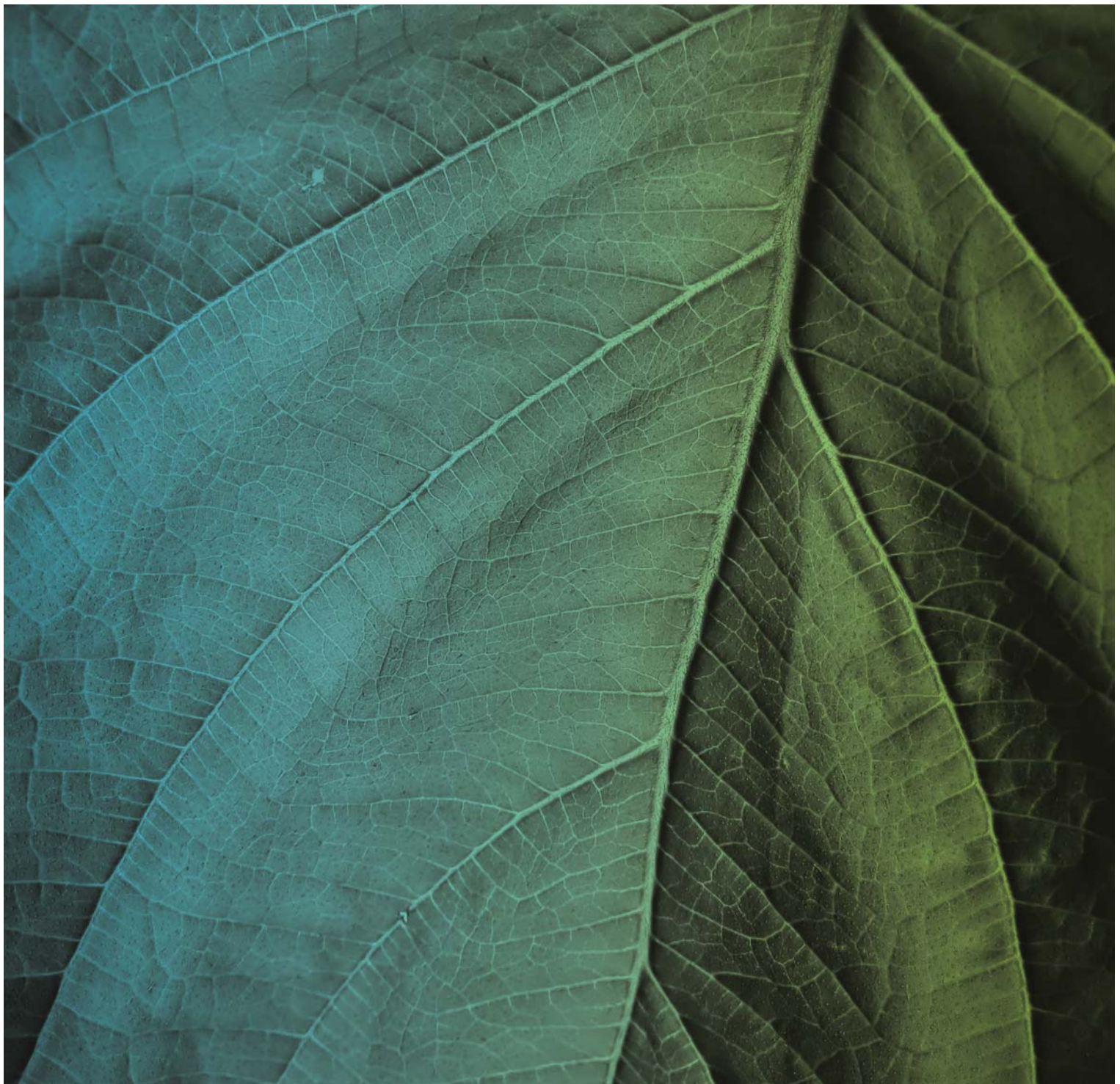


Addendum to the Crown Hotel Development Remedial Action Plan

Crown Hotel Development (Part of ORWN Area), Barangaroo South



Addendum to the Crown Hotel Development Remedial Action Plan

Crown Hotel Development (Part of ORWN Area), Barangaroo South

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1.0 Introduction

AECOM Australia Pty Limited (AECOM) was commissioned by Crown Resorts Limited (Crown) to prepare this Addendum to the *Crown Hotel Development Remedial Action Plan* (RAP) (AECOM, 11 April 2015a, Revision 10) (here-in referred to as the *Crown RAP*).

The *Site Audit Report, RAP, Crown Sydney Hotel Resort Development, Barangaroo* (ENVIRON, 2015a, Audit Number GN 439B-6) was prepared based on the *Crown Hotel Development RAP* (AECOM, 13 January 2015, Revision 9) (here-in referred to as the *Crown RAP - Revision 9*). The *Crown RAP* (AECOM, Revision 9) was subsequently revised to reflect the terminology used by the Environmental Impact Statement (EIS) prepared in support of the proposed development applications. These amendments are reflected in the *Crown RAP* (AECOM, Revision 10). The AECOM letter *Amendments to Remedial Action Plan, Crown Hotel Development (Part of ORWN Area), Barangaroo South* (AECOM, 4 May 2015b) summarised the amendments and concluded that they were largely editorial, with no modification to the technical content, the remediation strategy or validation approach. The Auditor's review of the *Crown RAP* (AECOM, 2015a, Revision 10) was documented in the letter *Reliance on Site Audit Report/ Site Audit Statement – Amendments to Remedial Action Plan, Crown Hotel Development (Part of ORWN Area), Barangaroo South* (Environ, 2015b) concluded that his Site Audit Report and Site Audit Statement dated 20 January 2015 can be relied upon as being relevant to the *Crown RAP* (Revision 10, 11 April 2015).

