mg/kg	0.5						
	Benzo(b)&(k)fluoranthene	mg/kg	1						
	Benzo(g,h,i)perylene	mg/kg	0.5						
	Chrysene	mg/kg	0.5						
	Dibenz(a,h)anthracene	mg/kg	0.5						
	Fluoranthene	mg/kg	0.5						
	Fluorene	mg/kg	0.5						
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5						
	Phenanthrene	mg/kg	0.5						
	Pyrene	mg/kg	0.5						
	Total PAHs	mg/kg	1						
Naphthalene	mg/kg	0.5							
TPH	C10 - C14	mg/kg	20						
	C15 - C28	mg/kg	50						
	C29 - C36	mg/kg	50						
	C10 - C36 (Sum of total)	mg/kg	50						
Volatile	Benzene	mg/kg	0.1						
	Toluene	mg/kg	0.1						
	Ethylbenzene	mg/kg	0.1						
	Xylene (m & p)	mg/kg	0.2						
	Xylene (o)	mg/kg	0.1						
	Xylene Total	mg/kg	0.3						

*RPDs have only been considered where a concentration is greater than 5 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 40 (5-20 x EQL); 20 (20-30 x EQL); 50 (> 30 x EQL))

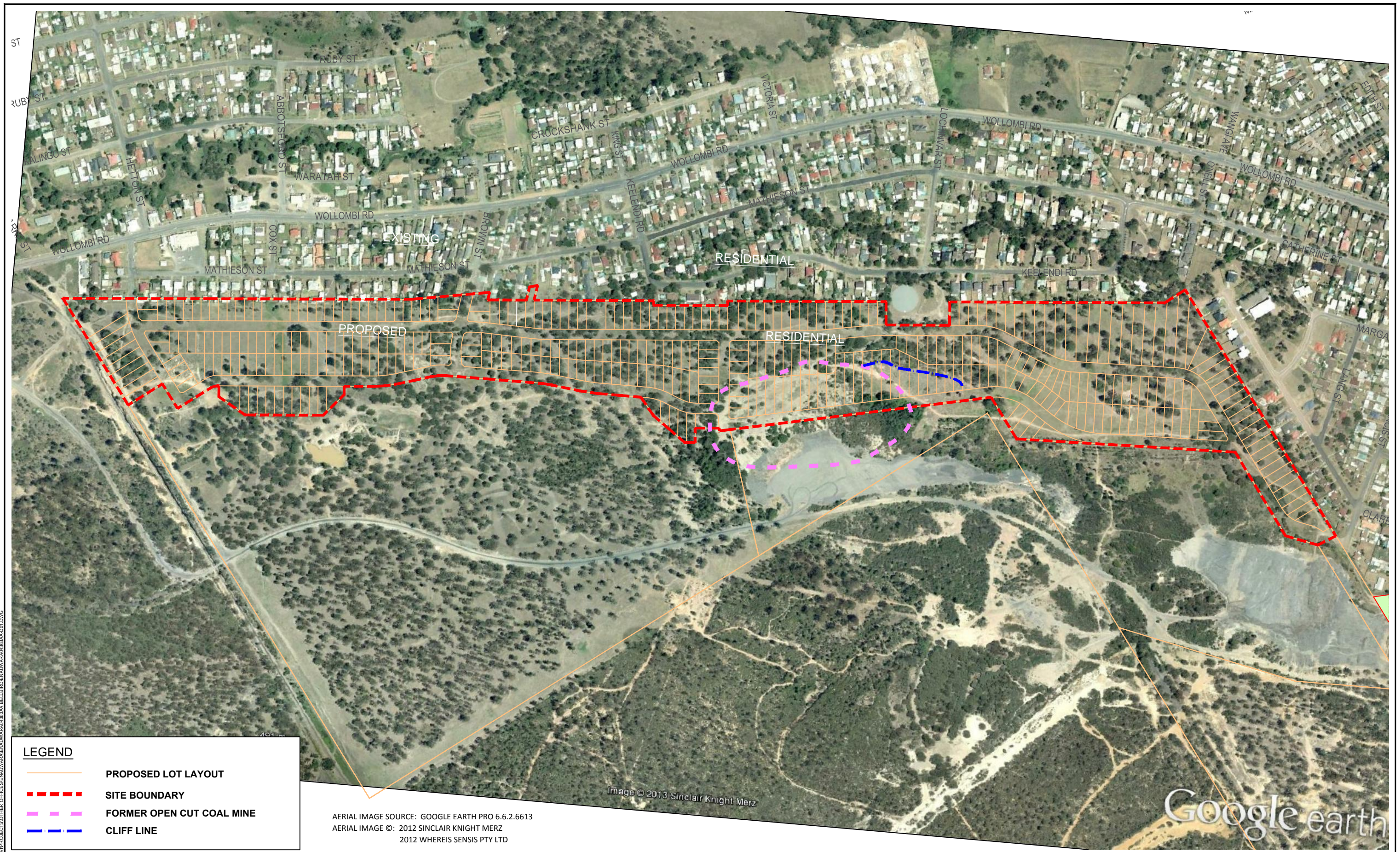
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Table LR3
Rinsates and Trip Blanks
Bellbird Gateway Determination

SDG	103130-103133	103130-103133
Field_ID	QC3	QC2
Sampled_Date-Time	1/05/2013	1/05/2013
Sample_Type	Rinsate	Trip_B

Method_Type	ChemName	Units	EQL		
Heavy Metal	Arsenic (Filtered)	mg/l	0.001	<0.001	
	Cadmium (Filtered)	mg/l	0.0001	<0.0001	
	Chromium (Filtered)	mg/l	0.001	<0.001	
	Copper (Filtered)	mg/l	0.001	<0.001	
	Lead (Filtered)	mg/l	0.001	<0.001	
	Mercury (Filtered)	mg/l	0.0001	<0.0001	
	Nickel (Filtered)	mg/l	0.001	<0.001	
	Zinc (Filtered)	mg/l	0.005	<0.005	
Organic	F2-NAPHTHALENE	mg/l	0.05	<0.05	
	C6 - C9	µg/l	20	<20	<20
	Naphthalene	µg/l	20	<20	
	C6-C10 less BTEX (F1)	mg/l	0.02	<0.02	
	C10 - C16	mg/l	0.05	<0.05	
	C16 - C34	mg/l	0.1	<0.1	
	C34 - C40	mg/l	0.1	<0.1	
	C6 - C10	mg/l	0.02	<0.02	
TPH	C10 - C14	µg/l	50	<50	
	C15 - C28	µg/l	100	<100	
	C29 - C36	µg/l	100	<100	
	C10 - C36 (Sum of total)	µg/l	100	<100	
VOC	Benzene	µg/l	1		
	Toluene	µg/l	1		
	Ethylbenzene	µg/l	1		
	Xylene (m & p)	µg/l	2		
	Xylene (o)	µg/l	1		
	Xylene Total	µg/l	3		
Volatile	Benzene	µg/l	1	<1	<1
	Toluene	µg/l	1	2	2
	Ethylbenzene	µg/l	1	<1	<1
	Xylene (m & p)	µg/l	2	4	2
	Xylene (o)	µg/l	1	<1	<1
	Xylene Total	µg/l	3	4	<3
	Naphthalene	µg/l	20		

Figures

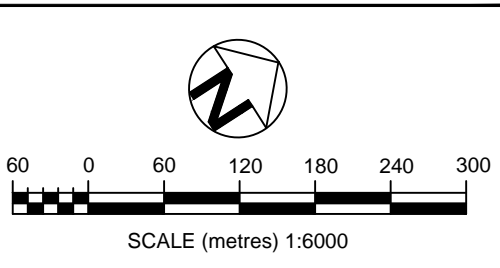


LEGEND

- PROPOSED LOT LAYOUT
- - - SITE BOUNDARY
- - - FORMER OPEN CUT COAL MINE
- - - CLIFF LINE

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 6.6.2.6613
 AERIAL IMAGE ©: 2012 SINCLAIR KNIGHT MERZ
 2012 WHEREIS SENSIS PTY LTD

revision	description	drawn	approved	date

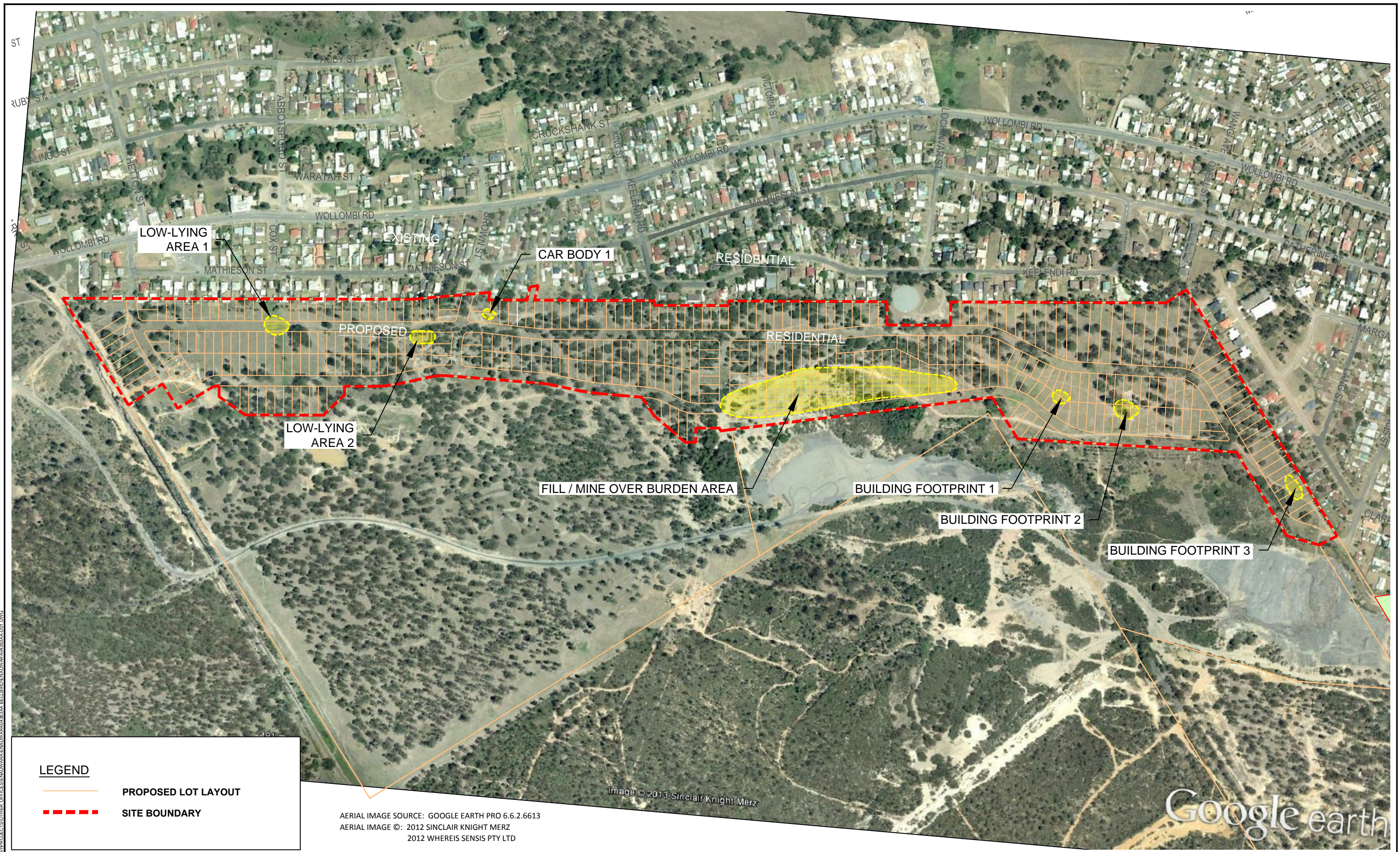


drawn	MV
approved	LF
date	07/06/13
scale	AS SHOWN
original size	A3



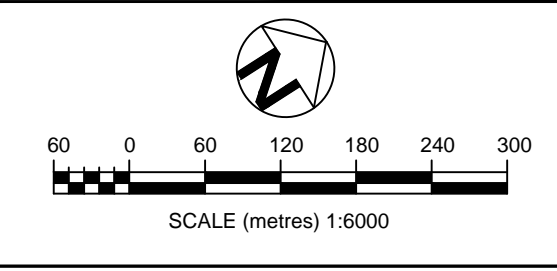
client:	WINTON PARTNERS BELLBIRD PTY LTD	
project:	PHASE 2 CONTTAMINATION ASSESSMENT, BELLBIRD HEIGHTS, NSW	
title:	SITE LOCATION PLAN	
project no:	ENAUWARA04363AA-D01	figure no: FIGURE 2

PLOT DATE: 12/08/2013 12:46:07 PM DWS FILE: F:\ENVI\PROJECTS\OTHER OFFICES\ENVI\WARARA\ENVI\WARARA\BELLBIRD\ENVI\WARARA\BELLBIRD\ENVI\WARARA\BELLBIRD.DWG



PLOT DATE: 12/08/2013 12:46:08 PM DWG FILE: F:\ENVIRO\PROJECTS\OTHER OFFICES\ENVIRO\WARRAWARRA\WARRAWARRA_BELLBIRD\ENVIRO\WARRAWARRA_D01.DWG

revision	description	drawn	approved	date



drawn	MV
approved	LF
date	07/06/13
scale	AS SHOWN
original size	A3



client:	WINTON PARTNERS BELLBIRD PTY LTD	
project:	PHASE 2 CONTAMINATION ASSESSMENT, BELLBIRD HEIGHTS, NSW	
title:	INVESTIGATION AREAS	
project no:	ENAUWARA04363AA-D01	figure no: FIGURE 2



LEGEND

- - - SITE BOUNDARY
- - - EXTENT OF BUILDING FOOTPRINT
- SURFACE SAMPLE LOCATION (Coffey, 2013)



PLOT DATE: 12/08/2013 12:46:12 PM DWG FILE: F:\ENVI\PROJ\EGS\OTHER OFFICES\ENMU\WARARA\ENMU\WARARA\SS3AA BELBIRD\ENMU\WARARA\SS3AA.DWG

revision	description	drawn	approved	date

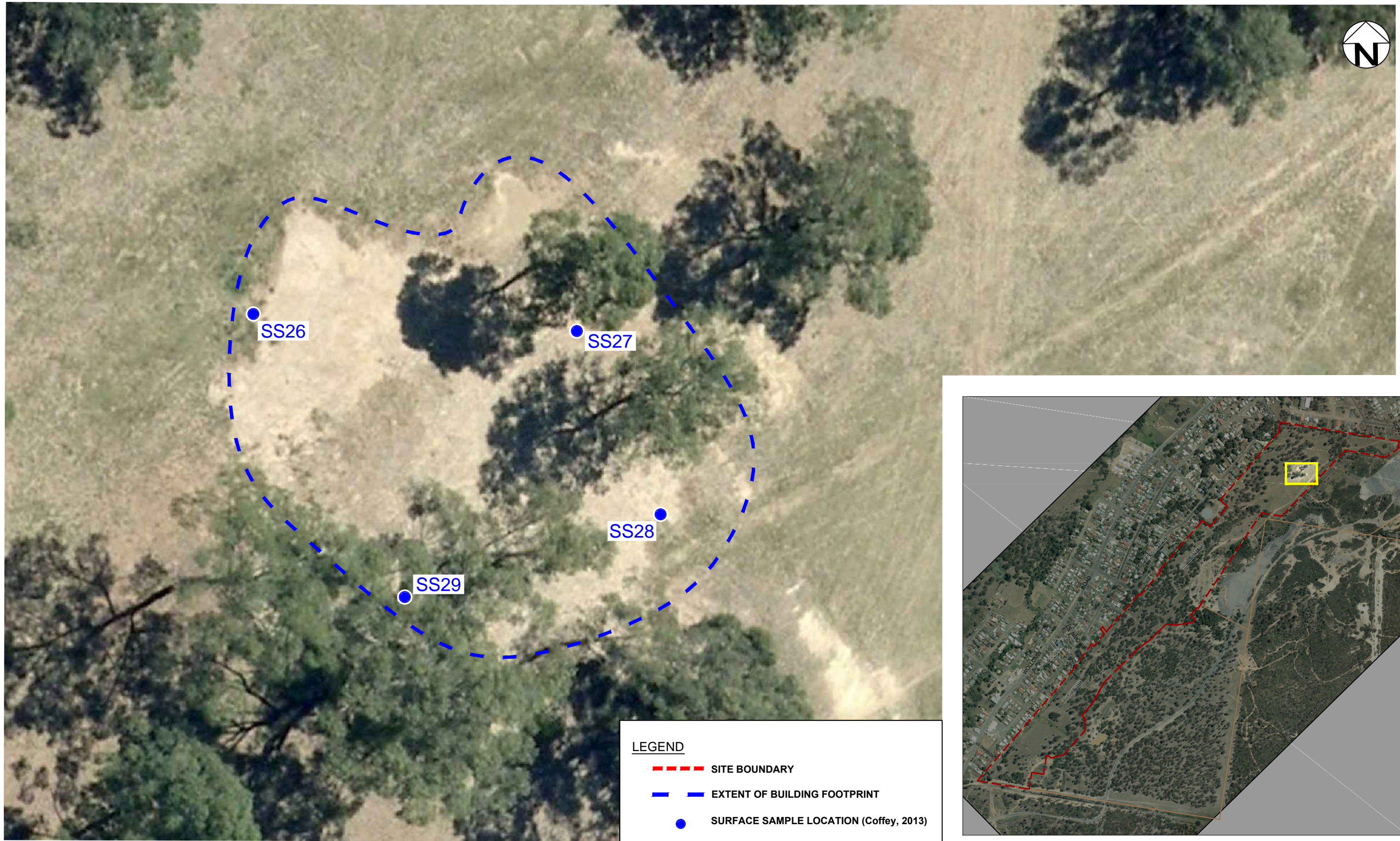
AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 6.6.2.6613
 AERIAL IMAGE ©: 2012 SINCLAIR KNIGHT MERZ
 2012 WHEREIS SENSIS PTY LTD

SCALE (metres) 1:500

drawn	MV
approved	LF
date	07/06/13
scale	AS SHOWN
original size	A3



client:	WINTON PARTNERS BELLBIRD PTY LTD	
project:	PHASE 2 CONTTAMINATION ASSESSMENT, BELLBIRD HEIGHTS, NSW	
title:	BUILDING FOOTPRINT 1 - SAMPLE LOCATIONS	
project no:	ENAUWARA04363AA-D01	figure no: FIGURE 3B



LEGEND

- - - SITE BOUNDARY
- - - EXTENT OF BUILDING FOOTPRINT
- SURFACE SAMPLE LOCATION (Coffey, 2013)



PLOT DATE: 12/08/2013 12:46:14 PM DWG FILE: F:\ENVI\PROJ\EGS\OTHER OFFICES\ENVI\WARARA\ENVI\WARARA\SS26A BELBIRD\ENVI\WARARA\SS26A.DWG

revision	description	drawn	approved	date

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 6.6.2.6613
 AERIAL IMAGE ©: 2012 SINCLAIR KNIGHT MERZ
 2012 WHEREIS SENSIS PTY LTD

SCALE (metres) 1:250

drawn	MV
approved	LF
date	07/06/13
scale	AS SHOWN
original size	A3



client:	WINTON PARTNERS BELLBIRD PTY LTD	
project:	PHASE 2 CONTTAMINATION ASSESSMENT, BELLBIRD HEIGHTS, NSW	
title:	BUILDING FOOTPRINT 2 - SAMPLE LOCATIONS	
project no:	ENAUWARA04363AA-D01	figure no: FIGURE 3C



LEGEND

- - - SITE BOUNDARY
- - - EXTENT OF BUILDING FOOTPRINT
- SURFACE SAMPLE LOCATION (Coffey, 2013)
- ▲ POTENTIAL ASBESTOS FRAGMENT SAMPLE LOCATION (Coffey, 2013)



PLOT DATE: 12/08/2013 12:46:15 PM DWG FILE: F:\ENVIRO\PROJECTS\OTHER OFFICES\ENVIRO\WARRAWARRA\BELLBIRD\ENVIRO\WARRAWARRA\01.DWG

revision	description	drawn	approved	date

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 6.6.2.6613
 AERIAL IMAGE ©: 2012 SINCLAIR KNIGHT MERZ
 2012 WHEREIS SENSIS PTY LTD

SCALE (metres) 1:150

drawn	MV
approved	LF
date	07/06/13
scale	AS SHOWN
original size	A3



client:	WINTON PARTNERS BELLBIRD PTY LTD	
project:	PHASE 2 CONTTAMINATION ASSESSMENT, BELLBIRD HEIGHTS, NSW	
title:	BUILDING FOOTPRINT 3 - SAMPLE LOCATIONS	
project no:	ENAUWARA04363AA-D01	figure no: FIGURE 3D



LEGEND

- - - SITE BOUNDARY
- CAR BODY SAMPLE LOCATION (Coffey, 2013)
- LOW LYING AREA SAMPLE LOCATION (Coffey, 2013)

PLOT DATE: 12/08/2013 12:46:17 PM DWS FILE: F:\ENVIRO\PROJECTS\OTHER OFFICES\ENVIRO\WARRAWARRA\BELLBIRD\ENVAUWARA04363AA.DWG

revision	description	drawn	approved	date

AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 6.6.2.6613
 AERIAL IMAGE ©: 2012 SINCLAIR KNIGHT MERZ
 2012 WHEREIS SENSIS PTY LTD

SCALE (metres) 1:1500

drawn	MV
approved	LF
date	07/06/13
scale	AS SHOWN
original size	A3



client:	WINTON PARTNERS BELLBIRD PTY LTD
project:	PHASE 2 CONTTAMINATION ASSESSMENT, BELLBIRD HEIGHTS, NSW
title:	LOW LYING AREAS AND CAR BODY - SAMPLE LOCATIONS
project no:	ENAUWARA04363AA-D01
figure no:	FIGURE 3E

Appendix A


Site Photographs



Photograph 1: Yellow/straw coloured staining indicative of jarosite (oxidation of pyrite).



