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PRELIMINARY SITE INVESTIGATION

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

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Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

EXECUTIVE SUMMARY

Greencap was commissioned by the Alice Springs Turf Club to conduct a Preliminary Site investigation at the Pioneer Park Racecourse, Alice Springs. The Northern Territory Environment Protection Authority issued notices to both the Alice Springs Turf Club and Probuild (NT) (a contractor involved in recent works at the site) requiring an assessment to evaluate the types, amount and distribution of waste by burial at the premises in the south eastern portion of the site.

An initial site inspection was conducted across the area of investigation which noted areas of recent disturbance and areas in-which potential buried waste was located. Some historical information (aerial photographs and interviews with personal) regarding the site is documented in the Sampling Plan prepared by Greencap in July 2015 prior to this investigation. The sampling plan has been attached to the report.

Based on the available historical information, aerial photographs and the site inspection, five areas of interest were considered including three 'Horse Shoe' trenches, a 'Spoil Area', a 'Buried Waste Area', a 'Narrow Gully', and a 'Large Excavation'.

A total of 40 test pits were excavated across the area of investigation. Test pits were excavated into areas where buried waste materials had been deposited (as indicated by Probuild) or where evidence of buried waste materials was identified during the site inspection and/or based on historical information. Tests pits were excavated outside of the five areas identified above to delineate the extent of any waste burial. Results of the intrusive investigation were as follows:

- *The 'Horse Shoe' trenches contained demolition rubble comprising: concrete fragments, crushed rocks, plastic pipes and minor amounts of organic waste from depths of 0.8 and 1.0 metres below the ground surface and extending to a maximum depth of approximately 2.5 metres. No suspected asbestos containing material were identified in this area either in the surface or buried.*
- *Test pits across the 'Spoil Area' encountered spoil from 'Horse Shoe' trenches from the surface to depths of between 0.3 and 0.5 metres. The majority of this area was underlain with probable fill material comprising brown silty clay mixed with organic waste to 1.3 metres below the ground surface.*
- *Within the 'Buried Waste Area', waste materials were encountered from just below the surface to a maximum depth of 2.0 metres. The waste comprised metal fencing, fence posts with concrete, concrete fragments, bricks and besser blocks, 44 gallon drums, wood, disused paint tins, large tree branches, plastic and metal pipes and corrugated iron. Soil samples were collected from several test pits within this area and selected samples were analysed for potential chemicals of interest. All reported results were reported below the adopted guidelines for commercial / industrial land uses. Two cement sheet fragments were also collected from this area and analysed for asbestos. Both samples reported a negative result for asbestos.*
- *The 'Narrow Gully' contained waste materials including organic waste, large tree branches, metal racecourse railings and besser blocks. However, these were limited either the surface or buried within the gully and did not extent deeper and 1.5m. No suspected asbestos containing material were identified in this area either in the surface or buried.*
- *No waste materials or suspected asbestos containing materials buried or otherwise, were identified in the 'Large Excavation' area.*

Overall, the extent of the buried waste appears to be limited to the areas discussed above, with natural soils encountered in all test pits that were excavated outside of these areas. The majority of the buried waste materials comprised of building type waste (concrete, bricks and metal) and green waste. No chemical contamination either within the soil tested from the 'Buried Waste Area' or the underlying natural soils reported results above the adopted criteria. No asbestos containing materials were identified during the works.

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1.0 INTRODUCTION

1.1 Scope of Works

Greencap was commissioned by the Alice Springs Turf Club Incorporated (Turf Club) to conduct a Preliminary Site Investigation at the Pioneer Park Racecourse, Alice Springs in relation to the disposal of waste at the site. The Northern Territory Environment Protection Authority (EPA) issued notices to both the Turf Club and ProBuild (NT) (a contractor involved in recent works at the site) requiring an assessment to evaluate the types, amount and distribution of waste by burial at the premises. Additional background information is provided in Section 1.2. The location of the site and the area of interest is shown in Figure 1.

Source: http://earth.google.com (image date: 5 February 2009)

Figure 1 – Area of Interest

The scope of the work has comprised:

- A detailed inspection of the area of interest (south-eastern portion of the site), where waste materials have been, or were suspected to have been, dumped. An inspection of the surrounding areas was also conducted to assess for possible additional dumping areas.

- Based on site observations and information provided during the investigation, a total of forty (40) test pits were excavated to assess for the presence of buried waste materials.
- The collection and analysis of selected soil samples from the waste material at several locations to assess if chemical contamination was present.
- Collection and analysis of any suspected asbestos containing materials identified across the area of investigation.

The work has been undertaken and reported with reference to the following documents:

- Australian Standard AS 4482.1-2005 "Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds"
- Australian Standard AS 4482.1-2005 "Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances"
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).
- Western Australian Department of Health (DOH) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Site in Western Australia (May 2009)

It is important to note this report does not purport to be a comprehensive environmental site assessment, and is intended to be a preliminary site investigation in areas as indicated in this report.

1.2 Background Information

The Northern Territory Environment Protection Authority (EPA) issued notices to Probuild and the Turf Club to carry out a Preliminary Site Investigation at the Pioneer Park Racecourse site. The notices indicated that on 11 May 2015, the NT EPA received a report of the alleged disposal of waste by burial at the site. The NT EPA subsequently inspected the site on 15 May 2015 and observed evidence of waste burial in the south eastern portion of the premises. The notices indicate that the waste was being brought onto the premises under an agreement with the Turf Club. The notices also indicate disposal of waste by burial is an activity that requires an Environment Protection Approval under Section 30(1) of the Act; and that the NT EPA has no record of any such approval for this premises or activity of waste burial. The notice to the Turf Club also provides aerial photographs from 2008, 2009 and 2012 suggesting previous waste burial / disposal in the same general area of the site has also occurred.

The notices required Probuild and the Turf Club to undertake a Preliminary Site Investigation to evaluate the types, amount and distribution of waste by burial at the premises. It is noted that although separate notices have been issued, the EPA has indicated that a coordinated approach by the two parties would be an acceptable response to the notices.

Greencap prepared a Sampling Plan '*Sampling Plan, Lot 05120, Town of Alice Springs (Pioneer Park Racecourse) (Greencap Ref: J133974), dated 10 July 2015'* which detailed a review of historical information relating the site including interviews with individuals with past knowledge of the site and a review of historical aerial photographs. The sampling plan was prepared to outline the works required to undertake the required preliminary site investigation. It is noted that the abovementioned sampling plan should be read in conjunction with this preliminary intrusive site investigation report and a copy is provided in Appendix A of this report.

It is understood that all works will be reviewed by an independently engaged Site Contamination Auditor (Mr. Steve Kirsanovs of Kirsa Environmental Pty Ltd).

2.0 SITE INFORMATION

2.1 Site Location

The Pioneer Park Racecourse site is located on Heath Road, Kilgariff, approximately 6 kilometres south of central Alice Springs. The Racecourse is surrounded by commercial type properties to the north, stables and associated yards and the Todd River to the east, vacant land immediately to the south and the Stuart Highway to the west, beyond which is primarily vacant land. The nearest surface water body or watercourse is the Todd River which is adjacent the site's north eastern boundary.

2.2 Regional Geology and Hydrogeology

Geology

Soil data and land unit technical notes obtained through the NT Government (at a 1:2,000,000 scale, Figure 5) indicate soils in the area are described as siliceous sand tenosols (Land Units 4.05 and 5.02), alluvial kandosol (Land Unit 4.09), desert loam kandosol (Land Unit 5.09) and desert loam tenosols (Land Units 5.13 and 5.14).

Local geological characteristics were used in the naming of the land units presented in; Land Resource Capability Assessment in the Alice Springs Area (DLP, Natural Resources Division, Nov 2000).

A summary of the various soil types landforms and geology within the vicinity of the site and the site are outlined below:

- Land Unit 4.05 - This land unit describes remnant flood deposit flats comprised of siliceous sand tenosols. The well drained soils are highly permeable with slow rates of runoff and high risk of inundation, sheet flooding and erosion. Quaternary, Holocene sediment accumulation resulting from periodic major flooding events. The landform tends to be associated with a flood out that is inclined radically away from a point on the margin or at the end of a stream channel. Localised drainage channels have formed within this land unit and may flow during annual rainfall.
- Land Unit 4.09 - Soils are moderately well drained alluvial kandosols with moderate permeability and slow rates of runoff. These soils are at risk of sheet flooding and erosion. This land unit is dominated by Quaternary, most likely Holocene, sands derived from regional Proterzoic and Palaeozoic rocks. The broad alluvial peneplains of this land unit are level to very gently undulating with extremely low relief. They have very shallow internal drainage patterns that form a non-directional integrated tributary pattern. This land unit easily eroded by sheet flow, overbank stream flow and wind.
- Land Unit 5.02 - This land unit occurs on sandy floodplain bars. The siliceous sand tenosols are rapidly drained with high permeability and very slow rates of run-off. There is a slight risk of inundation and moderate risk of erosion associated with this land unit. Geological formations originate from Quaternary, most likely Holocene, sandy gravel bed-load material deposited and transported by fluvial action and derived from several igneous, sedimentary and metamorphic sources. This land unit comprises the sandy bed load channels of major creeks and rivers that exhibit highly active fluvial processes with sediment being subject to active braiding processes.
- Land Unit 5.09 - This land unit occurs on relic drainage depressions on poorly drained soils with slow run off and moderately permeability. The attributes of these soils and landform means there is a severe risk of sheet flooding, erosion and inundation associated with this land unit. Geological formations result from an accumulation of Quaternary, most likely Holocene, sediments eroded and transported from the high relief Proterozoic and Palaeozoic hills and ranges. This land unit occurs within the broad drainage system of St Mary's Creek. The depressions form part of the flood out system of drainage channels that flow only during infrequent larger flooding episodes. These drainage depressions generally retain a good cover of vegetation due to the underlying palaeochannel drainage system.
- Land Unit 5.13 - Desert loam tenosols associated with this land unit are well drained, highly permeable with slow rates of run-off. Erosion, sheet flooding and inundation risks are all high. Geology of this land unit results from an accumulation of Quaternary, most likely Pleistocene, sediments formed due to flooding of the Todd River during major, infrequent flooding episodes. Landform includes prior alluvial

fan deposits. The gently undulating plains (approximately 1 % slope) of this land unit can be up to 2 km in width and extend for about 6 km in length.

- Land Unit 5.14 - This land unit is associated with prior flood out distributaries channels with imperfectly drained, desert loam tenosols. These soils have a moderately rapid rate of run-off, slow permeability and high risk of erosion. Similarly to land unit 5.09, the geology of this unit originates from an accumulation of Quaternary, most likely Holocene, sediments eroded and transported from the surrounding high relief Proterozoic and Palaeozoic hills and ranges. Within the study area this land unit is within the St Mary's Creek drainage system. A weak flow following these channels has been observed during 2001 and 2002 flood events. Channels forming subtle dendritic drainage patterns can be up to 300 m wide and 0.5 m deep.

Hydrogeology - Kilgariff Local Groundwater

The groundwater resources of the area surrounding Kilgariff are held in two formations classified as, "Unconsolidated sediments with intergranular porosity" (NRETAS 2008). A paleochannel of the Todd River known as the Outer Farm Basin runs to the north east of the site.

A database search (NRETAS Maps www.ntlis.nt.gov.au accessed 8/12/2010) has identified 33 registered bores on or near the site. Most were drilled in 2003 as part of a NT government investigation for the SAT water reuse program. Review of the bore logs indicates the existence of at least two distinct aquifers under the site. The first a perched aquifer between 6-20 m below ground level. The second is a deeper aquifer around 70 m below ground level. The total dissolved solids recorded in the groundwater is generally less than 1,000 mg/L and considered suitable for stock, domestic and most irrigation.

There is unlikely to be any interconnectivity of the two abovementioned aquifers and development works are unlikely to impact upon the quality of groundwater underlying the site.

3.0 FIELD INVESTIGATIONS

3.1 Site Inspection

On 22 July 2015, Greencap inspected the investigation area(s) along with Aaron Blacker (Probuild) and Des Friedrich (Turf Club).

Mr. Blacker advised that demolition rubble from the former drive-in cinema was deposited into three adjoining trenches that were excavated between February and May 2015. The trenches were arranged in a 'horse shoe' pattern with each trench measuring approximately 50-60 metres long by 6-8 metres wide by 3 metres deep. It is understood that a portion of the excavated spoil from the trenches was transported to the new corporate area which was under construction. The balance of the excess material was spread across the surface of the site in the area directly east of the 'horse shoe' trenches.

An inspection of the area east of the 'horse shoe' trenches was conducted and evidence of dumping of various waste materials including organic material, metal, wood, building type waste (concrete and bricks), car tyres and plastic pipes was visible at the surface. However, the majority of the area appeared to be covered with a thin layer of soil / organic material and what appeared to be horse manure. The waste materials appear to have been placed in an area that had been excavated many years earlier (area is visible in historical aerial photographs). Several fragments of cement sheeting were observed on the surface in this area. A representative sample of this material was collected and tested for the presence of asbestos (see Section 4.0)

Adjoining this area of buried waste was a narrow trench which extended approximately 30-40 metres to the southeast toward a large excavation that was approximately 2 meters wide and 1.5 meters deep. This small trench appeared to contain some waste materials (green waste, bricks and metal pipes). The large excavation which measured approximately 25 x 25 metres and was approximately 2.5 -3.0 metres deep did not appear to contain any waste materials.

Mr Friedrich's understanding that when the racecourse was built in 1977 that this area was originally excavated because material was needed to create a mound for viewing and other structures to be placed upon.

A small stockpile of soil was also observed to the north of the main investigation area. Mr. Friedrich indicated that this was material which had been scraped from the surface of the race track during routine maintenance. The material was only stockpiled in this location temporarily and would be used to fill in pothole and maintain several of the dirt roads on the site. It is noted that the material did have a slight hydrocarbon like odour. However, this is expected as the material was sourced from the racetrack surface which is 'conditioned' using waste oil.

3.2 Intrusive Investigation Works

On 23 July 2015, a total of 40 test pits (TP01 to TP40 inclusive) were excavated across the investigation area, including the area indicated by Probuild, where demolition rubble from the former drive-in cinema was deposited ('horse shoe' trenches) and several areas located to the east of this where evidence of buried waste was noted during the site inspection and historical aerial photographs.

Investigation works were conducted by a Senior Environmental Scientist who directed the 20 tonne excavator (operated by Probuild personnel) to excavate test pits across the investigation area. Based on the available historical information, aerial photographs and the site inspection, five separate areas were considered as follows:

- 'Horse Shoe' trenches containing material imported by Probuild.
- 'Spoil Area' area east of the 'horse shoe' trenches where excess spoil for the trenches was spread across the existing surface, by Probuild.
- 'Buried Waste Area', area containing historically deposited waste materials covered with soil and manure.

- 'Narrow Gully', located between the 'Buried Waste' area and the Large Excavation' measuring approximately 30-40 metres long by 2 metres wide by 1.5 metre deep.
- 'Large Excavation' where material was excavated during the construction of the race course in 1977.

Details of the intrusive investigation in each of these areas is summarised below.

Horse Shoe Trenches

As mentioned above these trenches were excavated by Probuild for the purpose of depositing demolition rubble from the former drive-in cinema located across the Stuart Highway. Several test pits (TP01, TP02 TP03) were excavated through these backfilled trenches. Each trench appeared to contain mainly construction and demolition waste including concrete fragments, crushed rock, plastic pipes and minor amounts of green waste. The building waste appeared to be deposited as Probuild had indicated, with the construction and demolition waste encountered at depths of between 0.8 and 1.0 metre below the ground surface and extending to a maximum depth of approximately 2.5 metres. The location and measurements of the trenches were generally as indicated by Probuild (see Section 3.1). It should be noted that no suspected asbestos containing materials were identified.

Two test pits (TP04 and TP05) were also excavated in the central area between the trenches where buried waste was suspected. Only minor amounts of crushed rock gravels and green waste were encountered in TP05 at a depth of 1.3 to 1.5m. No other waste material was encountered in this area.

Spoil Area

The Spoil Area comprises an area in which the excess material excavated from the 'horse shoe' trenches was spread across the surface immediately adjacent the eastern most trench over the existing surface. Test pits TP07, TP08, TP09, TP11, TP12, TP13, TP26, TP27 and TP28 were excavated into this area. Re-worked natural soil (spoil from the trenches) was encountered from the surface to various depths between 0.3 and 0.5m across the majority of this area. Fill materials comprising brown silty clay mixed with green waste (mainly grass and small branches) was encountered in test pits TP07, TP08, TP09, TP12, TP13 and TP27 at depths of between 0.5 and 1.3 metres below the ground surface. It appears that the spoil material was spread across the surface in this area which was previously covered with grasses and/or green waste.

Buried Waste Area

The Buried Waste Area comprised an area which, based on historical aerial photographs, had been excavated and waste material deposited into the excavation. The excavation appears to have then been covered with a thin layer of soil, green waste (grass and small braches) and horse manure. Test pits TP10, TP15, TP16 and TP17 were excavated into the main body of waste materials in this area. Waste materials encountered included metal fencing with posts, concrete fragments, bricks and besser blocks, empty 44 gallon drums, wood, disused paint tins, large tree branches, plastic and metal pipes and corrugated iron roofing. The waste material was encountered from just below the surface to a maximum depth of 2.0 below the ground surface (TP16) with the majority of the waste material identified in the upper 1.0 to 1.5 metres.

The lateral extent of the buried waste area was evident to the north, south and east with the edge of the former excavation and natural soils surrounding the area clearly visible. It is noted that the western boundary extent is less clear due to being covered with spoil material for the 'horse shoe' trenches but the western extent appears to be in the approximate area of test pit TP10.

It should be noted that several soil samples were collected from the soil surrounding the waste material and the underlying natural soil to assess for potential contamination due to presence of the waste materials. Samples were collected from test pits TP10, TP15, TP16, TP17 and TP22. The soil testing is discussed the Section 4.0. In addition, two suspected asbestos cement sheet fragments were also collected, one from within the waste material from test pit TP16 and one from the surface between the locations of TP15 and TP16. These samples and the asbestos analysis is discussed the Section 4.0.

Narrow Gully

A narrow gully exists between the buried waste area and the large excavation (discussed below) measuring approximately 30-40 metres long by 2 metres wide by 1.5 metre deep. Waste materials were identified within the gully in test pits TP22 and TP23 comprising green waste, large tree branches, and metal racecourse railings. Other waste materials including besser bricks, tree branches and horse manure were also noted within the trench but were not 'buried' and appeared to have just been dumped into the gully. No suspected asbestos containing materials were identified.

Large Excavation

A large excavation measuring approximately 25 x 25 metres and 2.5-3.0 deep is located to the south east of main investigation areas. A total of six test pits (TP35 to TP40 inclusive) were excavated into the walls and base of the excavation. No waste material was encountered during the intrusive works or visible within the excavation itself.

It should be noted that a small area located just north of the large excavation contained minor amounts of waste materials including green waste, tree branches and plastic irrigation pipes. Test pit TP24 was excavated in this area and the waste materials were limited to near the near surface (>0.3m).

Test pit logs detailing subsurface conditions at each location are presented in Appendix B and Table 1 presents a summary of the findings at each of the 40 test pit locations.

Table 1 –Summary of Test Pit Findings

Test Pit ID	Findings
TP1	Demolition rubble encountered from 0.8 to 2.5m, underlain by natural soil
TP2	Demolition rubble encountered from 0.8 to 2.7m, underlain by natural soil
TP3	Demolition rubble encountered from 0.5 to 2.5m, underlain by natural soil
TP4	No waste observed.
TP5	Minor green waste encountered from 1.3 to 1.5m, underlain by natural soil
TP6	No waste observed.
TP7	Minor green waste encountered from 0.5 to 1.2m, underlain by natural soil
TP8	Minor green waste encountered from 0.4 to 1.3m, underlain by natural soil
TP9	Minor green waste encountered from 0.3 to 1.2m, underlain by natural soil
TP10	Waste materials (green waste , metal, plastic) encountered from the surface to 1.2m
TP11	No waste observed.
TP12	Minor green waste encountered from the surface to 0.5m
TP13	Waste materials (green waste , metal, concrete) encountered from the surface to 0.5m
TP14	No waste observed.
TP15	Significant amounts of waste materials encountered from the surface to 1.5m
TP16	Significant amounts of waste materials encountered from the surface to 2.0m
TP17	Significant amounts of waste materials encountered from the surface to 1.5m
TP18	No waste observed.
TP19	Reworked natural soil mixed with manure encountered from the surface to 0.3m
TP20	Reworked natural soil mixed with manure encountered from the surface to 1.0m.
TP21	Minor waste materials observed on the surface (<0.1m) underlain by natural soil.
TP22	Waste material (green waste, drums, metal) encountered from the surface to 1.5m
TP23	Waste material (green waste and manure) encountered from the surface to 1.5m
TP24	Minor waste (irrigation pipe and green waste) limited to the surface.
TP25	No waste observed.
TP26	No waste observed.
TP27	Minor green waste encountered from surface 0.4m, underlain by natural soil

Test Pit ID	Findings
TP28	No waste observed.
TP29	No waste observed.
TP30	No waste observed.
TP31	No waste observed.
TP32	No waste observed.
TP33	No waste observed.
TP34	No waste observed.
TP35	No waste observed.
TP36	No waste observed.
TP37	No waste observed.
TP38	No waste observed.
TP39	No waste observed.
TP40	No waste observed.