The specific area covered by the *Crown RAP* (AECOM, 2015a) and this Addendum, here after referred to as "the Site" is presented, in relation to other areas of Barangaroo, in **Figure 1, Appendix A** (taken from Figure F5 of the *Crown RAP* [AECOM, 2015a]).

The key remediation objective considered by the *Crown RAP* (AECOM, 2015) was to facilitate currently permissible and future intended land uses proposed as part of the future intended Crown Hotel development. The purpose of this Addendum is to facilitate development of the Site for recreational open space land use across the entire footprint of the Site (i.e. as a publicly accessible park). Development of the Site for recreational open space land use (here-after referred to as a "park") is consistent with land uses which are currently permissible under the approved Concept Plan (as modified).

This Addendum should be read in conjunction with, and is based on the background information and analytical data presented in, the *Crown RAP* (AECOM, 2015a). Additional information is also provided based on recently obtained information in relation to the potential presence of contamination within the Site. Where appropriate, this Addendum also refers to specific applicable elements of the remediation works described by the *Crown RAP* (AECOM, 2015a).

This Addendum has generally been prepared to meet the requirements of:

- *Contaminated Land Management Amendment (CLM) Act* (NSW Govt, 1997a);
- Department of Environment and Conservation (DEC, 2006b) *Guidelines for the NSW Site Auditor Scheme* (2nd edition) (DEC, 2006b);
- Department of Urban Affairs and Planning (DUAP) and NSW EPA. *Managing Land Contamination - Planning Guidelines State Environmental Planning Policy (SEPP) 55 - Remediation of Land* (DUAP and NSW EPA, 1998);
- National Environment Protection Council (NEPC), *National Environment Protection (Assessment of Site Contamination) Measure* (NEPC, 1999);
- National Environment Protection Council (NEPC), *National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM, [No. 1])* (NEPC, 1999 as amended in 2013); and
- New South Wales Environmental Protection Authority (NSW EPA). *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 1997).

1.1 Objectives

The key remediation objective of this Addendum is to facilitate use of the Site as a park. Specific objectives of the remediation works described by this Addendum are:

- To ensure the remediated site is protective of human health in the context of recreational open space land use (i.e. a park);
- To ensure the remediated site is protective of the environment (specifically groundwater and the adjacent Darling Harbour), to the extent practicable; and
- Comply with applicable legislative and policy requirements including the appropriate requirements of the NSW EPA and NSW Department of Planning and Environment (DoPE).

1.2 Scope

The scope of work associated with the preparation of this Addendum included:

- Review of available data from previous environmental investigations undertaken at the Site (as presented in the *Crown RAP* [AECOM, 2015a]) in the context of use of the Site as a park and consideration of additional information made available subsequent to preparation of the *Crown RAP* (AECOM, 2015a);
- Confirmation of the extent of remediation (if any) required to make the site suitable for use as a park based on consideration of the outcomes of the *Human Health and Ecological Risk Assessment (HHERA), Stage 1C Development (ORWN), Barangaroo South* (here-in referred to as the *ORWN HHERA* (AECOM, 2014));
- Selection of preferred remediation methodology(s) to remediate the Site, based on the assessment of potential remediation approaches and technologies presented in the *Crown RAP* (AECOM, 2015a);
- Describe how the remediation strategy will be implemented and validated as having achieved the remediation objectives.

1.3 Proposed Land Use

It is understood that the any proposed publically accessible park developed at the Site would include:

- Areas of Landscaping, comprising a combination of shallow root species and trees with deeper root systems;
- Areas of hardstand including roads, pedestrian ways and cycle paths, built on grade and with connection to other parts of Barangaroo; and
- Minor below ground services such as electricity, water and sewer constructed in association with amenities constructed in association with the park. It is anticipated that the minor below ground services would be constructed to a maximum depth of approximately 1.5 m below ground level (bgl) based on facilitating future maintenance and ensuring that the services are not positioned below the existing (saline) groundwater table.

It is possible that the final details, configuration and extent of the park within the Site may be revised as part of the continued development design. However, the proposed land use within the area designated for use as a park would remain generally consistent with that described within this Addendum.

If the design of the park is changed in a way that affects the assumptions detailed herein a second Addendum to the *Crown RAP* (AECOM, 2015a) may be prepared and submitted to the NSW EPA Accredited Site Auditor for approval.

1.4 Remediation Documentation

Supporting management plans and work procedures that will be prepared prior to commencement of the remediation works will be as described by Section 1.5 of the *Crown RAP* (AECOM, 2015a).

1.5 Assessment and Approvals Process

The planning regime to guide the future redevelopment of the overall Barangaroo site is established by the:

- Planning provisions of Schedule 3 Part 12 of the *Stage Environmental Planning Policy (Major Development)*, 2005; and
- *Barangaroo Concept Plan (Concept Plan 06_0162)* as approved on 9 February 2007 and most recently modified on 11 April 2014.

Remediation works described by this Addendum will be subject to assessment and determination under Part 4 of the *EP&A Act*.