Photograph 2: Excavating test pit TP2 in mining overburden area


drawn	DCH	 coffey environments <small>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</small>	client:	WINTON PARTNERS BELLBIRD	
approved			project:	PHASE 2 CONTAMINATION ASSESSMNET BELLBIRD HEIGHTS, NSW	
date	15/05/2013		title:	SITE PHOTOGRAPHS	
scale	NTS		project no:	ENAUWARA04363AA	
original size	A4				



Photograph 3: Evidence of lime being spread over the placement area on adjoining land



Photograph 4: Little visual evidence of sulphide oxidation within the exposed rocks

drawn	DCH	 coffey environments <small>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</small>	client:	WINTON PARTNERS BELLBIRD	
approved			project:	PHASE 2 CONTAMINATION ASSESSMNET BELLBIRD HEIGHTS, NSW	
date	18/01/2013		title:	SITE PHOTOGRAPHS	
scale	NTS		project no:	ENAUWARA04363AA	
original size	A4				

Appendix B

Data Validation Report

DATA COMPLETENESS

Field Considerations

	Yes / No	Comment
Were all critical locations sampled?	Yes	
Were all critical depths sampled?	Yes	
Were the SOPs appropriate and complied with?	Yes	
Was the sampler adequately experienced?	Yes	
Was the field documentation complete?	Yes	
Is a copy of the signed chain of custody form for each batch of samples included?	Yes	

Laboratory Considerations

	Yes / No	Comment
Were all critical samples analysed according to sampling plan?	Yes	
Were analytes analysed as per sampling plan?	Yes	
Were the laboratory methods appropriate?	Yes	
Were the laboratory methods adopted NATA endorsed?	Yes	
Was the NATA Seal on the laboratory reports?	Yes	
Were the laboratory reports signed by an authorised person?	Yes	
Were the laboratory PQLs below the criteria?	Yes	

Was sample documentation complete?	Yes	
Were sample holding times complied with?	No	Some holding times for pH were exceeded

COMPLETENESS CONCLUSION

	Yes / No	Comment
Was data adequately complete?	Yes	

DATA COMPARABILITY

Field considerations

	Yes / No	Comment
Was there more than one sampling round?	Yes	Two soil sampling rounds were undertaken. Both rounds were undertaken by the same sampler
Were the same sampling methodology and SOPs used for all sampling?	Yes	
Was all sampling undertaken by the same sampler?	Yes	
Were sample containers, preservation, filtering the same?	Yes	
Could climatic conditions (temperature, rainfall, wind) have influenced data comparability?	No	Only soil samples were collected – these are unlikely to have been affected by climatic conditions
Were the same types of samples collected (filtered, size fractions etc) for each media?	Yes	

Laboratory Considerations

	Yes / No	Comment
Were the same analytical methods used (including clean up)?	Yes	
Were the PQLs the same?	No	Different PQLs were used between the primary and secondary laboratories
Were the same laboratories used?	No	Eurofins-MGT was used as the primary laboratory. Envirolab was used as the secondary laboratory. Both are NATA-accredited
Were the units reported the same?	Yes	

COMPARABILITY CONCLUSION

	Yes / No	Comment
Was data adequately comparable?	Yes	

DATA REPRESENTATIVENESS**Field Considerations**

	Yes / No	Comment
Was appropriate media sampled?	Yes	
Was media identified sampled?	Yes	
Were the samples properly and adequately preserved? This includes keeping the samples chilled, where applicable.	Yes	
Were the samples in proper custody between the field and reaching the laboratory?	Yes	
Were the samples received by the laboratory in good condition?	Yes	

Laboratory Considerations

	Yes / No	Comment
Were all samples analysed according to SAQP?	NA	There was no SAQP for this assessment.

REPRESENTATIVENESS CONCLUSION

	Yes / No	Comment
Was data adequately representative?	Yes	

DATA PRECISION AND ACCURACY**Field considerations**

	Yes / No	Comment
Were the SOPs appropriate and complied with?	Yes	Based on available Coffey Environments Standard Operating Procedures.

Laboratory Considerations for Soil

	Metals	TPH	BTEX	PAH	OCP	PCB	Asbestos	pH
Primary	55	24	24	28	6	6	23	48
Field QA/QC								
Intralab Dup	5, 9%	1, 4%	1, 4%	1, 4%	0, 0%	0, 0%	NA	NA
Interlab Dup	3, 5%	0, 0%	0, 0%	0, 0%	0, 0%	0, 0%	NA	NA
Trip Spike	NA	NA	0	NA	NA	NA	NA	NA
Trip Blank	NA	NA	1	NA	NA	NA	NA	NA
Wash Blanks	1	1	1	0	0	0	NA	NA
LAB QA/QC								
Lab Blanks	4	3	3	2	2	2	NA	NA
Lab Dups	9	5	5	3	2	2	NA	NA
Matrix Spikes	10	5	5	4	2	2	NA	NA
Lab Control	4	3	3	2	2	2	NA	NA
Surrogate	0	0	1	2	2	1	NA	NA

	Yes / No	Comment
Field QA/QC		
Were an adequate number of field duplicates analysed?	Yes	
Were the RPDs of the field duplicates within control limits?	No	Some RPDs exceeded control limits for heavy metals, due to sample heterogeneity
Were an adequate number of trip blanks analysed?	Yes	
Were the trip blanks free of contaminants	No	Low levels of toluene and xylenes were detected. This is inferred to be due to the water used to collect the trip blank sample
Were an adequate number of trip spikes analysed?	No	Due to the low risk of volatile contamination inferred to be present, trip spikes were not analysed
Were the trip spikes recoveries within control limits?	NA	
Were an adequate number of wash blanks analysed?	Yes	
Were the wash blanks free of contaminants?	No	Low levels of toluene and xylenes were detected. This is inferred to be due to the water used to collect the trip blank sample
Lab QA/QC		
Were an adequate number of laboratory blank samples analysed?	Yes	
Were the blanks free of contaminants?	Yes	
Were an adequate number of laboratory matrix spikes and laboratory control samples analysed?	Yes	
Were an adequate number of surrogate spike samples analysed?	Yes	

Were the spikes recoveries within control limits?	Yes	
Were an adequate number of laboratory duplicates analysed?	Yes	
Were the laboratory duplicate RPDs within control limits?	No	Laboratory duplicate RPDs exceeded control limits for some heavy metals. Eurofins-MGT reported that these exceedences met their acceptance criteria as stipulated in their SOP-05

PRECISION AND ACCURACY CONCLUSION

	Yes / No	Comment
Was soil data adequately precise?	Yes	
Was soil data adequately accurate?	Yes	

Table B1: Laboratory Methodologies (Eurofins-MGT) - Soil

Analysis	Method Based On	NATA Registered
TPH C6-C9/BTEX	Based on USEPA 8260	Yes
TPH C10-C36	Based on USEPA 8270	Yes
PAH	Based on USEPA 8270	Yes
Metals	Based on USEPA 6010/6020	Yes
Mercury	Based on USEPA 7470/71	Yes
OCP	Based on USEPA 8081	Yes
PCB	Based on USEPA 8081	Yes
pH	Eurofins-MGT Method E018	Yes
Asbestos	Safer Environmental Method 1 (NOHSC Asbestos Analysis Publications)	Yes

Table B2: Holding Times (Eurofins-MGT) - Soil

Soil Analysis	Holding Time	Maximum Time Between Sampling and Extraction	Holding Times Met
TPH C6-C9/BTEX	14 days	5 days	Yes
TPH C10-C36	14 days	5 days	Yes
PAH	14 days	5 days	Yes
Metals	28 days	3 days	Yes
OCP	14 days	5 days	Yes
PCB	14 days	5 days	Yes
pH	7 days	8 days	No
Asbestos	NA	7 days	Yes

Table B3: Laboratory Methodologies (Envirolab)

Analysis	Method Based On	NATA Registered
Soil		
Metals	Envirolab Method Metals-020 ICP-AES	Yes
Mercury	Envirolab Method Metals 021 CV-AAS	Yes

Table B4: Soil Holding Times (Envirolab)

Soil Analysis	Holding Time	Maximum Time Between Sampling and Extraction	Holding Times Met
Heavy Metals	6 months	6 days	Yes

Appendix C

Test Pit Logs and Explanation Sheets

Soil Description Explanation Sheet (1 of 2)

DEFINITION:

In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 μ m to 2.36 mm
	medium	200 μ m to 600 μ m
	fine	75 μ m to 200 μ m

MOISTURE CONDITION

Dry Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Moist Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.

Wet As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH S_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 - 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 - 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 - 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 - 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	-	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 - 35
Medium Dense	35 - 65
Dense	65 - 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING		CEMENTING	
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous layers of lenticular shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely weathered material Structure and fabric of parent rock visible.

Residual soil Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil Deposited by wind.

Alluvial soil Deposited by streams and rivers.

Colluvial soil Deposited on slopes (transported downslope by gravity).

Fill Man made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.

Lacustrine soil Deposited by lakes.

Marine soil Deposited in ocean basins, bays, beaches and estuaries.

Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 60 mm and basing fractions on estimated mass)				USC	PRIMARY NAME	
COARSE GRAINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm	GRAVELS More than half of coarse fraction is larger than 2.0 mm	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.	GW	GRAVEL	
			Predominantly one size or a range of sizes with more intermediate sizes missing.	GP	GRAVEL	
		GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)	GM	SILTY GRAVEL	
			Plastic fines (for identification procedures see CL below)	GC	CLAYEY GRAVEL	
	SANDS More than half of coarse fraction is smaller than 2.0 mm	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate sizes	SW	SAND	
			Predominantly one size or a range of sizes with some intermediate sizes missing.	SP	SAND	
		SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).	SM	SILTY SAND	
			Plastic fines (for identification procedures see CL below).	SC	CLAYEY SAND	
FINE GRAINED SOILS More than 50% of material less than 63 mm is smaller than 0.075 mm (A 0.075 mm particle is about the smallest particle visible to the naked eye)	IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm.					
	SILTS & CLAYS Liquid limit less than 50	DRY STRENGTH	DILATANCY	TOUGHNESS		
		None to Low	Quick to slow	None	ML	SILT
		Medium to High	None	Medium	CL	CLAY
	SILTS & CLAYS Liquid limit greater than 50	Low to medium	Slow to very slow	Low	OL	ORGANIC SILT
		Low to medium	Slow to very slow	Low to medium	MH	SILT
		High	None	High	CH	CLAY
		Medium to High	None	Low to medium	OH	ORGANIC CLAY
HIGHLY ORGANIC SOILS	Readily identified by colour, odour, spongy feel and frequently by fibrous texture.			Pt	PEAT	

• Low plasticity – Liquid Limit W_L less than 35%. • Medium plasticity – W_L between 35% and 50%.

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM	TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.		SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length.		TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.		TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.		INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	

Rock Description Explanation Sheet (1 of 2)

The descriptive terms used by Coffey are given below. They are broadly consistent with Australian Standard AS1726-1993.

DEFINITIONS: Rock substance, defect and mass are defined as follows:

Rock Substance In engineering terms rock substance is any naturally occurring aggregate of minerals and organic material which cannot be disintegrated or remoulded by hand in air or water. Other material is described using soil descriptive terms. Effectively homogenous material, may be isotropic or anisotropic.

Defect Discontinuity or break in the continuity of a substance or substances.

Mass Any body of material which is not effectively homogeneous. It can consist of two or more substances without defects, or one or more substances with one or more defects.

SUBSTANCE DESCRIPTIVE TERMS:

ROCK NAME Simple rock names are used rather than precise geological classification.

PARTICLE SIZE Grain size terms for sandstone are:
 Coarse grained Mainly 0.6mm to 2mm
 Medium grained Mainly 0.2mm to 0.6mm
 Fine grained Mainly 0.06mm (just visible) to 0.2mm

FABRIC Terms for layering of penetrative fabric (eg. bedding, cleavage etc.) are:

Massive No layering or penetrative fabric.

Indistinct Layering or fabric just visible. Little effect on properties.

Distinct Layering or fabric is easily visible. Rock breaks more easily parallel to layering of fabric.

ROCK SUBSTANCE STRENGTH TERMS

Term	Abbreviation	Point Load Index, I _{s50} (MPa)	Field Guide
Very Low	VL	Less than 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with a knife; pieces up to 30mm thick can be broken by finger pressure.

Low	L	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show with firm bows of a pick point; has a dull sound under hammer. Pieces of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
-----	---	------------	---

Medium	M	0.3 to 1.0	Readily scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
--------	---	------------	---

High	H	1 to 3	A piece of core 150mm long by 50mm can not be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
------	---	--------	--

Very High	VH	3 to 10	Hand specimen breaks after more than one blow of a pick; rock rings under hammer.
-----------	----	---------	---

Extremely High	EH	More than 10	Specimen requires many blows with geological pick to break; rock rings under hammer.
----------------	----	--------------	--

CLASSIFICATION OF WEATHERING PRODUCTS

Term	Abbreviation	Definition
Residual Soil	RS	Soil derived from the weathering of rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely Weathered Material	XW	Material is weathered to such an extent that it has soil properties, ie, it either disintegrates or can be remoulded in water. Original rock fabric still visible.
Highly Weathered Rock	HW	Rock strength is changed by weathering. The whole of the rock substance is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Some minerals are decomposed to clay minerals. Porosity may be increased by leaching or may be decreased due to the deposition of minerals in pores.
Moderately Weathered Rock	MW	The whole of the rock substance is discoloured, usually by iron staining or bleaching, to the extent that the colour of the fresh rock is no longer recognisable.
Slightly Weathered Rock	SW	Rock substance affected by weathering to the extent that partial staining or partial discolouration of the rock substance (usually by limonite) has taken place. The colour and texture of the fresh rock is recognisable; strength properties are essentially those of the fresh rock substance.
Fresh Rock	FR	Rock substance unaffected by weathering.

Notes on Weathering:

- AS1726 suggests the term "Distinctly Weathered" (DW) to cover the range of substance weathering conditions between XW and SW. For projects where it is not practical to delineate between HW and MW or it is judged that there is no advantage in making such a distinction. DW may be used with the definition given in AS1726.
- Where physical and chemical changes were caused by hot gasses and liquids associated with igneous rocks, the term "altered" may be substituted for "weathering" to give the abbreviations XA, HA, MA, SA and DA.

Notes on Rock Substance Strength:

- In anisotropic rocks the field guide to strength applies to the strength perpendicular to the anisotropy. High strength anisotropic rocks may break readily parallel to the planar anisotropy.
- The term "extremely low" is not used as a rock substance strength term. While the term is used in AS1726-1993, the field guide therein makes it clear that materials in that strength range are soils in engineering terms.
- The unconfined compressive strength for isotropic rocks (and anisotropic rocks which fall across the planar anisotropy) is typically 10 to 25 times the point load index (I_{s50}). The ratio may vary for different rock types. Lower strength rocks often have lower ratios than higher strength rocks.

Rock Description Explanation Sheet (2 of 2)

COMMON DEFECTS IN ROCK MASSES		Diagram	Map Symbol	Graphic Log (Note 1)	DEFECT SHAPE	TERMS
Term	Definition				Planar	The defect does not vary in orientation
Parting	A surface or crack across which the rock has little or no tensile strength. Parallel or sub parallel to layering (eg bedding) or a planar anisotropy in the rock substance (eg, cleavage). May be open or closed.				Planar	The defect does not vary in orientation
Joint	A surface or crack across which the rock has little or no tensile strength, but which is not parallel or sub parallel to layering or planar anisotropy in the rock substance. May be open or closed.				Curved	The defect has a gradual change in orientation
Sheared Zone (Note 3)	Zone of rock substance with roughly parallel near planar, curved or undulating boundaries cut by closely spaced joints, sheared surfaces or other defects. Some of the defects are usually curved and intersect to divide the mass into lenticular or wedge shaped blocks.				Undulating	The defect has a wavy surface
Sheared Surface (Note 3)	A near planar, curved or undulating surface which is usually smooth, polished or slickensided.				Stepped	The defect has one or more well defined steps
Crushed Seam (Note 3)	Seam with roughly parallel almost planar boundaries, composed of disoriented, usually angular fragments of the host rock substance which may be more weathered than the host rock. The seam has soil properties.				Irregular	The defect has many sharp changes of orientation
Infilled Seam	Seam of soil substance usually with distinct roughly parallel boundaries formed by the migration of soil into an open cavity or joint, infilled seams less than 1mm thick may be described as veneer or coating on joint surface.				Note: The assessment of defect shape is partly influenced by the scale of the observation.	
Extremely Weathered Seam	Seam of soil substance, often with gradational boundaries. Formad by weathering of the rock substance in place.				ROUGHNESS TERMS	
					Slickensided	Grooved or striated surface, usually polished
					Polished	Shiny smooth surface
					Smooth	Smooth to touch. Few or no surface irregularities
					Rough	Many small surface irregularities (amplitude generally less than 1mm). Feels like fine to coarse sand paper.
					Very Rough	Many large surface irregularities (amplitude generally more than 1mm). Feels like, or coarser than very coarse sand paper.
					COATING TERMS	
					Clean	No visible coating
					Stained	No visible coating but surfaces are discoloured
					Veneer	A visible coating of soil or mineral, too thin to measure; may be patchy
					Coating	A visible coating up to 1mm thick. Thicker soil material is usually described using appropriate defect terms (eg, infilled seam). Thicker rock strength material is usually described as a vein.
					BLOCK SHAPE TERMS	
					Blocky	Approximately equidimensional
					Tabular	Thickness much less than length or width
					Columnar	Height much greater than cross section

Notes on Defects:

1. Usually borehole logs show the true dip of defects and face sketches and sections the apparent dip.
2. Partings and joints are not usually shown on the graphic log unless considered significant.
3. Sheared zones, sheared surfaces and crushed seams are faults in geological terms.