It should be noted that several of test pits (TP06, TP11, TP14, TP17, TP18, TP19, TP20, TP21, TP25, TP26, TP29, TP30, TP31, TP32, TP33 and TP34 were also excavate surrounded the areas in which buried and/or surface waste material was observed. These test pits (see Table 1) provided evidence of the lateral extent of the waste material.

The locations of the test pits and the approximate areas where buried waste was observed is presented in Figure 2 (on the following page).

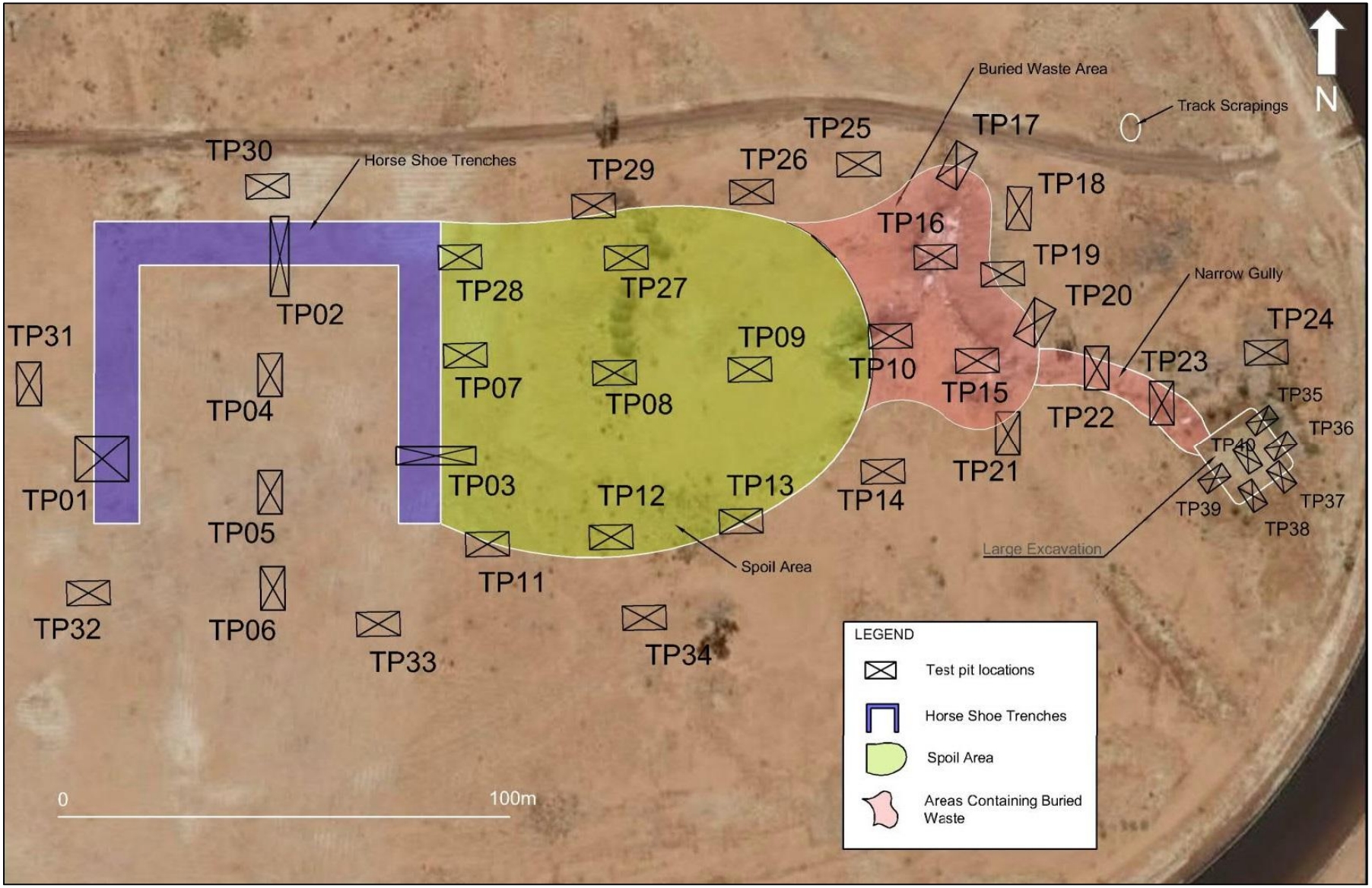


Figure 2 – Site Plan with Test Pit Locations

4.0 ANALYSIS

4.1 Soil Sampling and Methodology

Soil samples were collected from test pits TP10, TP15, TP16, TP17 and TP22 from within the waste materials to assess the contamination status of soils within the waste or if the waste had impacted the underlying soils. A total of 11 soil samples were collected. Samples were collected directly from the excavated material using a clean pair of gloves for each sample and placed directly into the sample jars.

Soil samples were placed into acid-rinsed and solvent-washed screw top glass jars supplied by the testing laboratories. All soil samples were stored in an chilled portable cooler immediately following sampling and delivered under similar conditions to the testing laboratory for chemical analysis (under chain of custody procedures).

Two suspected asbestos cement sheet samples (TP16-A1 and Surface-A1) were collected, one from within the waste materials identified in test pit TP16 (TP16-A1) at an approximate depth of 1.5m and one from the surface in the area between TP15 and TP16 (Surface-A1).

4.2 Analytical Program

Chemical testing was conducted on all 11 samples collected. Table 2 presents of the sample details and laboratory analysis performed.

Table 2 – Soil Sample Details and Analysis

Sample ID	Material Type	Laboratory Analysis
TP10-1	Waste	TRH, BTEX, PAHs, Heavy metals
TP10-2	Natural – Base of test pit	TRH, BTEX, PAHs, Heavy metals
TP15-1	Waste	TRH, BTEX, PAHs, Heavy metals
TP15-2	Natural – Base of test pit	TRH, BTEX, PAHs, Heavy metals
TP16-1	Waste	TRH, BTEX, PAHs, Heavy metals
TP16-2	Waste	VIC EPA Screen
TP16-3	Natural – Base of test pit	TRH, BTEX, PAHs, Heavy metals
TP17-1	Waste	TRH, BTEX, PAHs, Heavy metals
TP17-2	Natural – Base of test pit	TRH, BTEX, PAHs, Heavy metals
TP22-1	Waste	TRH, BTEX, PAHs, Heavy metals
TP22-2	Natural – Base of test pit	TRH, BTEX, PAHs, Heavy metals
Surface-A1	Cement Sheet	Asbestos Identification
TP16-A1	Cement Sheet	Asbestos Identification

NOTES:
Heavy Metals: As, Cd, Cr, Cu, Ni, Pb, Zn, Hg
TRH – Total Recoverable Hydrocarbons
BTEX – Benzene, Toluene, Ethyl Benzene, Xylenes
PAH - polycyclic aromatic hydrocarbons
VIC EPA Screen: TRH, PAH, Phenols, OCPs, PCBs, VOC, Vinyl Chloride, Heavy Metals as above plus: silver, tin, molybdenum, selenium, hexavalent chromium, Cyanide, Total Fluoride and pH.

The laboratories used for the chemical soil testing were Eurofins-mgt (MGT) (primary laboratory) and Australian Laboratory Services (ALS) (secondary laboratory). These laboratories are approved by the National Association of Testing Authorities (NATA), and the analyses conducted are within the NATA registration of the laboratories.

The asbestos identification analysis was conducted in Greencap in house NATA accredited laboratory.

Duplicate soil samples were also collected and submitted to the primary and the secondary laboratory's for QA/QC purposes. Results of QA/QC analyses are discussed in detail in Section 4.5.

4.3 Soil Assessment Criteria

Analytical results have been compared with criteria specified in the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (NEPM). As the site is understood to continue to be used for commercial / industrial purposes, the relevant investigation exposure settings are considered to be:

- Commercial / Industrial land use Ecological Investigation Levels (EILs);
- Commercial / Industrial land use Ecological Screening Levels (ESLs);
- Commercial / Industrial land use Health Investigation Levels (HILs D);
- Commercial / Industrial land use Health Screening Levels for Vapour Intrusion (HSLs D); and
- Commercial / Industrial land use 'Management Limits' for petroleum hydrocarbon compounds (Management Limits).

The screening levels were selected based on material type, where relevant. Based on the observed soil type mainly slits, the investigation exposure settings for fine soils (silts) were adopted. The Ecological Investigation Levels (EILs) for Copper, Chromium III, Nickel and Zinc were derived using conservative estimated values for pH (pH 7.0), Clay Content (1%) and Cation Exchange Capacity (20 cmol/kg) using the NEMP EIL Calculation Spreadsheet. It is noted that the generic EIL values for Arsenic. Lead, DDT and naphthalene have been adopted as stipulated in Table 1B(4) and 1B(5) of the NEPM for a commercial and industrial land use.

4.4 Soil Analytical Results

A tabulated summary of the reported soil results is presented as an attachment to this report. Details of the testing results are provided in the NATA test certificates presented in Appendix C.

All chemical results were reported below the adopted guidelines for commercial / industrial land uses.

It should be noted that minor concentrations of TRH C16-C34 were identified in all but one soil sample collected from within the waste materials.

Both samples of cement sheeting that were submitted for asbestos analysis returned negative results for asbestos. A copy of the asbestos identification report is presented at the end of this report as Appendix D.

4.5 Quality Assurance and Quality Control – Soil Testing

QA/QC measures for this investigation were based on AS4482.1–2005 and included:

- Appropriate sample labelling, preservation, storage and transport under chain of custody procedures.
- Laboratory analyses conducted within appropriate holding times.
- Analysis of laboratory QA/QC samples including duplicates, blanks, matrix spikes, matrix spike duplicates, and surrogates.
- The use of laboratories that hold NATA accreditation for the analyses undertaken.
- Collection and analysis of field QA/QC samples including duplicates and blanks.

4.5.1 Internal Laboratory QA

The results of the internal quality assurance programs of the laboratory are presented with the NATA test certificates at the end of this report as Appendix C. According to the NEPM, the quality of data supplied by the analytical laboratory must meet the objectives of the testing laboratory's quality plan for at least 95% of test results for duplicates. The laboratories reported all internal duplicates passed internal laboratory testing.

4.5.2 Field Duplicates

Field duplicate soil samples QC01 and QC02 (duplicates of sample TP16-2) were collected and submitted to the primary and secondary laboratories for testing for TRH, BTEX, PAHs, Heavy metals.

The frequency of field duplicate analyses is considered to be acceptable when compared to the 1 per 20 analyses recommended in AS4482.1 for the main contaminants of concern.

All of the comparable results reported relative percentage differences (RPDs) below the recommended acceptance criteria of 50%. Tables summarising the field duplicate results are attached to this report.

4.5.3 Blank Samples

A trip blank sample (TB01) was collected and analysed for TRH C_6-C_9 and BTEX. All the results were reported below the laboratory's limit of reporting indicating that the sample handling procedures were considered acceptable.

4.5.4 Data Quality Conclusions

The internal QC procedures reported by the laboratories and the field duplicate and blank analyses indicate the analytical data is of acceptable quality for the purposes of this investigation.

5.0 CONCLUSIONS

This Preliminary Site Investigation was undertaken to evaluate the types, amount and distribution of buried waste at the premises in the south eastern portion of the site. Initially a detailed site inspection was conducted in the area of interested based on historical information (aerial photographs and interviews with personnel). The inspection identified several area which required further investigation including areas of recent disturbance, areas in-which potential buried waste was located and several former excavations / gullys existing in the area.

Based on the available historical information the detailed site inspection, five separate areas were considered as follows:

- 'Horse Shoe' trenches containing material imported by Probuild;
- 'Spoil Area' area east of the 'horse shoe' trenches where excess spoil for the trenches was spread across the existing surface, by Probuild;
- 'Buried Waste Area', area containing historically deposited waste materials covered with soil and manure;
- 'Narrow Gully', located between the 'Buried Waste' area and the Large Excavation' measuring approximately 30-40 metres long by 2 metres wide by 1 metre deep.
- 'Large Excavation' where material was excavated during the construction of the race course in 1977

A total of 40 test pits were excavated across the area of investigation. Test pits were excavated into areas where buried waste materials had been deposited as indicated by Probuild or where evidence of buried waste materials were identified during the site inspection or indicated on aerial photographs. Tests pits were excavated through the waste materials into the undying natural soils. A series of test pits were also excavated surround these area to delineate the lateral extent.

Results of the intrusive investigation were as follows:

- The 'Horse Shoe' trenches contained demolition rubble comprising: concrete fragments, crushed rocks, plastic pipes and minor amounts of green waste from depths of 0.8 and 1.0 metre below the groundwater surface and extending to a maximum depth of approximately 2.5 metres. No suspected asbestos containing materials were identified in this area.
- 'Spoil Area' area east of the 'horse shoe' trenches where excess spoil for the trenches was spread across the existing surface, by Probuild. Spoil from the trenches was encountered from the surface to various depths between 0.3 and 0.5m across the majority of this area with minor amounts of top soil mixed with organic matter (grass once growing the surface) being encountered at depths of between 0.5 and 1.3 metres below the ground surface.
- 'Buried Waste Area', buried waste materials were encounter in this area from just below the surface to a maximum depth of 2.0 below the ground surface with the majority of the waste material being located in the top 1.0 to 1.5 metres. The waste materials comprised metal fencing, fence posts with concrete, concrete fragments, bricks and besser blocks, 44 gallon drums, wood, paint tins, large tree branches, plastic and metal pipes and corrugated iron, of which the majority appeared to have been source from the racetrack. The lateral extent of the buried waste area was clearly visible with natural soils surrounding the area. Two suspected asbestos cement sheet samples were also collected from within 'Buried Waste' area. However, both samples reported a negative result for asbestos.
- 'Narrow Gully', waste materials either buried or dumped into the gully were identified in this area which comprised green waste, large tree branches, metal racecourse railings and besser blocks. The extent of the waste material was limited to within the gully at a depth of less than 1.5 metres. No suspected asbestos containing materials were identified in this area.
- 'Large Excavation' it is understood that this is where material was excavated during the construction of the race course in 1977. No waste materials buried or otherwise were identified in this area.

Soil samples were collected from several test pits within the 'Buried Waste' area, of which selected samples were analysis for potential chemical contaminants. All chemical results were reported below the adopted NEPM EIL, ESL, HSL and HIL guidelines for commercial industrial land use. However, minor concentrations of TRH C_{16}-C_{34} were identified in all but one soil sample collected from within the waste materials.

Suspected asbestos containing materials (cement sheeting) was only encountered within the 'Buried Waste' area (both on the surface and buried with waste materials). No other suspected asbestos containing materials were encountered anywhere across the area of investigation either buried or visible on the surface.

The majority of the identified buried waste materials comprised building waste (concrete, bricks and metal) and green waste. It is noted that waste materials which contained metal drums (former contents unknown) and disused paint tins were identified within the 'Buried Waste' area. However, no chemical contamination either within the soil mixed with the waste or the underlying natural soils reported concentrations of any chemicals exceeded the adopted criteria.

6.0 LIMITATIONS OF THIS REPORT

This environmental site assessment report has been prepared in accordance with industry recognised standards and procedures at the time of the work. The report presents the results of the assessment based on the quoted scope of works (unless otherwise agreed in writing) for the specific purposes of the commission. No warranties expressed or implied are offered to any third parties and no liability will be accepted for use of this report by any third parties.

Information provided by third parties has been assumed to be correct and complete. AEC does not assume any liability for misrepresentation of information by third parties or for matters not visible, accessible or present on the subject property during any site inspections conducted during the time of the work.

The first stage in the site assessment process generally involves site history research and/or a site inspection. This stage is intended to establish whether there is a likelihood of site contamination. Depending on the location of the site and surrounding land use, there could be contamination present which could not have been identified by preliminary investigation of this nature - for example, if there had been dumping of waste liquids which has left no visual evidence and past owners were not aware of. If recommendations have been made on whether or not to conduct further investigation, these have been based on the likelihood of site contamination, and are generally based on the sensitivity of the proposed future use of the site. A more conservative approach is generally adopted for a sensitive future use such as residential or a child care centre. Subsequent stages of soil or groundwater investigation may follow. The site assessment process is often ongoing, with additional stages of investigation being required to resolve issues raised in previous stages of the investigation. In cases where sampling and analysis of soil and/or groundwater has been conducted, then the following standard limitations apply:-

- The results presented in the report apply only to the specific locations and the time the sampling was conducted. The nature and extent of contaminants present on a site can change due to physical disturbance or removal, chemical or biological transformation, or due to the migration of the contaminants to different areas.
- The borehole or test pit logs indicate the approximate subsurface conditions only at the specified test locations. Soil and rock formations are variable, and conditions in areas not sampled may differ from those at the actual sampling locations due to natural subsurface variation.
- The precision with which subsurface conditions are indicated depends largely on the frequency and method of sampling and investigation, and the degree of subsurface variation. There can be no complete guarantee that contaminants are not present at significant concentrations in some areas, even with the most thorough site assessment.
- Any conclusions or recommendations are based solely on the land use assumptions stated in the report. These conclusions or recommendations do not apply to any other land use for the site.

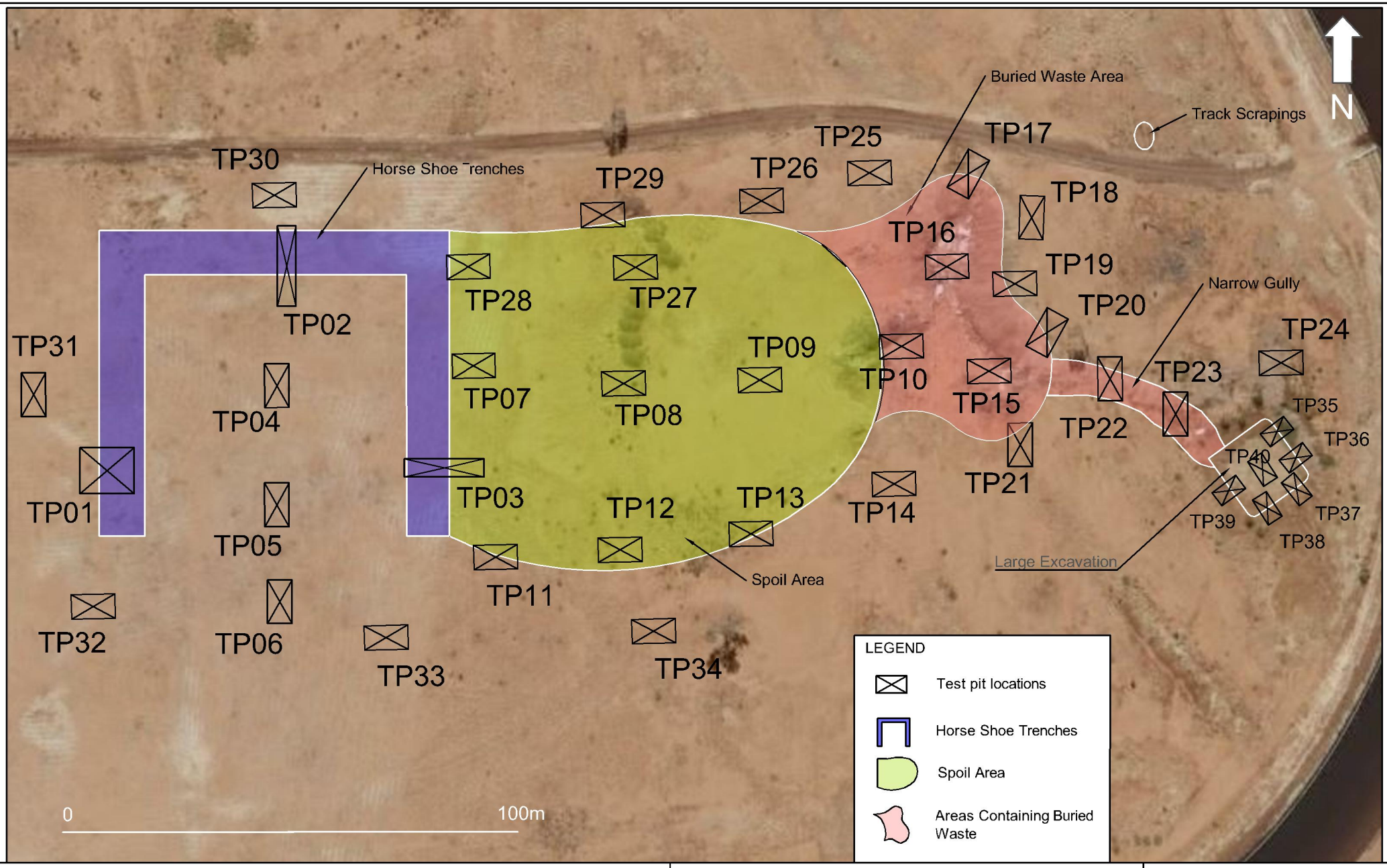
This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. Opinions and judgements expressed herein are based on Greencap's understanding of current regulatory standards and should not be construed as legal opinions.

Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

FIGURE



Project: Preliminary Intrusive Site Investigation				
Location: Pioneer Park Racecourse, Alice Springs				
Job Ref: J133974	Drawn: JM	Checked: AD	Date: Aug 2015	Scale: As shown

Note: All data is approx only & subject to survey

FIGURE 1 - SITE PLAN with TEST LOCATIONS

GREENCAP
12 Greenhill Road Wayville SA 5034
PO Box 582 Unley SA 5061
(08) 8299 9955
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Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

SOIL RESULTS SUMMARY TABLES (INCLUDING QA/QC)

Soil Analytical Results
Pioneer Park Racecourse, Alice Springs

Greencap Job Ref: J133974

			Inorganics				NEMP 2013 TRH Fractions						TPH					BTEX						Metals													
			Cyanide Total	Fluoride	Moisture Content (dried @ 103°C)	pH (aqueous extract)	C6-C10 less BTEX (F1)	C6-C10	F2-NAPHTHALENE	C10-C16	C16-C34	C34-C40	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Zinc
			mg/kg	mg/kg	%	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			5	100	0.1	0.1	20	20	50	50	100	100	20	20	50	50	50	0.1	0.1	0.1	0.2	0.1	0.3	2	0.4	1	5	5	5	0.1	10	5	2	5	10	5
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																								3000	900	3600		240000	1500	730		6000	10000			400000
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 0-1m							250		NL									4	NL	NL			NL													
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 1-2m							360		NL									4	NL	NL			NL													
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Fine Soil							125		25		-	-						10	40	65			1.6													
NEPM 2013 Table 1B(4)/1B(6) (EILs/ESLs) for Comm/Ind, Fine Soil 0-2m							215		170		2500	6600						95	185	135			95	160			680	320	1800			460				1100
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil								700		1000	3500	10000																								
Field_ID	Sample Matrix	Sampled Date																																		
TP10-1	Waste	23/07/2015	-	-	2.3	-	<20	<20	<50	<50	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	20	11	5.3	<0.1	-	8	-	-	-	26
TP10-2	Natural	23/07/2015	-	-	1.3	-	<20	<20	<50	<50	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	14	<5	<5	<0.1	-	<5	-	-	-	9.5
TP15-1	Waste	23/07/2015	-	-	1.9	-	<20	<20	<50	<50	210	<100	<20	<20	120	110	230	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	14	20	<5	<0.1	-	7.2	-	-	-	59
TP15-2	Natural	23/07/2015	-	-	4.2	-	<20	<20	<50	<50	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	24	11	<5	<0.1	-	9.6	-	-	-	25
TP16-1	Waste	23/07/2015	-	-	7.2	-	<20	<20	<50	<50	260	<100	<20	<20	160	130	290	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	15	24	<5	<0.1	-	6.3	-	-	-	88
TP16-2	Waste	23/07/2015	<5	120	12	7.2	<20	<20	<50	<50	400	<100	<20	<20	240	210	450	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	<1	10	26	<5	<0.1	<10	<5	<2	<5	<10	160
TP16-3	Natural	23/07/2015	-	-	5.7	-	<20	<20	<50	<50	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	15	6.3	<5	<0.1	-	6	-	-	-	14
TP17-1	Waste	23/07/2015	-	-	6	-	<20	<20	<50	<50	120	<100	<20	<20	75	61	140	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	8.5	22	<5	<0.1	-	<5	-	-	-	66
TP17-2	Natural	23/07/2015	-	-	8.2	-	<20	<20	<50	<50	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	2.2	<0.4	-	27	14	<5	<0.1	-	9.9	-	-	-	29
TP22-1	Waste	23/07/2015	-	-	1.8	-	<20	<20	<50	<50	280	<100	<20	<20	240	56	300	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	9.3	17	<5	<0.1	-	<5	-	-	-	53
TP22-2	Natural	23/07/2015	-	-	2.2	-	<20	<20	<50	<50	<100	<100	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<2	<0.4	-	24	11	<5	<0.1	-	9.7	-	-	-	26

			PAH	PAH/Phenols																														Phenolics		
			Benzo(b+j)fluoranthene	2,4-dimethylphenol	2,4-dinitrophenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	4,6-Dinitro-2-methylphenol	4-chloro-3-methylphenol	4-nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ calc (Zero)	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Phenol	Pyrene	4,6-Dinitro-o-cyclohexyl phenol	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.5	0.5	5	0.2	1	0.4	5	1	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	20	1	20
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																												4000		240000				
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 0-1m																											NL							
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 1-2m																											NL							
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Fine Soil																0.7																		
NEPM 2013 Table 1B(4)/1B(6) (EILs/ESLs) for Comm/Ind, Fine Soil 0-2m																1.4											370							
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																																		
Field_ID	Sample Matrix	Sampled Date																																
TP10-1	Waste	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP10-2	Natural	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP15-1	Waste	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP15-2	Natural	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP16-1	Waste	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP16-2	Waste	23/07/2015	<0.5	<0.5	<5	<0.2	<1	<0.4	<5	<1	<5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<20	<1	<20
TP16-3	Natural	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP17-1	Waste	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP17-2	Natural	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP22-1	Waste	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-
TP22-2	Natural	23/07/2015	<0.5	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	-	-

			Chlorinated Hydrocarbons																												MAH			
			1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,2,3-trichloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	Styrene
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 0-1m																																		
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 1-2m																																		
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Fine Soil																																		
NEPM 2013 Table 1B(4)/1B(6) (EILs/ESLs) for Comm/Ind, Fine Soil 0-2m																																		
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																																		
Field_ID	Sample Matrix	Sampled Date																																
TP10-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16-2	Waste	23/07/2015	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
TP16-3	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Herbicides	Organochlorine Pesticides																			
			Dinoseb	4,4-DDE	a-BHC	Aldrin	b-BHC	chlordane	d-BHC	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			20	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil								530								100				50		2500	160
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 0-1m																							
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 1-2m																							
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Fine Soil																							
NEPM 2013 Table 1B(4)/1B(6) (EILs/ESLs) for Comm/Ind, Fine Soil 0-2m											640												
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																							
Field_ID	Sample Matrix	Sampled Date																					
TP10-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16-2	Waste	23/07/2015	<20	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
TP16-3	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Halogenated Benzenes								Halogenated Hydrocarbons					Halogenated Phenols							Polychlorinated Biphenyls								Solvents				
			1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	4-chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	1,2-dibromoethane	Bromomethane	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,6-dichlorophenol	2-chlorophenol	Pentachlorophenol	tetrachlorophenols	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Methyl Ethyl Ketone	4-Methyl-2-pentanone	Acetone	Allyl chloride	Carbon disulfide
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	1	0.5	0.5	0.5	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil										80											660								7						
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 0-1m																																			
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt 1-2m																																			
NEPM 2013 Table 1B(6) ESLs for Areas of Ecological Significance, Fine Soil																																			
NEPM 2013 Table 1B(4)/1B(6) (EILs/ESLs) for Comm/Ind, Fine Soil 0-2m																																			
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil																																			
Field_ID	Sample Matrix	Sampled Date																																	
TP10-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16-2	Waste	23/07/2015	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<1	<0.5	<0.5	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
TP16-3	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22-1	Waste	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP22-2	Natural	23/07/2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Duplicate Sample Results and Relative Percentage Difference Calculations **Greencap Job Ref: J133974**
Pioneer Park Racecourse
Alice Springs, NT

			Lab Report Number	466657	466657		466657	Interlab_D	
			Field ID	TP16-2	QC01	RPD	TP16-2	QC02	RPD
			Sampled Date/Time	23/07/2015	23/07/2015		23/07/2015	23/07/2015	
Chem Group	**ChemName**	**Units**	**EQL**						
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0
	Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
BTEX	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1			<0.1	<0.2	0
	Ethylbenzene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1			<0.1	<0.5	0
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1			<0.1	<0.5	0
	Xylene (m & p)	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2			<0.2	<0.5	0
	Xylene (o)	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1			<0.1	<0.5	0
	Xylene Total	mg/kg	0.3 (Primary): 0.5 (Interlab)	<0.3			<0.3	<0.5	0
	C6-C10 less BTEX (F1)	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0
Inorganics	Moisture Content (dried @ 103°C)	%	0.1	12.0	12.0	0	12.0		
Lead	Lead	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0
Metals	Arsenic	mg/kg	2 (Primary): 5 (Interlab)	<2.0	<2.0	0	<2.0	<5.0	0
	Cadmium	mg/kg	0.4 (Primary): 1 (Interlab)	<0.4	<0.4	0	<0.4	<1.0	0
	Chromium (III+VI)	mg/kg	5 (Primary): 2 (Interlab)	10.0	10.0	0	10.0	10.0	0
	Copper	mg/kg	5	26.0	28.0	7	26.0	25.0	4
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<5.0	0	<5.0	6.0	18
	Zinc	mg/kg	5	160.0	210.0	27	160.0	152.0	5
PAH	Benzo(b+j)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
PAH/Phenols	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a) pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0
	PAHs (Sum of total)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
TPH	C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	70.0	33
	C16-C34	mg/kg	100	400.0	300.0	29	400.0	540.0	30
	C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	0	<50.0	70.0	33
	C6 - C9	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0
	C10 - C14	mg/kg	20 (Primary): 50 (Interlab)	<20.0	21.0	5	<20.0	<50.0	0
	C15 - C28	mg/kg	50 (Primary): 100 (Interlab)	240.0	190.0	23	240.0	340.0	34
	C29-C36	mg/kg	50 (Primary): 100 (Interlab)	210.0	180.0	15	210.0	270.0	25
	+C10 - C36 (Sum of total)	mg/kg	50	450.0	390.0	14	450.0	610.0	30
	C6-C10	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30 (> 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 prima

Trip Blank Results
Pioneer Park Racecourse
Alice Springs, NT

Greencap Job Ref: J133974

			Lab Report Number	466657
			Field ID	TB01
			Sampled_Date/Time	23/07/2015
			Sample Type	Trip_B
Chem Group	**ChemName**	**Units**	**EQL**	
BTEX	Benzene	µg/l	1	<1
	Ethylbenzene	µg/l	1	<1
	Toluene	µg/l	1	<1
	Xylene (m & p)	µg/l	2	<2
	Xylene (o)	µg/l	1	<1
	Xylene Total	µg/l	3	<3
TPH	C6 - C9	µg/l	20	<20

Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

Appendix A: Sampling Plan

- Sampling Plan, Lot 05120, Town of Alice Springs (Pioneer Park Racecourse)(Greecap Ref: J133974), dated 10 July

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Incorporating AEC Environmental
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Greencap Ref: J133377/01

10 July 2015

Mr Des Friedrich
Alice Springs Turf Club Incorporated
GPO Box 181
Alice Springs, NT 0871

CC:
Aaron Blacker, Probuild (NT) Pty Ltd
Steve Kirsanovs, Kirsa Environmental Pty Ltd

Dear Des,

Re: SAMPLING PLAN, LOT 05120, TOWN OF ALICE SPRINGS (PIONEER PARK RACECOURSE)
(Greencap Ref: J133974)

1.0 INTRODUCTION

Greencap was commissioned by the Alice Springs Turf Club Incorporated (Turf Club) to prepare a Sampling Plan to address Notices issued by the Northern Territory Environment Protection Authority (NT EPA) in relation to the disposal of waste at the Pioneer Park Racecourse site.

The NT EPA has issued separate Notices to Probuild (NT) Pty Ltd (Probuild) and the Turf Club to carry out an environmental audit program at the site. The Notices indicate that on 11 May 2015, the NT EPA received a report of the alleged disposal of waste by burial at the site; the NT EPA subsequently inspected the site on 15 May 2015 and observed evidence of waste burial in the central portion of the premises. The Notices indicate that the waste was being brought onto the premises under an agreement with the Turf Club. The Notices also indicate disposal of waste by burial is an activity that requires an Environment Protection Approval under Section 30(1) of the Act; and that the NT EPA has no record of any such approval for this premises or activity of waste burial. The Notice to the Turf Club provides aerial photography suggesting previous waste burial / disposal in the same general area of the site has occurred.

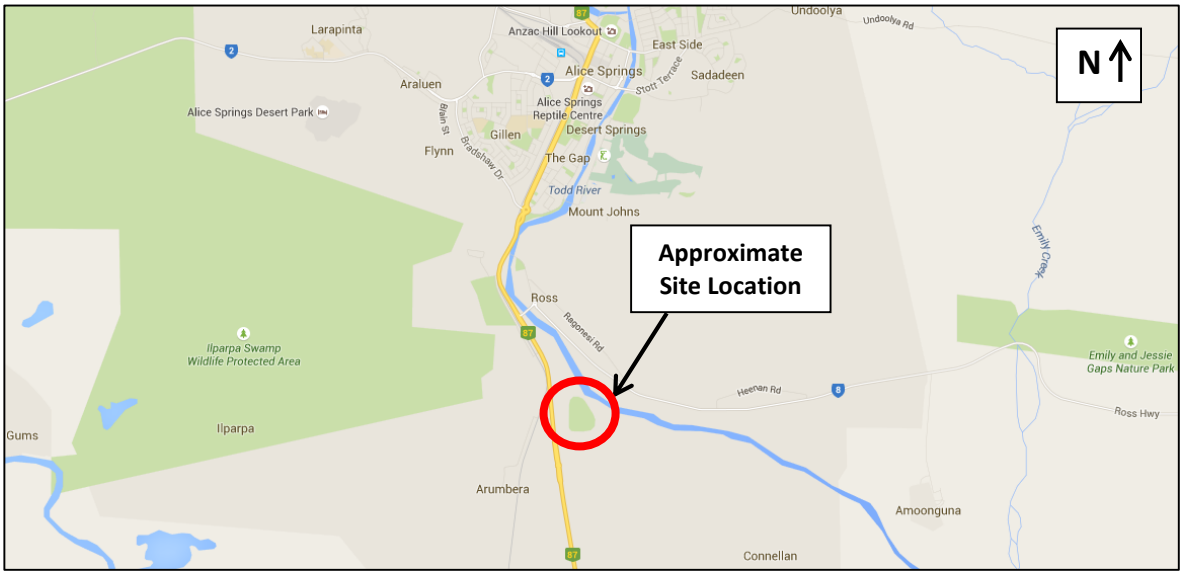
The Notices require Probuild and the Turf Club to undertake a preliminary site assessment to evaluate the types, amount and distribution of waste by burial at the premises. It is understood that although there have been separate Notices issued, the NT EPA has indicated that a coordinated approach by the two parties is an acceptable response to the Notices.

This Sampling Plan outlines the proposed scope of works to address the Notices. It is understood that all work (including this Sampling Plan) will be reviewed by the appointed Site Contamination Auditor (Mr Steve Kirsanovs of Kirsa Environmental) and ultimately by the NT EPA to obtain their approval on the scope of works proposed.

While some historical information is presented in this Sampling Plan, it is noted that a complete Preliminary Site Investigation (Site History), in accordance with the National Environment Protection Measure, 1999 (as amended 2013)) has not been completed at this stage due to timing considerations.

2.0 SITE DETAILS

The Pioneer Park Racecourse site is located on Heath Road, Kilgariff, approximately 6 kilometres south of central Alice Springs. The Racecourse is surrounded by commercial type properties to the north, stables and associated yards and the Todd River to the east, vacant land immediately to the south and the Stuart Highway to the west, beyond which is primarily vacant land. The nearest surface water body or watercourse is the Todd River which is adjacent the site's north eastern boundary. The location of the site is presented in Figure 1.



Source: www.google.com.au/maps (viewed 3 July 2015)

Figure 1: Site location

It is noted that the NT EPA is interested with a particular area within the Racecourse site located in the south eastern portion of the site that may have been used historically for dumping purposes. The approximate area of interest is presented in Figure 2.

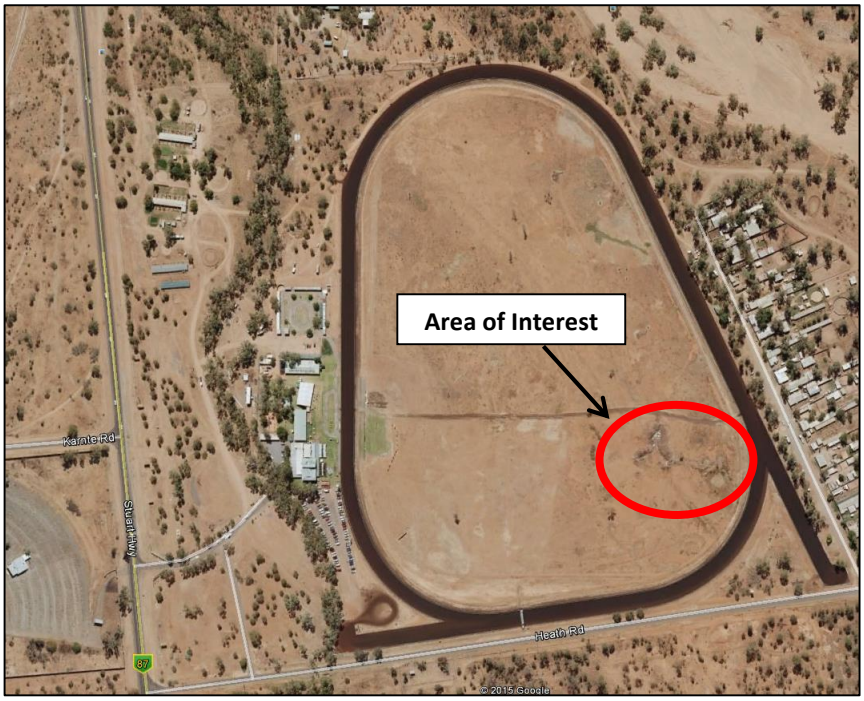


Figure 2: Area of Interest

3.0 HISTORICAL INFORMATION

3.1 Aerial Photography

Aerial photographs of the site dating from 2004 have been reviewed by Greencap to identify any changes to the site since this time. Copies of aerial photographs reviewed are attached. It is noted that the aerial photograph review has been limited to the area of interest as presented in Figure 2 and does not consider other portions of the broader racecourse site.

The September 2004 aerial photograph shows areas of disturbed soil in the western portion of the area of interest. It appears that the disturbance is related to excavations in this area. The western portion of the area of interest appears undisturbed. The race track and stables to the east of the area of interest are visible. A track is visible to the north of the area of interest. The photograph suggests the track is consistent with the material used for the race track itself.

The March 2007 aerial photograph does not show any significant changes to the western portion of the area of interest. The photograph suggests the excavation in the central portion of the area appears to have been backfilled with unknown materials/objects. The excavation in the eastern portion of the area of interest appears unchanged from 2004.

A 2008 aerial photograph provided by the NT EPA shows the excavated areas much more clearly that previous photographs (it is noted that the area of interest in these photographs was marked up by the NT EPA and is slightly different to the area identified by Greencap). Various unknown items are clearly evident in the northern portion of the central excavated area. A number of stockpiles are also visible to the west and south west of this area.

The May 2009 aerial photograph does not show any significant changes from 2008 with some items still visible in the northern portion of the excavation central to the area of interest. The stockpiles visible in the 2008 aerial are no longer present, but there are some stockpiles (8 – 10) visible in the eastern portion of the area of interest.

A 2009 aerial photograph provided by the NT EPA shows the area of interest more clearly and some unknown items are visible further south and east within the excavation.

The March 2010 aerial shows some minor changes within the area of interest. It appears as though some part of the excavation may have been backfilled. The stockpiles visible in the 2009 photographs are no longer present but additional material is evident stockpiled in the north western portion of the area of interest. Darker material is evident in the eastern most portion of the excavated area. It is likely that this is material used to backfill the excavation in this area, but this is not completely clear from the photograph.

A 2012 aerial photograph provided by the NT EPA shows the eastern portion of the excavation appears to have been backfilled. A lighter area is visible in the easternmost extent. Additional items appear to have been placed within the central portion of the excavation and disturbed soil is evident to the north and east of this area. A number of stockpiles are now visible in the western portion of the area of interest.

The March 2013 aerial photograph is of poor quality, but disturbed areas (location of previous excavation) are visible in the central portion of the area of interest. A dark shape is also visible in the western portion of the area of interest. It is not clear from the photograph what this is.

The March 2014 aerial photograph suggests there is (or was recently) a disturbance in the location of the dark shape visible in the 2013 aerial. Vegetation growth in this area has a different pattern to the balance of the area. It appears that most of the excavated areas visible in previous photographs have been backfilled, but in the central portion of the site there is some evidence of dumped waste.

The February 2015 photograph still indicates variable vegetation growth across the site. The items in the central portion of the site in the March 2014 photograph are no longer visible, but a darker area of soil is evident in this area. The outline of the previously excavated area is still able to be seen extending from the northern portion of the area of interest to the south eastern corner.

3.2 Interviews

Greencap has conducted interviews with Aaron Blacker (Probuild), Des Friedrich (Turf Club), Ryan Wagner and Simon Gummer (NT EPA) in relation to their knowledge of the area of interest.

Aaron Blacker has only been involved with the site for the last few months, but was able to provide the following information relating to recent dumping of construction and demolition waste in the area. It is noted that Mr Blacker also provided a marked up plan (presented in the attachments to this Sampling Plan).

- Mr Blacker advised that two trenches were excavated in February 2015. The trenches are indicated by the eastern and western red areas on the figure provided. Initially the eastern trench was excavated which was approximately 40 metres long. A second trench was attempted immediately adjacent this trench to the west, but fill was already present in this area (indicated by the smaller green area on the plan attached). As such this second trench was moved further to the west.
- The trenches were generally 1.5 to 2.0 metres deep, but may have been deeper.
- The excavated virgin material was transported to other portions of the site including the new corporate area which was under construction.
- No works were carried out by Probuild on the site between completion of the trenches (February 2015) and May 2015.
- Between 4 May 2015 and 15 May 2015, demolition rubble from the former drive-in cinema across Stuart Highway to the west was transported to the site and placed into the excavated trenches. A complete summary of the information transported was provided by Probuild (attached to this Sampling Plan). The material primarily comprised rubble from the demolition of buildings on the site and other demolition material (i.e. concrete curbing). Some tree stumps were also placed on top of the building rubble (near the surface) prior to covering with soil.
- Prior to the demolition of the Drive-in buildings, all asbestos products were removed and an asbestos clearance certificate was issued (also attached to this sampling plan).
- During the works, the two excavations, were found not to be large enough to accommodate all of the material and as such an additional trench was excavated to the north (effectively joining the eastern and western trenches).
- It was Mr Blackers understanding that the smaller green area (indicated on the plan) had some material imported earlier this year by another contractor, but based on his staff's observations during the works, this appeared to comprise primarily green waste.
- Mr Blacker was aware of other material having been placed in the vicinity, but it was his understanding that this was done by people involved with the turf club and not other contractors.