The currently proposed approach to planning applications at the Site is described by Section 2.1 of the *Crown RAP* (AECOM, 2015a).

Legislation relevant to the Remediation Works described by this Addendum are described by Section 2.2 of the *Crown RAP* (AECOM, 2015a).

2.0 Background Information

2.1 Site Identification

The Site identification details are provided in **Table 1** below.

Table 1 Site Identification Details

Item	Description
Site Owner	The Barangaroo Delivery Authority
Client	Crown Resorts Limited (Crown)
Site Address	Hickson Road (Sussex Street), Barangaroo, NSW 2000
Legal Description (Lot and DP)	Part Lot 5 and Part Lot 6 in Deposited Plan 876514
County and Parish	County of Cumberland, Parish of Saint Phillip
Local Government Authority	City of Sydney
Current Zoning	Eastern part of Site: Zone B4 Mixed Use ^b Western part of Site: Zone RE1 Public Recreation
Current Land Use	Unused (note that some parts of the Site are temporarily being used as a staging area for construction works in the Other Remediation Works South [ORWS] Area, also referred to as the Stage 1A development works area). Partial access for public recreation (walking and bike riding) (specifically the harbour walk).
Intended Future Land Use	Mixed use including hotel (incorporating high density residential with minimal access to soil), commercial / retail (with minimal access to soil), public open space and underground parking.
Site Area**	10,242 m ²
Approximate Average Current Elevation	2 - 3 m AHD
Site Location	Figure F1 of the <i>Crown RAP</i> (AECOM, 2015a)
Site Layout	Figure 1, Appendix A

Notes: ** Derived from CAD plans provided by Crown.

AHD – Australian Height Datum

^a City of Sydney 2005. *Sydney Local Environmental Plan 2005*, Gazetted 9 December 2005, as amended.

^b – NSW Department of Planning 2007. Appendix 4. In: *State Environmental Planning Policy (Major Projects) Amendment (Barangaroo)*, 16 December 2010.

2.2 Site History

A summary of the historic land use activities which relate directly to the Site, including importantly the history of filling /land reclamation works which have occurred at the Site is provided in Section 3.2 of the *Crown RAP* (AECOM, 2015a).

2.3 Previous Investigations

A number of previous investigations have been completed in respect of the Site. These are summarised in in Section 5.0 of the *Crown RAP* (AECOM, 2015a).

Borehole and monitoring well locations from the previous investigations are presented in **Figure 1, Appendix A**.

2.4 Additional Information

Subsequent to the preparation of the *Crown RAP* (AECOM, 2015a), AECOM was advised by Lend Lease that it had identified a significant volume of bonded Asbestos Containing Materials (ACM) during shallow excavation works required for a new sewerage pump out pit within the Site. The pit was constructed for a New Amenities Area associated with the construction compound supporting the adjacent Stage 1A development works. Lend Lease estimated that the excavation measured approximately 3 x 3m and 2m deep with a volume of approximately 20 m³. Lend Lease reported that it observed between 20 and 30 bonded ACM fragments in the small stockpile formed from this excavation and that the fragments measured in the order of 40 x 60mm x 6mm thick.

The Stockpile Verification Certificate (New Amenities Area) prepared by Noel Arnold and Associates (3 January 2013, refer to **Appendix B**) indicates that the excavated material from the New Amenities Area was added to SP225 which had a total volume of approximately 1,000 m³. Approximately 100 fragments of bonded ACM were identified within stockpile SP225 and the stockpile was classified as Special Waste (asbestos). Analysis of the fibre cement sheet fragments confirmed chrysotile, amosite and crocidolite asbestos to be present within the fragments.

Validation of the walls and base of the excavation was not undertaken. As such, it is likely that bonded ACM remains within the fill surrounding the excavation.

Based on information provided to AECOM, the location from which the material stockpiled in SP225 originated appears to be east of the historic investigation location BH191 (as shown in **Figure 1, Appendix A**).

2.5 Site Condition and Surrounding Environment

2.5.1 Site Description

A description of the Site, including current land use, adjacent land uses, geology and hydrogeology is presented in Sections 6.1 to 6.5 of the *Crown RAP* (AECOM, 2015a).

2.5.2 Site Contamination

A description of soil and groundwater contamination reported at the Site by the previous intrusive investigations (refer to **Section 2.3**) is presented in Section 6.6 of the *Crown RAP* (AECOM, 2015a).

In summary:

- Soil Contamination – impacted soils are predominately located within the marine sediments from which there is a negligible contaminant flux (refer to Section 6.6.5 of the *Crown RAP* [AECOM, 2015a]). Concentrations of PAHs and heavy metals were also reported in soil across the Site.
- Asbestos – notwithstanding the limited analytical data supporting the presence of asbestos at the Site, it is considered that there is a significant potential for bonded ACM to be present within fill materials within the Site. The conclusion is based on the analysis and visual inspections during the Stage 1A basement excavation works in the adjacent ORWS Area which identified widespread bonded ACM. This conclusion is further supported by the additional information made available to AECOM since completion of the *Crown RAP* (AECOM, 2015a) (refer to **Section 2.4**).
- Groundwater Contamination – groundwater was encountered at depths ranging from 1.8 to 2.9 m bgl. Dissolved phase concentrations of PAHs, heavy metals, benzene and ethylbenzene were reported in groundwater at with Site. The most significant groundwater contamination was reported from wells screened deeper within the aquifer, specifically across the base of the fill and within the marine sediments immediately overlying bedrock (refer to Section 6.6.5 of the *Crown RAP* [AECOM, 2015a]).