Engineering Log - Excavation

Excavation No. **TP1**

Sheet 1 of 1
Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **16.4.2013**

Principal:

Date completed: **16.4.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR Pit Orientation: Easting: 3251047 m R.L. Surface:
excavation dimensions: 3.5m long 1m wide Northing: 15119576 m datum:

excavation information					material substance					
method	penetration	support	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material	moisture condition	consistency/density index	structure and additional observations
1	2	3					soil type: plasticity or particle characteristics, colour, secondary and minor components.			
			E	0.5		GW	FILL: Sandy Gravel, fine to coarse grained, brown, some clay, some boulders at 0.2m depth. Coal chitter at 0.5m depth.	M		FILL (mining overburden)
			E	1.0						
			E	1.5		CL	FILL: Silty Clay, low to medium plasticity, orange/red, with some sand, some coal chitter, some boulders and fine grained gravel at 2.2m.			FILL (mining overburden)
			E	2.0						
				2.5				W		Water inflow at 2.5m
			E	3.0						
				3.5		GW	GRAVEL: fine to coarse grained, red, some sand.			EXTREMELY WEATHERED SANDSTONE
			E	4.0						

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	--	---	---	---

TEST PIT_FULL PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.5.13

Engineering Log - Excavation

Excavation No. **TP2**

Sheet 1 of 1

Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **16.4.2013**

Principal:

Date completed: **16.4.2013**

Project: **BELLBIRD HEIGHTS**

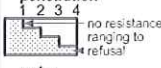
Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR Pit Orientation: Easting: 3251041 m R.L. Surface:
excavation dimensions: 3.5m long 1m wide Northing: 15119587 m datum:

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
				E			SM	TOPSOIL: Silty Sand, fine to medium grained, dark brown, some fine to medium grained gravel cobbles, boulders and coal chitter.	M			FILL (mining overburden)
					0.5		GW	FILL: Sandy Gravel, fine to coarse grained, brown/mottled yellow, some clay.				FILL (mining overburden)
				E								
				E	1.0							
					1.5							
				E	2.0							
					2.5			FILL: Sand, fine to medium grained, red/pink with trace of clay and gravel.				FILL (mining overburden)
					3.0			Test pit TP2 terminated at 2.5m				
					3.5							
					4.0							

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water ▽ water level on date shown ► water inflow ◄ water outflow	notes, samples, tests U ₂₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP3**
 Sheet 1 of 1
 Office Job No.: **ENAUWARA04363AA**
 Date started: **16.4.2013**
 Date completed: **16.4.2013**
 Logged by: **LB**
 Checked by:

Client: **HARDIE HOLDINGS**
 Principal:
 Project: **BELLBIRD HEIGHTS**
 Test pit location:

equipment type and model: EXCAVATOR Pit Orientation: Easting: 3251034 m R.L. Surface:
 excavation dimensions: 3.5m long 1m wide Northing: 15119573 m datum:

excavation information					material substance					
method	penetration	support	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/density index	structure and additional observations
1 2 3		water		RL			soil type: plasticity or particle characteristics, colour, secondary and minor components.		100 200 300 400 kPa	
W			E			SM	TOPSOIL: Silty sand, fine to medium grained, fine to medium grained, dark brown, some gravel.	M		TOPSOIL
				0.5		GW	FILL: Sandy Gravel, fine to coarse grained, grey/brown, fine to medium grained sand.			FILL (mining overburden)
				1.0		SM	FILL: Silty Sand, fine to medium grained, red/pink, some gravel.			FILL (mining overburden)
			E	1.0		GW	FILL: Sandy Gravel, fine to coarse grained, orange/red, fine to medium grained sand.			FILL (mining overburden)
				1.5						
				2.0						
				2.5			Test pit TP3 terminated at 2.2m			
				3.0						
				3.5						
				4.0						

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP4**

Sheet 1 of 1

Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **16.4.2013**

Principal:

Date completed: **16.4.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR	Pit Orientation:	Easting: 325103 m	R.L. Surface:
excavation dimensions: 3.5m long 1m wide		Northing: 15119583 m	datum:

excavation information					material substance						
method	penetration	support	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material	moisture condition	consistency/density index	pocket penetrometer	structure and additional observations
1 2 3							soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400	
			E	0.5		CL	FILL: Clay, low to medium plasticity, dark brown, fine to medium sand and gravel.	M			FILL (mining overburden)
						GW	FILL: Sandy Gravel, fine to coarse grained, grey/brown/mottled orange, some boulders.				FILL (mining overburden)
			E	1.0							
				1.5		CL	FILL: Sandy Clay, low to medium plasticity, red, fine to medium sand and gravel.				FILL (mining overburden)
			E	2.0							
				2.5			Test pit TP4 terminated at 2m				
				3.0							
				3.5							
				4.0							

method DT dialube PT push tube SS soil stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	notes, samples, tests U ₅₂ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
---	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP5**
 Sheet 1 of 1
 Office Job No.: **ENAUWARA04363AA**
 Date started: **16.4.2013**
 Date completed: **16.4.2013**
 Logged by: **LB**
 Checked by:

Client: **HARDIE HOLDINGS**
 Principal:
 Project: **BELLBIRD HEIGHTS**
 Test pit location:

equipment type and model: EXCAVATOR Pit Orientation: Easting: 3251025 m R.L. Surface:
 excavation dimensions: 3.5m long 1m wide Northing: 15119593 m datum:

excavation information					material substance						
method	penetration	support	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material	moisture condition	consistency/density index	pocket penetrometer	structure and additional observations
1 2 3							soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400 kPa	
			E	0.5		CL	FILL: Sandy Clay, low to medium plasticity, dark brown, fine to medium grained sand with some fine to coarse grained gravel.	M			FILL (mine overburden)
				1.0		GW	FILL: Sandy Gravel, fine to coarse grained, brown/grey/mottled yellow, some coal chitter.				FILL (mine overburden)
			E	1.5							
				2.0		CL	FILL: Sandy Clay, low to medium plasticity, red, fine to medium sand with some gravel.				FILL (mine overburden)
				2.5			Test pit TP5 terminated at 2.2m				
				3.0							
				3.5							
				4.0							

TEST PIT_FULL PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.5.13

Form GEO 5.2 Issue 3 Rev.2

method DT diatube PT push tube SS soil stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
---	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP6**

Sheet 1 of 1

Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **16.4.2013**

Principal:

Date completed: **16.4.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR	Pit Orientation:	Easting: 3251019 m	R.L. Surface:
excavation dimensions: 2m long 0.5m wide		Northing: 151195875 m	datum:

excavation information				material substance						
method 1 2 3	penetration support water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
		E	0.5		SP	TOPSOIL: Sand, dark brown, medium grained, some fine grained gravel.	M			TOPSOIL
					CL	FILL: Sandy Clay, low to medium plasticity, orange/cottled white/grey, some fine to coarse gravel, some cobbles and boulders.				FILL (mining overburden)
		E	1.0		CL	FILL: Sandy Clay, low to medium plasticity, red, some fine to coarse gravel.				FILL (mining overburden)
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0			Test pit TP6 terminated at 1m				

method DT d'atube PT push tube SS soil'd stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
---	--	---	---	---

TEST PIT_FULL PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.5.13

Engineering Log - Excavation

 Excavation No. **TP7**

 Sheet 1 of 1
 Office Job No.: **ENAUWARA04363AA**

 Client: **HARDIE HOLDINGS**

 Date started: **16.4.2013**

Principal:

 Date completed: **16.4.2013**

 Project: **BELLBIRD HEIGHTS**

 Logged by: **LB**

Test pit location:

Checked by:

 equipment type and model: EXCAVATOR Pit Orientation: Easting: 32510193 m R.L. Surface:
 excavation dimensions: 2m long 0.5m wide Northing: 151200104 m datum:

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
				E	0.5		SP	TOPSOIL: Sand, dark brown, medium to coarse grained, some fine grained gravel.	M			TOPSOIL
				E	0.5 - 1.5		CL	FILL: Sandy Clay, low to medium plasticity, grey/mottled orange/black medium to coarse sand and some gravel and coal chitter, some cobble and boulders.				FILL (mining overburden)
				E	1.5 - 2.0		CL	FILL: Sandy Clay, low to medium plasticity, red.				FILL (mining overburden)
				E	2.0 - 4.0			Test pit TP7 terminated at 2m				

TEST PIT_FULL PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.S.13

Form GEO 5.2 Issue 3 Rev.2

method DT d'atube PT push tube SS soil'd stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	notes, samples, tests U ₂₅ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bu'k sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
---	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP8**
 Sheet 1 of 1
 Office Job No.: **ENAUWARA04363AA**
 Date started: **1.5.2013**
 Date completed: **1.5.2013**
 Logged by: **LB**
 Checked by:

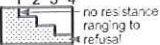



Client: **HARDIE HOLDINGS**
 Principal:
 Project: **BELLBIRD HEIGHTS**
 Test pit location:

equipment type and model: EXCAVATOR Pit Orientation: Easting: m R.L. Surface:
 excavation dimensions: 2m long 0.5m wide Northing: m datum:

excavation information				material substance							
method	penetration 1 2 3	support water	notes samples, tests, etc	depth metres RL	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
			E	0.5		CL	FILL: Sandy Clay, low to medium plasticity, brown/mottled orange/grey, some coarse gravel and coal chitter, some cobbles and boulders.	M			FILL (mining overburden)
			E	1.0		CL	FILL: Sandy Clay, low to medium plasticity, red.				FILL (mining overburden)
			E	1.0			Test pit TP8 terminated at 1m				
				1.5							
				2.0							
				2.5							
				3.0							
				3.5							
				4.0							

TEST PIT_FULL PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.5.13

Form GEO.5.2 issue 3 Rev.2

method DT dial tube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _l liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	--	---	---	---

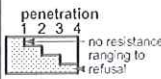



Engineering Log - Excavation

Excavation No. **TP9**
 Sheet 1 of 1
 Office Job No.: **ENAUWARA04363AA**
 Date started: **1.5.2013**
 Date completed: **1.5.2013**
 Logged by: **LB**
 Checked by:

Client: **HARDIE HOLDINGS**
 Principal:
 Project: **BELLBIRD HEIGHTS**
 Test pit location:

equipment type and model: EXCAVATOR Pit Orientation: Easting: m R.L. Surface:
 excavation dimensions: m long m wide Northing: m datum:

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/density index	pocket penetrometer	structure and additional observations
1 2 3					RL			soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400	
				E			CL	FILL: Sandy Clay, low to medium plasticity, red/brown/mottled grey, some cobbles and boulders.	M			FILL (mining overburden)
				E	0.5		CL	FILL: Sandy Clay, low to medium plasticity, red/orange, some coal chitter.				
					1.0			Test pit TP9 terminated at 1m				
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							
					4.0							

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration  1 2 3 4 no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP 10**

Sheet 1 of 1

Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **1.5.2013**

Principal:

Date completed: **1.5.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR		Pit Orientation:		Easting: m		R.L. Surface:						
excavation dimensions: 2m long 0.5m wide				Northing: m		datum:						
excavation information				material substance								
method	penetration 1 2 3	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
W				E	0.5		SP	TOPSOIL: Sand, fine to medium grained, orange/brown. SANDSTONE: fine grained, red.	M			TOPSOIL EXTREMELY WEATHERED SANDSTONE
				E	1.0			Test pit TP 10 terminated at 0.8m				
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							
					4.0							
method DT dial tube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer			support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal			classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

TEST PIT_FULL_PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.5.13

Engineering Log - Excavation

Excavation No. **TP 11**

Sheet 1 of 1
Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **1.5.2013**

Principal:

Date completed: **1.5.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR		Pit Orientation:		Easting: m	R.L. Surface:						
excavation dimensions: 2m long 0.5m wide				Northing: m	datum:						
excavation information				material substance							
method	penetration 1 2 3	support water	notes samples, tests, etc	depth metres RL	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
E			E	0.5		CL	TOPSOIL: Sandy Clay, low to medium plasticity, brown.	M			TOPSOIL
							SANDSTONE: medium to coarse grained, orange/red mottled grey/white.				EXTREMELY WEATHERED SANDSTONE
				1.0			Test pit TP 11 terminated at 0.8m				
				1.5							
				2.0							
				2.5							
				3.0							
				3.5							
				4.0							
method DT dial tube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer		support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal		classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense			

Engineering Log - Excavation

Excavation No. **TP 12**

Sheet 1 of 1
Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **1.5.2013**

Principal:

Date completed: **1.5.2013**

Project: **BELLBIRD HEIGHTS**

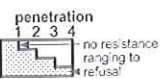



Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR Pit Orientation: Easting: m R.L. Surface:
excavation dimensions: 2m long 0.5m wide Northing: m datum:

excavation information					material substance						
method	penetration 1 2 3	support water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
W			E	0.5		SP	TOPSOIL: Sand, fine to medium grained, dark brown. SANDSTONE: fine to medium grained, red.	M			TOPSOIL EXTREMELY WEATHERED SANDSTONE
				1.0			Test pit TP 12 terminated at 1m				
				1.5							
				2.0							
				2.5							
				3.0							
				3.5							
				4.0							

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH a/r hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	---	---	---	---

Engineering Log - Excavation

Excavation No. **TP 13**

Sheet 1 of 1
Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **1.5.2013**

Principal:

Date completed: **1.5.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR		Pit Orientation:		Easting: m	R.L. Surface:							
excavation dimensions: 2m long 0.5m wide		Northing: m		datum:								
excavation information				material substance								
method	penetration 1 2 3	support water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations	
W			E			SP	TOPSOIL: Sand, medium to coarse grained, dark brown, some gravel. SANDSTONE: fine to coarse grained, red.	M			TOPSOIL EXTREMELY WEATHERED SANDSTONE	
			E	0.5			Test pit TP 13 terminated at 0.3m					
				1.0								
				1.5								
				2.0								
				2.5								
				3.0								
				3.5								
				4.0								
method DT datube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH a'r hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer			support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bul'k sample E environmental sample R refusal			classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

Engineering Log - Excavation

Excavation No. **TP 14**

Sheet 1 of 1

Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **1.5.2013**

Principal:

Date completed: **1.5.2013**

Project: **BELLBIRD HEIGHTS**

Logged by: **LB**

Test pit location:

Checked by:

equipment type and model: EXCAVATOR Pit Orientation: Easting: m R.L. Surface:
 excavation dimensions: 2m long 0.5m wide Northing: m datum:

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
				E	0.5		CL	Sandy CLAY: low to medium plasticity, red, fine to medium grained, some fine to coarse grained gravel. Gravels becoming cobbles at 0.5m.	M			EXTREMELY WEATHERED SANDSTONE
				E	1.0							
					1.5							
					2.0							
					2.5			Test pit TP 14 terminated at 2m				
					3.0							
					3.5							
					4.0							

TEST PIT_FULL PAGE ENAUWARA04363AA.GPJ COFFEY.GDT 28.5.13

Form GEO 5.2 Issue 3 Rev.2

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	--	---	---	---

Engineering Log - Excavation

Excavation No. **TP 15**

Sheet 1 of 1

Office Job No.: **ENAUWARA04363AA**

Client: **HARDIE HOLDINGS**

Date started: **1.5.2013**

Principal:

Date completed: **1.5.2013**


Project: **BELLBIRD HEIGHTS**





Logged by: **LB**

Test pit location:

Checked by:

equipment type and model:	EXCAVATOR	Pit Orientation:	Easting:	m	R.L. Surface:
excavation dimensions:	1.5m long 0.5m wide		Northing:	m	datum:

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	depth RL metres	graphic log	classification symbol	material	moisture condition	consistency/density index	pocket penetrometer	structure and additional observations
1	2	3						soil type: plasticity or particle characteristics, colour, secondary and minor components.			100 200 300 400	
E				E	0.5		CL	Sandy CLAY: low to medium plasticity, red, fine to medium grained sand, trace gravel.	M			EXTREMELY WEATHERED SANDSTONE
				E	1.0			Test pit TP 15 terminated at 1m				
					1.5							
					2.0							
					2.5							
					3.0							
					3.5							
					4.0							

method DT diatube PT push tube SS solid stem flight auger HS hollow stem flight auger VT V Bit, T Bit AH air hammer CP cable percussive HA hand auger NDD non-destructive digging RC rock corer	support S shoring N nil penetration  1 no resistance 2 resistance 3 refusal 4 refusal water  water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
--	---	---	---	---

Appendix D
Laboratory Reports and Chain of Custody
Documentation

Coffey Environments Pty Ltd Newcastle
 Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304

Attention: Damien Hendrickx

Report **376070-S**
 Client Reference BELLARD HEIGHTS ENAUWARA04363AA
 Received Date Apr 18, 2013

Certificate of Analysis



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

Accredited for compliance with ISO/IEC 17025.
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Client Sample ID			DS1 Soil	DS2 Soil	SS1 Soil	SS2 Soil
Sample Matrix			S13-Ap13600	S13-Ap13601	S13-Ap13603	S13-Ap13604
Eurofins mgt Sample No.			Apr 15, 2013	Apr 15, 2013	Apr 16, 2013	Apr 16, 2013
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	21	21	26	24
TRH C15-C28	50	mg/kg	< 50	58	150	120
TRH C29-C36	50	mg/kg	< 50	120	200	100
TRH C10-36 (Total)	50	mg/kg	< 50	200	380	240
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	89	88	88	91
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	55	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	140	280	210
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.7

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	DS1 Soil S13-Ap13600 Apr 15, 2013	DS2 Soil S13-Ap13601 Apr 15, 2013	SS1 Soil S13-Ap13603 Apr 16, 2013	SS2 Soil S13-Ap13604 Apr 16, 2013
Polyaromatic Hydrocarbons (PAH)						
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	1	mg/kg	< 1	< 1	< 1	1.2
2-Fluorobiphenyl (surr.)	1	%	99	104	104	105
p-Terphenyl-d14 (surr.)	1	%	78	84	80	82
Heavy Metals						
Arsenic	2	mg/kg	5.3	4.2	7.7	3.9
Cadmium	0.4	mg/kg	< 0.4	0.7	< 0.4	< 0.4
Chromium	5	mg/kg	15	18	16	13
Copper	5	mg/kg	6.3	16	18	23
Lead	5	mg/kg	16	50	24	14
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.06	0.05
Nickel	5	mg/kg	7.8	18	22	18
Zinc	5	mg/kg	27	140	35	25
% Moisture	0.1	%	34	35	32	17

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	SS3 Soil S13-Ap13605 Apr 16, 2013	TP1_0.0-0.1 Soil S13-Ap13606 Apr 16, 2013	TP2_0.0-0.1 Soil S13-Ap13612 Apr 16, 2013	TP2_0.9-1.0 Soil S13-Ap13614 Apr 16, 2013
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	25	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	160	< 50	< 50	64
TRH C29-C36	50	mg/kg	140	< 50	100	56
TRH C10-36 (Total)	50	mg/kg	330	< 50	100	120
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91	93	92	91
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	270	< 100	< 100	110
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			SS3	TP1_0.0-0.1	TP2_0.0-0.1	TP2_0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-Ap13605	S13-Ap13606	S13-Ap13612	S13-Ap13614
Date Sampled			Apr 16, 2013	Apr 16, 2013	Apr 16, 2013	Apr 16, 2013
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls (PCB)						
Aroclor-1232	0.5	mg/kg	-	< 0.5	-	-
Aroclor-1242	0.5	mg/kg	-	< 0.5	-	-
Aroclor-1248	0.5	mg/kg	-	< 0.5	-	-
Aroclor-1254	0.5	mg/kg	-	< 0.5	-	-
Aroclor-1260	0.5	mg/kg	-	< 0.5	-	-
Total PCB	0.5	mg/kg	-	< 0.5	-	-
Dibutylchlorodate (surr.)	1	%	-	94	-	-
Organochlorine Pesticides (OC)						
4,4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4,4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4,4'-DDT	0.2	mg/kg	-	< 0.2	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
a-Chlordane	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
g-Chlordane	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-	-
Dibutylchlorodate (surr.)	1	%	-	94	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	83	-	-
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	1.1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	0.7	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	1.2	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	1.1	< 0.5
Total PAH	1	mg/kg	< 1	< 1	5.7	< 1
2-Fluorobiphenyl (surr.)	1	%	100	100	102	101