Des Friedrich has been the Turf Club's Chief Executive Officer since February 2014 and was able to provide the following information:

- The Racecourse was initially constructed in 1977. It is Mr Friedrich's understanding that it was at this time the area of interest was originally excavated to create a mound for viewing the racing and other structures to be placed upon.
- When first being associated with the Turf Club in early 2014, Mr Friedrich noticed some material dumped in the area of interest. These were steel frames used to previously hold televisions that were located around the racecourse. These were driven over with a bulldozer to flatten them and then had soil pushed over them.
- Mr Friedrich is aware of local dumping in the area of interest historically including general rubbish and manure etc.
- The recent material imported onto the site by Probuild was done so under an agreement with the Turf Club and comprised building rubble from the drive-in across Stuart Highway and possibly another site.

Ryan Wagner and Simon Gummer (NT EPA) were also contacted in relation to their knowledge of the site. They provided the following information:

- They confirmed that NT EPA had been contacted on their hotline earlier this year (May 2015) which had alerted the EPA to the site.
- An inspector visited the site at the time Probuild were transporting material and only building rubble was observed being placed in the excavations.
- Recently they have had some anecdotal evidence given to them that waste oils (used on the racetrack) have been dumped/spread across the centre of the track.

4.0 SAMPLING ANALYSIS & DATA OBJECTIVES

The following sections provide an overview of the data quality objectives (DQO) used to define the type, quantity and quality of data needed to make decisions relating to the environmental conditions of a site. The process for developing the project specific DQOs are as follows:

4.1 State the Problem

The NT EPA is concerned about recent and historical dumping of waste across a portion of the Pioneer Park Racecourse. They are particularly concerned with the fact that given the central portion of the site may (in the future) be accessible to the general public and that there may be material present that is unsuitable for this use without management and/or remediation.

An 'Environmental Audit Program' is required to conduct a preliminary evaluation of the types, amount, distribution and mobility of wastes present as a result of disposal of wastes by burial at the premises.

4.2 Identify the Decision

A decision is required as to whether the waste buried at the site may result in site contamination of soil and groundwater on the site with regards to ongoing use as a racecourse (and if it impedes its use as public open space). In order to achieve this, in the first instance, soil investigations are required to determine chemicals and / or substances present that pose an unacceptable risk to human health and / or the environment.

4.3 Identify Inputs to the Decision

The soil investigation program will use systematic and targeted means to characterise conditions across the area of concern. Soils and waste materials encountered will be visually assessed in the first instance. If suspect material is identified, chemical testing may be undertaken and data will be compared to relevant screening criteria (as outlined in Section 5.3 of this document).

4.4 Define the Boundaries of the Site

The site is portion of the Pioneer Park Racecourse, located at 55 Heath Road, Kilgariff and is described as Allotment 05120, Town of Alice Springs. The physical boundary of the assessment area is estimated in Figure 2, but it is noted that actual assessment area will depend on the findings.

4.5 Develop a Decision Rule

If field observations and/or soil data indicate the presence of contamination and/or wastes, the extent of the type and extent of wastes and contamination will be considered with regard to the risks they pose to human health and/or the environment in the context of the use of this land for public open space within a racetrack. Recommendations for further action / responses will be based on the type/extent of the wastes and/or contamination identified, and the level of risk. As this is a preliminary investigation these recommendations may need to be quite general, as the type/extent of the wastes and /or contamination might not have been fully characterised at this stage.

4.6 Specify Limits on Decision Errors

The aim of the investigation is to screen the area of interest for potential contamination. It is noted that the selection of areas for targeted sampling (primary focus of the proposed works) relies on professional judgement and experience and as such it is not possible to quantify the acceptable limits of decision errors. However, for the purposes of this Preliminary Investigation, this is not considered unacceptable.

4.7 Optimise the Design for Obtaining Data

The field investigation program is outlined in Section 5.2 and includes:-

- A detailed site walkover across the area of interest.
- Targeted and grid based test pitting and trenching works.

5.0 PROPOSED WORK SCOPE

The works will be conducted with reference to industry standards and guidelines including, but not limited to:-

- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).
- Australian Standard AS4482.1 - 2005 (Guide to the Investigation and Sampling of Potentially Contaminated Soil.
- Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Site in Western Australia', Western Australian (WA) Department of Health (DoH) May 2009.

The scope of these assessments would comprise:-

- A detailed site walkover across the area of interest.
- Intrusive soil investigations.
- The preparation of a Preliminary Site Investigation report.

5.1 Environment, Health and Safety

Site safety is a paramount concern, and the work described will be conducted in accordance with a site health and safety plan. It has been assumed that all underground services will be located prior to Greencap attending the site by the client.

The fieldwork will be supervised by an experienced environmental scientist, who will be responsible for logging of the soils encountered, recording any signs of contamination, and collecting the required samples.

5.2 Field Investigations

In the first instance, Greencap proposes to conduct a detailed site walkover. The aim of this walkover will be to determine any areas that need to be targeted. This will be through identifying any visible areas of waste, or obvious imported soils.

The intrusive works will comprise the excavation of a series of test pits (and trenches, if required). The test pits will be excavated:

- to target any areas of concern identified based on the historical information available to date and based on the site inspection;
- to provide coverage across the area of interest; and
- to attempt to delineate and characterise any buried waste identified during the works.

The test pits are proposed to extend to a depth of at least 2.0 metres below ground level (or 0.5 metres into natural soils) based on the information available to date. Test pits will be terminated when natural soil has been encountered and no staining or odours are observed.

Test pits will be excavated using an excavator (to be provided and operated by the client). Inspection of the test pits bases and walls will be conducted (where safe) and also of the excavated spoil. The soils will be logged by an experienced Greencap environmental professional. Field screening will be conducted for volatile compounds using a photo-ionisation detector (PID) with a 10.6 eV ultraviolet lamp.

Samples will be collected of any building rubble suspected to contain asbestos and depending on the field observations, representative soil samples may also be collected. If samples of suspect material are collected it will be done so using a clean pair of disposable gloves directly from the excavator bucket where possible and if not possible from the spoil stockpile. Soil samples will be placed into Teflon sealed glass jars supplied by the laboratory with zero headspace. Soil samples will be stored in a chilled esky and transported to the analytical laboratory with chain of custody documentation. All laboratories used will be National Association of Testing Authorities (NATA) accredited for the analyses to be undertaken.

The proposed test locations may be refined based on the site inspection, but at this stage will include as a minimum locations targeting the areas indicated in Figure 3 below. It should be noted that the areas indicated do not represent individual test locations, but rather one or more test pit(s) will be excavated in the following areas:

- Area 1 – main area of suspected former excavations evident in the aerial photographs viewed.
- Area 2 – smaller area of waste evident only in the more recent aerial photographs.
- Area 3 – area indicated by Probuild to have been excavated and filled in May 2015.
- Area 4 – dark area visible in historical aerial photography and also area where green waste was reportedly identified by Probuild.

Additional test pits will also be excavated outside of these areas to further investigate/delineate impacts within the area of interest.

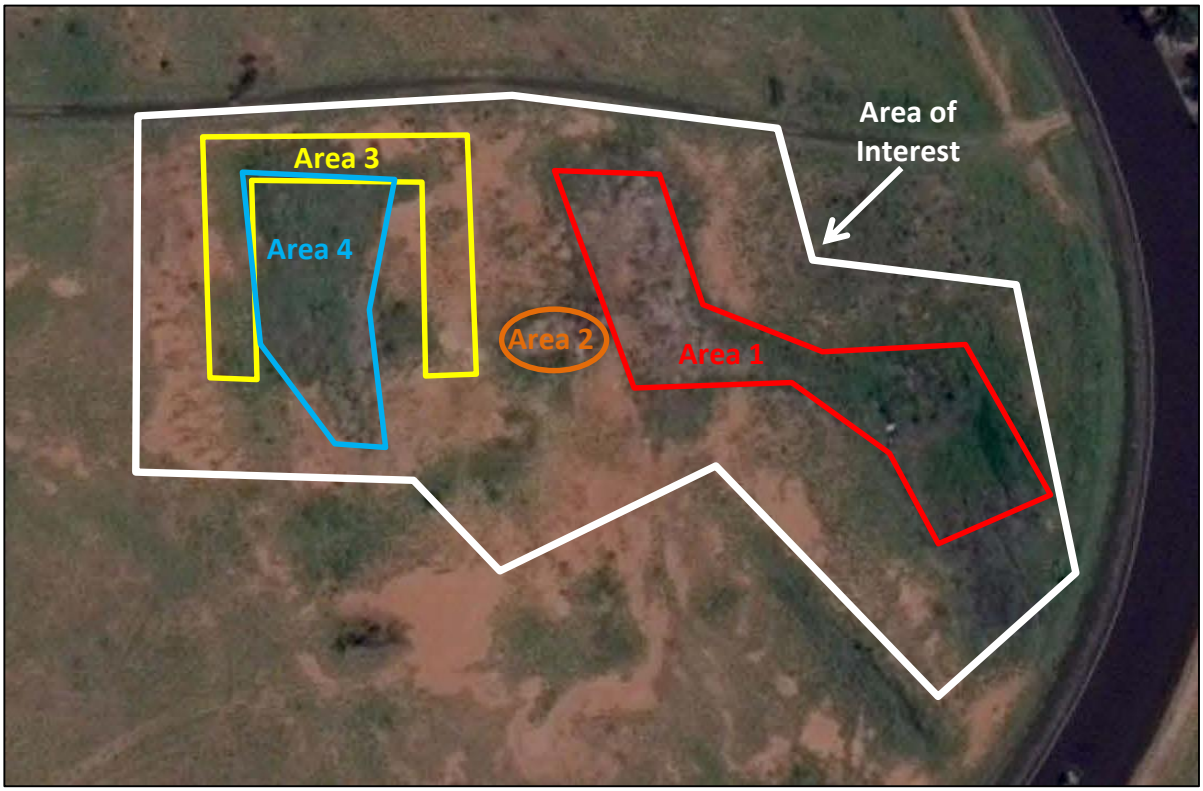


Figure 3: Proposed Targeted Locations (February 2015 aerial photograph)

5.3 Soil Assessment Criteria

If soil samples are collected for chemical analyses, soil concentrations will be compared with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (NEPM) for open space land use as follows:-

- Ecological Investigation Levels (EILs) for Urban Residential and Public Open Space land use;
- Ecological Screening Levels (ESLs) for Urban Residential and Public Open Space land use;
- Health Investigation Levels for open space land use (HIL C);
- Health Screening Levels for Vapour Intrusion (HSL C) recreation / open space land use – the screening levels will be selected based on overlying material type (unconsolidated fill / sand) and depth of sample; and
- 'Management Limits' for petroleum hydrocarbon compounds (Management Limits) for recreation / open space land use.

Site specific Ecological Investigation Levels (EILs) will be derived, if required, using the calculated averages of the pH, clay content and Cation Exchange Capacity (for each of fill / disturbed natural and natural soils, respectively). The use of 'aged' EIL value will be considered (where applicable for material that may have been imported to the site more than 2 years ago).

5.4 Quality Assurance / Quality Control

The Quality Assurance / Quality Control (QA / QC) measures adopted will depend on whether any samples are collected for chemical analyses, but will be intended to confirm the following data quality objectives:-

- Accuracy (as measured by laboratory spike and surrogate recovery samples) within 75 - 125 % recovery.
- Precision (as measured by field and laboratory duplicate sample analyses) within +/- 50% relative percent difference (RPD).
- Trip and rinsate blanks should be reported below the laboratory detection limits.
- Minimum 95% completeness (as measured by the total number of analyses within acceptance limits).

5.5 Reporting

On completion of all investigation works, a Preliminary Site Investigation (PSI) report will be prepared summarising the scope of works, methodologies, any issues/impacts encountered, significance of results and requirements for further works (either further assessment or remediation works if necessary).

The findings of the assessment will be summarised to the client, the Auditor and the NT EPA prior to reporting to gain agreement on the potential requirement for any additional works.

5.6 Project Team

The project team will include the following members:

Team Role	Team Member	Contact Details
Client Representative	Aaron Blacker (Probuild)	0400 716 130
Project Manager and Client Liaison	Andrew Durand Greencap	(08) 8299 9955 0402 762 065
Field Engineer	Jess Miller Greencap	(08) 8299 9955 0404 110 240
Site Auditor	Steve Kirsanovs Kirsa Environmental	0412 944 411

5.7 Timing

The approximate timing for the proposed works would be as follows:

- Fieldwork to commence within a week of endorsement of the proposed work scope by the NT EPA.
- Assessment summary (including test pit logs and site plans) would be provided to the auditor within one week of fieldwork being completed (or one week of receiving laboratory results, if chemical testing is deemed necessary).
- The completion of the draft PSI report within two weeks of Auditor approval of assessment summary. This timing assumes that additional works would not be required.

Should you have any queries in relation to the proposed Sampling Plan, please contact the undersigned.

Yours sincerely,

Andrew Durand
Manager, Contaminated Land

Attached: *Greencap Statement of Limitations*
Historical Aerial Photographs
Information Provided by Probuild

SAMPLING PLAN

Alice Springs Turf Club

Allotment 05120, Town of Alice Springs

Greencap Statement of Limitations

LIMITATIONS OF THIS REPORT

This environmental site assessment report has been prepared in accordance with industry recognised standards and procedures at the time of the work. The report presents the results of the assessment based on the quoted scope of works (unless otherwise agreed in writing) for the specific purposes of the commission. No warranties expressed or implied are offered to any third parties and no liability will be accepted for use of this report by any third parties.

Information provided by third parties has been assumed to be correct and complete. Greencap does not assume any liability for misrepresentation of information by third parties or for matters not visible, accessible or present on the subject property during any site inspections conducted during the time of the work.

The first stage in the site assessment process generally involves site history research and/or a site inspection. This stage is intended to establish whether there is a likelihood of site contamination. Depending on the location of the site and surrounding land use, there could be contamination present which could not have been identified by preliminary investigation of this nature - for example, if there had been dumping of waste liquids which has left no visual evidence and past owners were not aware of. If recommendations have been made on whether or not to conduct further investigation, these have been based on the likelihood of site contamination, and are generally based on the sensitivity of the proposed future use of the site. A more conservative approach is generally adopted for a sensitive future use such as residential or a child care centre. Subsequent stages of soil or groundwater investigation may follow. The site assessment process is often ongoing, with additional stages of investigation being required to resolve issues raised in previous stages of the investigation. In cases where sampling and analysis of soil and/or groundwater has been conducted, then the following standard limitations apply:-

- The results presented in the report apply only to the specific locations and the time the sampling was conducted. The nature and extent of contaminants present on a site can change due to physical disturbance or removal, chemical or biological transformation, or due to the migration of the contaminants to different areas.
- The borehole or test pit logs indicate the approximate subsurface conditions only at the specified test locations. Soil and rock formations are variable, and conditions in areas not sampled may differ from those at the actual sampling locations due to natural subsurface variation.
- The precision with which subsurface conditions are indicated depends largely on the frequency and method of sampling and investigation, and the degree of subsurface variation. There can be no complete guarantee that contaminants are not present at significant concentrations in some areas, even with the most thorough site assessment.
- Any conclusions or recommendations are based solely on the land use assumptions stated in the report. These conclusions or recommendations do not apply to any other land use for the site.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. Opinions and judgements expressed herein are based on Greencap's understanding of current regulatory standards and should not be construed as legal opinions.

SAMPLING PLAN

Alice Springs Turf Club

Allotment 05120, Town of Alice Springs

Historical Aerial Photographs

Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - September 2004 Aerial Photograph

GREENCAP

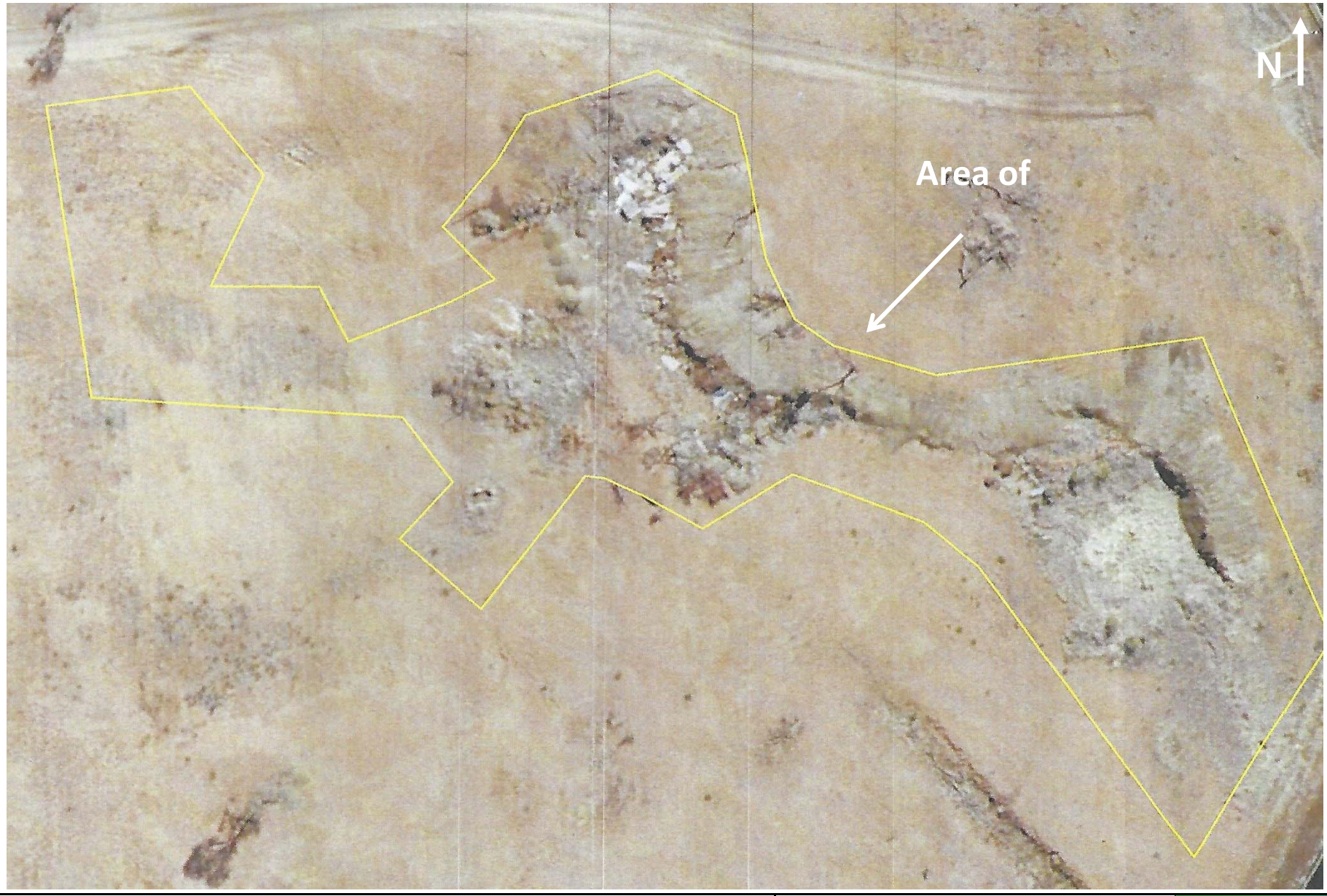
ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - March 2007 Aerial Photograph