2.5.3 Separate Phase Gasworks Waste and Tar (SPGWT)

For the purposes of this Addendum and as defined by Section 6.6.1 of the *Crown RAP* (AECOM, 2015a), Separate Phase Gasworks Waste and Tar (SPGWT) refers to:

- Tar Containing Materials (TCM), as per the definition described below:
 - Greater than 10% visible coal tar (where coal tar is a phase separated hydrocarbon by-product from coal gasification); and/or
 - Contaminant concentrations exceeding the following limits:

- Polycyclic Aromatic Hydrocarbons (PAHs) - 2,000 mg/kg; or
 - Benzo(a)Pyrene (B(a)P) - 150 mg/kg.
- Dense Non Aqueous Phase Liquids (DNAPLs).

SPGWT has been identified at one location within the Site – specifically MW60 at depths ranging between 16 and 17.5 m bgl within the natural marine sediment.

3.0 Remediation Criteria

3.1 Development of Site-Specific Target Criteria

The following sections summarise development of the soil and groundwater SSTC for the protection of human health at the Site as detailed in the *ORWN HHERA* (AECOM, 2014). The objective of the *ORWN HHERA* (AECOM, 2014) was to:

- develop human health SSTC for soil and groundwater for use in defining the remediation end-point for the Site, where the remediation end-point in the context of the Addendum is defined as that required to render the Site suitable for use as a park;
- assess the risk to ecological receptors from the Site based on the assumption that the remediation works described by the *RAP, NSW EPA Declared Remediation Site 21122 and Block 4 (Stage 1b) Development Works, Barangaroo, Millers Point, NSW* (AECOM, 2013b) herein referred to as the *VMP/Block 4 RAP* are undertaken.

As described by Section 5.12 of the *Crown RAP* (AECOM, 2015a), 14 potential exposure scenarios were considered within the *ORWN HHERA* (AECOM, 2014) based on the proposed development concepts. In particular:

- Scenarios 1 to 8 were based on generic land uses and were generally based on plans supplied by Lend Lease in relation to the Other Remediation Works South basement design; and
- Scenarios 9 to 14 were based on information that is specific to the proposed Crown Hotel Development provided by Crown (as detailed in the Appendix C of the *Crown RAP* [AECOM, 2015a]).

Based on use of the Site as a park which is generally consistent with the generic plans supplied by Lend Lease in relation to the ORWS development design, Scenarios 9 to 14 are not applicable to this Addendum.

3.1.1 SSTC Exposure Scenarios

The exposure scenarios detailed in the *ORWN HHERA* (AECOM, 2014) that are relevant to the use of the Site as a park, as described by **Section 1.3**, are:

- **Scenario 3:** unpaved public domain / open space;
- **Scenario 4:** paved public domain / open space; and
- **Scenario 6:** short term ground-intrusive maintenance (with potential to contact groundwater).

Scenario 6 (intrusive maintenance worker with potential contact with groundwater) has been conservatively included in consideration of the unlikely event that services are constructed at a depth within the potential park where intrusive maintenance worker contact with groundwater is possible.

Table 2 below summarises the land use scenarios and assumptions relevant to use if the Site as a park as described in Section 5.3.7 of the *ORWN HHERA* (AECOM, 2014).

Table 2 Summary of Land Use Scenarios Considered in the *ORWN HHERA* (AECOM, 2014)

Scenario Number	Description	Most Sensitive Human Receptor	General Assumptions
3	Unpaved Recreation Generic public domain area with no concrete/hardstand paving, but 50 cm of clean fill at surface.	Adult and Child Recreational Users. Assumed to be exposed 2 hr/day, 365 days/year, for 70 years.	Open Space with no concrete surface covering. Assumed that areas are landscaped with at least 50 cm of Suitable Fill overlying contaminated soil (refer to Section 3.4). Assume that there is significant oxygen movement through the top 2 m of soil based on the oxygen measurements collected during the soil gas sampling. Groundwater depth assumed to be 2 m bgl.

Scenario Number	Description	Most Sensitive Human Receptor	General Assumptions
4	Paved Recreation Generic public Domain area with concrete/hardstand paving. For the purpose of this Addendum, it has been assumed that paved recreation areas will also be covered in a 0.5m thick layer of Suitable Fill to accommodate changes in paved and unpaved recreation areas that might occur in the future.	Adult and Child Recreational Users. Assumed to be exposed 2 hr/day, 365 days/year, for 70 years.	Open Space with concrete surface covering. Assume that there is significant oxygen movement through the top 2 m of the soil based on the oxygen measurements collected during the soil gas sampling. Concrete assumed to be minimum 15 cm thick and to have a crack fraction of 0.001 (to account for higher cracking possible in surface covering).
6	Intrusive Maintenance – potential contact with groundwater Generic short term intrusive maintenance scenario, e.g. for maintenance of utility services.	Adult worker. 8 hrs/day, 15 days/year for 1 year. Direct contact with groundwater contact may occur due to shallow water – no more than 1 hour per day. Vapour may be derived from pooled groundwater or from exposed soils in trench.	Post development, short term maintenance work may be required. Assumed not to exceed 3 working weeks per year by same worker.