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	SS3 Soil S13-Ap13605 Apr 16, 2013	TP1_0.0-0.1 Soil S13-Ap13606 Apr 16, 2013	TP2_0.0-0.1 Soil S13-Ap13612 Apr 16, 2013	TP2_0.9-1.0 Soil S13-Ap13614 Apr 16, 2013
Polyaromatic Hydrocarbons (PAH)						
2-Fluorobiphenyl (surr.)	1	%	100	100	102	101
p-Terphenyl-d14 (surr.)	1	%	78	80	83	81
Heavy Metals						
Arsenic	2	mg/kg	3.1	13	4.8	4.9
Cadmium	0.4	mg/kg	0.8	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	18	7.5	13	< 5
Copper	5	mg/kg	16	7.2	20	13
Lead	5	mg/kg	25	9.4	30	7.5
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.09
Nickel	5	mg/kg	21	8.3	37	< 5
Zinc	5	mg/kg	54	26	55	8.4
% Moisture	0.1	%	19	17	12	21

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP3_0.0-0.1 Soil S13-Ap13616 Apr 16, 2013	TP3_0.9-1.0 Soil S13-Ap13617 Apr 16, 2013	TP4_0.0-0.1 Soil S13-Ap13618 Apr 16, 2013	TP4_0.4-0.5 Soil S13-Ap13619 Apr 16, 2013
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	30	< 20	38	< 20
TRH C15-C28	50	mg/kg	180	< 50	260	< 50
TRH C29-C36	50	mg/kg	160	< 50	160	< 50
TRH C10-36 (Total)	50	mg/kg	370	< 50	460	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	96	95	93	95
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	54	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	290	< 100	390	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP3_0.0-0.1 Soil S13-Ap13616 Apr 16, 2013	TP3_0.9-1.0 Soil S13-Ap13617 Apr 16, 2013	TP4_0.0-0.1 Soil S13-Ap13618 Apr 16, 2013	TP4_0.4-0.5 Soil S13-Ap13619 Apr 16, 2013
Polyaromatic Hydrocarbons (PAH)						
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.6	< 0.5	0.6	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.4	< 0.5	1.2	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	1	mg/kg	2.0	< 1	1.8	< 1
2-Fluorobiphenyl (surr.)	1	%	106	102	100	103
p-Terphenyl-d14 (surr.)	1	%	83	83	72	83
Heavy Metals						
Arsenic	2	mg/kg	3.9	4.8	5.4	< 2
Cadmium	0.4	mg/kg	0.5	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	10	23	9.1	31
Copper	5	mg/kg	16	< 5	12	56
Lead	5	mg/kg	30	5.7	6.8	6.7
Mercury	0.05	mg/kg	0.06	< 0.05	0.05	< 0.05
Nickel	5	mg/kg	12	7.6	7.9	62
Zinc	5	mg/kg	42	7.3	15	39
% Moisture	0.1	%	18	13	15	16

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP4_1.4-1.5 Soil S13-Ap13620 Apr 16, 2013	TP5_0.0-0.1 Soil S13-Ap13621 Apr 16, 2013	QC1 Soil S13-Ap13623 Apr 16, 2013
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	57	< 50
TRH C29-C36	50	mg/kg	< 50	54	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	110	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3

Client Sample ID			TP4_1.4-1.5	TP5_0.0-0.1	QC1
Sample Matrix			Soil	Soil	Soil
Eurofins mgt Sample No.			S13-Ap13620	S13-Ap13621	S13-Ap13623
Date Sampled			Apr 16, 2013	Apr 16, 2013	Apr 16, 2013
Test/Reference	LOR	Unit			
BTEX					
4-Bromofluorobenzene (surr.)	1	%	91	94	92
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)					
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH	1	mg/kg	< 1	< 1	< 1
2-Fluorobiphenyl (surr.)	1	%	104	109	103
p-Terphenyl-d14 (surr.)	1	%	85	89	83
Heavy Metals					
Arsenic	2	mg/kg	3.8	4.9	2.5
Cadmium	0.4	mg/kg	0.4	< 0.4	< 0.4
Chromium	5	mg/kg	56	18	26
Copper	5	mg/kg	< 5	18	44
Lead	5	mg/kg	6.5	15	10
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	28	27	44
Zinc	5	mg/kg	21	35	66
% Moisture					
	0.1	%	16	13	21

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Apr 19, 2013	14 Day
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	Apr 19, 2013	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Apr 18, 2013	14 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Apr 19, 2013	14 Day
Organochlorine Pesticides (OC) - Method: E013 Organochlorine Pesticides (OC)	Sydney	Apr 19, 2013	14 Day
Polyaromatic Hydrocarbons (PAH) - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Apr 19, 2013	14 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	Apr 18, 2013	28 Day
% Moisture - Method: E005 Moisture Content	Sydney	Apr 18, 2013	28 Day

Company Name: Coffey Environments P/L N'castle Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304 Client Job No.: BELLARD HEIGHTS ENAUWARA04363AA	Order No.: Report #: 376070 Phone: 02 4016 2300 Fax: 02 4016 2380	Received: Apr 18, 2013 9:30 AM Due: Apr 26, 2013 Priority: 5 Day Contact Name: Damien Hendrickx
Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	HOLD	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory												
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
DS1	Apr 15, 2013		Soil	S13-Ap13600	X		X	X			X	X
DS2	Apr 15, 2013		Soil	S13-Ap13601	X		X	X			X	X
CS1	Apr 15, 2013		Soil	S13-Ap13602		X						
SS1	Apr 16, 2013		Soil	S13-Ap13603	X		X	X			X	X
SS2	Apr 16, 2013		Soil	S13-Ap13604	X		X	X			X	X
SS3	Apr 16, 2013		Soil	S13-Ap13605	X		X	X			X	X
TP1_0.0-0.1	Apr 16, 2013		Soil	S13-Ap13606	X		X	X	X	X	X	X
TP1_0.4-0.5	Apr 16, 2013		Soil	S13-Ap13607		X						
TP1_0.9-1.0	Apr 16, 2013		Soil	S13-Ap13608		X						
TP1_1.9-2.0	Apr 16, 2013		Soil	S13-Ap13609		X						

Company Name: Coffey Environments P/L N'castle Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304 Client Job No.: BELLARD HEIGHTS ENAUWARA04363AA	Order No.: Report #: 376070 Phone: 02 4016 2300 Fax: 02 4016 2380	Received: Apr 18, 2013 9:30 AM Due: Apr 26, 2013 Priority: 5 Day Contact Name: Damien Hendrickx
---	--	--

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	HOLD	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory												
TP1_2.9-3.0	Apr 16, 2013		Soil	S13-Ap13610		X						
TP1_3.9-4.0	Apr 16, 2013		Soil	S13-Ap13611		X						
TP2_0.0-0.1	Apr 16, 2013		Soil	S13-Ap13612	X		X	X			X	X
TP2_0.4-0.5	Apr 16, 2013		Soil	S13-Ap13613		X						
TP2_0.9-1.0	Apr 16, 2013		Soil	S13-Ap13614	X		X	X			X	X
TP2_2.2-2.3	Apr 16, 2013		Soil	S13-Ap13615		X						
TP3_0.0-0.1	Apr 16, 2013		Soil	S13-Ap13616	X		X	X			X	X
TP3_0.9-1.0	Apr 16, 2013		Soil	S13-Ap13617	X		X	X			X	X
TP4_0.0-0.1	Apr 16, 2013		Soil	S13-Ap13618	X		X	X			X	X
TP4_0.4-0.5	Apr 16, 2013		Soil	S13-Ap13619	X		X	X			X	X
TP4_1.4-1.5	Apr 16, 2013		Soil	S13-Ap13620	X		X	X			X	X

Company Name: Coffey Environments P/L N'castle Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304 Client Job No.: BELLARD HEIGHTS ENAUWARA04363AA	Order No.: Report #: 376070 Phone: 02 4016 2300 Fax: 02 4016 2380	Received: Apr 18, 2013 9:30 AM Due: Apr 26, 2013 Priority: 5 Day Contact Name: Damien Hendrickx
---	--	--

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	HOLD	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory												
TP5_0.0-0.1	Apr 16, 2013		Soil	S13-Ap13621	X		X	X			X	X
TP5_0.4-0.5	Apr 16, 2013		Soil	S13-Ap13622		X						
QC1	Apr 16, 2013		Soil	S13-Ap13623	X		X	X			X	X
TS130415-1	Apr 15, 2013		Soil	S13-Ap13685		X						
TB130415-1	Apr 15, 2013		Soil	S13-Ap13686		X						
TSLAB130415-1	Apr 15, 2013		Soil	S13-Ap13687		X						

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions LM-LTM-ORG2010							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.2			0.2	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
a-Chlordane	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
g-Chlordane	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	< 1			1	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	87			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	93			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	96			70-130	Pass	
o-Xylene	%	97			70-130	Pass	
Xylenes - Total	%	96			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions LM-LTM-ORG2010							
Naphthalene	%	95			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
TRH >C10-C16	%	91			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	120			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4,4'-DDD	%	111			70-130	Pass	

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code		
4.4'-DDE	%	116	70-130	Pass			
4.4'-DDT	%	116	70-130	Pass			
a-BHC	%	113	70-130	Pass			
a-Chlordane	%	117	70-130	Pass			
Aldrin	%	125	70-130	Pass			
b-BHC	%	111	70-130	Pass			
d-BHC	%	114	70-130	Pass			
Dieldrin	%	121	70-130	Pass			
Endosulfan I	%	123	70-130	Pass			
Endosulfan II	%	126	70-130	Pass			
Endosulfan sulphate	%	97	70-130	Pass			
Endrin	%	117	70-130	Pass			
Endrin aldehyde	%	116	70-130	Pass			
Endrin ketone	%	117	70-130	Pass			
g-BHC (Lindane)	%	117	70-130	Pass			
g-Chlordane	%	121	70-130	Pass			
Heptachlor	%	120	70-130	Pass			
Heptachlor epoxide	%	123	70-130	Pass			
Hexachlorobenzene	%	93	70-130	Pass			
Methoxychlor	%	113	70-130	Pass			
LCS - % Recovery							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	%	95	70-130	Pass			
Acenaphthylene	%	89	70-130	Pass			
Anthracene	%	93	70-130	Pass			
Benz(a)anthracene	%	89	70-130	Pass			
Benzo(a)pyrene	%	89	70-130	Pass			
Benzo(b)fluoranthene & Benzo(k)fluoranthene	%	90	70-130	Pass			
Benzo(g,h,i)perylene	%	90	70-130	Pass			
Chrysene	%	97	70-130	Pass			
Dibenz(a,h)anthracene	%	86	70-130	Pass			
Fluoranthene	%	89	70-130	Pass			
Fluorene	%	91	70-130	Pass			
Indeno(1,2,3-cd)pyrene	%	88	70-130	Pass			
Naphthalene	%	95	70-130	Pass			
Phenanthrene	%	88	70-130	Pass			
Pyrene	%	90	70-130	Pass			
LCS - % Recovery							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	%	83	70-130	Pass			
Cadmium	%	88	70-130	Pass			
Chromium	%	93	70-130	Pass			
Copper	%	105	70-130	Pass			
Lead	%	96	70-130	Pass			
Mercury	%	102	70-130	Pass			
Nickel	%	97	70-130	Pass			
Zinc	%	101	70-130	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
				Result 1			
TRH C6-C9	S13-Ap13600	CP	%	79	70-130	Pass	
TRH C10-C14	S13-Ap13600	CP	%	85	70-130	Pass	
Spike - % Recovery							

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
BTEX				Result 1				
Benzene	S13-Ap13600	CP	%	84		70-130	Pass	
Toluene	S13-Ap13600	CP	%	87		70-130	Pass	
Ethylbenzene	S13-Ap13600	CP	%	88		70-130	Pass	
m&p-Xylenes	S13-Ap13600	CP	%	88		70-130	Pass	
o-Xylene	S13-Ap13600	CP	%	88		70-130	Pass	
Xylenes - Total	S13-Ap13600	CP	%	88		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1				
Naphthalene	S13-Ap13600	CP	%	81		70-130	Pass	
TRH C6-C10	S13-Ap13600	CP	%	88		70-130	Pass	
TRH >C10-C16	S13-Ap13600	CP	%	94		70-130	Pass	
Spike - % Recovery								
Polyaromatic Hydrocarbons (PAH)				Result 1				
Acenaphthene	S13-Ap13600	CP	%	108		70-130	Pass	
Acenaphthylene	S13-Ap13600	CP	%	108		70-130	Pass	
Anthracene	S13-Ap13600	CP	%	104		70-130	Pass	
Benz(a)anthracene	S13-Ap13600	CP	%	105		70-130	Pass	
Benzo(a)pyrene	S13-Ap13600	CP	%	105		70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-Ap13600	CP	%	106		70-130	Pass	
Benzo(g,h,i)perylene	S13-Ap13600	CP	%	107		70-130	Pass	
Chrysene	S13-Ap13600	CP	%	108		70-130	Pass	
Dibenz(a,h)anthracene	S13-Ap13600	CP	%	102		70-130	Pass	
Fluoranthene	S13-Ap13600	CP	%	108		70-130	Pass	
Fluorene	S13-Ap13600	CP	%	108		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-Ap13600	CP	%	105		70-130	Pass	
Naphthalene	S13-Ap13600	CP	%	110		70-130	Pass	
Phenanthrene	S13-Ap13600	CP	%	103		70-130	Pass	
Pyrene	S13-Ap13600	CP	%	106		70-130	Pass	
Spike - % Recovery								
Metals M8				Result 1				
Arsenic	S13-Ap13600	CP	%	88		70-130	Pass	
Cadmium	S13-Ap13600	CP	%	95		70-130	Pass	
Chromium	S13-Ap13600	CP	%	109		70-130	Pass	
Copper	S13-Ap13600	CP	%	105		70-130	Pass	
Lead	S13-Ap13600	CP	%	112		70-130	Pass	
Mercury	S13-Ap13600	CP	%	97		70-130	Pass	
Nickel	S13-Ap13600	CP	%	94		70-130	Pass	
Zinc	S13-Ap13600	CP	%	89		70-130	Pass	
Spike - % Recovery								
Polychlorinated Biphenyls (PCB)				Result 1				
Aroclor-1260	S13-Ap11577	NCP	%	114		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides (OC)				Result 1				
4,4'-DDD	S13-Ap11577	NCP	%	110		70-130	Pass	
4,4'-DDE	S13-Ap11577	NCP	%	123		70-130	Pass	
4,4'-DDT	S13-Ap11577	NCP	%	103		70-130	Pass	
a-BHC	S13-Ap11577	NCP	%	118		70-130	Pass	
a-Chlordane	S13-Ap11577	NCP	%	108		70-130	Pass	
Aldrin	S13-Ap11577	NCP	%	118		70-130	Pass	
b-BHC	S13-Ap11577	NCP	%	117		70-130	Pass	
d-BHC	S13-Ap11577	NCP	%	115		70-130	Pass	
Dieldrin	S13-Ap11577	NCP	%	115		70-130	Pass	
Endosulfan I	S13-Ap11577	NCP	%	119		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	S13-Ap11577	NCP	%	116		70-130	Pass	
Endosulfan sulphate	S13-Ap11577	NCP	%	100		70-130	Pass	
Endrin	S13-Ap11577	NCP	%	109		70-130	Pass	
Endrin aldehyde	S13-Ap11577	NCP	%	108		70-130	Pass	
Endrin ketone	S13-Ap11577	NCP	%	107		70-130	Pass	
g-BHC (Lindane)	S13-Ap11577	NCP	%	109		70-130	Pass	
g-Chlordane	S13-Ap11577	NCP	%	110		70-130	Pass	
Heptachlor	S13-Ap11577	NCP	%	113		70-130	Pass	
Heptachlor epoxide	S13-Ap11577	NCP	%	117		70-130	Pass	
Hexachlorobenzene	S13-Ap11577	NCP	%	106		70-130	Pass	
Methoxychlor	S13-Ap11577	NCP	%	107		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-Ap13618	CP	%	91		70-130	Pass	
TRH C10-C14	S13-Ap13618	CP	%	112		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-Ap13618	CP	%	85		70-130	Pass	
Toluene	S13-Ap13618	CP	%	88		70-130	Pass	
Ethylbenzene	S13-Ap13618	CP	%	90		70-130	Pass	
m&p-Xylenes	S13-Ap13618	CP	%	90		70-130	Pass	
o-Xylene	S13-Ap13618	CP	%	90		70-130	Pass	
Xylenes - Total	S13-Ap13618	CP	%	90		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1				
Naphthalene	S13-Ap13618	CP	%	97		70-130	Pass	
TRH C6-C10	S13-Ap13618	CP	%	92		70-130	Pass	
TRH >C10-C16	S13-Ap13618	CP	%	121		70-130	Pass	
Spike - % Recovery								
Polyaromatic Hydrocarbons (PAH)				Result 1				
Acenaphthene	S13-Ap13618	CP	%	100		70-130	Pass	
Acenaphthylene	S13-Ap13618	CP	%	102		70-130	Pass	
Anthracene	S13-Ap13618	CP	%	89		70-130	Pass	
Benz(a)anthracene	S13-Ap13618	CP	%	110		70-130	Pass	
Benzo(a)pyrene	S13-Ap13618	CP	%	85		70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-Ap13618	CP	%	101		70-130	Pass	
Benzo(g,h,i)perylene	S13-Ap13618	CP	%	75		70-130	Pass	
Chrysene	S13-Ap13618	CP	%	115		70-130	Pass	
Dibenz(a,h)anthracene	S13-Ap13618	CP	%	82		70-130	Pass	
Fluoranthene	S13-Ap13618	CP	%	106		70-130	Pass	
Fluorene	S13-Ap13618	CP	%	101		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-Ap13618	CP	%	76		70-130	Pass	
Naphthalene	S13-Ap13618	CP	%	112		70-130	Pass	
Phenanthrene	S13-Ap13618	CP	%	105		70-130	Pass	
Pyrene	S13-Ap13618	CP	%	117		70-130	Pass	
Spike - % Recovery								
Metals M8				Result 1				
Arsenic	S13-Ap13618	CP	%	77		70-130	Pass	
Cadmium	S13-Ap13618	CP	%	101		70-130	Pass	
Chromium	S13-Ap13618	CP	%	94		70-130	Pass	
Copper	S13-Ap13618	CP	%	115		70-130	Pass	
Lead	S13-Ap13618	CP	%	93		70-130	Pass	
Mercury	S13-Ap13618	CP	%	98		70-130	Pass	
Nickel	S13-Ap13618	CP	%	105		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	S13-Ap13618	CP	%	108			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S13-Ap13600	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S13-Ap13600	CP	mg/kg	21	24	14	30%	Pass	
TRH C15-C28	S13-Ap13600	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S13-Ap13600	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S13-Ap13600	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S13-Ap13600	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S13-Ap13600	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S13-Ap13600	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S13-Ap13600	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S13-Ap13600	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S13-Ap13600	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S13-Ap13600	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S13-Ap13600	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S13-Ap13600	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S13-Ap13600	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD			
Acenaphthene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-Ap13600	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Benzo(g,h,i)perylene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S13-Ap13600	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S13-Ap13600	CP	mg/kg	5.3	2.3	78	30%	Fail	Q15
Cadmium	S13-Ap13600	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S13-Ap13600	CP	mg/kg	15	8.7	52	30%	Fail	Q15
Copper	S13-Ap13600	CP	mg/kg	6.3	< 5	28	30%	Pass	
Lead	S13-Ap13600	CP	mg/kg	16	11	34	30%	Fail	Q15
Mercury	S13-Ap13600	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S13-Ap13600	CP	mg/kg	7.8	6.3	21	30%	Pass	
Zinc	S13-Ap13600	CP	mg/kg	27	21	25	30%	Pass	

Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S13-Ap11577	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S13-Ap11577	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S13-Ap11577	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S13-Ap11577	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S13-Ap11577	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S13-Ap11577	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides (OC)				Result 1	Result 2	RPD		
4,4'-DDD	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S13-Ap11577	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
a-BHC	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-Chlordane	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-Chlordane	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S13-Ap11577	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S13-Ap11577	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S13-Ap13618	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	S13-Ap13618	CP	mg/kg	38	37	3.0	30%	Pass
TRH C15-C28	S13-Ap13618	CP	mg/kg	260	270	2.0	30%	Pass
TRH C29-C36	S13-Ap13618	CP	mg/kg	160	170	5.0	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-Ap13618	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S13-Ap13618	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S13-Ap13618	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S13-Ap13618	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S13-Ap13618	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S13-Ap13618	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S13-Ap13618	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-Ap13618	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH >C10-C16	S13-Ap13618	CP	mg/kg	54	54	<1	30%	Pass
TRH >C16-C34	S13-Ap13618	CP	mg/kg	390	410	4.0	30%	Pass
TRH >C34-C40	S13-Ap13618	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD		
Acenaphthene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD		
Acenaphthylene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-Ap13618	CP	mg/kg	< 1	< 1	<1	30%	Pass
Benzo(g,h,i)perylene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-Ap13618	CP	mg/kg	0.6	0.7	6.0	30%	Pass
Fluorene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S13-Ap13618	CP	mg/kg	1.2	1.1	5.0	30%	Pass
Pyrene	S13-Ap13618	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Metals M8				Result 1	Result 2	RPD		
Arsenic	S13-Ap13618	CP	mg/kg	5.4	5.6	3.0	30%	Pass
Cadmium	S13-Ap13618	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S13-Ap13618	CP	mg/kg	9.1	10	13	30%	Pass
Copper	S13-Ap13618	CP	mg/kg	12	14	13	30%	Pass
Lead	S13-Ap13618	CP	mg/kg	6.8	7.5	9.0	30%	Pass
Mercury	S13-Ap13618	CP	mg/kg	0.05	0.05	3.0	30%	Pass
Nickel	S13-Ap13618	CP	mg/kg	7.9	9.7	20	30%	Pass
Zinc	S13-Ap13618	CP	mg/kg	15	17	10	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q15	The RPD reported passes Eurofins mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
James Norford	Senior Analyst-Metal (NSW)


Dr. Bob Symons
Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Attention: **Damien Hendrickx**

Report **376581-S**
 Client Reference **BELLBIRD HEIGHTS ENAUWARA04363AA**
 Received Date **Apr 23, 2013**



Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
 The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Client Sample ID			TP1-0.0-0.1	TP2-0.0-0.1	TP2-0.9-1.0	TP3-0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-Ap17985	S13-Ap17990	S13-Ap17992	S13-Ap17994
Date Sampled			Apr 16, 2013	Apr 16, 2013	Apr 16, 2013	Apr 16, 2013
Test/Reference	LOR	Unit				
pH (1:5 Aqueous extract)	0.1	units	4.1	3.4	4.3	4.2
% Moisture	0.1	%	13	5.9	15	14
Asbestos			see attached	see attached	-	see attached

Client Sample ID			TP3-0.9-1.0	TP4-0.0-0.1	TP4-0.4-0.5	TP4-1.4-1.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-Ap17995	S13-Ap17996	S13-Ap17997	S13-Ap17998
Date Sampled			Apr 16, 2013	Apr 16, 2013	Apr 16, 2013	Apr 16, 2013
Test/Reference	LOR	Unit				
pH (1:5 Aqueous extract)	0.1	units	3.4	3.5	3.5	4.0
% Moisture	0.1	%	13	12	11	16
Asbestos			-	see attached	-	-

Client Sample ID			TP5-0.0-0.1	SS1	SS2	SS3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-Ap17999	S13-Ap18001	S13-Ap18002	S13-Ap18003
Date Sampled			Apr 16, 2013	Apr 16, 2013	Apr 16, 2013	Apr 16, 2013
Test/Reference	LOR	Unit				
pH (1:5 Aqueous extract)	0.1	units	3.6	-	-	-
% Moisture	0.1	%	10	-	-	-
Asbestos			see attached	see attached	see attached	see attached

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

Description	Testing Site	Extracted	Holding Time
pH (1:5 Aqueous extract) - Method: E018 pH	Sydney	Apr 24, 2013	7 Day
% Moisture - Method: E005 Moisture Content	Sydney	Apr 23, 2013	28 Day

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 376581
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Apr 23, 2013 1:33 PM
Due: May 1, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:5 Aqueous extract)
Laboratory where analysis is conducted								
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217					X		X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory						X		
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
TP1-0.0-0.1	Apr 16, 2013		Soil	S13-Ap17985	X	X		X
TP1-0.4-0.5	Apr 16, 2013		Soil	S13-Ap17986			X	
TP1-1.9-2.0	Apr 16, 2013		Soil	S13-Ap17987			X	
TP1-2.9-3.0	Apr 16, 2013		Soil	S13-Ap17988			X	
TP1-3.9-4.0	Apr 16, 2013		Soil	S13-Ap17989			X	
TP2-0.0-0.1	Apr 16, 2013		Soil	S13-Ap17990	X	X		X
TP2-0.4-0.5	Apr 16, 2013		Soil	S13-Ap17991			X	
TP2-0.9-1.0	Apr 16, 2013		Soil	S13-Ap17992	X			X
TP2-2.2-2.3	Apr 16, 2013		Soil	S13-Ap17993			X	
TP3-0.0-0.1	Apr 16, 2013		Soil	S13-Ap17994	X	X		X

Company Name: Coffey Environments P/L N'castle Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304 Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA	Order No.: Report #: 376581 Phone: 02 4016 2300 Fax: 02 4016 2380	Received: Apr 23, 2013 1:33 PM Due: May 1, 2013 Priority: 5 Day Contact Name: Damien Hendrickx
Eurofins mgt Client Manager: Jean Heng		

Sample Detail					% Moisture	Asbestos	HOLD	pH (1:5 Aqueous extract)
Laboratory where analysis is conducted								
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217					X		X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory						X		
TP3-0.9-1.0	Apr 16, 2013		Soil	S13-Ap17995	X			X
TP4-0.0-0.1	Apr 16, 2013		Soil	S13-Ap17996	X	X		X
TP4-0.4-0.5	Apr 16, 2013		Soil	S13-Ap17997	X			X
TP4-1.4-1.5	Apr 16, 2013		Soil	S13-Ap17998	X			X
TP5-0.0-0.1	Apr 16, 2013		Soil	S13-Ap17999	X	X		X
TP5-0.4-0.5	Apr 16, 2013		Soil	S13-Ap18000			X	
SS1	Apr 16, 2013		Soil	S13-Ap18001		X		
SS2	Apr 16, 2013		Soil	S13-Ap18002		X		
SS3	Apr 16, 2013		Soil	S13-Ap18003		X		
TP1-0.9-1.0	Apr 16, 2013		Soil	S13-Ap18199			X	
CS1	Apr 15, 2013		Soil	S13-Ap18200			X	

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 376581
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: Apr 23, 2013 1:33 PM
Due: May 1, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (1:5 Aqueous extract)
Laboratory where analysis is conducted								
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217					X		X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory						X		
DS1	Apr 15, 2013		Soil	S13-Ap18201			X	
DS2	Apr 15, 2013		Soil	S13-Ap18202			X	

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Coffey Environments Pty Ltd Newcastle
Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304

Attention: **Damien Hendrickx**

Report **377797-S**
 Client Reference **BELLBIRD HEIGHTS ENAUWARA04363AA**
 Received Date **May 03, 2013**

Certificate of Analysis



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Client Sample ID			TP6_0.0-0.1	TP6_0.4-0.5	TP7_0.0-0.1	TP7_0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03367	S13-My03368	S13-My03370	S13-My03371
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 01, 2013
Test/Reference	LOR	Unit				
pH (1:5 Aqueous extract)	0.1	units	4.1	3.7	4.0	3.8
% Moisture	0.1	%	12	15	13	14
Heavy Metals						
Arsenic	2	mg/kg	3.9	6.8	4.9	5.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.6	38	23	11
Copper	5	mg/kg	8.1	5.5	< 5	15
Lead	5	mg/kg	19	12	7.2	7.7
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	10	12	23	7.2
Zinc	5	mg/kg	16	23	21	18

Client Sample ID			TP8_0.0-0.1	TP9_0.0-0.1	TP9_0.5-0.6	TP10_0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03373	S13-My03376	S13-My03377	S13-My03378
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 01, 2013
Test/Reference	LOR	Unit				
pH (1:5 Aqueous extract)	0.1	units	3.5	3.7	3.8	4.9
% Moisture	0.1	%	8.4	11	14	18
Heavy Metals						
Arsenic	2	mg/kg	< 2	4.1	3.0	3.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	7.1	22	21	22
Copper	5	mg/kg	8.7	20	< 5	8.3
Lead	5	mg/kg	10	11	5.4	13
Mercury	0.05	mg/kg	0.06	0.05	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	12	42	16
Zinc	5	mg/kg	18	25	24	39

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP11_0.0-0.1 Soil S13-My03380 May 01, 2013	TP12_0.0-0.1 Soil S13-My03382 May 01, 2013	TP13_0.0-0.1 Soil S13-My03384 May 01, 2013	TP14_0.0-0.1 Soil S13-My03386 May 01, 2013
pH (1:5 Aqueous extract)	0.1	units	7.3	6.6	5.7	5.5
% Moisture	0.1	%	18	15	9.1	10
Heavy Metals						
Arsenic	2	mg/kg	5.4	< 2	2.7	< 2
Cadmium	0.4	mg/kg	0.6	1.3	< 0.4	< 0.4
Chromium	5	mg/kg	25	7.9	15	13
Copper	5	mg/kg	18	18	5.0	< 5
Lead	5	mg/kg	77	35	15	7.6
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	12	7.4	6.1	< 5
Zinc	5	mg/kg	160	98	60	7.6

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP15_0.0-0.1 Soil S13-My03388 May 01, 2013	SS4 Soil S13-My03390 May 01, 2013	SS5 Soil S13-My03391 May 01, 2013	SS6 Soil S13-My03392 May 01, 2013
pH (1:5 Aqueous extract)	0.1	units	5.9	4.4	3.7	3.6
% Moisture	0.1	%	12	11	3.3	5.0
Heavy Metals						
Arsenic	2	mg/kg	2.4	< 2	4.2	4.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	16	11	9.3	14
Copper	5	mg/kg	< 5	12	7.3	17
Lead	5	mg/kg	9.1	16	22	< 5
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	10	11	33	19
Zinc	5	mg/kg	14	18	60	27

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	SS7 Soil S13-My03393 May 01, 2013	SS8 Soil S13-My03394 May 01, 2013	SS9 Soil S13-My03395 May 01, 2013	SS10 Soil S13-My03396 May 01, 2013
pH (1:5 Aqueous extract)	0.1	units	5.2	5.0	5.7	6.9
% Moisture	0.1	%	9.7	9.5	7.6	13
Heavy Metals						
Arsenic	2	mg/kg	3.8	2.4	4.8	2.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	1.0	5.9

Client Sample ID			SS7	SS8	SS9	SS10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03393	S13-My03394	S13-My03395	S13-My03396
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 01, 2013
Test/Reference	LOR	Unit				
Heavy Metals						
Chromium	5	mg/kg	24	15	18	19
Copper	5	mg/kg	< 5	< 5	19	34
Lead	5	mg/kg	7.0	13	57	58
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	13	5.1	19	14
Zinc	5	mg/kg	21	7.3	160	150

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03397	S13-My03398	S13-My03399	S13-My03400
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 01, 2013
Test/Reference	LOR	Unit				
Heavy Metals						
pH (1:5 Aqueous extract)	0.1	units	5.8	6.1	6.6	6.5
% Moisture	0.1	%	7.8	19	14	17
Heavy Metals						
Arsenic	2	mg/kg	< 2	6.7	7.7	3.4
Cadmium	0.4	mg/kg	< 0.4	0.5	1.8	0.5
Chromium	5	mg/kg	16	16	47	13
Copper	5	mg/kg	12	64	13	24
Lead	5	mg/kg	35	170	180	57
Mercury	0.05	mg/kg	< 0.05	0.07	0.18	< 0.05
Nickel	5	mg/kg	6.2	9.9	13	11
Zinc	5	mg/kg	95	580	960	120

Client Sample ID			SS15	SS16	SS17	QC4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03401	S13-My03402	S13-My03403	S13-My03406
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 01, 2013
Test/Reference	LOR	Unit				
Heavy Metals						
pH (1:5 Aqueous extract)	0.1	units	6.2	6.2	6.0	4.4
% Moisture	0.1	%	17	6.1	19	10
Heavy Metals						
Arsenic	2	mg/kg	2.8	2.4	3.9	5.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	24	22	11	30
Copper	5	mg/kg	< 5	12	6.5	19
Lead	5	mg/kg	6.0	17	13	27
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	11	19	9.1	23
Zinc	5	mg/kg	24	32	35	34

Client Sample ID			QC6	QC8	QC9	SS18
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03407	S13-My03408	S13-My03409	S13-My03410
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	52
TRH C29-C36	50	mg/kg	-	-	-	100
TRH C10-36 (Total)	50	mg/kg	-	-	-	150
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	93
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	120
TRH >C34-C40	100	mg/kg	-	-	-	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB	0.5	mg/kg	-	-	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	-	-	90
Organochlorine Pesticides (OC)						
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.2	mg/kg	-	-	-	< 0.2
a-BHC	0.05	mg/kg	-	-	-	< 0.05
a-Chlordane	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
g-Chlordane	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			QC6	QC8	QC9	SS18
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03407	S13-My03408	S13-My03409	S13-My03410
Date Sampled			May 01, 2013	May 01, 2013	May 01, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides (OC)						
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Dibutylchloroendate (surr.)	1	%	-	-	-	90
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	86
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	-	-	-	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH	1	mg/kg	-	-	-	< 1
2-Fluorobiphenyl (surr.)	1	%	-	-	-	109
p-Terphenyl-d14 (surr.)	1	%	-	-	-	86
pH (1:5 Aqueous extract)						
	0.1	units	7.0	6.0	5.6	-
% Moisture	0.1	%	31	10	12	20
Asbestos			-	-	-	see attached
Heavy Metals						
Arsenic	2	mg/kg	6.9	2.5	< 2	4.8
Cadmium	0.4	mg/kg	1.5	1.4	< 0.4	< 0.4
Chromium	5	mg/kg	37	27	11	6.2
Copper	5	mg/kg	32	21	< 5	5.7
Lead	5	mg/kg	93	86	5.6	8.2
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	18	20	6.9	< 5
Zinc	5	mg/kg	800	230	11	68

Client Sample ID			SS19 Soil	SS20 Soil	SS21 Soil	SS22 Soil
Sample Matrix			S13-My03411	S13-My03412	S13-My03413	S13-My03414
Eurofins mgt Sample No.			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	54	-	< 50
TRH C29-C36	50	mg/kg	-	90	-	110
TRH C10-36 (Total)	50	mg/kg	-	140	-	110
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	98	-	97
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	110	-	110
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PCB	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	103	-	80
Organochlorine Pesticides (OC)						
4,4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4,4'-DDT	0.2	mg/kg	-	< 0.2	-	< 0.2
a-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
a-Chlordane	0.05	mg/kg	-	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
g-Chlordane	0.05	mg/kg	-	< 0.05	-	< 0.05

Client Sample ID			SS19	SS20	SS21	SS22
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03411	S13-My03412	S13-My03413	S13-My03414
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides (OC)						
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	-	< 0.2
Dibutylchloride (surr.)	1	%	-	103	-	80
Tetrachloro-m-xylene (surr.)	1	%	-	90	-	80
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	1	mg/kg	< 1	< 1	< 1	< 1
2-Fluorobiphenyl (surr.)	1	%	103	100	107	108
p-Terphenyl-d14 (surr.)	1	%	81	71	78	73
% Moisture						
	0.1	%	23	29	22	11
Asbestos						
			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	8.1	< 2	8.9	58
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	8.7	11	7.1
Copper	5	mg/kg	7.7	6.5	11	9.6
Lead	5	mg/kg	8.8	17	16	31
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	22	9.2	10	< 5
Zinc	5	mg/kg	59	71	61	66

Client Sample ID			SS23	SS24	SS25	SS26
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03415	S13-My03416	S13-My03417	S13-My03418
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20

Client Sample ID			SS23	SS24	SS25	SS26
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03415	S13-My03416	S13-My03417	S13-My03418
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C10-C14	20	mg/kg	< 20	-	< 20	42
TRH C15-C28	50	mg/kg	< 50	-	67	290
TRH C29-C36	50	mg/kg	89	-	85	130
TRH C10-36 (Total)	50	mg/kg	89	-	150	460
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	92	-	97	96
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	69
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	69
TRH >C16-C34	100	mg/kg	110	-	120	380
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB	0.5	mg/kg	-	-	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	-	-	88
Organochlorine Pesticides (OC)						
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.2	mg/kg	-	-	-	< 0.2
a-BHC	0.05	mg/kg	-	-	-	< 0.05
a-Chlordane	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
g-Chlordane	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			SS23	SS24	SS25	SS26
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03415	S13-My03416	S13-My03417	S13-My03418
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides (OC)						
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Dibutylchloride (surr.)	1	%	-	-	-	88
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	80
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.1
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	1	mg/kg	< 1	< 1	< 1	1.6
2-Fluorobiphenyl (surr.)	1	%	104	105	101	109
p-Terphenyl-d14 (surr.)	1	%	78	72	77	71
% Moisture						
	0.1	%	23	35	7.9	5.4
Asbestos						
			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	3.5	3.8	3.1	5.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.6	16	12	15
Copper	5	mg/kg	7.5	9.2	8.7	11
Lead	5	mg/kg	44	46	40	12
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.05
Nickel	5	mg/kg	5.9	12	17	26
Zinc	5	mg/kg	160	110	70	31

Client Sample ID			SS27	SS28	SS29	SS30
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03419	S13-My03420	S13-My03421	S13-My03422
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	29	-	28	63

Client Sample ID			SS27	SS28	SS29	SS30
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03419	S13-My03420	S13-My03421	S13-My03422
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C15-C28	50	mg/kg	210	-	210	1200
TRH C29-C36	50	mg/kg	180	-	170	1100
TRH C10-36 (Total)	50	mg/kg	420	-	410	2400
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	0.2
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	95	-	94	92
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	83	-	< 50	460
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	83	-	< 50	460
TRH >C16-C34	100	mg/kg	320	-	330	1900
TRH >C34-C40	100	mg/kg	< 100	-	< 100	200
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	-	< 0.5
Total PCB	0.5	mg/kg	-	-	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	-	-	77
Organochlorine Pesticides (OC)						
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.2	mg/kg	-	-	-	< 0.2
a-BHC	0.05	mg/kg	-	-	-	< 0.05
a-Chlordane	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
g-Chlordane	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			SS27	SS28	SS29	SS30
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			S13-My03419	S13-My03420	S13-My03421	S13-My03422
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit				
Organochlorine Pesticides (OC)						
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Dibutylchloride (surr.)	1	%	-	-	-	77
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	70
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1	1.0
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.1
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	1.1	0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.9
Total PAH	1	mg/kg	< 1	< 1	1.1	4.6
2-Fluorobiphenyl (surr.)	1	%	109	105	112	104
p-Terphenyl-d14 (surr.)	1	%	74	84	74	73
% Moisture						
	0.1	%	6.9	4.1	3.4	5.0
Asbestos						
			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	6.3	2.9	2.3	2.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	26	6.3	6.2	5.2
Copper	5	mg/kg	6.6	7.4	8.3	7.0
Lead	5	mg/kg	10	7.6	6.5	17
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.08	< 0.05
Nickel	5	mg/kg	18	< 5	7.6	8.9
Zinc	5	mg/kg	56	11	12	41