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

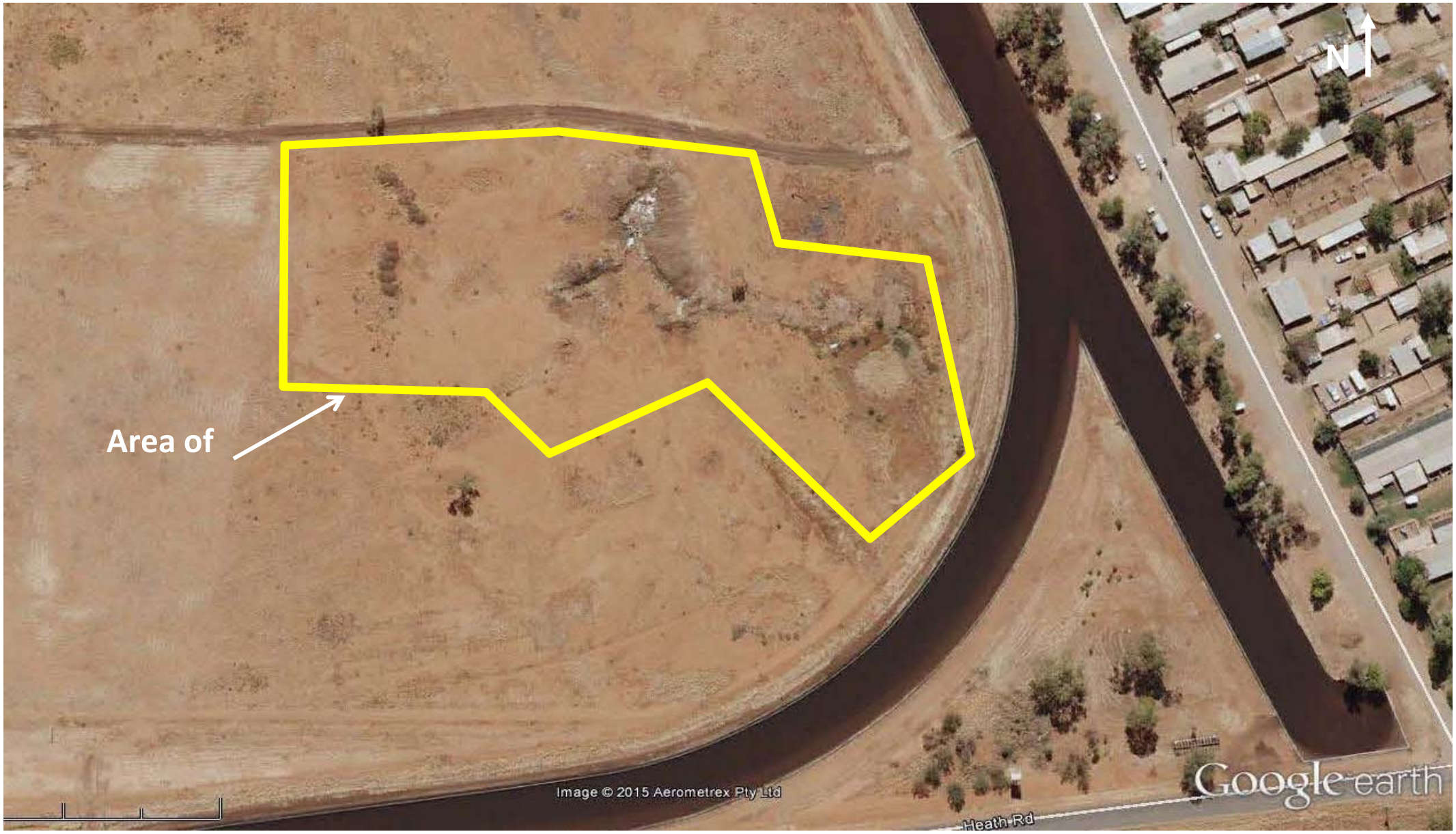


Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: unknown

FIGURE - 2008 Aerial Photograph (as provided by Northern Territory Environment Protection Authority)

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

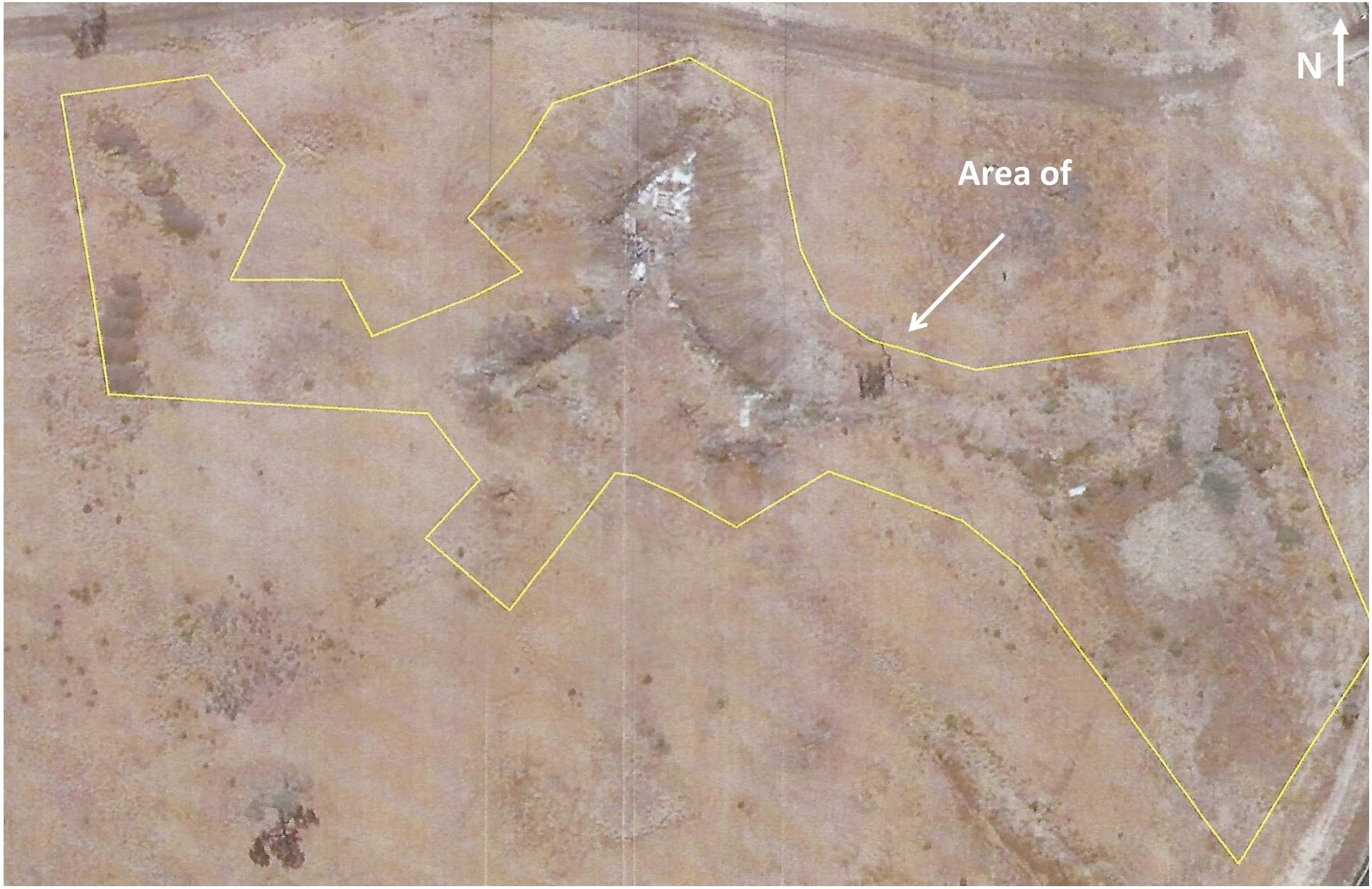


Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - May 2009 Aerial Photograph

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955



Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: unknown

FIGURE - 2009 Aerial Photograph (as provided by Northern Territory Environment Protection Authority)

GREENCAP

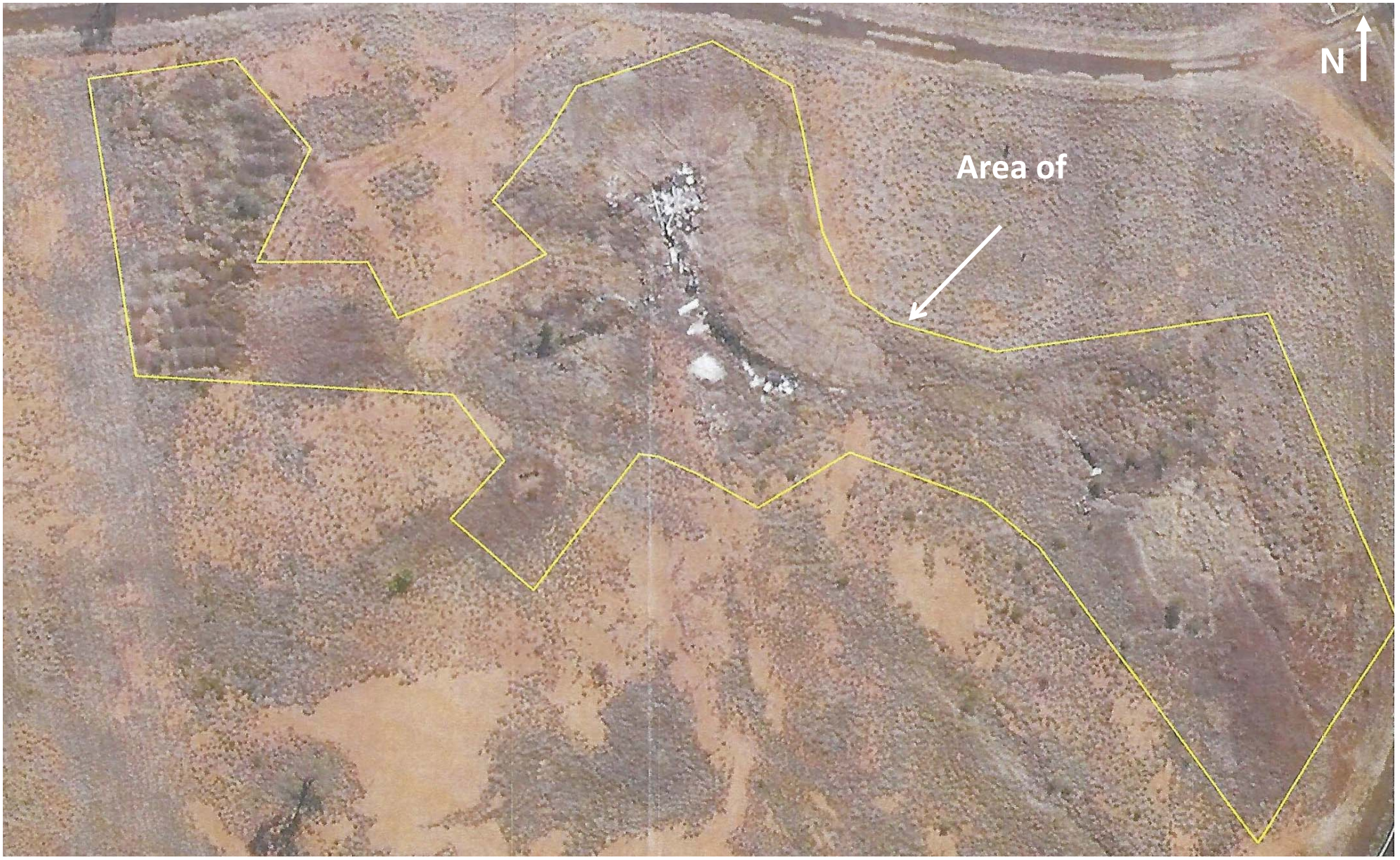
ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - March 2010 Aerial Photograph

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955



Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: unknown

FIGURE - 2012 Aerial Photograph (as provided by Northern Territory Environment Protection Authority)

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - March 2013 Aerial Photograph

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - March 2014 Aerial Photograph

GREENCAP

ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

Project: Preliminary Site Investigation					
Location: Pioneer Park Racecourse, 55 Heath Road, Kilgariff					
Job Ref: J133974	Drawn: AD	Checked:	Date: July 2015	Scale: Not to scale	Source: Google

FIGURE - February 2015 Aerial Photograph

GREENCAP

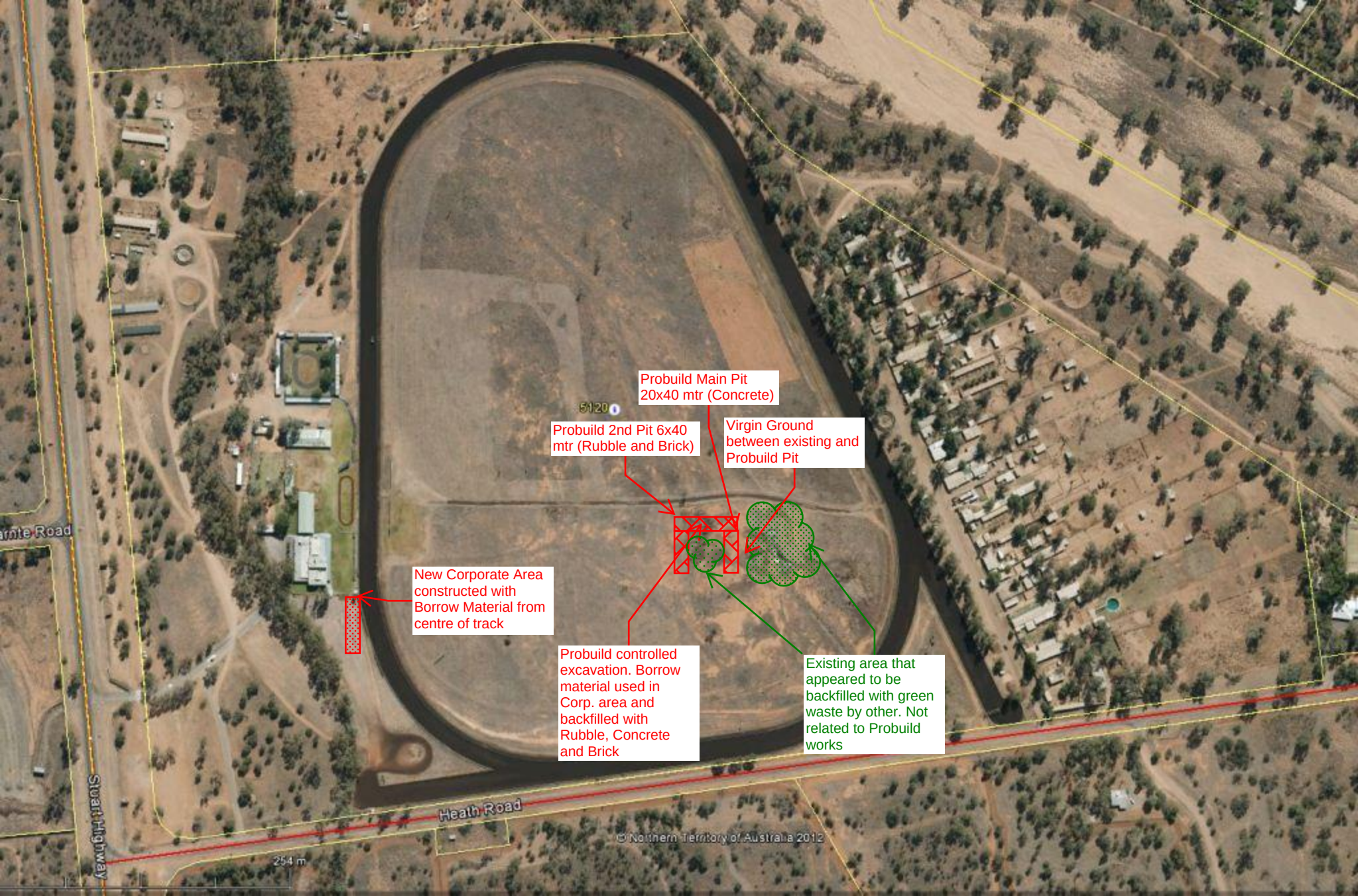
ADELAIDE
12 Greenhill Road
Wayville SA 5061
Telephone (08) 8299 9955

SAMPLING PLAN

Alice Springs Turf Club

Allotment 05120, Town of Alice Springs

Information Provided by Probuild


Probuild Main Pit
20x40 mtr (Concrete)
Probuild 2nd Pit 6x40
mtr (Rubble and Brick)
Virgin Ground
between existing and
Probuild Pit
New Corporate Area
constructed with
Borrow Material from
centre of track
Probuild controlled
excavation. Borrow
material used in
Corp. area and
backfilled with
Rubble, Concrete
and Brick
Existing area that
appeared to be
backfilled with green
waste by other. Not
related to Probuild
works
Heath Road
Stuart Highway
254 m
© Northern Territory of Australia 2012

ASBESTOS REMOVAL CLEARENCE CERTIFICATE

E-MAILED 1/4/14 to Ant. Lillicrap

Section 1 – Clearance Inspection Details

CLIENT DETAILS	
Project no	424-94
Job site	Drive In – Transportable Floors
ASBESTOS REMOVAL DETAILS	
Date removal work carried out	26/3/2014 - 27/3/2014
Address where removal work carried out	400 Stuart Highway (Old Drive In Block)
Details of the specific Asbestos removal work area(s)	Removal of Asbestos Sheeting used as floor lining to Transportable Buildings.
Name of asbestos removalist	Michael Power Tom Harris
Name and contact details of asbestos removalist supervisor	Anthony Lillicrap antthony@antconstruction.com.au
INSPECTION DETAILS	
Date of clearance inspection	27/3/2014 \ 1/4/14 QP
Time of clearance inspection	4:20 PM \ 9am QP

Section 2 – Asbestos Removal Work Paperwork

Do you have a copy of the asbestos removal control plan	Yes	-
Do you have a copy of the notification form?	Yes	-
Is the removal work consistent with the control plan and the notification form? (e.g. use of enclosures, decontamination facilities, waste facilities)	Yes	-

Section 3 – Asbestos Removal Work Area

VISUAL INSPECTION		
Inspection of the specific area detailed in Section 1 found no visible asbestos remaining as a result of the asbestos removal work carried out.	Yes	-
Is air monitoring required (if no, proceed to Section 5)	~~Yes~~	-
Can the area be reoccupied?	Yes	-
Has additional information been attached? (e.g. photos, drawings, plans)	No	-
AIR MONITORING		
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01 f/ml.	N/A	-
Has the air monitoring sample been analysed by a NATA-accredited laboratory?	N/A	-
Are the air monitoring reports attached?	N/A	-
Can the area be reoccupied?	N/A	-

Section 4 – Asbestos Removal with Enclosures (Friable)

PRIOR TO DISMANTLING THE ENCLOSURE		
The area within the enclosure and the area immediately surrounding the enclosure was inspected and no visible asbestos was found.	NA	-
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01f/ml.	NA	-
Is the air monitoring report attached?	NA	-
Can the enclosure be dismantled?	NA	-

Number of samples Collected:_N/A__

	SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4
RESULTS	-	-	-	-

AFTER THE ENCLOSURE WAS DISMANTLED AND REMOVED		
The area within the enclosure and the area immediately surrounding the enclosure was inspected and no visible asbestos was found.	NA	-
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01f/ml.	NA	-
Is the air monitoring report attached?	NA	-
Can the enclosure be dismantled?	NA	-

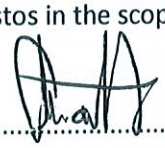
Number of samples Collected:___

	SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4
RESULTS	-	-	-	-

Section 5 – Clearance Declaration

I declare that:

- ~~The former enclosure, asbestos removal work area and the surrounding area are free from any visible asbestos~~
- The transit route and waste routes are free from any asbestos
- All asbestos in the scope of the removal work has been removed and any known asbestos intact.



.....

Signature of licensed asbestos assessor /competent person License No 53494

.....CHRIS HATT.....