3.1.2 Derivation of SSTCs and Key Assumptions

The SSTC for soil and groundwater derived in the *ORWN HHERA* (AECOM, 2014) were developed to provide human health risk-based concentrations that can be used as remediation criteria applicable to areas of the Site based on the proposed land uses (including potential recreational open space land uses). That is, if all CoPC concentrations in samples are below the applicable SSTC, then further assessment of the health risks would not be warranted.

The assumptions used in the derivation of the soil and groundwater SSTCs are detailed in Section 1.3 and Section 5.3.4 of the *ORWN HHERA* (AECOM, 2014). The key assumptions relevant to the three exposure Scenarios detailed in **Section 3.1.1** are summarised following.

Soil and Groundwater:

- The SSTC were developed based on the Site conditions and chemicals of potential concern (CoPC) detected during the Site investigations detailed within the *Crown RAP* (AECOM, 2015a);
- The SSTC were based on the proposed generic development concepts provided by Crown (and Lend Lease) at the time of completion of the *ORWN HHERA* (AECOM, 2014);
- There are significant biodegradation processes occurring within sub-surface soils based on measured oxygen concentrations beneath the sub-surface. To account for these biodegradation processes, a 10-fold factor (Davis, 2009) has been adopted in the derivation of SSTC for soils in paved and unpaved areas of the Site, where biodegradation processes are considered to be significant;

- The development of SSTCs has accounted for the presence of mixtures of chemicals at the Site within the same media. In particular, risks associated with mixtures of chemicals have been modelled by applying proportional risks as follows: BTEX (HI 0.25 each), PAH (HI 0.2), TPH (HI 0.25 total for aliphatic and aromatic per fraction), all other chemicals HI = 1;
- Chemicals are assumed to be volatile if Henry's Law constant is greater than 1×10^{-5} atm-m³/mole (USEPA, 2004) and vapour pressure greater than 1mmHg at room temperature (NEPC 2013);
- The remedial works described by the *VMP/Block 4 RAP* (AECOM, 2013b) are completed. Based on the *VMP Remediation Extent* report (AECOM, 2013a), if the remediation works described by the *VMP/Block 4 RAP* (AECOM, 2013b) are completed, it is considered that any residual gasworks contamination that might remain *in situ* within the Site will not represent an unacceptable risk to the environment. Further discussion on addressing the risk to the environment is provided in **Section 3.3**;
- At least 0.5 m of Suitable Fill is placed across the Site; and
- The depth of below ground services constructed within the Site is not greater than 2.0 m below the finished development level.

3.1.3 Asbestos SSTCs

As described by the *Addendum to Human Health and Ecological Risk Assessment. Other Remediation Works (South) Area*, Barangaroo (referred to as the *ORWS Asbestos HHERA*, AECOM, 2013c), asbestos reported to be present in soils within the ORWS Area is predominately bonded ACM and the potential for asbestos fibre (AF) generation is considered to be minimal.

It has been assumed that asbestos which may be present within the ORWN Area is likely to be similar – that is predominantly bonded ACM.

The SSTC-X^{asbestos} adopted by the *ORWN HHERA* (AECOM, 2014) are summarised by **Table 3** below. The SSTC-X^{asbestos} are to be applied in addition to other applicable SSTCs and, in the case of Suitable Fill, that have also been developed in the *ORWN HHERA* (AECOM, 2014).

Table 3 Summary of Asbestos SSTC

Exposure Scenario	SSTC-X ^{asbestos}
Intrusive Maintenance Worker ²	0.05 % w/w ¹
Suitable Fill	No Visible Asbestos

Notes:

- 1) To be measured in accordance with the methodology described by Schedule B2 of the *ASC NEPM* (NEPC, 1999); and
- 2) The intrusive maintenance worker exposure scenario is applicable to soil in areas used for paved recreation, unpaved recreation at depths:
 - a) below the 0.5 m thick Suitable Fill;
 - b) up to approximately 2.0 m below the final development level; and
 - c) above the groundwater table.

3.2 Remediation Criteria for the Protection of Human Health

3.2.1 Derivation of Remediation Criteria

For the purpose of developing remediation criteria, the lowest (i.e. most conservative) SSTC has been adopted to appropriately assess soil and groundwater quality at the Site. The SSTCs applied to the Site are described in **Table 2** above and the hybrid soil and groundwater Remediation Criteria are detailed in **Table T1** and **T2** (that is where more than one SSTC is applicable, the lowest SSTC has been adopted for each CoPC).

A series of remediation criteria were developed by the *Crown RAP* (AECOM, 2015a) based on the proposed land uses of different site areas. These are referred to as the SSTC-A, SSTC-B and SSTC-C respectively for the different Site areas (Area A, Area B and Area C, respectively - refer to Section 1.4 of the *Crown RAP* [AECOM, 2015a]). In consideration of this established nomenclature and in order to avoid ambiguity, the Remediation Criteria developed by this Addendum are referred to as the 'soil SSTC-X' and 'groundwater SSTC-X'.

As discussed in Section 7.2.2 of the *Crown RAP* (AECOM, 2015a), soil SSTCs have not been derived for saturated soils as the potential risk to human health from saturated soils has been assessed based on derivation of groundwater SSTCs only. Therefore, the assessment of whether contaminated requiring remediation is present within saturated soils at the Site is based on comparison of groundwater CoPC concentrations to the relevant groundwater SSTC-X.