Client Sample ID			SS31	QC11	ASF1
Sample Matrix			Soil	Soil	Other
Eurofins mgt Sample No.			S13-My03423	S13-My03424	S13-My03425
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	-

Client Sample ID			SS31	QC11	ASF1
Sample Matrix			Soil	Soil	Other
Eurofins mgt Sample No.			S13-My03423	S13-My03424	S13-My03425
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C29-C36	50	mg/kg	79	75	-
TRH C10-36 (Total)	50	mg/kg	79	75	-
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	94	93	-
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-
Polyaromatic Hydrocarbons (PAH)					
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-
Total PAH	1	mg/kg	< 1	< 1	-
2-Fluorobiphenyl (surr.)	1	%	107	110	-
p-Terphenyl-d14 (surr.)	1	%	91	90	-
% Moisture					
% Moisture	0.1	%	9.3	23	-
Asbestos					
Asbestos			see attached	-	see attached
Heavy Metals					
Arsenic	2	mg/kg	3.9	4.8	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-
Chromium	5	mg/kg	8.5	10	-
Copper	5	mg/kg	23	11	-
Lead	5	mg/kg	36	16	-
Mercury	0.05	mg/kg	0.08	< 0.05	-
Nickel	5	mg/kg	19	11	-

Client Sample ID			SS31	QC11	ASF1
Sample Matrix			Soil	Soil	Other
Eurofins mgt Sample No.			S13-My03423	S13-My03424	S13-My03425
Date Sampled			May 02, 2013	May 02, 2013	May 02, 2013
Test/Reference	LOR	Unit			
Heavy Metals					
Zinc	5	mg/kg	94	130	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	May 06, 2013	14 Day
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	May 06, 2013	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	May 04, 2013	14 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	May 06, 2013	14 Day
Organochlorine Pesticides (OC) - Method: E013 Organochlorine Pesticides (OC)	Sydney	May 06, 2013	14 Day
Polyaromatic Hydrocarbons (PAH) - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	May 06, 2013	14 Day
pH (1:5 Aqueous extract) - Method: E018 pH	Sydney	May 06, 2013	7 Day
% Moisture - Method: E005 Moisture Content	Sydney	May 04, 2013	28 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	May 03, 2013	28 Day

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID												
TP6_0.0-0.1	May 01, 2013		Soil	S13-My03367	X		X	X								
TP6_0.4-0.5	May 01, 2013		Soil	S13-My03368	X		X	X								
TP6_0.9-1.0	May 01, 2013		Soil	S13-My03369			X									
TP7_0.0-0.1	May 01, 2013		Soil	S13-My03370	X		X	X								
TP7_0.4-0.5	May 01, 2013		Soil	S13-My03371	X		X	X								
TP7_1.9-2.0	May 01, 2013		Soil	S13-My03372			X									
TP8_0.0-0.1	May 01, 2013		Soil	S13-My03373	X		X	X								
TP8_0.4-0.5	May 01, 2013		Soil	S13-My03374			X									
TP8_0.9-1.0	May 01, 2013		Soil	S13-My03375			X									
TP9_0.0-0.1	May 01, 2013		Soil	S13-My03376	X		X	X								

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
TP9_0.5-0.6	May 01, 2013		Soil	S13-My03377	X		X	X								
TP10_0.0-0.1	May 01, 2013		Soil	S13-My03378	X		X	X								
TP10_0.4-0.5	May 01, 2013		Soil	S13-My03379			X									
TP11_0.0-0.1	May 01, 2013		Soil	S13-My03380	X		X	X								
TP11_0.4-0.5	May 01, 2013		Soil	S13-My03381			X									
TP12_0.0-0.1	May 01, 2013		Soil	S13-My03382	X		X	X								
TP12_0.4-0.5	May 01, 2013		Soil	S13-My03383			X									
TP13_0.0-0.1	May 01, 2013		Soil	S13-My03384	X		X	X								
TP13_0.2-0.3	May 01, 2013		Soil	S13-My03385			X									
TP14_0.0-0.1	May 01, 2013		Soil	S13-My03386	X		X	X								
TP14_0.4-0.5	May 01, 2013		Soil	S13-My03387			X									

Company Name: Coffey Environments P/L N'castle	Order No.:	Received: May 3, 2013 12:30 PM
Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304	Report #: 377797	Due: May 10, 2013
	Phone: 02 4016 2300	Priority: 5 Day
	Fax: 02 4016 2380	Contact Name: Damien Hendrickx
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA		

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
TP15_0.0-0.1	May 01, 2013		Soil	S13-My03388	X		X	X	X							
TP15_0.9-1.0	May 01, 2013		Soil	S13-My03389			X									
SS4	May 01, 2013		Soil	S13-My03390	X		X	X	X							
SS5	May 01, 2013		Soil	S13-My03391	X		X	X	X							
SS6	May 01, 2013		Soil	S13-My03392	X		X	X	X							
SS7	May 01, 2013		Soil	S13-My03393	X		X	X	X							
SS8	May 01, 2013		Soil	S13-My03394	X		X	X	X							
SS9	May 01, 2013		Soil	S13-My03395	X		X	X	X							
SS10	May 01, 2013		Soil	S13-My03396	X		X	X	X							
SS11	May 01, 2013		Soil	S13-My03397	X		X	X	X							
SS12	May 01, 2013		Soil	S13-My03398	X		X	X	X							

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
SS13	May 01, 2013		Soil	S13-My03399	X		X	X								
SS14	May 01, 2013		Soil	S13-My03400	X		X	X								
SS15	May 01, 2013		Soil	S13-My03401	X		X	X								
SS16	May 01, 2013		Soil	S13-My03402	X		X	X								
SS17	May 01, 2013		Soil	S13-My03403	X		X	X								
QC2	May 01, 2013		Water	S13-My03404				X			X					
QC3	May 01, 2013		Water	S13-My03405						X	X					X
QC4	May 01, 2013		Soil	S13-My03406	X		X	X								
QC6	May 01, 2013		Soil	S13-My03407	X		X	X								
QC8	May 01, 2013		Soil	S13-My03408	X		X	X								
QC9	May 01, 2013		Soil	S13-My03409	X		X	X								

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
SS18	May 02, 2013		Soil	S13-My03410	X	X				X		X	X	X	X	X
SS19	May 02, 2013		Soil	S13-My03411	X	X				X					X	
SS20	May 02, 2013		Soil	S13-My03412	X	X				X		X	X	X	X	X
SS21	May 02, 2013		Soil	S13-My03413	X	X				X					X	
SS22	May 02, 2013		Soil	S13-My03414	X	X				X		X	X	X	X	X
SS23	May 02, 2013		Soil	S13-My03415	X	X				X		X			X	X
SS24	May 02, 2013		Soil	S13-My03416	X	X				X					X	
SS25	May 02, 2013		Soil	S13-My03417	X	X				X		X			X	X
SS26	May 02, 2013		Soil	S13-My03418	X	X				X		X	X	X	X	X
SS27	May 02, 2013		Soil	S13-My03419	X	X				X		X			X	X
SS28	May 02, 2013		Soil	S13-My03420	X	X				X					X	

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
SS29	May 02, 2013		Soil	S13-My03421	X	X				X		X			X	X
SS30	May 02, 2013		Soil	S13-My03422	X	X				X		X	X	X	X	X
SS31	May 02, 2013		Soil	S13-My03423	X	X				X		X			X	X
QC11	May 02, 2013		Soil	S13-My03424	X					X		X			X	X
ASF1	May 02, 2013		Other	S13-My03425		X										

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions LM-LTM-ORG2010							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.2			0.2	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
a-Chlordane	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
g-Chlordane	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	< 1			1	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	86			70-130	Pass	
TRH C10-C14	%	87			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	113			70-130	Pass	
Toluene	%	108			70-130	Pass	
Ethylbenzene	%	106			70-130	Pass	
m&p-Xylenes	%	105			70-130	Pass	
o-Xylene	%	105			70-130	Pass	
Xylenes - Total	%	105			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions LM-LTM-ORG2010							
Naphthalene	%	88			70-130	Pass	
TRH C6-C10	%	95			70-130	Pass	
TRH >C10-C16	%	93			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	106			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4,4'-DDD	%	98			70-130	Pass	

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code		
4.4'-DDE	%	104	70-130	Pass			
4.4'-DDT	%	93	70-130	Pass			
a-BHC	%	94	70-130	Pass			
a-Chlordane	%	97	70-130	Pass			
Aldrin	%	103	70-130	Pass			
b-BHC	%	103	70-130	Pass			
d-BHC	%	96	70-130	Pass			
Dieldrin	%	101	70-130	Pass			
Endosulfan I	%	105	70-130	Pass			
Endosulfan II	%	100	70-130	Pass			
Endosulfan sulphate	%	87	70-130	Pass			
Endrin	%	100	70-130	Pass			
Endrin aldehyde	%	96	70-130	Pass			
Endrin ketone	%	95	70-130	Pass			
g-BHC (Lindane)	%	98	70-130	Pass			
g-Chlordane	%	99	70-130	Pass			
Heptachlor	%	101	70-130	Pass			
Heptachlor epoxide	%	101	70-130	Pass			
Hexachlorobenzene	%	89	70-130	Pass			
Methoxychlor	%	96	70-130	Pass			
LCS - % Recovery							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	%	108	70-130	Pass			
Acenaphthylene	%	109	70-130	Pass			
Anthracene	%	107	70-130	Pass			
Benz(a)anthracene	%	92	70-130	Pass			
Benzo(a)pyrene	%	102	70-130	Pass			
Benzo(b)fluoranthene & Benzo(k)fluoranthene	%	102	70-130	Pass			
Benzo(g,h,i)perylene	%	103	70-130	Pass			
Chrysene	%	100	70-130	Pass			
Dibenz(a,h)anthracene	%	102	70-130	Pass			
Fluoranthene	%	101	70-130	Pass			
Fluorene	%	104	70-130	Pass			
Indeno(1,2,3-cd)pyrene	%	103	70-130	Pass			
Naphthalene	%	107	70-130	Pass			
Phenanthrene	%	103	70-130	Pass			
Pyrene	%	96	70-130	Pass			
LCS - % Recovery							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	%	84	70-130	Pass			
Cadmium	%	104	70-130	Pass			
Chromium	%	91	70-130	Pass			
Copper	%	95	70-130	Pass			
Lead	%	94	70-130	Pass			
Mercury	%	102	70-130	Pass			
Nickel	%	92	70-130	Pass			
Zinc	%	97	70-130	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery							
Metals M8							
				Result 1			
Arsenic	S13-My03367	CP	%	98	70-130	Pass	
Cadmium	S13-My03367	CP	%	100	70-130	Pass	
Chromium	S13-My03367	CP	%	94	70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Copper	S13-My03367	CP	%	102		70-130	Pass	
Lead	S13-My03367	CP	%	99		70-130	Pass	
Mercury	S13-My03367	CP	%	106		70-130	Pass	
Nickel	S13-My03367	CP	%	97		70-130	Pass	
Zinc	S13-My03367	CP	%	108		70-130	Pass	
Spike - % Recovery								
Metals M8				Result 1				
Arsenic	S13-My03384	CP	%	81		70-130	Pass	
Cadmium	S13-My03384	CP	%	103		70-130	Pass	
Chromium	S13-My03384	CP	%	103		70-130	Pass	
Copper	S13-My03384	CP	%	104		70-130	Pass	
Lead	S13-My03384	CP	%	106		70-130	Pass	
Mercury	S13-My03384	CP	%	108		70-130	Pass	
Nickel	S13-My03384	CP	%	96		70-130	Pass	
Spike - % Recovery								
Metals M8				Result 1				
Arsenic	S13-My03397	CP	%	92		70-130	Pass	
Cadmium	S13-My03397	CP	%	97		70-130	Pass	
Chromium	S13-My03397	CP	%	76		70-130	Pass	
Copper	S13-My03397	CP	%	99		70-130	Pass	
Lead	S13-My03397	CP	%	114		70-130	Pass	
Mercury	S13-My03397	CP	%	103		70-130	Pass	
Nickel	S13-My03397	CP	%	96		70-130	Pass	
Spike - % Recovery								
Metals M8				Result 1				
Arsenic	S13-My03409	CP	%	110		70-130	Pass	
Cadmium	S13-My03409	CP	%	106		70-130	Pass	
Chromium	S13-My03409	CP	%	90		70-130	Pass	
Copper	S13-My03409	CP	%	98		70-130	Pass	
Lead	S13-My03409	CP	%	98		70-130	Pass	
Mercury	S13-My03409	CP	%	108		70-130	Pass	
Nickel	S13-My03409	CP	%	95		70-130	Pass	
Zinc	S13-My03409	CP	%	105		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-My03410	CP	%	78		70-130	Pass	
TRH C10-C14	S13-My03410	CP	%	96		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-My03410	CP	%	102		70-130	Pass	
Toluene	S13-My03410	CP	%	97		70-130	Pass	
Ethylbenzene	S13-My03410	CP	%	95		70-130	Pass	
m&p-Xylenes	S13-My03410	CP	%	95		70-130	Pass	
o-Xylene	S13-My03410	CP	%	95		70-130	Pass	
Xylenes - Total	S13-My03410	CP	%	95		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1				
Naphthalene	S13-My03410	CP	%	82		70-130	Pass	
TRH C6-C10	S13-My03410	CP	%	86		70-130	Pass	
TRH >C10-C16	S13-My03410	CP	%	103		70-130	Pass	
Spike - % Recovery								
Polychlorinated Biphenyls (PCB)				Result 1				
Aroclor-1260	S13-My03410	CP	%	116		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides (OC)				Result 1				

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDD	S13-My03410	CP	%	104		70-130	Pass	
4.4'-DDE	S13-My03410	CP	%	107		70-130	Pass	
4.4'-DDT	S13-My03410	CP	%	73		70-130	Pass	
a-BHC	S13-My03410	CP	%	99		70-130	Pass	
a-Chlordane	S13-My03410	CP	%	91		70-130	Pass	
Aldrin	S13-My03410	CP	%	95		70-130	Pass	
b-BHC	S13-My03410	CP	%	101		70-130	Pass	
d-BHC	S13-My03410	CP	%	89		70-130	Pass	
Dieldrin	S13-My03410	CP	%	96		70-130	Pass	
Endosulfan I	S13-My03410	CP	%	105		70-130	Pass	
Endosulfan II	S13-My03410	CP	%	94		70-130	Pass	
Endosulfan sulphate	S13-My03410	CP	%	73		70-130	Pass	
Endrin	S13-My03410	CP	%	94		70-130	Pass	
Endrin aldehyde	S13-My03410	CP	%	88		70-130	Pass	
Endrin ketone	S13-My03410	CP	%	85		70-130	Pass	
g-BHC (Lindane)	S13-My03410	CP	%	93		70-130	Pass	
g-Chlordane	S13-My03410	CP	%	92		70-130	Pass	
Heptachlor	S13-My03410	CP	%	91		70-130	Pass	
Heptachlor epoxide	S13-My03410	CP	%	95		70-130	Pass	
Hexachlorobenzene	S13-My03410	CP	%	97		70-130	Pass	
Methoxychlor	S13-My03410	CP	%	115		70-130	Pass	
Spike - % Recovery								
Polyaromatic Hydrocarbons (PAH)				Result 1				
Acenaphthene	S13-My03410	CP	%	109		70-130	Pass	
Acenaphthylene	S13-My03410	CP	%	110		70-130	Pass	
Anthracene	S13-My03410	CP	%	105		70-130	Pass	
Benz(a)anthracene	S13-My03410	CP	%	94		70-130	Pass	
Benzo(a)pyrene	S13-My03410	CP	%	109		70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-My03410	CP	%	110		70-130	Pass	
Benzo(g,h,i)perylene	S13-My03410	CP	%	103		70-130	Pass	
Chrysene	S13-My03410	CP	%	100		70-130	Pass	
Dibenz(a,h)anthracene	S13-My03410	CP	%	112		70-130	Pass	
Fluoranthene	S13-My03410	CP	%	101		70-130	Pass	
Fluorene	S13-My03410	CP	%	105		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-My03410	CP	%	107		70-130	Pass	
Naphthalene	S13-My03410	CP	%	111		70-130	Pass	
Phenanthrene	S13-My03410	CP	%	108		70-130	Pass	
Pyrene	S13-My03410	CP	%	92		70-130	Pass	
Spike - % Recovery								
Metals M8				Result 1				
Arsenic	S13-My03419	CP	%	94		70-130	Pass	
Cadmium	S13-My03419	CP	%	98		70-130	Pass	
Chromium	S13-My03419	CP	%	75		70-130	Pass	
Copper	S13-My03419	CP	%	104		70-130	Pass	
Lead	S13-My03419	CP	%	100		70-130	Pass	
Mercury	S13-My03419	CP	%	108		70-130	Pass	
Nickel	S13-My03419	CP	%	86		70-130	Pass	
Zinc	S13-My03419	CP	%	129		70-130	Pass	
Spike - % Recovery								
Polyaromatic Hydrocarbons (PAH)				Result 1				
Acenaphthene	S13-My03420	CP	%	108		70-130	Pass	
Acenaphthylene	S13-My03420	CP	%	108		70-130	Pass	
Anthracene	S13-My03420	CP	%	97		70-130	Pass	
Benz(a)anthracene	S13-My03420	CP	%	109		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	S13-My03420	CP	%	83			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-My03420	CP	%	99			70-130	Pass	
Benzo(g,h,i)perylene	S13-My03420	CP	%	76			70-130	Pass	
Chrysene	S13-My03420	CP	%	113			70-130	Pass	
Dibenz(a,h)anthracene	S13-My03420	CP	%	90			70-130	Pass	
Fluoranthene	S13-My03420	CP	%	126			70-130	Pass	
Fluorene	S13-My03420	CP	%	115			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S13-My03420	CP	%	81			70-130	Pass	
Naphthalene	S13-My03420	CP	%	117			70-130	Pass	
Phenanthrene	S13-My03420	CP	%	120			70-130	Pass	
Pyrene	S13-My03420	CP	%	117			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S13-My03424	CP	%	80			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S13-My03424	CP	%	104			70-130	Pass	
Toluene	S13-My03424	CP	%	100			70-130	Pass	
Ethylbenzene	S13-My03424	CP	%	98			70-130	Pass	
m&p-Xylenes	S13-My03424	CP	%	97			70-130	Pass	
o-Xylene	S13-My03424	CP	%	97			70-130	Pass	
Xylenes - Total	S13-My03424	CP	%	97			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1					
Naphthalene	S13-My03424	CP	%	80			70-130	Pass	
TRH C6-C10	S13-My03424	CP	%	87			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S13-My03367	CP	mg/kg	3.9	4.4	13	30%	Pass	
Cadmium	S13-My03367	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S13-My03367	CP	mg/kg	9.6	13	29	30%	Pass	
Copper	S13-My03367	CP	mg/kg	8.1	10	22	30%	Pass	
Lead	S13-My03367	CP	mg/kg	19	25	28	30%	Pass	
Mercury	S13-My03367	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S13-My03367	CP	mg/kg	10	14	29	30%	Pass	
Zinc	S13-My03367	CP	mg/kg	16	21	28	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S13-My03384	CP	mg/kg	2.7	3.0	11	30%	Pass	
Cadmium	S13-My03384	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S13-My03384	CP	mg/kg	15	14	3.0	30%	Pass	
Copper	S13-My03384	CP	mg/kg	5.0	5.7	13	30%	Pass	
Mercury	S13-My03384	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S13-My03384	CP	mg/kg	6.1	5.9	4.0	30%	Pass	
Zinc	S13-My03384	CP	mg/kg	60	74	21	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S13-My03397	CP	mg/kg	< 2	2.8	79	30%	Fail	Q15
Cadmium	S13-My03397	CP	mg/kg	< 0.4	0.5	30	30%	Pass	
Chromium	S13-My03397	CP	mg/kg	16	19	22	30%	Pass	
Copper	S13-My03397	CP	mg/kg	12	13	3.0	30%	Pass	
Lead	S13-My03397	CP	mg/kg	35	42	18	30%	Pass	