Name of licensed asbestos assessor /competent person

Drive In Demo Material Calculation

Job Name : C26 - TURF CLUB **Job Description**

Client's Name:

Description	No.	+/- %	Quantity	Unit	Rate	Mark Up %	Item Amount
Trade : **Coporate area**							
Item : ***Remove all concrete, blocks & rock to dump in Turf club, cover over on comp***							
			0.00		**25,055.00**		**0.00**
			1.00				
Demolition from Drive In buildings and slabs			354.00	t	8.00		2,832.00
Demolish any kerbs still in ground.			341.00	m	11.00		3,751.00
Rock and other from Probuild Building & Civil			583.00	m3	8.00		4,664.00
Material dumped illegally or of unknown origin			576.00	m3	8.00		4,608.00
Tree stumps can go on top of materials in hole at Turf club			16.00		50.00		800.00
Total Clean Fill			1,050.00	m3	8.00		8,400.00
Total Estimated material to be transferred			2,916.00				

Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

Appendix B: Test Pit Logs

TESTPIT LOG

Pit No.: TP01

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 4
Pit Dimensions (Width): 3
Total Depth (m): 3

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low plasticity.	D				0.0
0.90		FILL Soil mixed with concrete, green waste and rocks.				No samples collected.	1.0
2.50		NATURAL - SILTY CLAY (CL) Red brown to brown silty clay. Low plasticity.					2.0
3.00		TP01 DISCONTINUED AT 3.0m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP02

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 14
Pit Dimensions (Width): 2
Total Depth (m): 3

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low plasticity.	D				0.0
0.80		FILL Soil mixed with concrete, besser blocks, rebar, plastic pipe, green waste and rocks.				Southern portion of trench contains shallow waste from 0.8 to 1.2m bgl. Waste appears to be isolated to the edge of the trench. No samples collected.	1.0
2.70		NATURAL - SILTY CLAY (CL) Red brown to brown silty clay. Low plasticity.					2.0
3.00		TP02 DISCONTINUED AT 3.0m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP03

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 10
Pit Dimensions (Width): 1
Total Depth (m): 2.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low plasticity.	D				0.0
0.50		FILL Soil mixed with large concrete pieces, wood, plastic pipe, and green waste.				No samples collected.	1.0
2.50		NATURAL - SILTY CLAY (CL) Red brown to brown silty clay. Low plasticity.					2.0
2.80		TP03 DISCONTINUED AT 2.8m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP04

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 4
Pit Dimensions (Width): 3
Total Depth (m): 2.6

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low plasticity. No waste observed.	D				0.0
1.00		NATURAL - SLITY CLAY (CL) Red brown to brown silty clay. Low plasticity.				No samples collected.	1.0
							2.0
2.60		TP04 DISCONTINUED AT 2.6m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP05

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 4
Pit Dimensions (Width): 3
Total Depth (m): 2.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low plasticity.	D			No samples collected.	0.0 1.0
1.30		FILL Soil mixed with gravels, crushed rock and green waste.					
1.50		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.					2.0
2.50		TP05 DISCONTINUED AT 2.5m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP06

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 4
Pit Dimensions (Width): 3
Total Depth (m): 1.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity. No waste noted.	D			No samples collected.	0.0
1.00		TP06 DISCONTINUED AT 1.0m bgl.					1.0
							2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP07

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 9
Pit Dimensions (Width): 1
Total Depth (m): 2.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low Plasticity.	D				0.0
0.50		FILL Red brown to brown silty clay mixed with green waste.				No samples collected.	1.0
1.20		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.					2.0
2.50		TP07 DISCONTINUED AT 2.5m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP08

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.4

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low Plasticity.	D				0.0
0.40		FILL Red brown to brown silty clay mixed with green waste.				No samples collected.	1.0
1.30		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.					2.0
2.40		TP08 DISCONTINUED AT 2.4m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP09

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.2

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low Plasticity.	D				0.0
0.30		FILL Red brown to brown silty clay mixed with green waste.				No samples collected.	1.0
1.20		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.					2.0
2.20		TP09 DISCONTINUED AT 2.2m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP10

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.4

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Red brown to brown silty clay mixed with green waste, metal and plastic.	D	TP10_01			0.0 1.0
1.20		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.		TP10_02			2.0
2.40		TP10 DISCONTINUED AT 2.4m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP11

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay. Low to medium plasticity. No waste noted.	D				0.0
1.00		NATURAL - SILTY CLAY (CL) Red brown to brown silty clay. Low plasticity.				No samples collected.	1.0 2.0
2.50		TP11 DISCONTINUED AT 2.5m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP12

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Red brown to brown silty clay mixed with green waste.	D				0.0
0.50		NATURAL - SILTY CLAY (CL) Red brown to brown. Low to medium plasticity.				No samples collected.	1.0
2.00		TP12 DISCONTINUED AT 2.0m bgl.					2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP13

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Red brown to brown silty clay mixed with green waste, wood, metal and concrete fragments.	D				0.0
0.50		NATURAL - SILTY CLAY (CL) Red brown to brown. Low to medium plasticity.				No samples collected.	1.0
2.00		TP13 DISCONTINUED AT 2.0m bgl.					2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP14

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.2

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low to medium plasticity.	D			No samples collected.	0.0 1.0
1.20		TP14 DISCONTINUED AT 1.2m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP15
Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.3

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Brown silty clay mixed with green waste, concrete, bricks, plastic and metal pipe.	D	TP15_1			0.0
1.50		NATURAL - SILTY CLAY (CL) Red brown to brown. Low to medium plasticity.		TP15_2			1.0 2.0
2.30		TP15 DISCONTINUED AT 2.3m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP16

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Brown silty clay mixed with significant amounts of waste including paint cans, 44 gallon drums, metal sheeting, cement fibre, plastic bins, wood and other various building waste.	D	TP16_1 TP16_2 TP16_3		Pit appears to be in central most concentrated area of waste. Waste appears to be 'track waste' sourced from the race track area.	0.0 1.0
2.00		NATURAL - SILTY CLAY (CL) Red brown to brown silty clay. Low plasticity.					2.0
2.50		TP16 DISCONTINUED AT 2.5m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP17

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Red brown to brown silty clay mixed with green waste, wood, plastic and metal pipes and sheeting.	D	TP17_01			0.0 1.0
1.50		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.		TP17_02			2.0
2.50		TP17 DISCONTINUED AT 2.5m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP18

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.7

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			No samples collected.	0.0 1.0
1.70		TP18 DISCONTINUED AT 1.7m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP19

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay mixed with grass and manure.	D				0.0
0.30		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
1.80		TP19 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP20

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.3

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay mixed with grass and manure.	D			No samples collected.	0.0
1.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.					1.0
							2.0
2.30		TP20 DISCONTINUED AT 2.3m bgl.					
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP21

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay mixed with grass and minor metal waste fragments.	D				0.0
0.10		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
1.80		TP21 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP22
Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Grass, green waste, large tree branches, 44 gallon drums and track railings.	D				0.0
				TP22_01			1.0
1.50		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.		TP22_02			
2.00		TP22 DISCONTINUED AT 2.0m bgl.					2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP23

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Gully area filled with green waste, grass, tree stumps, benches and manure.	D			No samples collected.	0.0 1.0
1.50		TP23 DISCONTINUED AT 1.5m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP24

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.2

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Green waste, grass, benches and irrigation piping.	D				0.0
0.30		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
1.20		TP24 DISCONTINUED AT 1.2m bgl.					2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP25

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			No samples collected.	0.0 1.0
2.00		TP25 DISCONTINUED AT 2.0m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP26

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.4

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			No samples collected.	0.0 1.0 2.0
2.40		TP26 DISCONTINUED AT 2.4m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP27

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		FILL Red to red brown silty clay mixed with green waste.	D				0.0
0.40		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
2.00		TP27 DISCONTINUED AT 2.0m bgl.					2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP28

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red to red brown silty clay mixed with green waste.	D				0.0
0.40		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
							2.0
2.50		TP28 DISCONTINUED AT 2.5m bgl.					3.0

NOTES:

TESTPIT LOG

Pit No.: TP29

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.0

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red to red brown silty clay mixed with grass.	D				0.0
0.20		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
2.00		TP29 DISCONTINUED AT 2.0m bgl.					2.0
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP30

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.9

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			No samples collected.	0.0 1.0
1.90		TP30 DISCONTINUED AT 1.9m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP31

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 2.1

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay mixed with trace gravels.	D				0.0
1.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
							2.0
2.10		TP31 DISCONTINUED AT 2.1m bgl.					
							3.0

NOTES:

TESTPIT LOG

Pit No.: TP32

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.5

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			No samples collected.	0.0 1.0
1.50		TP32 DISCONTINUED AT 1.5m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP33

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.7

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		REWORKED NATURAL Red brown to brown silty clay mixed with grass.	D				0.0
0.20		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.				No samples collected.	1.0
1.70		TP33 DISCONTINUED AT 1.7m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP34

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			No samples collected.	0.0 1.0
1.80		TP34 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP35

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			Test pit within large excavation, no samples collected	0.0 1.0
1.80		TP35 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP36

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			Test pit within large excavation, no samples collected	0.0 1.0
1.80		TP36 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP37

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			Test pit within large excavation, no samples collected	0.0 1.0
1.80		TP37 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP38

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			Test pit within large excavation, no samples collected	0.0 1.0
1.80		TP38 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP39

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			Test pit within large excavation, no samples collected	0.0 1.0
1.80		TP39 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

TESTPIT LOG

Pit No.: TP40

Page: 1 of 1

Client: Probuild
Project: Preliminary Site Investigation
Project No: J133974
Location: Pioneer Racecourse, Alice Springs
Date: 23 July 2015 **To:** 23 July 2015

Excavation Contractor: Probuild
Excavator Model: CAT 320D
Pit Dimensions (Length): 3
Pit Dimensions (Width): 1
Total Depth (m): 1.8

Easting: 0
Northing: 0

Logged by: JM **Checked by:**

Depth (m)	Graphic Log	SOIL DESCRIPTION	Moisture	Field ID	PID (ppm)	Comment	Depth (m)
		Ground Surface					
0.00		NATURAL - SILTY CLAY (CL) Red brown to brown. Low plasticity.	D			Test pit within large excavation, no samples collected	0.0 1.0
1.80		TP40 DISCONTINUED AT 1.8m bgl.					2.0 3.0

NOTES:

Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

Appendix C: NATA Laboratory Certificates and Chain of Custody Documentation - Soil

eurofins | mgt

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**AEC Environmental NT**
Contact name:	Jess Miller
Project name:	PIONEER PARK RACECOURSE ALICE SPRINGS
Project ID:	J133974
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Jul 28, 2015 12:35 PM
Eurofins | mgt reference:	**466657**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

TRACK WASTE SAMPLE ON HOLD ON FOLLOWING REPORT

Contact notes

If you have any questions with respect to these samples please contact:

Sarah Gould on Phone : (+61) (8) 8154 3100 or by e.mail: SarahGould@eurofins.com.au

Results will be delivered electronically via e.mail to Jess Miller - jess.miller@aecaust.com.au.

Greencap

Sample Chain of Custody and Testing Request

Samples Submitted to Eurofins-MGT

Job no	:	J133974	
Purchase Order	:	PO100508	
Sheet no	:	1 of 1	
client	: Greencap	sampled by	: JM
project	: PSI	date	: 23-Jul-15
location	: Pioneer Park Racecourse, Alice Springs		

Sample number	Sample Date	Depth below surface (m)	Sample containers								Material	Testing required									
			Vials	Heavy Metals Preserved	Glass Jar	500ml Glass amber						VIC EPA Screen			B7 (TRH, BTEX, PAHs, 8 Metals)		TRH C6-C9/BTEX				
TP10-1					X										X						
TP10-2					X										X						
TP15-1					X										X						
TP15-2					X										X						
TP16-1					X										X						
TP16-2					X							X									
TP16-3					X										X						
TP17-1					X										X						
TP17-2					X										X						
TP22-1					X										X						
TP22-2					X										X						
QC01					X										X						
TB01			X														X				

Notes :
AEC Contact - Jess Miller (08) 8299-9955
Company Fax:- 08 8299 9954
Please email results to the following :- jess.miller@greencap.com.au

Chain of Custody:

Relinquished by :	Company	Date	Time	Received by - Name & C	date	time
JM	Greencap	24/07/2015	0:00	LIAM EF/MGT	28/7/15	12:35 pm

Results required by:

Results checked:
by : date :

466657

EnviroSampleVIC

From: Sarah Gould
Sent: Tuesday, 28 July 2015 12:36 PM
To: EnviroSampleVIC
Subject: FW: Alice Springs samples
Attachments: J133974 Samples to ALS.pdf; J134974 Samples to MGT.pdf

Sarah Gould
Phone : +61 3 8564 5053
Email : SarahGould@eurofins.com.au

From: *Jess Miller [mailto:Jess.Miller@greencap.com.au]*
Sent: *Tuesday, 28 July 2015 12:35 PM*
To: *Sarah Gould*
Subject: *RE: Alice Springs samples*

Ok we got the go ahead! Please see attached COCs. Please forward sample QC02 to ALS with attached COC.

Cheers,

Jess Miller
Senior Environmental Scientist

Greencap
12 Greenhill Road, Wayville SA 5034
PO Box 582, Unley SA 5061
T +08 8299 9955
D +08 8378 6518
M 0404 110 240
E Jess.Miller@greencap.com.au

From: *Sarah Gould [mailto:SarahGould@eurofins.com.au]*
Sent: *Monday, 27 July 2015 2:02 PM*
To: *Jess Miller*
Subject: *RE: Alice Springs samples*

OK, thanks Jess.

Sarah Gould
Phone : +61 3 8564 5053
Email : SarahGould@eurofins.com.au

466657

Greencap

Sample Chain of Custody and Testing Request

Samples Submitted to ALS

Job no	:	J133974	
Purchase Order	:	PO100510	
Sheet no	:	1 of 1	
client	: Greencap	sampled by	: JM
project	: PSI	date	: 23-Jul-15
location	: Pioneer Park Racecourse, Alice Springs		

Sample number	Sample Date	Depth below surface (m)	Sample containers								Material	Testing required										
			Vials	Heavy Metals Preserved	Glass Jar	500ml Glass amber								TRH, BTEX, 8 Metals, PAHs								
QC02	23/07/2015				X									X								

Notes :
AEC Contact - Jess Miller (08) 8299-9955
Company Fax:- 08 8299 9954
Please email results to the following :- jess.miller@greencap.com.au

Chain of Custody:

Relinquished by -	Company	Date	Time	Received by - Name & C	date	time
JM	Greencap	24/07/2015	0:00			

Results required by:

Results checked:
by : date :

466657

eurofins | mgt

Certificate of Analysis

AEC Environmental
12 Greenhill Road
Wayville
SA 5034

Attention: **Jess Miller**

Report **466657-S**
Project name PIONEER PARK RACECOURSE ALICE SPRINGS
Project ID J133974
Received Date Jul 28, 2015

Client Sample ID			**TP10-1**	**TP10-2**	**TP15-1**	**TP15-2**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Jl23947**	**M15-Jl23948**	**M15-Jl23949**	**M15-Jl23950**
Date Sampled			**Jul 23, 2015**	**Jul 23, 2015**	**Jul 23, 2015**	**Jul 23, 2015**
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	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	120	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	110	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	230	< 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	%	94	93	90	102
Total Recoverable Hydrocarbons - 2013 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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
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&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	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

Client Sample ID			TP10-1	TP10-2	TP15-1	TP15-2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-JI23947	M15-JI23948	M15-JI23949	M15-JI23950
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	114	105	96	96
p-Terphenyl-d14 (surr.)	1	%	116	114	100	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	210	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
% Moisture	0.1	%	2.3	1.3	1.9	4.2
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	14	14	24
Copper	5	mg/kg	11	< 5	20	11
Lead	5	mg/kg	5.3	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	8.0	< 5	7.2	9.6
Zinc	5	mg/kg	26	9.5	59	25

Client Sample ID			TP16-1	TP16-2	TP16-3	TP17-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-JI23951	M15-JI23952	M15-JI23953	M15-JI23954
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
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	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	160	240	< 50	75
TRH C29-C36	50	mg/kg	130	210	< 50	61
TRH C10-36 (Total)	50	mg/kg	290	450	< 50	140
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	%	94	-	95	88
Volatile Organics						
1.2.4-Trichlorobenzene	0.2	mg/kg	-	< 0.2	-	-
Hexachlorobutadiene	0.2	mg/kg	-	< 0.2	-	-
1.1-Dichloroethane	0.05	mg/kg	-	< 0.05	-	-
1.1-Dichloroethene	0.05	mg/kg	-	< 0.05	-	-
1.1.1-Trichloroethane	0.05	mg/kg	-	< 0.05	-	-

Client Sample ID			TP16-1	TP16-2	TP16-3	TP17-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-Jl23951	M15-Jl23952	M15-Jl23953	M15-Jl23954
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
Test/Reference	LOR	Unit				
Volatile Organics						
1.1.1.2-Tetrachloroethane	0.05	mg/kg	-	< 0.05	-	-
1.1.2-Trichloroethane	0.05	mg/kg	-	< 0.05	-	-
1.1.2.2-Tetrachloroethane	0.05	mg/kg	-	< 0.05	-	-
1.2-Dibromoethane	0.05	mg/kg	-	< 0.05	-	-
1.2-Dichlorobenzene	0.05	mg/kg	-	< 0.05	-	-
1.2-Dichloroethane	0.05	mg/kg	-	< 0.05	-	-
1.2-Dichloropropane	0.05	mg/kg	-	< 0.05	-	-
1.2.3-Trichloropropane	0.05	mg/kg	-	< 0.05	-	-
1.2.4-Trimethylbenzene	0.05	mg/kg	-	< 0.05	-	-
1.3-Dichlorobenzene	0.05	mg/kg	-	< 0.05	-	-
1.3-Dichloropropane	0.05	mg/kg	-	< 0.05	-	-
1.3.5-Trimethylbenzene	0.05	mg/kg	-	< 0.05	-	-
1.4-Dichlorobenzene	0.05	mg/kg	-	< 0.05	-	-
2-Butanone (MEK)	0.05	mg/kg	-	< 0.05	-	-
2-Propanone (Acetone)	0.05	mg/kg	-	< 0.05	-	-
4-Chlorotoluene	0.05	mg/kg	-	< 0.05	-	-
4-Methyl-2-pentanone (MIBK)	0.05	mg/kg	-	< 0.05	-	-
Allyl chloride	0.05	mg/kg	-	< 0.05	-	-
Benzene	0.1	mg/kg	-	< 0.1	-	-
Bromobenzene	0.05	mg/kg	-	< 0.05	-	-
Bromochloromethane	0.05	mg/kg	-	< 0.05	-	-
Bromodichloromethane	0.05	mg/kg	-	< 0.05	-	-
Bromoform	0.05	mg/kg	-	< 0.05	-	-
Bromomethane	0.05	mg/kg	-	< 0.05	-	-
Carbon disulfide	0.05	mg/kg	-	< 0.05	-	-
Carbon Tetrachloride	0.05	mg/kg	-	< 0.05	-	-
Chlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Chloroethane	0.05	mg/kg	-	< 0.05	-	-
Chloroform	0.05	mg/kg	-	< 0.05	-	-
Chloromethane	0.05	mg/kg	-	< 0.05	-	-
cis-1.2-Dichloroethene	0.05	mg/kg	-	< 0.05	-	-
cis-1.3-Dichloropropene	0.05	mg/kg	-	< 0.05	-	-
Dibromochloromethane	0.05	mg/kg	-	< 0.05	-	-
Dibromomethane	0.05	mg/kg	-	< 0.05	-	-
Dichlorodifluoromethane	0.05	mg/kg	-	< 0.05	-	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	-
Iodomethane	0.05	mg/kg	-	< 0.05	-	-
Isopropyl benzene (Cumene)	0.05	mg/kg	-	< 0.05	-	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	-
Methylene Chloride	0.05	mg/kg	-	< 0.05	-	-
o-Xylene	0.1	mg/kg	-	< 0.1	-	-
Styrene	0.05	mg/kg	-	< 0.05	-	-
Tetrachloroethene	0.05	mg/kg	-	< 0.05	-	-
Toluene	0.1	mg/kg	-	< 0.1	-	-
trans-1.2-Dichloroethene	0.05	mg/kg	-	< 0.05	-	-
trans-1.3-Dichloropropene	0.05	mg/kg	-	< 0.05	-	-
Trichloroethene	0.05	mg/kg	-	< 0.05	-	-
Trichlorofluoromethane	0.05	mg/kg	-	< 0.05	-	-
Vinyl chloride	0.05	mg/kg	-	< 0.05	-	-

Client Sample ID			TP16-1	TP16-2	TP16-3	TP17-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-Jl23951	M15-Jl23952	M15-Jl23953	M15-Jl23954
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
Test/Reference	LOR	Unit				
Volatile Organics						
Xylenes - Total	0.3	mg/kg	-	< 0.3	-	-
Fluorobenzene (surr.)	1	%	-	90	-	-
4-Bromofluorobenzene (surr.)	1	%	-	95	-	-
Total Recoverable Hydrocarbons - 2013 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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
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&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	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*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	93	103	97	99
p-Terphenyl-d14 (surr.)	1	%	91	108	109	108
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	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	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-

Client Sample ID			TP16-1	TP16-2	TP16-3	TP17-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-Jl23951	M15-Jl23952	M15-Jl23953	M15-Jl23954
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Dibutylchlorendate (surr.)	1	%	-	125	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	92	-	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	-
Total PCB*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	125	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	92	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4.5-Trichlorophenol	1.0	mg/kg	-	< 1	-	-
2.4.6-Trichlorophenol	1.0	mg/kg	-	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
4-Chloro-3-methylphenol	1.0	mg/kg	-	< 1	-	-
Pentachlorophenol	1.0	mg/kg	-	< 1	-	-
Tetrachlorophenols - Total	1.0	mg/kg	-	< 1	-	-
Total Halogenated Phenol*	1	mg/kg	-	< 1	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	-	-
2-Nitrophenol	1.0	mg/kg	-	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	-	< 5	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	-	-
4-Nitrophenol	5	mg/kg	-	< 5	-	-
Dinoseb	20	mg/kg	-	< 20	-	-
Phenol	0.5	mg/kg	-	< 0.5	-	-
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20	-	-
Phenol-d6 (surr.)	1	%	-	97	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	260	400	< 100	120
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Chromium (hexavalent)	1	mg/kg	-	< 1	-	-
Cyanide (total)	5	mg/kg	-	< 5	-	-
Fluoride	100	mg/kg	-	120	-	-
pH (1:5 Aqueous extract)	0.1	pH Units	-	7.2	-	-
% Moisture	0.1	%	7.2	12	5.7	6.0

Client Sample ID			TP16-1	TP16-2	TP16-3	TP17-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-JI23951	M15-JI23952	M15-JI23953	M15-JI23954
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	10	15	8.5
Copper	5	mg/kg	24	26	6.3	22
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	10	mg/kg	-	< 10	-	-
Nickel	5	mg/kg	6.3	< 5	6.0	< 5
Selenium	2	mg/kg	-	< 2	-	-
Silver	5	mg/kg	-	< 5	-	-
Tin	10	mg/kg	-	< 10	-	-
Zinc	5	mg/kg	88	160	14	66

Client Sample ID			TP17-2	TP22-1	TP22-2	QC01
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M15-JI23955	M15-JI23956	M15-JI23957	M15-JI23958
Date Sampled			Jul 23, 2015	Jul 23, 2015	Jul 23, 2015	Jul 23, 2015
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	< 20	< 20	< 20	21
TRH C15-C28	50	mg/kg	< 50	240	< 50	190
TRH C29-C36	50	mg/kg	< 50	56	< 50	180
TRH C10-36 (Total)	50	mg/kg	< 50	300	< 50	390
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	%	92	84	92	65
Total Recoverable Hydrocarbons - 2013 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 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
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&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP17-2	TP22-1	TP22-2	QC01
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-JI23955**	**M15-JI23956**	**M15-JI23957**	**M15-JI23958**
Date Sampled			**Jul 23, 2015**	**Jul 23, 2015**	**Jul 23, 2015**	**Jul 23, 2015**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(k)fluoranthene	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*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	106	105	107	103
p-Terphenyl-d14 (surr.)	1	%	119	108	121	108
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	280	< 100	300
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
% Moisture	0.1	%	8.2	1.8	2.2	12
Heavy Metals						
Arsenic	2	mg/kg	2.2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	27	9.3	24	10
Copper	5	mg/kg	14	17	11	28
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	9.9	< 5	9.7	< 5
Zinc	5	mg/kg	29	53	26	210