3.2.2 Remediation Goals

The remediation goals for the protection of human health, as recommended by the *ORWN HHERA* (AECOM, 2014) are:

- As a primary goal, removal / remediation of SPGWT (as defined in **Section 2.5.3**) to the extent practicable; and
- As a secondary goal, removal / remediation, to the extent practicable, of Confirmed Impacted Material (CIM), which is defined as:
 - Unsaturated soil concentrations exceeding the soil SSTC-X and/or the SSTC-X^{asbestos}; and
 - Unsaturated and saturated soil concentrations that are considered to be the source of groundwater concentrations exceeding the groundwater SSTC-X.

The process for assessing the extent of remediation (if required) based on the identification of SPGWT and CIM is summarised in the following sections.

3.3 Remediation Criteria for Protection of the Environment

As discussed in Section 7.4 of the *Crown RAP* (AECOM, 2015a), the *VMP Remediation Extent, VMP Remediation Works Area, (Parts of Barangaroo and Hickson Road), Millers Point, NSW* (AECOM, 2013a) considers that if the *VMP/Block 4 RAP* (AECOM, 2013b) is implemented, residual gasworks related contamination remaining *in situ* down hydraulic gradient of the Declaration Area (including the Site) will not represent an unacceptable risk to the environment.

The *ORWN HHERA* (AECOM, 2014) also considered that non-gasworks related CoPC (namely copper, zinc, cobalt and cadmium) would not present an unacceptable risk to the environment and that the quality of groundwater in fill within the Site will improve over time following the proposed remedial works in the Declaration Area and Block 4.

It was therefore concluded that the risks to identified environmental receptors at the Site are low and acceptable. As such, risk to the environment is not considered any further in this Addendum while the focus of any required remediation works is focussed on the appropriate protection of human health.

3.4 Terrestrial Soil Criteria

As described by Section 7.5 of the *Crown RAP* (AECOM, 2015a), the Terrestrial Soil Criteria (TSC) is applicable to Suitable Fill that will be placed in the upper 0.5 m of areas used for unpaved open space (Scenario 3). The *ORWN HHERA* (AECOM, 2014) further requires that Suitable Fill of greater thickness than 0.5 m be provided for areas in which deeper rooting trees may be planted.

The TSC were developed in the *Declaration Site HHERA* (AECOM, 2011b) and adopted by the *ORWN HHERA* (AECOM, 2014). The TSC are detailed in Table T12, Appendix A of the *Crown RAP* (AECOM, 2015a).

Suitable Fill is defined as either:

- Virgin Excavated Natural Material (VENM);
- Soil which contains contaminant concentrations below the TSC; and
- Soil which contains contaminant concentrations below the SSTC-X (refer to **Table T1**).

4.0 Extent of Remediation

The results of soil and groundwater samples analysed as part of previous intrusive investigations within the Site are presented in **Tables T3 to T6** in **Appendix C** and compared against the applicable SSTCs. A summary of this comparison is provided in the following sections.

The summary tables presented in **Appendix C** are as follows:

- **Table T1:** Soil Remediation Criteria;
- **Table T2:** Groundwater Remediation Criteria;
- **Table T3:** Soil Analytical Results – Unsaturated;
- **Table T4:** Soil Analytical Results – Saturated;
- **Table T5:** Asbestos Analytical Results;
- **Table T6:** Groundwater Analytical Results (2010-11); and
- **Table T7:** Historic Groundwater Analytical Results (pre 2010).

4.1 Separate Phase Gasworks Waste and Tar

SPGWT was observed by previous investigations, based on visual observations (including 'black lumps of tar with a strong tar odour'), to be present at MW60 (refer to **Figure 1**). These impacts were observed at depths ranging between 16 and 17.5 m bgl within the natural marine sediments.

The field observations and soil analytical results for nearby sampling locations (BH72 and BH191) indicate that the SPGWT observed at MW60 is relatively localised.

4.2 Unsaturated Soil Analytical Results

The presence of CIM in unsaturated soils was assessed using soil analytical data from boreholes drilled as part of the previous investigations and including some boreholes located near the Site boundary which are likely to be representative of CoPC concentrations at the Site boundary (i.e. from north to south - BH544D, BH129, BH1C-205, BH547, BH73, BH57, BH143 and BH39, refer to **Figure 1**).

All CoPC concentrations in the unsaturated soils were reported to be less than the relevant soil SSTC-X (refer to **Table T3, Appendix C**).

Asbestos was not detected in the three analysed samples from the unsaturated soils at the Site (refer to **Table T5, Appendix C**).

Notwithstanding, as described by **Section 2.5.2**, ACM was identified to be widespread within excavated material within the ORWS Area. Therefore, it is considered that there is significant potential for bonded ACM to be present within fill materials at the Site. Further, excavation works conducted within the Site (in the vicinity of BH191, refer to **Figure 1, Appendix A**) confirmed the presence of bonded ACM within unsaturated fill material in the Site (refer to **Section 2.4**).

It is noted that previous asbestos analysis did not include the gravimetric assessment of bonded ACM (per Schedule B2 of the *National Environment Protection [Assessment of Site Contamination] Measure (ASC NEPM)* National Environment Protection Council [NEPC, 1999]) required for comparison against the SSTCs for asbestos.