Duplicate								
Metals M8				Result 1	Result 2	RPD		
Mercury	S13-My03397	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Nickel	S13-My03397	CP	mg/kg	6.2	5.8	6.0	30%	Pass
Zinc	S13-My03397	CP	mg/kg	95	120	21	30%	Pass
Duplicate								
Metals M8				Result 1	Result 2	RPD		
Arsenic	S13-My03409	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	S13-My03409	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Copper	S13-My03409	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	S13-My03409	CP	mg/kg	5.6	< 5	27	30%	Pass
Mercury	S13-My03409	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Nickel	S13-My03409	CP	mg/kg	6.9	9.3	29	30%	Pass
Zinc	S13-My03409	CP	mg/kg	11	12	12	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S13-My03410	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	S13-My03410	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S13-My03410	CP	mg/kg	52	< 50	18	30%	Pass
TRH C29-C36	S13-My03410	CP	mg/kg	100	77	25	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-My03410	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S13-My03410	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S13-My03410	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S13-My03410	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S13-My03410	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S13-My03410	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S13-My03410	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-My03410	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH >C10-C16	S13-My03410	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S13-My03410	CP	mg/kg	120	< 100	22	30%	Pass
TRH >C34-C40	S13-My03410	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides (OC)				Result 1	Result 2	RPD		
4,4'-DDD	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S13-My03410	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
a-BHC	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-Chlordane	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Organochlorine Pesticides (OC)				Result 1	Result 2	RPD		
Endosulfan II	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-Chlordane	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S13-My03410	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S13-My03410	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD		
Acenaphthene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-My03410	CP	mg/kg	< 1	< 1	<1	30%	Pass
Benzo(g,h,i)perylene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S13-My03410	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Metals M8				Result 1	Result 2	RPD		
Arsenic	S13-My03419	CP	mg/kg	6.3	6.0	6.0	30%	Pass
Cadmium	S13-My03419	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S13-My03419	CP	mg/kg	26	25	<1	30%	Pass
Copper	S13-My03419	CP	mg/kg	6.6	7.6	14	30%	Pass
Lead	S13-My03419	CP	mg/kg	10	11	10	30%	Pass
Mercury	S13-My03419	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Nickel	S13-My03419	CP	mg/kg	18	18	4.0	30%	Pass
Zinc	S13-My03419	CP	mg/kg	56	64	13	30%	Pass
Duplicate								
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD		
Acenaphthene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S13-My03420	CP	mg/kg	< 1	< 1	<1	30%	Pass
Benzo(g,h,i)perylene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD		
Phenanthrene	S13-My03420	CP	mg/kg	< 0.5	0.6	24	30%	Pass
Pyrene	S13-My03420	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S13-My03424	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-My03424	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S13-My03424	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S13-My03424	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S13-My03424	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S13-My03424	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	S13-My03424	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-My03424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S13-My03424	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-My03424	CP	mg/kg	< 20	< 20	<1	30%	Pass

Comments

Please note: Asbestos analysed by ASET (Job : ASET33182/36362/1-15)NATA Accreditation : 14484

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q15	The RPD reported passes Eurofins mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
Bob Symons	Senior Analyst-Inorganic (NSW)
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
James Norford	Senior Analyst-Metal (NSW)



Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Coffey Environments Pty Ltd Newcastle
 Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304

Attention: Damien Hendrickx

Report **377797-W**
 Client Reference BELLBIRD HEIGHTS ENAUWARA04363AA
 Received Date May 03, 2013

Certificate of Analysis



NATA Accredited
 Accreditation Number 1261
 Site Number 18217

Accredited for compliance with ISO/IEC 17025.
 The results of the tests, calibrations and/or
 measurements included in this document are traceable
 to Australian/national standards.

Client Sample ID			QC2 Water	QC3 Water
Sample Matrix			S13-My03404	S13-My03405
Eurofins mgt Sample No.			May 01, 2013	May 01, 2013
Date Sampled				
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	-	< 0.05
TRH C15-C28	0.1	mg/L	-	< 0.1
TRH C29-C36	0.1	mg/L	-	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	< 0.1
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	0.002	0.002
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	0.002	0.004
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	0.004
4-Bromofluorobenzene (surr.)	1	%	103	107
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				
Naphthalene ^{N02}	0.02	mg/L	-	< 0.02
TRH C6-C10	0.02	mg/L	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02
TRH >C10-C16	0.05	mg/L	-	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	< 0.1
TRH >C34-C40	0.1	mg/L	-	< 0.1
Heavy Metals				
Arsenic (filtered)	0.001	mg/L	-	< 0.001
Cadmium (filtered)	0.0001	mg/L	-	< 0.0001
Chromium (filtered)	0.001	mg/L	-	< 0.001
Copper (filtered)	0.001	mg/L	-	< 0.001
Lead (filtered)	0.001	mg/L	-	< 0.001
Mercury (filtered)	0.0001	mg/L	-	< 0.0001
Nickel (filtered)	0.001	mg/L	-	< 0.001
Zinc (filtered)	0.005	mg/L	-	< 0.005

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	May 03, 2013	7 Day
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions - Method: LM-LTM-ORG2010	Sydney	May 03, 2013	7 Day
BTEX - Method: E029/E016 BTEX	Sydney	May 03, 2013	14 Day
Metals M8 filtered - Method: E020/E030 Filtered Metals in Water & E026 Mercury	Sydney	May 03, 2013	28 Day

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID												
TP6_0.0-0.1	May 01, 2013		Soil	S13-My03367	X		X	X								
TP6_0.4-0.5	May 01, 2013		Soil	S13-My03368	X		X	X								
TP6_0.9-1.0	May 01, 2013		Soil	S13-My03369			X									
TP7_0.0-0.1	May 01, 2013		Soil	S13-My03370	X		X	X								
TP7_0.4-0.5	May 01, 2013		Soil	S13-My03371	X		X	X								
TP7_1.9-2.0	May 01, 2013		Soil	S13-My03372			X									
TP8_0.0-0.1	May 01, 2013		Soil	S13-My03373	X		X	X								
TP8_0.4-0.5	May 01, 2013		Soil	S13-My03374			X									
TP8_0.9-1.0	May 01, 2013		Soil	S13-My03375			X									
TP9_0.0-0.1	May 01, 2013		Soil	S13-My03376	X		X	X								

Company Name: Coffey Environments P/L N'castle	Order No.:	Received: May 3, 2013 12:30 PM
Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304	Report #: 377797	Due: May 10, 2013
	Phone: 02 4016 2300	Priority: 5 Day
	Fax: 02 4016 2380	Contact Name: Damien Hendrickx
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA		

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
TP9_0.5-0.6	May 01, 2013		Soil	S13-My03377	X		X	X								
TP10_0.0-0.1	May 01, 2013		Soil	S13-My03378	X		X	X								
TP10_0.4-0.5	May 01, 2013		Soil	S13-My03379			X									
TP11_0.0-0.1	May 01, 2013		Soil	S13-My03380	X		X	X								
TP11_0.4-0.5	May 01, 2013		Soil	S13-My03381			X									
TP12_0.0-0.1	May 01, 2013		Soil	S13-My03382	X		X	X								
TP12_0.4-0.5	May 01, 2013		Soil	S13-My03383			X									
TP13_0.0-0.1	May 01, 2013		Soil	S13-My03384	X		X	X								
TP13_0.2-0.3	May 01, 2013		Soil	S13-My03385			X									
TP14_0.0-0.1	May 01, 2013		Soil	S13-My03386	X		X	X								
TP14_0.4-0.5	May 01, 2013		Soil	S13-My03387			X									

Company Name: Coffey Environments P/L N'castle Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304 Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA	Order No.: Report #: 377797 Phone: 02 4016 2300 Fax: 02 4016 2380	Received: May 3, 2013 12:30 PM Due: May 10, 2013 Priority: 5 Day Contact Name: Damien Hendrickx
--	--	--

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
TP15_0.0-0.1	May 01, 2013		Soil	S13-My03388	X		X	X								
TP15_0.9-1.0	May 01, 2013		Soil	S13-My03389			X									
SS4	May 01, 2013		Soil	S13-My03390	X		X	X								
SS5	May 01, 2013		Soil	S13-My03391	X		X	X								
SS6	May 01, 2013		Soil	S13-My03392	X		X	X								
SS7	May 01, 2013		Soil	S13-My03393	X		X	X								
SS8	May 01, 2013		Soil	S13-My03394	X		X	X								
SS9	May 01, 2013		Soil	S13-My03395	X		X	X								
SS10	May 01, 2013		Soil	S13-My03396	X		X	X								
SS11	May 01, 2013		Soil	S13-My03397	X		X	X								
SS12	May 01, 2013		Soil	S13-My03398	X		X	X								

Company Name: Coffey Environments P/L N'castle	Order No.:	Received: May 3, 2013 12:30 PM
Address: Lot 101, 19 Warabrook Boulevard Warabrook NSW 2304	Report #: 377797	Due: May 10, 2013
	Phone: 02 4016 2300	Priority: 5 Day
	Fax: 02 4016 2380	Contact Name: Damien Hendrickx
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA		

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
SS13	May 01, 2013		Soil	S13-My03399	X		X	X								
SS14	May 01, 2013		Soil	S13-My03400	X		X	X								
SS15	May 01, 2013		Soil	S13-My03401	X		X	X								
SS16	May 01, 2013		Soil	S13-My03402	X		X	X								
SS17	May 01, 2013		Soil	S13-My03403	X		X	X								
QC2	May 01, 2013		Water	S13-My03404				X			X					
QC3	May 01, 2013		Water	S13-My03405						X	X					X
QC4	May 01, 2013		Soil	S13-My03406	X		X	X								
QC6	May 01, 2013		Soil	S13-My03407	X		X	X								
QC8	May 01, 2013		Soil	S13-My03408	X		X	X								
QC9	May 01, 2013		Soil	S13-My03409	X		X	X								

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
 Warabrook
 NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:5 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
SS18	May 02, 2013		Soil	S13-My03410	X	X				X		X	X	X	X	X
SS19	May 02, 2013		Soil	S13-My03411	X	X				X					X	
SS20	May 02, 2013		Soil	S13-My03412	X	X				X		X	X	X	X	X
SS21	May 02, 2013		Soil	S13-My03413	X	X				X					X	
SS22	May 02, 2013		Soil	S13-My03414	X	X				X		X	X	X	X	X
SS23	May 02, 2013		Soil	S13-My03415	X	X				X		X			X	X
SS24	May 02, 2013		Soil	S13-My03416	X	X				X					X	
SS25	May 02, 2013		Soil	S13-My03417	X	X				X		X			X	X
SS26	May 02, 2013		Soil	S13-My03418	X	X				X		X	X	X	X	X
SS27	May 02, 2013		Soil	S13-My03419	X	X				X		X			X	X
SS28	May 02, 2013		Soil	S13-My03420	X	X				X					X	

Company Name: Coffey Environments P/L N'castle
Address: Lot 101, 19 Warabrook Boulevard
Warabrook
NSW 2304
Client Job No.: BELLBIRD HEIGHTS ENAUWARA04363AA

Order No.:
Report #: 377797
Phone: 02 4016 2300
Fax: 02 4016 2380

Received: May 3, 2013 12:30 PM
Due: May 10, 2013
Priority: 5 Day
Contact Name: Damien Hendrickx

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	pH (:15 Aqueous extract)	TRH C6-C9	Metals M8	Metals M8 filtered	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	Polyaromatic Hydrocarbons (PAH)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted																
Melbourne Laboratory - NATA Site # 1254 & 14271																
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794																
External Laboratory						X										
SS29	May 02, 2013		Soil	S13-My03421	X	X				X		X			X	X
SS30	May 02, 2013		Soil	S13-My03422	X	X				X		X	X	X	X	X
SS31	May 02, 2013		Soil	S13-My03423	X	X				X		X			X	X
QC11	May 02, 2013		Soil	S13-My03424	X					X		X			X	X
ASF1	May 02, 2013		Other	S13-My03425		X										

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)						
TRH C6-C9	mg/L	< 0.02		0.02	Pass	
TRH C10-C14	mg/L	< 0.05		0.05	Pass	
TRH C15-C28	mg/L	< 0.1		0.1	Pass	
TRH C29-C36	mg/L	< 0.1		0.1	Pass	
Method Blank						
BTEX E029/E016 BTEX						
Benzene	mg/L	< 0.001		0.001	Pass	
Toluene	mg/L	< 0.001		0.001	Pass	
Ethylbenzene	mg/L	< 0.001		0.001	Pass	
m&p-Xylenes	mg/L	< 0.002		0.002	Pass	
o-Xylene	mg/L	< 0.001		0.001	Pass	
Xylenes - Total	mg/L	< 0.003		0.003	Pass	
Method Blank						
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions LM-LTM-ORG2010						
Naphthalene	mg/L	< 0.02		0.02	Pass	
TRH C6-C10	mg/L	< 0.02		0.02	Pass	
TRH C6-C10 less BTEX (F1)	mg/L	< 0.02		0.02	Pass	
TRH >C10-C16	mg/L	< 0.05		0.05	Pass	
TRH >C16-C34	mg/L	< 0.1		0.1	Pass	
TRH >C34-C40	mg/L	< 0.1		0.1	Pass	
Method Blank						
Metals M8 filtered E020/E030 Filtered Metals in Water & E026 Mercury						
Arsenic (filtered)	mg/L	< 0.001		0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0001		0.0001	Pass	
Chromium (filtered)	mg/L	< 0.001		0.001	Pass	
Copper (filtered)	mg/L	< 0.001		0.001	Pass	
Lead (filtered)	mg/L	< 0.001		0.001	Pass	
Nickel (filtered)	mg/L	< 0.001		0.001	Pass	
Zinc (filtered)	mg/L	< 0.005		0.005	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)						
TRH C6-C9	%	98		70-130	Pass	
TRH C10-C14	%	84		70-130	Pass	
LCS - % Recovery						
BTEX E029/E016 BTEX						
Benzene	%	116		70-130	Pass	
Toluene	%	108		70-130	Pass	
Ethylbenzene	%	110		70-130	Pass	
m&p-Xylenes	%	107		70-130	Pass	
o-Xylene	%	110		70-130	Pass	
Xylenes - Total	%	108		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions LM-LTM-ORG2010						
Naphthalene	%	129		70-130	Pass	
TRH C6-C10	%	110		70-130	Pass	
TRH >C10-C16	%	89		70-130	Pass	
LCS - % Recovery						
Metals M8 filtered E020/E030 Filtered Metals in Water & E026 Mercury						
Arsenic (filtered)	%	96		70-130	Pass	

Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Cadmium (filtered)		%	101			70-130	Pass	
Chromium (filtered)		%	98			70-130	Pass	
Copper (filtered)		%	103			70-130	Pass	
Lead (filtered)		%	106			70-130	Pass	
Nickel (filtered)		%	97			70-130	Pass	
Zinc (filtered)		%	99			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
BTEX				Result 1				
Benzene	S13-My04623	NCP	%	112		70-130	Pass	
Toluene	S13-My04623	NCP	%	108		70-130	Pass	
Ethylbenzene	S13-My04623	NCP	%	108		70-130	Pass	
m&p-Xylenes	S13-My04623	NCP	%	105		70-130	Pass	
o-Xylene	S13-My04623	NCP	%	108		70-130	Pass	
Xylenes - Total	S13-My04623	NCP	%	106		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S13-My04623	NCP	%	95		70-130	Pass	
TRH C10-C14	S13-My01765	NCP	%	84		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1				
Naphthalene	S13-My04623	NCP	%	117		70-130	Pass	
TRH C6-C10	S13-My04623	NCP	%	105		70-130	Pass	
TRH >C10-C16	S13-My01765	NCP	%	88		70-130	Pass	
Spike - % Recovery								
Metals M8 filtered				Result 1				
Arsenic (filtered)	S13-My03580	NCP	%	100		70-130	Pass	
Cadmium (filtered)	S13-My03580	NCP	%	104		70-130	Pass	
Chromium (filtered)	S13-My03580	NCP	%	98		70-130	Pass	
Copper (filtered)	S13-My03580	NCP	%	98		70-130	Pass	
Lead (filtered)	S13-My03580	NCP	%	102		70-130	Pass	
Nickel (filtered)	S13-My03580	NCP	%	93		70-130	Pass	
Zinc (filtered)	S13-My03580	NCP	%	100		70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S13-My04613	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	S13-My04613	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	S13-My04613	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	S13-My04613	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	S13-My04613	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total	S13-My04613	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S13-My04613	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH C10-C14	S13-My03215	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	S13-My03215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	S13-My03215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S13-My04613	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH C6-C10	S13-My04613	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S13-My04613	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S13-My03215	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	S13-My03215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	S13-My03215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Metals M8 filtered				Result 1	Result 2	RPD		
Arsenic (filtered)	S13-My02958	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium (filtered)	S13-My02958	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Chromium (filtered)	S13-My02958	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	S13-My02958	NCP	mg/L	0.0011	0.0011	3.0	30%	Pass
Lead (filtered)	S13-My02958	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Nickel (filtered)	S13-My02958	NCP	mg/L	0.0025	0.0025	1.0	30%	Pass
Zinc (filtered)	S13-My02958	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Jean Heng	Client Services
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
James Norford	Senior Analyst-Metal (NSW)


Dr. Bob Symons
Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.



Our ref: ASET33182/ 36362 / 1 - 15

Your ref: 377797

NATA Accreditation No: 14484

8 May 2013

Eurofins | mgt
Unit F3, 16 Mars Road
Lane Cove NSW 2066

Attn: Dr Robert Symons
Laboratory & Technical Manager

Dear Robert

Asbestos Identification

This report presents the results of fifteen samples, forwarded by Eurofins | mgt on 6 May 2013, for analysis for asbestos.

1.Introduction:Fifteen samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method (**Safer Environment Method 1.**)

3. Results : **Sample No. 1. ASET33182 / 36362 / 1. SS18 - My03410**
Approx dimensions 4.0 cm x 3.5 cm x 2.1 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 2. ASET33182 / 36362 / 2. SS19 - My03411
Approx dimensions 6.1 cm x 6.0 cm x 2.3 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 3. ASET33182 / 36362 / 3. SS20 - My03412
Approx dimensions 7.0 cm x 6.5 cm x 3.2 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 4. ASET33182 / 36362 / 4. SS21 - My03413
Approx dimensions 5.0 cm x 4.0 cm x 1.5 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.
No asbestos detected.



Sample No. 5. ASET33182 / 36362 / 5. SS22 - My03414

Approx dimensions 6.0 cm x 5.5 cm x 3.2 cm

The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 6. ASET33182 / 36362 / 6. SS23 - My03415

Approx dimensions 5.0 cm x 4.6 cm x 2.6 cm

The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 7. ASET33182 / 36362 / 7. SS24 - My03416

Approx dimensions 5.4 cm x 5.2 cm x 3.1 cm

The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 8. ASET33182 / 36362 / 8. SS25 - My03417

Approx dimensions 6.0 cm x 6.0 cm x 3.1 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and cement.

No asbestos detected.

Sample No. 9. ASET33182 / 36362 / 9. SS26 - My03418

Approx dimensions 5.8 cm x 5.5 cm x 2.8 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and brick.

No asbestos detected.

Sample No. 10. ASET33182 / 36362 / 10. SS27 - My03419

Approx dimensions 6.0 cm x 5.5 cm x 3.1 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement like material and brick like material.

No asbestos detected.