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).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Vic EPA IWRG 621 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 29, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Volatile Organics	Melbourne	Jul 29, 2015	7 Day
- Method: USEPA 8260 - MGT 350A Volatile Organics by GCMS			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 29, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jul 29, 2015	14 Day
- Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons			
Organochlorine Pesticides	Melbourne	Jul 29, 2015	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
Polychlorinated Biphenyls	Melbourne	Jul 29, 2015	28 Day
- Method: USEPA 8082 Polychlorinated Biphenyls			
Phenols (Halogenated)	Melbourne	Jul 29, 2015	14 Day
- Method: USEPA 8270 Phenols			
Phenols (non-Halogenated)	Melbourne	Jul 29, 2015	14 Day
- Method: USEPA 8270 Phenols			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jul 29, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Chromium (hexavalent)	Melbourne	Jul 29, 2015	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
Cyanide (total)	Melbourne	Jul 29, 2015	14 Day
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	Jul 30, 2015	28 Day
- Method: NEPC 404 (Fusion followed by ISE)			
pH (1:5 Aqueous extract)	Melbourne	Jul 30, 2015	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
IWRG 621 Metals : Metals M12	Melbourne	Jul 29, 2015	28 Day
- Method: USEPA 6010/6020 Heavy Metals & USEPA 7470/71 Mercury			
Eurofins | mgt Suite B7			
BTEX	Melbourne	Jul 29, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Melbourne	Jul 29, 2015	28 Day
- Method: USEPA 6010/6020 Heavy Metals & USEPA 7470/71 Mercury			
% Moisture	Melbourne	Jul 28, 2015	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: AEC Environmental NT
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Project Name: PIONEER PARK RACECOURSE ALICE SPRINGS
Project ID: J133974

Order No.: PO100508
Report #: 466657
Phone: 61 8 8984 4244
Fax: 61 8 8984 3105

Received: Jul 28, 2015 12:35 PM
Due: Aug 4, 2015
Priority: 5 Day
Contact Name: Jess Miller

Eurofins | mgt Client Manager: Sarah Gould

Sample Detail					TRH C6-C9	BTEX	Moisture Set	Eurofins | mgt Suite B7	Vic EPA IWRG 621 (Solids)
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
TP10-1	Jul 23, 2015		Soil	M15-Jl23947			X	X	
TP10-2	Jul 23, 2015		Soil	M15-Jl23948			X	X	
TP15-1	Jul 23, 2015		Soil	M15-Jl23949			X	X	
TP15-2	Jul 23, 2015		Soil	M15-Jl23950			X	X	
TP16-1	Jul 23, 2015		Soil	M15-Jl23951			X	X	
TP16-2	Jul 23, 2015		Soil	M15-Jl23952			X		X
TP16-3	Jul 23, 2015		Soil	M15-Jl23953			X	X	
TP17-1	Jul 23, 2015		Soil	M15-Jl23954			X	X	
TP17-2	Jul 23, 2015		Soil	M15-Jl23955			X	X	

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Company Name:	AEC Environmental NT	**Order No.:**	PO100508	**Received:**	Jul 28, 2015 12:35 PM
Address:	11/14 Winnellie Road Winnellie NT 0800	**Report #:**	466657	**Due:**	Aug 4, 2015
		Phone:	61 8 8984 4244	**Priority:**	5 Day
		Fax:	61 8 8984 3105	**Contact Name:**	Jess Miller
Project Name:	PIONEER PARK RACECOURSE ALICE SPRINGS				
Project ID:	J133974				

Eurofins | mgt Client Manager: Sarah Gould

Sample Detail					TRH C6-C9	BTEX	Moisture Set	Eurofins | mgt Suite B7	Vic EPA IWRG 621 (Solids)
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
TP22-1	Jul 23, 2015		Soil	M15-Jl23956			X	X	
TP22-2	Jul 23, 2015		Soil	M15-Jl23957			X	X	
QC01	Jul 23, 2015		Soil	M15-Jl23958			X	X	
TB01	Jul 23, 2015		Water	M15-Jl23959	X	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 LORs are matrix dependant. Quoted LORs 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 Advice.

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

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

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 Environmental Protection Agency
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
TEQ	Toxic Equivalency Quotient

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.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
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							
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							
Volatile Organics							
1.2.4-Trichlorobenzene	mg/kg	< 0.2			0.2	Pass	
Hexachlorobutadiene	mg/kg	< 0.2			0.2	Pass	
1.1-Dichloroethane	mg/kg	< 0.05			0.05	Pass	
1.1-Dichloroethene	mg/kg	< 0.05			0.05	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.05			0.05	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.05			0.05	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.05			0.05	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.05			0.05	Pass	
1.2-Dibromoethane	mg/kg	< 0.05			0.05	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.05			0.05	Pass	
1.2-Dichloroethane	mg/kg	< 0.05			0.05	Pass	
1.2-Dichloropropane	mg/kg	< 0.05			0.05	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.05			0.05	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.05			0.05	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.05			0.05	Pass	
1.3-Dichloropropane	mg/kg	< 0.05			0.05	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.05			0.05	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.05			0.05	Pass	
2-Butanone (MEK)	mg/kg	< 0.05			0.05	Pass	
2-Propanone (Acetone)	mg/kg	< 0.05			0.05	Pass	
4-Chlorotoluene	mg/kg	< 0.05			0.05	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.05			0.05	Pass	
Allyl chloride	mg/kg	< 0.05			0.05	Pass	
Bromobenzene	mg/kg	< 0.05			0.05	Pass	
Bromochloromethane	mg/kg	< 0.05			0.05	Pass	
Bromodichloromethane	mg/kg	< 0.05			0.05	Pass	
Bromoform	mg/kg	< 0.05			0.05	Pass	
Bromomethane	mg/kg	< 0.05			0.05	Pass	
Carbon disulfide	mg/kg	< 0.05			0.05	Pass	
Carbon Tetrachloride	mg/kg	< 0.05			0.05	Pass	
Chlorobenzene	mg/kg	< 0.05			0.05	Pass	
Chloroethane	mg/kg	< 0.05			0.05	Pass	
Chloroform	mg/kg	< 0.05			0.05	Pass	
Chloromethane	mg/kg	< 0.05			0.05	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.05			0.05	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibromochloromethane	mg/kg	< 0.05			0.05	Pass	
Dibromomethane	mg/kg	< 0.05			0.05	Pass	
Dichlorodifluoromethane	mg/kg	< 0.05			0.05	Pass	
Iodomethane	mg/kg	< 0.05			0.05	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.05			0.05	Pass	
Methylene Chloride	mg/kg	< 0.05			0.05	Pass	
Styrene	mg/kg	< 0.05			0.05	Pass	
Tetrachloroethene	mg/kg	< 0.05			0.05	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.05			0.05	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.05			0.05	Pass	
Trichloroethene	mg/kg	< 0.05			0.05	Pass	
Trichlorofluoromethane	mg/kg	< 0.05			0.05	Pass	
Vinyl chloride	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	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							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
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	< 0.05			0.05	Pass	
a-BHC	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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1.0	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1.0	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1.0	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (total)	mg/kg	< 5			5	Pass	
Fluoride	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
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	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Molybdenum	mg/kg	< 10			10	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 5			5	Pass	
Tin	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	87			70-130	Pass	
TRH C10-C14	%	114			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	84			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	104			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
Xylenes - Total	%	103			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1.1-Trichloroethane	%	119			70-130	Pass	
1.2-Dichloroethane	%	91			70-130	Pass	
Trichloroethene	%	93			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	79			75-125	Pass	
TRH C6-C10	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	94			70-130	Pass	
Acenaphthylene	%	95			70-130	Pass	
Anthracene	%	85			70-130	Pass	
Benz(a)anthracene	%	87			70-130	Pass	
Benzo(a)pyrene	%	83			70-130	Pass	
Benzo(b&j)fluoranthene	%	86			70-130	Pass	
Benzo(g.h.i)perylene	%	97			70-130	Pass	
Benzo(k)fluoranthene	%	83			70-130	Pass	
Chrysene	%	86			70-130	Pass	
Dibenz(a.h)anthracene	%	104			70-130	Pass	
Fluoranthene	%	87			70-130	Pass	
Fluorene	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	102			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
Phenanthrene	%	86			70-130	Pass	
Pyrene	%	87			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	125			70-130	Pass	
4.4'-DDE	%	120			70-130	Pass	
4.4'-DDT	%	85			70-130	Pass	
a-BHC	%	111			70-130	Pass	
Aldrin	%	116			70-130	Pass	
b-BHC	%	128			70-130	Pass	
d-BHC	%	128			70-130	Pass	
Dieldrin	%	114			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan I	%	110			70-130	Pass	
Endosulfan II	%	113			70-130	Pass	
Endosulfan sulphate	%	110			70-130	Pass	
Endrin	%	115			70-130	Pass	
Endrin aldehyde	%	103			70-130	Pass	
Endrin ketone	%	106			70-130	Pass	
g-BHC (Lindane)	%	114			70-130	Pass	
Heptachlor	%	127			70-130	Pass	
Heptachlor epoxide	%	91			70-130	Pass	
Hexachlorobenzene	%	102			70-130	Pass	
Methoxychlor	%	82			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	94			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	117			30-130	Pass	
2.4-Dichlorophenol	%	102			30-130	Pass	
2.4.5-Trichlorophenol	%	88			30-130	Pass	
2.4.6-Trichlorophenol	%	105			30-130	Pass	
2.6-Dichlorophenol	%	110			30-130	Pass	
4-Chloro-3-methylphenol	%	89			30-130	Pass	
Pentachlorophenol	%	37			30-130	Pass	
Tetrachlorophenols - Total	%	82			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Methyl-4.6-dinitrophenol	%	43			30-130	Pass	
2-Methylphenol (o-Cresol)	%	115			30-130	Pass	
2-Nitrophenol	%	110			30-130	Pass	
2.4-Dimethylphenol	%	107			30-130	Pass	
2.4-Dinitrophenol	%	48			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	112			30-130	Pass	
4-Nitrophenol	%	39			30-130	Pass	
Dinoseb	%	48			30-130	Pass	
Phenol	%	123			30-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	113			70-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	74			70-130	Pass	
Cyanide (total)	%	94			70-130	Pass	
Fluoride	%	75			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	84			80-120	Pass	
Cadmium	%	89			80-120	Pass	
Chromium	%	93			80-120	Pass	
Copper	%	95			80-120	Pass	
Lead	%	91			80-120	Pass	
Mercury	%	100			75-125	Pass	
Molybdenum	%	90			80-120	Pass	
Nickel	%	92			80-120	Pass	
Selenium	%	96			80-120	Pass	
Silver	%	94			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Tin			%	82			80-120	Pass	
Zinc			%	85			80-120	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	M15-Jl23948	CP	%	114			70-130	Pass	
TRH C10-C14	M15-Jl23948	CP	%	118			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M15-Jl23948	CP	%	101			70-130	Pass	
Toluene	M15-Jl23948	CP	%	113			70-130	Pass	
Ethylbenzene	M15-Jl23948	CP	%	118			70-130	Pass	
m&p-Xylenes	M15-Jl23948	CP	%	116			70-130	Pass	
o-Xylene	M15-Jl23948	CP	%	118			70-130	Pass	
Xylenes - Total	M15-Jl23948	CP	%	116			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1.1-Trichloroethane	M15-Jl23948	CP	%	118			70-130	Pass	
1.2-Dichlorobenzene	M15-Jl23948	CP	%	119			70-130	Pass	
1.2-Dichloroethane	M15-Jl23948	CP	%	99			70-130	Pass	
Trichloroethene	M15-Jl23948	CP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M15-Jl23948	CP	%	80			70-130	Pass	
TRH C6-C10	M15-Jl23948	CP	%	120			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M15-Jl23948	CP	%	105			70-130	Pass	
Acenaphthylene	M15-Jl23948	CP	%	105			70-130	Pass	
Anthracene	M15-Jl23948	CP	%	99			70-130	Pass	
Benz(a)anthracene	M15-Jl23948	CP	%	98			70-130	Pass	
Benzo(a)pyrene	M15-Jl23948	CP	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	M15-Jl23948	CP	%	99			70-130	Pass	
Benzo(g.h.i)perylene	M15-Jl23948	CP	%	120			70-130	Pass	
Benzo(k)fluoranthene	M15-Jl23948	CP	%	112			70-130	Pass	
Chrysene	M15-Jl23948	CP	%	102			70-130	Pass	
Dibenz(a.h)anthracene	M15-Jl23948	CP	%	114			70-130	Pass	
Fluoranthene	M15-Jl23948	CP	%	103			70-130	Pass	
Fluorene	M15-Jl23948	CP	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M15-Jl23948	CP	%	119			70-130	Pass	
Naphthalene	M15-Jl23948	CP	%	101			70-130	Pass	
Phenanthrene	M15-Jl23948	CP	%	97			70-130	Pass	
Pyrene	M15-Jl23948	CP	%	105			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M15-Jl23948	CP	%	104			30-130	Pass	
2.4-Dichlorophenol	M15-Jl23948	CP	%	102			30-130	Pass	
2.4.5-Trichlorophenol	M15-Jl23948	CP	%	99			30-130	Pass	
2.4.6-Trichlorophenol	M15-Jl23948	CP	%	99			30-130	Pass	
2.6-Dichlorophenol	M15-Jl23948	CP	%	101			30-130	Pass	
4-Chloro-3-methylphenol	M15-Jl23948	CP	%	103			30-130	Pass	
Pentachlorophenol	M15-Jl23948	CP	%	54			30-130	Pass	
Tetrachlorophenols - Total	M15-Jl23948	CP	%	75			30-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M15-Jl23948	CP	%	35			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M15-Jl23948	CP	%	31			30-130	Pass	
2-Methylphenol (o-Cresol)	M15-Jl23948	CP	%	95			30-130	Pass	
2-Nitrophenol	M15-Jl23948	CP	%	82			30-130	Pass	
2.4-Dimethylphenol	M15-Jl23948	CP	%	74			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M15-Jl23948	CP	%	101			30-130	Pass	
4-Nitrophenol	M15-Jl23948	CP	%	77			30-130	Pass	
Dinoseb	M15-Jl23948	CP	%	53			30-130	Pass	
Phenol	M15-Jl23948	CP	%	107			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M15-Jl23948	CP	%	117			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M15-Jl23948	CP	%	79			75-125	Pass	
Cadmium	M15-Jl23948	CP	%	101			75-125	Pass	
Chromium	M15-Jl23948	CP	%	112			75-125	Pass	
Copper	M15-Jl23948	CP	%	117			75-125	Pass	
Lead	M15-Jl23948	CP	%	98			75-125	Pass	
Mercury	M15-Jl23948	CP	%	102			70-130	Pass	
Molybdenum	M15-Jl23948	CP	%	96			75-125	Pass	
Nickel	M15-Jl23948	CP	%	101			75-125	Pass	
Zinc	M15-Jl23948	CP	%	100			75-125	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1.1-Trichloroethane	M15-Jl23429	NCP	%	113			70-130	Pass	
1.2-Dichlorobenzene	M15-Jl23429	NCP	%	103			70-130	Pass	
1.2-Dichloroethane	M15-Jl23429	NCP	%	88			70-130	Pass	
Trichloroethene	M15-Jl23429	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M15-Jl23979	NCP	%	126			70-130	Pass	
4.4'-DDE	M15-Jl23979	NCP	%	118			70-130	Pass	
4.4'-DDT	M15-Jl23979	NCP	%	73			70-130	Pass	
a-BHC	M15-Jl23979	NCP	%	116			70-130	Pass	
Aldrin	M15-Jl23979	NCP	%	122			70-130	Pass	
b-BHC	M15-Jl23979	NCP	%	102			70-130	Pass	
d-BHC	M15-Jl23979	NCP	%	128			70-130	Pass	
Dieldrin	M15-Jl23979	NCP	%	115			70-130	Pass	
Endosulfan I	M15-Jl23979	NCP	%	113			70-130	Pass	
Endosulfan II	M15-Jl23979	NCP	%	114			70-130	Pass	
Endosulfan sulphate	M15-Jl23979	NCP	%	106			70-130	Pass	
Endrin	M15-Jl23979	NCP	%	111			70-130	Pass	
Endrin aldehyde	M15-Jl23979	NCP	%	100			70-130	Pass	
Endrin ketone	M15-Jl23979	NCP	%	100			70-130	Pass	
g-BHC (Lindane)	M15-Jl23979	NCP	%	116			70-130	Pass	
Heptachlor	M15-Jl23979	NCP	%	129			70-130	Pass	
Heptachlor epoxide	M15-Jl23979	NCP	%	113			70-130	Pass	
Hexachlorobenzene	M15-Jl23979	NCP	%	107			70-130	Pass	
Methoxychlor	M15-Jl23979	NCP	%	76			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	M15-Jl23536	NCP	%	91			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2.4-Dinitrophenol	M15-Jl22403	NCP	%	34			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M15-Jl23934	NCP	%	70			70-130	Pass	
Cyanide (total)	M15-Jl23214	NCP	%	95			70-130	Pass	
Fluoride	M15-Jl23813	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Selenium	S15-Jl23396	NCP	%	80			75-125	Pass	
Tin	S15-Jl23396	NCP	%	83			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M15-Jl23958	CP	%	92			70-130	Pass	
TRH C10-C14	M15-Jl23958	CP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	M15-Jl23958	CP	%	93			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M15-Jl23958	CP	%	82			70-130	Pass	
Acenaphthylene	M15-Jl23958	CP	%	83			70-130	Pass	
Anthracene	M15-Jl23958	CP	%	85			70-130	Pass	
Benz(a)anthracene	M15-Jl23958	CP	%	83			70-130	Pass	
Benzo(a)pyrene	M15-Jl23958	CP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	M15-Jl23958	CP	%	85			70-130	Pass	
Benzo(g.h.i)perylene	M15-Jl23958	CP	%	92			70-130	Pass	
Benzo(k)fluoranthene	M15-Jl23958	CP	%	72			70-130	Pass	
Chrysene	M15-Jl23958	CP	%	92			70-130	Pass	
Dibenz(a.h)anthracene	M15-Jl23958	CP	%	99			70-130	Pass	
Fluoranthene	M15-Jl23958	CP	%	89			70-130	Pass	
Fluorene	M15-Jl23958	CP	%	77			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M15-Jl23958	CP	%	94			70-130	Pass	
Naphthalene	M15-Jl23958	CP	%	91			70-130	Pass	
Phenanthrene	M15-Jl23958	CP	%	74			70-130	Pass	
Pyrene	M15-Jl23958	CP	%	91			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M15-Jl23958	CP	%	82			30-130	Pass	
2.4-Dichlorophenol	M15-Jl23958	CP	%	68			30-130	Pass	
2.4.5-Trichlorophenol	M15-Jl23958	CP	%	62			30-130	Pass	
2.4.6-Trichlorophenol	M15-Jl23958	CP	%	75			30-130	Pass	
2.6-Dichlorophenol	M15-Jl23958	CP	%	74			30-130	Pass	
4-Chloro-3-methylphenol	M15-Jl23958	CP	%	74			30-130	Pass	
Pentachlorophenol	M15-Jl23958	CP	%	45			30-130	Pass	
Tetrachlorophenols - Total	M15-Jl23958	CP	%	63			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M15-Jl23958	CP	%	36			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M15-Jl23958	CP	%	33			30-130	Pass	
2-Methylphenol (o-Cresol)	M15-Jl23958	CP	%	90			30-130	Pass	
2-Nitrophenol	M15-Jl23958	CP	%	81			30-130	Pass	
2.4-Dimethylphenol	M15-Jl23958	CP	%	74			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
3&4-Methylphenol (m&p-Cresol)	M15-Jl23958	CP	%	89			30-130	Pass	
4-Nitrophenol	M15-Jl23958	CP	%	32			30-130	Pass	
Dinoseb	M15-Jl23958	CP	%	54			30-130	Pass	
Phenol	M15-Jl23958	CP	%	79			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M15-Jl23958	CP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M15-Jl23958	CP	%	80			75-125	Pass	
Cadmium	M15-Jl23958	CP	%	83			75-125	Pass	
Chromium	M15-Jl23958	CP	%	85			75-125	Pass	
Copper	M15-Jl23958	CP	%	92			75-125	Pass	
Lead	M15-Jl23958	CP	%	81			75-125	Pass	
Mercury	M15-Jl23958	CP	%	91			70-130	Pass	
Molybdenum	M15-Jl23958	CP	%	81			75-125	Pass	
Nickel	M15-Jl23958	CP	%	81			75-125	Pass	
Silver	M15-Jl23958	CP	%	89			75-125	Pass	
Zinc	M15-Jl23958	CP	%	82			75-125	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	M15-Jl23947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M15-Jl23947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M15-Jl23947	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M15-Jl23947	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M15-Jl23947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M15-Jl23947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M15-Jl23947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M15-Jl23947	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M15-Jl23947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M15-Jl23947	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.2.4-Trichlorobenzene	M15-Jl23947	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Hexachlorobutadiene	M15-Jl23947	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
1.1-Dichloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1-Dichloroethene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.1-Trichloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.2-Trichloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dibromoethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dichlorobenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dichloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2-Dichloropropane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2.3-Trichloropropane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.2.4-Trimethylbenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.3-Dichlorobenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.3-Dichloropropane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.3.5-Trimethylbenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
1.4-Dichlorobenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
2-Butanone (MEK)	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
2-Propanone (Acetone)	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4-Chlorotoluene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Allyl chloride	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromobenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromochloromethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromodichloromethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromoform	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromomethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Carbon disulfide	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Carbon Tetrachloride	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlorobenzene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chloroethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chloroform	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chloromethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
cis-1.2-Dichloroethene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
cis-1.3-Dichloropropene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dibromochloromethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dibromomethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dichlorodifluoromethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Iodomethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Isopropyl benzene (Cumene)	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methylene Chloride	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Styrene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Tetrachloroethene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
trans-1.2-Dichloroethene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
trans-1.3-Dichloropropene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Trichloroethene	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Trichlorofluoromethane	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Vinyl chloride	M15-Jl23947	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M15-Jl23947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	M15-Jl23947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M15-Jl23947	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M15-Jl23947	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M15-Jl23947	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M15-Jl23947	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M15-Jl23947	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M15-Jl23947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M15-Jl23947	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M15-Jl23947	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M15-Jl23947	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M15-Jl23947	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M15-Jl23947	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M15-Jl23947	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M15-Jl23947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M15-Jl23947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M15-Jl23947	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M15-Jl23947	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M15-Jl23947	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M15-Jl23947	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M15-Jl23947	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M15-Jl23947	CP	mg/kg	20	20	5.0	30%	Pass	
Copper	M15-Jl23947	CP	mg/kg	11	11	3.0	30%	Pass	
Lead	M15-Jl23947	CP	mg/kg	5.3	5.2	2.0	30%	Pass	
Molybdenum	M15-Jl23947	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Nickel	M15-Jl23947	CP	mg/kg	8.0	8.3	4.0	30%	Pass	
Selenium	M15-Jl23947	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M15-Jl23947	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Tin	M15-Jl23947	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M15-Jl23947	CP	mg/kg	26	25	3.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M15-Jl23948	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M15-Jl23948	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M15-Jl23948	CP	mg/kg	14	15	3.0	30%	Pass	
Copper	M15-Jl23948	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M15-Jl23948	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	M15-Jl23948	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M15-Jl23948	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Nickel	M15-Jl23948	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M15-Jl23948	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M15-Jl23948	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Tin	M15-Jl23948	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M15-Jl23948	CP	mg/kg	9.5	9.8	4.0	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M15-Jl23952	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M15-Jl23952	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M15-Jl23952	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M15-Jl23952	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M15-Jl23213	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M15-Jl23952	CP	mg/kg	120	120	2.8	30%	Pass	
pH (1:5 Aqueous extract)	M15-Jl23952	CP	pH Units	7.2	7.2	pass	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M15-Jl23956	CP	%	1.8	1.8	1.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M15-Jl23957	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M15-Jl23957	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M15-Jl23957	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M15-Jl23957	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M15-Jl23957	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M15-Jl23957	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M15-Jl23957	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M15-Jl23957	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M15-Jl23957	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M15-Jl23957	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
1.2.4-Trichlorobenzene	M15-Jl23957	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Hexachlorobutadiene	M15-Jl23957	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
1.1-Dichloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.1-Dichloroethene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.1.1-Trichloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.1.1.2-Tetrachloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.1.2-Trichloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.1.2.2-Tetrachloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.2-Dibromoethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.2-Dichlorobenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.2-Dichloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.2-Dichloropropane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.2.3-Trichloropropane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.2.4-Trimethylbenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.3-Dichlorobenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.3-Dichloropropane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.3.5-Trimethylbenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
1.4-Dichlorobenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
2-Butanone (MEK)	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
2-Propanone (Acetone)	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4-Chlorotoluene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4-Methyl-2-pentanone (MIBK)	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Allyl chloride	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Bromobenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Bromochloromethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Bromodichloromethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Bromoform	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Bromomethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Carbon disulfide	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Carbon Tetrachloride	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlorobenzene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chloroethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chloroform	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chloromethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
cis-1.2-Dichloroethene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
cis-1.3-Dichloropropene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dibromochloromethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dibromomethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dichlorodifluoromethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Iodomethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Isopropyl benzene (Cumene)	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methylene Chloride	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Styrene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Tetrachloroethene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
trans-1.2-Dichloroethene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
trans-1.3-Dichloropropene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Trichloroethene	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Trichlorofluoromethane	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Vinyl chloride	M15-Jl23957	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	M15-Jl23957	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	M15-Jl23957	CP	mg/kg	< 20	< 20	<1	30%	Pass