4.3 Saturated Soil Analytical Results

The analytical data from soil samples considered to be representative of saturated soils are detailed in **Table T4**. As discussed in **Section 3.1.2**, soil SSTCs have not been derived for saturated soils. Therefore, the assessment of whether CIM is present within saturated soils is based on comparison of groundwater CoPC concentrations to the relevant groundwater SSTC-X (refer to **Section 4.4**).

Of the 19 soil samples analysed for asbestos from the saturated soils, asbestos was detected in 8 of the samples at a variety of depths (refer to **Table T5**).

4.4 Groundwater Analytical Results

All CoPC concentrations were reported to be less than the groundwater SSTC-X with the exception of MW60 (refer to **Table T6** and **T7**). In particular, Total Recoverable Hydrocarbons (TRH) C₁₀-C₃₆ (18,000 µg/L) and naphthalene (1,500 µg/L) concentrations were reported at concentrations exceeding the groundwater SSTC-X.

4.5 Identification of Confirmed Impacted Material

As discussed in **Section 4.2**, the unsaturated soil analytical results were all reported to be less than the soil SSTC-X. However, it is considered that the presence of bonded ACM within the unsaturated soils near BH191 (i.e. in association with SP225) and the observations from excavation of the adjacent Stage 1A basement, indicates that there is high likelihood that fill material at the Site is contaminated with bonded ACM at concentrations exceeding the SSTC-X^{asbestos} (refer to **Section 3.1.3**). As such, the unsaturated soil is considered to be CIM warranting remediation.

Notwithstanding this conclusion, only limited soil analytical results are available for soil in the unsaturated zone at the Site and no asbestos analytical results are available that allow comparison against the SSTC-X^{asbestos}. Therefore, additional delineation sampling of the unsaturated soils at the Site should be conducted to ensure the sampling density is sufficient to appropriately delineate the extent of CIM requiring remediation. Refer to **Section 8.0** for discussion on the required delineation sampling works.

The reported exceedance of the groundwater SSTC-X and presence of SPGWT at MW60 (as discussed in **Section 4.1** and **4.4**) is not considered representative of CIM that warrants remediation because:

- MW60 was screened across the base of the fill and marine sediment interface (i.e. from 14 to 22 m bgl). As described by Section 6.6.5 of the *Crown RAP* (AECOM, 2015a), there is considered to be negligible contaminant flux from the natural marine sediments into the overlying fill; and
- Field observations from other investigation locations at the Site and adjacent to MW60 indicate that the presence of SPGWT is localised to the MW60 area indicating that the reported impact is relatively localised.

Based on the above information, the impacted groundwater at MW60 is not considered to pose a significant risk to future users of the Site and/or Darling Harbour.

4.6 Extent of Remediation

Based on the available data, and in particular the identification of bonded ACM in the unsaturated soils at the Site (refer to **Section 2.4**), CIM has been identified which requires remediation to ensure that the Site is suitable for use as a park. The estimated extent of CIM inferred from the available information and therefore the Initial Remediation Extent is illustrated in to **Figure 1**. While no asbestos testing of the unsaturated soils was conducted at the neighbouring boreholes BH191, BH1C-207 and BH1C-206, bonded ACM was not observed to be present in the unsaturated soils at these locations. As such, the soils at the three locations have been assumed to be free of bonded ACM. On this basis, the Initial Remediation Extent illustrated in **Figure 1** does not include BH191, BH1C-207 and BH1C-206 and measures approximately 15 x 15m.

It is envisaged that remediation within the Initial Remediation Extent will be required to a depth of approximately 2.0 m below the final development level.

Additional delineation sampling of the soils in the unsaturated zone is required to ensure the sampling density is sufficient to properly characterise the unsaturated soil and delineate the final extent of CIM that warrants remediation (refer to **Section 7.2**).

The final extent of the remediation works required to address CIM identified by the delineation sampling works will be determined based on the findings of the additional delineation sampling and in consultation with the NSW EPA Accredited Site Auditor. It is considered likely that the vertical extent of remediation may be up to 2 m bgl or the depth of the unsaturated soil.

5.0 Remedial Technology Assessment

As described by **Section 4.5**, CIM has been identified based on the previous intrusive works within the Site that will require remediation. The extent of remediation required will be subject to additional delineation sampling as recommended by **Section 7.2**.

It is important to note that while the CIM identified by **Section 4.5** is based on the presence of bonded ACM, it is possible that the additional delineation sampling will identify CIM based on the presence of other CoPC. As such, the remediation approach must be appropriate for remediation of a range of potential CoPC.

CIM identified within unsaturated soil will be remediated by selective excavation and disposed off-site to landfill. If required to facilitate offsite disposal to landfill, the excavated material would be treated in accordance with Section 20.7 of the *Crown RAP* (AECOM, 2015a). CIM identified as a result of the presence of bonded ACM would be excavated in accordance with Section 13.9 of the *Crown RAP* (AECOM, 2015a).

Selection of the preferred remediation approach for this material (i.e. offsite disposal to landfill) was based on the Remedial Technology Assessment presented in Section 10 of the *VMP/Block 4 RAP* (AECOM, 2013b). This is assessment is considered appropriate given the similar material, contaminant types and logistical constraints between the Site and the adjacent Block 4 Development Remediation Works. In particular, excavation and off-site disposal to a NSW EPA licensed landfill facility has been selected in consideration of:

- the limited opportunities for reuse of material within the development;
- the maximum potential depth of excavations required (which will be limited to unsaturated soils only);
- its applicability to the management of risks associated with bonded ACM contamination; and
- its applicability to the management of a range of other potential CoPCs that may be identified in CIM as an outcome of the delineation sampling works.