Sample No. 11. ASET33182 / 36362 / 11. SS28 - My03420

Approx dimensions 6.5 cm x 6.5 cm x 3.5 cm

The sample consisted of a mixture of soil, stones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 12. ASET33182 / 36362 / 12. SS29 - My03421

Approx dimensions 5.8 cm x 5.6 cm x 3.4 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and brick.

No asbestos detected.

Sample No. 13. ASET33182 / 36362 / 13. SS30 - My03422

Approx dimensions 6.0 cm x 5.6 cm x 3.3 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, fibre plaster cement material containing organic fibres and brick.

No asbestos detected.



Sample No. 14. ASET33182 / 36362 / 14. SS31 - My03423

Approx dimensions 6.0 cm x 5.5 cm x 2.9 cm

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and cement.

No asbestos detected.

Sample No. 15. ASET33182 / 36362 / 15. ASF1 - My03425

Approx dimensions 5.0 cm x 4.0 cm x 0.35 cm

The sample consisted of a soft fibrous material of organic fibres.

No asbestos detected.

Analysed and reported by,

A handwritten signature in black ink, appearing to read "Nisansala Maddage".

**Nisansala Maddage. BSc(Hons)
Environmental Scientist/Approved Identifier**

A handwritten signature in black ink, appearing to read "Mahen De Silva".

**Mahen De Silva . BSc. MSc. Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Signatory**



**This document is issued in accordance with
NATA's Accreditation requirements. Accredited
for compliance with ISO/IEC 17025.**

CERTIFICATE OF ANALYSIS

90080

Client:

Coffey Environment (Warabrook)

Lot 101, 19 Warabrook Blvd
Warabrook
NSW 2304

Attention: D Hendricks

Sample log in details:

Your Reference: **ENAUWARA04363AA, Bellbird Heights**
No. of samples: 3 Soils
Date samples received / completed instructions received 06/05/2013 / 06/05/2013


Analysis Details:

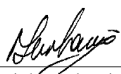
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 13/05/13 / 9/05/13
Date of Preliminary Report: Not issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:


Rhian Morgan
Reporting Supervisor


Nick Sarlamis
Inorganics Supervisor

Acid Extractable metals in soil					
Our Reference:	UNITS	90080-1	90080-2	90080-3	90080-4
Your Reference	-----	QC5	QC7	QC10	QC5 TRIPLICATE
Date Sampled	-----	1/05/2013	1/05/2013	1/05/2013	1/05/2013
Type of sample		Soil	Soil	Soil	Soil
Date digested	-	07/05/2013	07/05/2013	07/05/2013	07/05/2013
Date analysed	-	07/05/2013	07/05/2013	07/05/2013	07/05/2013
Arsenic	mg/kg	5	<4	<4	4
Cadmium	mg/kg	<0.4	0.5	<0.4	<0.4
Chromium	mg/kg	36	39	18	25
Copper	mg/kg	20	17	<1	22
Lead	mg/kg	33	47	6	28
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	18	13	6	23
Zinc	mg/kg	24	260	5	31

Miscellaneous Inorg - soil				
Our Reference:	UNITS	90080-1	90080-2	90080-3
Your Reference	-----	QC5	QC7	QC10
Date Sampled	-----	1/05/2013	1/05/2013	1/05/2013
Type of sample		Soil	Soil	Soil
Date prepared	-	07/05/2013	07/05/2013	07/05/2013
Date analysed	-	08/05/2213	08/05/2213	08/05/2213
pH 1:5 soil:water	pHUnits	4.8	7.0	5.7

Moisture				
Our Reference:	UNITS	90080-1	90080-2	90080-3
Your Reference	-----	QC5	QC7	QC10
Date Sampled	-----	1/05/2013	1/05/2013	1/05/2013
Type of sample		Soil	Soil	Soil
Date prepared	-	07/05/2013	07/05/2013	07/05/2013
Date analysed	-	08/05/2013	08/05/2013	08/05/2013
Moisture	%	12	19	9.3

Method ID	Methodology Summary
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 4 hours.

Client Reference: ENAUWARA04363AA, Bellbird Heights

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			07/05/2013	90080-1	07/05/2013 07/05/2013	LCS-1	07/05/2013
Date analysed	-			07/05/2013	90080-1	07/05/2013 07/05/2013	LCS-1	07/05/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	90080-1	5 <4	LCS-1	92%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	90080-1	<0.4 <0.4	LCS-1	95%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	90080-1	36 22 RPD: 48	LCS-1	98%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	90080-1	20 20 RPD: 0	LCS-1	101%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	90080-1	33 30 RPD: 10	LCS-1	93%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	90080-1	<0.1 <0.1	LCS-1	99%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	90080-1	18 26 RPD: 36	LCS-1	98%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	90080-1	24 29 RPD: 19	LCS-1	95%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Date prepared	-			08/05/2013	[NT]	[NT]	LCS-1	08/05/2013
Date analysed	-			08/05/2013	[NT]	[NT]	LCS-1	08/05/2013
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	102%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				
QUALITYCONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
Acid Extractable metals in soil				Base + Duplicate + %RPD				
Date digested	-	[NT]		[NT]		90080-2	07/05/2013	
Date analysed	-	[NT]		[NT]		90080-2	07/05/2013	
Arsenic	mg/kg	[NT]		[NT]		90080-2	86%	
Cadmium	mg/kg	[NT]		[NT]		90080-2	88%	
Chromium	mg/kg	[NT]		[NT]		90080-2	85%	
Copper	mg/kg	[NT]		[NT]		90080-2	109%	
Lead	mg/kg	[NT]		[NT]		90080-2	112%	
Mercury	mg/kg	[NT]		[NT]		90080-2	105%	
Nickel	mg/kg	[NT]		[NT]		90080-2	94%	
Zinc	mg/kg	[NT]		[NT]		90080-2	#	

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 90080-1 for Cr. Therefore a triplicate result has been issued as laboratory sample number 90080-4.

Acid Extractable Metals in Soil: # Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

ECU4505 ✓

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



Consigning Office: Warrabook
Report Results to: D. Hendrickx
Invoices to: 11 11
Mobile: Phone: 0240162300
Email: Damien.Hendrickx@coffey.com

Project No: ENA000ARAD4353 AM Task No:
Project Name: Bellbird Heights Laboratory: MGT
Sampler's Name: L. Betz Project Manager: D. Hendrickx
Special Instructions:

Analysis Request Section

[Diagonal Hatching]											
---------------------	--	--	--	--	--	--	--	--	--	--	--

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)
	OS1	15.4.13	AM	soil	glass jar	
	OS2	↓	↓		ICP	
	CS1	↓	↓			
	SS1	16.4.13	AM			
	SS2	↓	↓			
	SS3	↓	↓			
	TP1-0.0-0.1	↓	↓			
	TP1-0.4-0.5	↓	↓			
	TP1-0.9-1.0	↓	↓			
	TP1-1.9-2.0	↓	↓			
	TP1-2.9-3.0	↓	↓			
	TP1-3.9-4.0	↓	↓			
	TP2-0.0-0.1	↓	↓			
	TP2-0.4-0.5	↓	↓			
	TP2-0.9-1.0	↓	↓			
	TP2-2.2-2.3	↓	↓			
	TP3-0.0-0.1	↓	↓			
	TP3-0.9-1.0	↓	↓			

NOTES

RELINQUISHED BY
Name: _____ Date: _____
Coffey Environments Time: _____
Name: _____ Date: _____
Company: _____ Time: _____

RECEIVED BY
Name: Ischofield Date: 17/4/13
Company: Eurofins/mgt Time: 3:05
Name: Sean Date: 17/4/13
Company: Eurofins mgt Time: 9:30

Sample Receipt Advice: (Lab Use Only)
All Samples Received in Good Condition
All Documentation is in Proper Order
Samples Received Properly Chilled
Lab. Ref/Batch No. # 376070

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

GOWANS PRINTING (02) 9755 3545

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

*ANALYSIS TO BE EMAILED



Consigning Office: Waverbrook.

Report Results to: D. Hendrickx

Mobile:

Email: Damien-Hendrickx@coffey.com

Invoices to:

Phone: 0240162300

Email: @coffey.com

Project No: EUD2363 AA. Task No:
 Project Name: Bellbird Heights Laboratory: MGT
 Sampler's Name: L. Betz Project Manager: D. Hendrickx
 Special Instructions:

Analysis Request Section



NOTES

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)
	TP4-0.0-0.1	16.4.13	PM	soil	glass jar + STD	
	TP4-0.4-0.5	↓	↓	↓	ICE	↓
	TP4-1.4-1.5	↓	↓	↓	↓	↓
	TP5-0.0-0.1	↓	↓	↓	↓	↓
	TP5-0.4-0.5	↓	↓	↓	↓	↓
	QCI	↓	↓	↓	↓	↓

RELINQUISHED BY

Name: →
 Date:
 Coffey Environments
 Time:

Name: →
 Date:
 Company:

RECEIVED BY

Name: L. Schotfield Date: 17/4/13
 Company: evotins/mgt Time: 3:05

Name: Sean O Date: 18/4/13
 Company: evotins/mgt Time: 2:20

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition

All Documentation is in Proper Order

Samples Received Properly Chilled

Lab. Ref/Batch No. # 376070

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

EW04363AA

376070

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey environments
SPECIALISTS IN ENVIRONMENTAL,
SOCIAL AND SAFETY PERFORMANCE

Configuring Office: WOROBOK

Report Results to: D Hendrickx

Mobile:

Email: Damien.Hendrickx@coffey.com

Invoices to: //

Phone: 0290162300

Email: // @coffey.com

Project No: EN000AR404363AA Task No:
Project Name: Kilmoryn Water Laboratory: MIT
Sample Name: L Bette U Project Manager: D Hendrickx
Special Instructions: * STD S

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	MP	PA	TPH	ST	OP	PC	NOTES
	OS1	18-4-13	11:00	SOIL	9145 JAR ICF	STD	/	/	/	/	/	/	HOLD
	OS2						/	/	/	/	/	/	
	OS3						/	/	/	/	/	/	
	OS4						/	/	/	/	/	/	
	OS5						/	/	/	/	/	/	
	TP1-00-0.1						/	/	/	/	/	/	
	TP1-04-0.5						/	/	/	/	/	/	HOLD
	TP1-09-1.0						/	/	/	/	/	/	
	TP1-14-2.0						/	/	/	/	/	/	
	TP1-29-3.0						/	/	/	/	/	/	
	TP1-39-4.0						/	/	/	/	/	/	
	TP2-00-0.1						/	/	/	/	/	/	
	TP2-04-0.5						/	/	/	/	/	/	HOLD
	TP2-09-1.0						/	/	/	/	/	/	
	TP2-22-2.3						/	/	/	/	/	/	
	TP3-00-0.1						/	/	/	/	/	/	
	TP3-09-1.0						/	/	/	/	/	/	HOLD

RELINQUISHED BY
Name: L Bette U Date: 18-4-13
Coffey Environments Time:

RECEIVED BY
Name: Sean O. Environments Date: 18/4/13
Company: Environments Time: 2:30

Sample Receipt Advice: (Lab Use Only)
All Samples Received in Good Condition
All Documentation is in Proper Order
Samples Received Properly Chilled
Lab. Ref/Batch No.

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

CO2A... (02) 955 3515

376070

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey environments
SPECIALISTS IN ENVIRONMENTAL,
SOCIAL AND SAFETY PERFORMANCE

Consigning Office: Warrakool
Report Results to: D. Hendrickx
Invoices to:

Mobile: _____ Email: Damien-Hendrickx@coffey.com
Phone: 0240162300 Email: _____ @coffey.com

Project No: EW02363 A4 Task No: _____
Sample Name: Sulphuric Acid Project Manager: D Hendrickx
Special Instructions:

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)
	<u>TP4-0.0-01</u>	<u>16.4.13</u>	<u>PM</u>	<u>SOIL</u>	<u>910S UN+ STD</u>	

Analysis Request Section									
<div style="border: 1px solid black; padding: 5px; display: inline-block;">NOTES</div>									

RELINQUISHED BY

Name: _____ Date: _____
Coffey Environments Time: _____

RECEIVED BY

Name: Sean O. Hendrickx Mgt Date: 18/4/13
Company: _____ Time: 2.30

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition

All Documentation is in Proper Order

Samples Received Properly Chilled

Lab. Ref/Batch No. _____

*Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

Coffey Environments 0240162300

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



Consigning Office: wavabrook.
 Report Results to: Damien hendricks Mobile: _____ Email: Damien.Hendricks@coffey.com
 Invoices to: ll Phone: 0290162000 Email: ll @coffey.com

Project No: ENMUWTA09363A Task No: _____
 Project Name: Bellbird heights Laboratory: MGT
 Sampler's Name: L. Betz Project Manager: D. Hendricks
 Special Instructions: _____

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)		NOTES
	TP1-0.0-0.1	15-4-13	AM	soil	bag ---	STO	ASBESTOS PH	Ap 17985
	TP1-0.4-0.5							86
	TP1-1.9-2.0							87
	TP1-2.9-3.0							88
	TP1-3.9-4.0							89
	TP2-0.0-0.1							90
	TP2-0.4-0.5							91
	TP2-0.9-1.0							92
	TP2-2.2-2.3							93
	TP3-0.0-0.1							94
	TP3-0.9-1.0							95
	TP4-0.0-0.1							96
	TP4-0.9-0.5							97
	TP4-1.4-1.5							98
	TP5-0.0-0.1							18000 99
	TP5-0.4-0.5							18000
	SS1	15-4-13						01
	SS2							02

RELINQUISHED BY

Name: L. Betz Date: _____ →

Coffey Environments Time: _____

Name: _____ Date: _____ →

Company: _____ Time: _____

RECEIVED BY

Name: Fitzell Murphy Date: 23-4-13

Company: Eurofins Mgt Time: 9:15am

Name: _____ Date: _____

Company: _____ Time: _____

Sample Receipt Advice: (Lab Use Only)

All Samples Received in Good Condition

All Documentation is in Proper Order

Samples Received Properly Chilled 18°C

Lab. Ref/Batch No. #376561

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

COWANS PRINTING (02) 9755 3545

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



Consigning Office: *Wauabrook.*

Report Results to: *L. Betz / D. Hendricks* Mobile:

Email: *Damien.Hendricks@coffey.com*

Invoices to:

Phone: *0240162300*

Email: *@coffey.com*

Project No: *ENHWA09363A* Task No:
 Project Name: *Boonville Heights* Laboratory: *MGT*
 Sampler's Name: *L. Betz* Project Manager: *D. Hendricks*
 Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)
85	TP13-0.2-0.3	15.13	AM	soil	glass jar	STD
86	TP14-0.0-0.1				ice bag	
87	TP14-0.4-0.5					
88	TP15-0.6-0.1					
89	TP15-0.9-1.0					
90	SS4					
91	SS5					
92	SS6					
93	SS7					
94	SS8					
95	SS9					
96	SS10		PM			
97	SS11					
98	SS12					
99	SS13					
00	SS14					
01	SS15					
02	SS16					

PH Metals										NOTES

RELINQUISHED BY
 Name: *L. Betz* Date: *3.5.13*
 Coffey Environments Time:
 Name: Date:
 Company: Time:

RECEIVED BY
 Name: *Sean O.* Date: *3/5/13*
 Company: *Coffey's Mgt* Time: *12.30*
 Name: Date:
 Company: Time:

Sample Receipt Advice: (Lab Use Only)
 All Samples Received in Good Condition
 All Documentation is in Proper Order
 Samples Received Properly Chilled
 Lab. Ref/Batch No.

**377797*

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

GOWANS PRINTING (02) 9755 3545

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



Consigning Office: Warabrook
 Report Results to: L. Betz / D. Hendricks Mobile: _____ Email: Damien.Hendricks@coffey.com
 Invoices to: D. Hendricks Phone: 0240162300 Email: @coffey.com

Project No: ENV0001A04363M Task No: Redwork.
 Project Name: Bellbird Meighs Laboratory: mgf
 Sampler's Name: L. Betz. Project Manager: D. Hendricks.
 Special Instructions: _____

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	PH	MPTALS	IP HCG-19	RTEX	PAHS	ARBS TOJ	DEPS	PCBI	NOTES
03	SS17.	15:13	pm	soil	glass jar + ice	STO	/	/	/	/	/	/	/	/	
04	QC 2			water	20 ml ce		/	/	/	/	/	/	/	/	
05	QC 3			↓	20, 1A, 2P HCP		/	/	/	/	/	/	/	/	
06	QC 4			soil	glass jar + ice		/	/	/	/	/	/	/	/	
07	QC 5						/	/	/	/	/	/	/	/	* send to Envirolab
08	QC 6						/	/	/	/	/	/	/	/	* send to Envirolab
09	QC 7						/	/	/	/	/	/	/	/	
09	QC 8						/	/	/	/	/	/	/	/	
09	QC 9						/	/	/	/	/	/	/	/	
09	QC 10						/	/	/	/	/	/	/	/	* send to Envirolab
10	SS18	25:13					/	/	/	/	/	/	/	/	
11	SS19						/	/	/	/	/	/	/	/	
12	SS20						/	/	/	/	/	/	/	/	
13	SS21						/	/	/	/	/	/	/	/	
14	SS22						/	/	/	/	/	/	/	/	
15	SS23						/	/	/	/	/	/	/	/	
16	S 2						/	/	/	/	/	/	/	/	
17	SS25						/	/	/	/	/	/	/	/	

RELINQUISHED BY		RECEIVED BY		Sample Receipt Advice: (Lab Use Only)	
Name: _____	Date: _____	Name: <u>Sean O.</u>	Date: <u>3/5/13</u>	All Samples Received in Good Condition	<input type="checkbox"/>
Coffey Environments	Time: _____	Company: <u>Envirolab mgf</u>	Time: <u>12:30</u>	All Documentation is in Proper Order	<input type="checkbox"/>
Name: _____	Date: _____	Name: _____	Date: _____	Samples Received Properly Chilled	<input type="checkbox"/>
Company: _____	Time: _____	Company: _____	Time: _____	Lab. Ref/Batch No.	<u>#377797</u>

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative

GOWANS PRINTING (02) 9755 3545

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST



Consigning Office: *Warrabrook*

Report Results to: *L. Betz / D. Hendrickx*

Invoices to: *D. Hendrickx*

Mobile: *amien*
 Email: *D. Hendrickx* @coffey.com
 Phone: *02 40162300* Email: @coffey.com

Project No: *EW04363AA* Task No: *Weldwork*
 Project Name: *Bellbird Heights* Laboratory: *MGT*
 Sampler's Name: *L. Betz* Project Manager: *D. Hendrickx*
 Special Instructions:

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)
<i>18</i>	<i>SS26</i>	<i>2.5.13</i>	<i>AM</i>	<i>SOIL</i>	<i>glass jar</i>	<i>STD</i>
<i>19</i>	<i>SS27</i>				<i>ICE</i>	
<i>20</i>	<i>SS28</i>					
<i>21</i>	<i>SS29</i>					
<i>22</i>	<i>SS30</i>		<i>PM</i>			
<i>23</i>	<i>SS31</i>					
<i>24</i>	<i>QC11</i>					
<i>25</i>	<i>ASFI</i>			<i>Fragment bag</i>		

PH	Metals	TPH	RIEX	PAHs	Asbestos	OCPI	OCBS	NOTES
/	/	/	/	/	/	/	/	

↓

RELINQUISHED BY

Name: _____ Date: _____
 Coffey Environments Time: _____

RECEIVED BY

Name: *Sean O.* Date: *3/5/12*
 Company: *Coffey Environments* Time: *12:30*

Sample Receipt Advice: (Lab Use Only)

- All Samples Received in Good Condition
- All Documentation is in Proper Order
- Samples Received Properly Chilled

Lab. Ref/Batch No. *#377794*

*Container Type & Preservation Codes: P - Plastic, G - Glass Bottle, J - Glass Jar, V - Vial, Z - Ziplock Bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative, OP - Other Preservative