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M15-Jl23957	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M15-Jl23957	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M15-Jl23957	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M15-Jl23957	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M15-Jl23957	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M15-Jl23957	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M15-Jl23957	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M15-Jl23957	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	M15-Jl23957	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M15-Jl23957	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M15-Jl23957	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M15-Jl23957	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M15-Jl23957	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M15-Jl23957	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M15-Jl23957	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M15-Jl23957	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M15-Jl23957	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M15-Jl23957	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M15-Jl23957	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M15-Jl23957	CP	mg/kg	24	24	<1	30%	Pass	
Copper	M15-Jl23957	CP	mg/kg	11	11	1.0	30%	Pass	
Lead	M15-Jl23957	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	M15-Jl23957	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M15-Jl23957	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Nickel	M15-Jl23957	CP	mg/kg	9.7	9.6	1.0	30%	Pass	
Selenium	M15-Jl23957	CP	mg/kg	< 2	< 2	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Silver	M15-Jl23957	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Tin	M15-Jl23957	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M15-Jl23957	CP	mg/kg	26	26	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M15-Jl23958	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M15-Jl23958	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M15-Jl23958	CP	mg/kg	10	10	1.0	30%	Pass	
Copper	M15-Jl23958	CP	mg/kg	28	28	1.0	30%	Pass	
Lead	M15-Jl23958	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	M15-Jl23958	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M15-Jl23958	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Nickel	M15-Jl23958	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M15-Jl23958	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M15-Jl23958	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Tin	M15-Jl23958	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M15-Jl23958	CP	mg/kg	210	210	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	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.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Sarah Gould	Analytical Services Manager
Carroll Lee	Senior Analyst-Organic (VIC)
Carroll Lee	Senior Analyst-Volatile (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)

Glenn Jackson

National 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

Certificate of Analysis

AEC Environmental
12 Greenhill Road
Wayville
SA 5034

NATA Accredited
Accreditation Number 1261
Site Number 1254

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.

Attention: **Jess Miller**

Report **466657-W**
Project name PIONEER PARK RACECOURSE ALICE SPRINGS
Project ID J133974
Received Date Jul 28, 2015

Client Sample ID			**TB01**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**M15-Jl23959**
Date Sampled			**Jul 23, 2015**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	90

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).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Vic EPA IWRG 621 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jul 28, 2015	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Eurofins | mgt Suite B7			
BTEX	Melbourne	Jul 28, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			

eurofins | mgt

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

Melbourne
3-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: AEC Environmental NT
Address: 11/14 Winnellie Road
Winnellie
NT 0800

Project Name: PIONEER PARK RACECOURSE ALICE SPRINGS
Project ID: J133974

Order No.: PO100508
Report #: 466657
Phone: 61 8 8984 4244
Fax: 61 8 8984 3105

Received: Jul 28, 2015 12:35 PM
Due: Aug 4, 2015
Priority: 5 Day
Contact Name: Jess Miller

Eurofins | mgt Client Manager: Sarah Gould

Sample Detail					TRH C6-C9	BTEX	Moisture Set	Eurofins | mgt Suite B7	Vic EPA IWRG 621 (Solids)
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
TP10-1	Jul 23, 2015		Soil	M15-Jl23947			X	X	
TP10-2	Jul 23, 2015		Soil	M15-Jl23948			X	X	
TP15-1	Jul 23, 2015		Soil	M15-Jl23949			X	X	
TP15-2	Jul 23, 2015		Soil	M15-Jl23950			X	X	
TP16-1	Jul 23, 2015		Soil	M15-Jl23951			X	X	
TP16-2	Jul 23, 2015		Soil	M15-Jl23952			X		X
TP16-3	Jul 23, 2015		Soil	M15-Jl23953			X	X	
TP17-1	Jul 23, 2015		Soil	M15-Jl23954			X	X	
TP17-2	Jul 23, 2015		Soil	M15-Jl23955			X	X	

eurofins | mgt

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com.au web : www.eurofins.com.au

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Murarrie QLD 4172
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NATA # 1261 Site # 20794

Company Name:	AEC Environmental NT	**Order No.:**	PO100508	**Received:**	Jul 28, 2015 12:35 PM
Address:	11/14 Winnellie Road Winnellie NT 0800	**Report #:**	466657	**Due:**	Aug 4, 2015
		Phone:	61 8 8984 4244	**Priority:**	5 Day
		Fax:	61 8 8984 3105	**Contact Name:**	Jess Miller
Project Name:	PIONEER PARK RACECOURSE ALICE SPRINGS				
Project ID:	J133974				

Eurofins | mgt Client Manager: Sarah Gould

Sample Detail					TRH C6-C9	BTEX	Moisture Set	Eurofins | mgt Suite B7	Vic EPA IWRG 621 (Solids)
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
TP22-1	Jul 23, 2015		Soil	M15-Jl23956			X	X	
TP22-2	Jul 23, 2015		Soil	M15-Jl23957			X	X	
QC01	Jul 23, 2015		Soil	M15-Jl23958			X	X	
TB01	Jul 23, 2015		Water	M15-Jl23959	X	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 LORs are matrix dependant. Quoted LORs 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 Advice.

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

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

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 Environmental Protection Agency
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
TEQ	Toxic Equivalency Quotient

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.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
Method Blank							
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	117			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	124			70-130	Pass	
Toluene	%	106			70-130	Pass	
Ethylbenzene	%	99			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
Xylenes - Total	%	102			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	M15-Jl23959	CP	%	118			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M15-Jl23959	CP	%	120			70-130	Pass	
Toluene	M15-Jl23959	CP	%	121			70-130	Pass	
Ethylbenzene	M15-Jl23959	CP	%	114			70-130	Pass	
m&p-Xylenes	M15-Jl23959	CP	%	115			70-130	Pass	
o-Xylene	M15-Jl23959	CP	%	111			70-130	Pass	
Xylenes - Total	M15-Jl23959	CP	%	114			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M15-Jl23329	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M15-Jl23329	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	M15-Jl23329	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	M15-Jl23329	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	M15-Jl23329	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	M15-Jl23329	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	M15-Jl23329	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Sarah Gould	Analytical Services Manager
Carroll Lee	Senior Analyst-Volatile (VIC)

Glenn Jackson
National 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

Greencap

Sample Chain of Custody and Testing Request

Samples Submitted to ALS

Job no	:	J133974	
Purchase Order	:	PO100510	
Sheet no	:	1 of 1	
client	: Greencap	sampled by	: JM
project	: PSI	date	: 23-Jul-15
location	: Pioneer Park Racecourse, Alice Springs		

Sample number	Sample Date	Depth below surface (m)	Sample containers								Material	Testing required										
			Vials	Heavy Metals Preserved	Glass Jar	500ml Glass amber								TRH, BTEX, 8 Metals, PAHs								
1 QC02	23/07/2015				X									X								

Environmental Division Melbourne

Work Order Reference

EM1512581

Telephone : +61-3-8549 9600

Notes :
AEC Contact - Jess Miller (08) 8299-9955
Company Fax:- 08 8299 9954
Please email results to the following :- jess.miller@greencap.com.au

Chain of Custody:

Relinquished by	Company	Date	Time	Received by - Name & C	date	time
JM	Greencap	24/07/2015	0:00		28/7/15	16:45

Results required by:

Results checked:
by : date :

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1512581**	Page	: 1 of 5
Client	: **AEC ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: JESS MILLER	Contact	: Steven McGrath
Address	: 12 Greenhill Road, Wayville, SA, 5034 PO Box 582 UNLEY SA, AUSTRALIA 5061	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: jess.miller@greencap.com.au	E-mail	:
Telephone	: +61 08 8299 9955	Telephone	: +61-3-8549 9600
Facsimile	: +61 08 8362 9776	Facsimile	: +61-3-8549 9601
Project	: J133974	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 28-Jul-2015 16:45
C-O-C number	: ----	Date Analysis Commenced	: 29-Jul-2015
Sampler	: JESS MILLER	Issue Date	: 03-Aug-2015 14:48
Site	: ----		
		No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC02	----	----	----	----
				Client sampling date / time	[23-Jul-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1512581-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		11.8	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		10	----	----	----	----
Copper	7440-50-8	5	mg/kg		25	----	----	----	----
Lead	7439-92-1	5	mg/kg		<5	----	----	----	----
Nickel	7440-02-0	2	mg/kg		6	----	----	----	----
Zinc	7440-66-6	5	mg/kg		152	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC02	----	----	----	----
				Client sampling date / time	[23-Jul-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1512581-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		340	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		270	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		610	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg		70	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		540	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		610	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		70	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		93.4	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		96.4	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		65.9	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.2	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		117	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		100	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		100	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		93.4	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC02	----	----	----	----
				Client sampling date / time	[23-Jul-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1512581-001	--------	--------	--------	--------
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**101**	----	----	----	----

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1512581**	Page	: 1 of 8
Client	: **AEC ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: JESS MILLER	Contact	: Steven McGrath
Address	: 12 Greenhill Road, Wayville, SA, 5034 PO Box 582 UNLEY SA, AUSTRALIA 5061	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: jess.miller@greencap.com.au	E-mail	:
Telephone	: +61 08 8299 9955	Telephone	: +61-3-8549 9600
Facsimile	: +61 08 8362 9776	Facsimile	: +61-3-8549 9601
Project	: J133974	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 28-Jul-2015
C-O-C number	: ----	Date Analysis Commenced	: 29-Jul-2015
Sampler	: JESS MILLER	Issue Date	: 03-Aug-2015
Site	: ----	No. of samples received	: 1
Quote number	: ----	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

NATA WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out ir compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 167333)									
EM1512562-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	16.0	15.8	1.15	0% - 50%
EM1512577-006	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	17.5	21.0	18.3	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 167731)									
EM1512525-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	18	48.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	22	20	5.04	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	10	33.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	44	45	2.79	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	28	31	11.4	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 167732)									
EM1512525-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.5	69.5	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 167537)									
EM1512514-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1512577-006	Anonymous	EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	8.2	6.0	30.7	0% - 50%
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	0.7	0.7	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	2.2	2.1	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	2.0	1.7	10.9	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.6	1.4	12.8	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 167537) - continued									
EM1512577-006	Anonymous	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	2.0	1.6	18.3	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	1.0	0.8	19.2	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	0.6	16.1	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.6	1.4	15.6	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	4.9	4.1	18.4	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	3.1	2.7	16.3	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.8	0.7	17.4	No Limit
		EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	55.6	# 39.3	34.2	0% - 20%
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	8.3	7.6	8.22	0% - 50%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	5.2	4.8	9.73	0% - 50%
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 167063)									
EM1512562-002	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1512563-055	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 167538)									
EM1512514-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1512577-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	330	260	21.5	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	180	<100	56.8	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	250	180	36.0	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	760	# 440	53.3	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 167063)									
EM1512562-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1512563-055	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 167538)									
EM1512514-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1512577-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	420	300	33.8	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	300	220	31.1	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	720	520	32.2	0% - 50%
EP080: BTEXN (QC Lot: 167063)									
EM1512562-002	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 167063) - continued									
EM1512562-002	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EM1512563-055	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 167731)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	102	79	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	94.6	87	115
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	102	89	113
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.6	90	116
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.7	85	107
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	89	111
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	89	111
EG035T: Total Recoverable Mercury by FIMS (QCLot: 167732)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	91.8	85	103
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 167537)								
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	111	68	114
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	109	61	125
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	3 mg/kg	103	68	116
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	109	62	116
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	96.5	64	114
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	99.1	64	114
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	79.5	59	117
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	104	67	115
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	104	63	119
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	86.4	62	114
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	101	67	115
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	108	62	120
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	87.4	62	116
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	112	65	119
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	112	69	113
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	105	66	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 167063)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	94.3	66	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 167538)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	658 mg/kg	116	65	131
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3160 mg/kg	114	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1448 mg/kg	114	70	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 167063)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	93.9	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 167538)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	1051 mg/kg	113	68	130
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	4124 mg/kg	115	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	161 mg/kg	92.2	38	132
EP080: BTEXN (QCLot: 167063)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	90.6	74	124
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	91.4	72	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	95.9	72	132
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	89.5	66	132
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	98.3	76	130
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	92.8	75	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 167731)							
EM1512526-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	93.9	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	93.1	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	102	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	91.5	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	94.2	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	96.5	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 167732)							
EM1512526-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.8	76	116
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 167537)							
EM1512562-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	101	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	108	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 167063)							
EM1512562-003	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	65.6	42	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 167538)							
EM1512562-003	Anonymous	EP071: C10 - C14 Fraction	----	658 mg/kg	# 118	53	123
		EP071: C15 - C28 Fraction	----	3160 mg/kg	# 117	70	124
		EP071: C29 - C36 Fraction	----	1448 mg/kg	# 117	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 167063)							
EM1512562-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	64.2	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 167538)							
EM1512562-003	Anonymous	EP071: >C10 - C16 Fraction	>C10_C16	1051 mg/kg	# 115	65	123
		EP071: >C16 - C34 Fraction	----	4124 mg/kg	# 118	67	121
		EP071: >C34 - C40 Fraction	----	161 mg/kg	104	44	126
EP080: BTEXN (QCLot: 167063)							
EM1512562-003	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	100	50	136
		EP080: Toluene	108-88-3	2 mg/kg	99.8	56	139

ALS Environmental

QA/QC Compliance Assessment for DQO Reporting

Work Order	: **EM1512581**	Page	: 1 of 5
Client	: **AEC ENVIRONMENTAL PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: JESS MILLER	Telephone	: +61-3-8549 9600
Project	: J133974	Date Samples Received	: 28-Jul-2015
Site	: ----	Issue Date	: 03-Aug-2015
Sampler	: JESS MILLER	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	EM1512577--006	Anonymous	**Naphthalene**	91-20-3	34.2 %	0% - 20%	**RPD exceeds LOR based limits**
EP080/071: Total Petroleum Hydrocarbons	EM1512577--006	Anonymous	**C10 - C36 Fraction (sum)**	----	53.3 %	0% - 50%	**RPD exceeds LOR based limits**
Miscellaneous							
EP080/071: Total Petroleum Hydrocarbons	EM1512562--003	Anonymous	**C10 - C14 Fraction**	----	118 %	53-123%	
EP080/071: Total Petroleum Hydrocarbons	EM1512562--003	Anonymous	**C15 - C28 Fraction**	----	117 %	70-124%	
EP080/071: Total Petroleum Hydrocarbons	EM1512562--003	Anonymous	**C29 - C36 Fraction**	----	117 %	64-118%	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1512562--003	Anonymous	**>C10 - C16 Fraction**	>C10_C16	115 %	65-123%	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1512562--003	Anonymous	**>C16 - C34 Fraction**	----	118 %	67-121%	

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
QC02	**23-Jul-2015**	**----**	----	----	**29-Jul-2015**	06-Aug-2015	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QC02	**23-Jul-2015**	**30-Jul-2015**	19-Jan-2016	✓	**30-Jul-2015**	19-Jan-2016	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QC02	**23-Jul-2015**	**30-Jul-2015**	20-Aug-2015	✓	**30-Jul-2015**	20-Aug-2015	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
QC02	**23-Jul-2015**	**30-Jul-2015**	06-Aug-2015	✓	**31-Jul-2015**	08-Sep-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QC02	**23-Jul-2015**	**30-Jul-2015**	06-Aug-2015	✓	**30-Jul-2015**	08-Sep-2015	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
QC02	**23-Jul-2015**	**29-Jul-2015**	06-Aug-2015	✓	**29-Jul-2015**	06-Aug-2015	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	18	**11.11**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	**16.67**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	6	**16.67**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	2	19	**10.53**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	6	**16.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	6	**16.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	6	**16.67**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Preliminary Site Investigation

Alice Springs Turf Club Inc.

Pioneer Park Racecourse, Alice Springs, NT

Appendix D: Asbestos Testing NATA Laboratory Certificates

ASBESTOS IDENTIFICATION REPORT No. J133974-ID-1

CLIENT:	Alice Springs Turf Club	**RECEIVED IN LAB:**	27 July 2015
LOCALITY:	Pioneer Park Racecourse, Alice Springs	**REPORT DATE:**	30 July 2015
ADDRESS:	Stuart Highway, Connellan	**SAMPLED BY:**	Jess Miller

Test Method: In house method LOP-002 Asbestos Identification by Polarised Light Microscopy including Dispersion Staining (Based on AS4964-2004 Method for the qualitative identification of asbestos in bulk samples)

Sample ID	Description	Asbestos	Organic Fibre
Surface – A1	Off-white cement sheet	No	Yes
TP16 – A1	Pale grey cement board	No	Yes

Approved Identifier and Signatory

Michael Till

Please note that the results contained in this report relate only to the sample(s) submitted for testing. Sample Dimensions (Surface-A1 is 50x50x5mm and TP16-A1 is 40x20x9mm) and Descriptions are approximate only. Chrysotile is commonly known as white asbestos, Amosite is commonly known as brown asbestos and Crocidolite as blue asbestos. SMF (Synthetic Mineral Fibre) is commonly known as glass fibre and was not detected. Organic Fibre includes natural fibres and synthetic organic fibre.

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