6.0 Preferred Remediation Strategy Summary

As discussed in **Section 4.5**, CIM has been identified in unsaturated soils that will require remediation to facilitate use of the Site as a park. The preferred strategy for the remediation work is summarised following:

- Completion of additional delineation sampling works to adequately characterise the presence and extent of CIM requiring remediation within unsaturated soil (refer to **Section 5.0**);
- Based on the findings of the additional delineation sampling works, and in consultation with the NEW EPA Accredited Site Auditor, establishment of the extent of CIM that is considered to represent a risk to human health and requires remediation;
- Site establishment and preparatory works;
- Selective excavation of CIM identified based on the outcomes of the additional delineation sampling works.
 - Excavation works will be subject to visual and olfactory observation to confirm that the materials encountered are consistent with those anticipated based on previous investigations and additional delineation sampling works;
- Physical separation of recyclable and oversize material, including timber, rock, concrete, steel and brick, from other material;
- While not anticipated based on the available analytical data, treatment of excavated material (if required) to facilitate off-site disposal to licensed landfill in accordance with **Section 9.4**; and
- Off-site disposal of CIM to an EPA licensed landfill, subject to classification in accordance with the NSW EPA (2014) *Waste Classification Guidelines*; and
- Validation of the resultant excavation as per **Section 8.0** to demonstrate compliance with this Addendum; and
- Backfilling of the remedial excavations using imported Suitable Fill (refer to **Section 3.4**) validated in accordance with Section 15 of the *Crown RAP* (AECOM, 2015a).

As described by Section 3.1, Suitable Fill (refer to **Section 3.4**) will be placed over the entire Site. Depending on the finished surface levels required for the Park, the Suitable Fill will be either:

- Used to backfill remedial excavations;
- Placed on the existing surface of the Site; or
- Placed in excavations created such that the finished surface level of the 0.5 m thick layer of Suitable Fill corresponds with the required site finished surface levels.

7.0 Remediation Works

7.1 Remediation Works Overview

As discussed in **Section 4.5**, CIM has been identified in unsaturated soils that will require remediation to facilitate use of the Site as a park. The Initial Remediation Extent, inferred from the available information and subject to finalisation following completion of the additional characterisation sampling, is illustrated in to **Figure 1**.

Table 4 presents an overview of the sequence and nature of tasks that will be required to facilitate the proposed remediation works. As appropriate, **Table 4** either:

- refers to the description of the subject task provided in the relevant section of the *Crown RAP* (AECOM, 2015a); or
- refers to subsequent sections of this Addendum where the task is described.

Table 4 Summary of Remediation Works and Compliance with the *Crown RAP* (AECOM, 2015a)

Remediation Task	Reference
Preparation of a SAQP describing the proposed additional Delineation Sampling Works	Section 7.2.1 of this Addendum
Completion of Additional Delineation Sampling Works and finalisation of the required extent of remediation	Section 7.2.2 and 7.2.3 of this Addendum
Preparation of Remediation Documentation including:	Sections 1.5 and 12.1.2 of the <i>Crown RAP</i> (AECOM, 2015a)
- Remedial Works Plan	Section 13.4 of the <i>Crown RAP</i> (AECOM, 2015a)
- Asbestos Management Plan	Section 7.3.3 of this Addendum
- Validation SAQP	Section 8.2.1 of this Addendum
Site establishment and preparatory works	Sections 12.2, 12.3 and 12.4 of the <i>Crown RAP</i> (AECOM, 2015a) noting that the remediation strategy described by this Addendum does <u>not</u> require: - construction of a groundwater retention wall system; or - supporting infrastructure associated with bulk excavation including “top down excavation methodologies”.
Excavation of CIM and disposal to an EPA licensed landfill	
- Excavation Planning	Section 13.4 of the <i>Crown RAP</i> (AECOM, 2015a)
- Excavation Operations	Section 7.3 of this Addendum
- Material Handling (including Materials Tracking)	Section 13.8 of the <i>Crown RAP</i> (AECOM, 2015a)
- Material Fate	Section 13.10 of the <i>Crown RAP</i> (AECOM, 2015a)
- Management of bonded ACM	Section 7.3.3 of this Addendum
Management of Water	
- Management of Surface Water	Section 14.1 of the <i>Crown RAP</i> (AECOM, 2015a)
- Management of Groundwater	Section 7.3.1 of this Addendum
- Wastewater Treatment System	Section 14.3 of the <i>Crown RAP</i> (AECOM, 2015a)
- Groundwater Monitoring	Section 7.3.3 of this Addendum
Imported Material	Section 7.4 of this Addendum
Validation Strategy	Section 8 of this Addendum

Remediation Task	Reference
Environmental Management	Section 17.0 of the <i>Crown RAP</i> (AECOM, 2015a) noting that the remediation strategy described by this Addendum does <u>not</u> require bulk excavation.
Occupational Health and Safety	Section 18.0 of the <i>Crown RAP</i> (AECOM, 2015a) noting that the remediation strategy described by this Addendum does <u>not</u> require bulk excavation.
Community Engagement	Section 19.0 of the <i>Crown RAP</i> (AECOM, 2015a)
Key Personnel	Section 21.0 of the <i>Crown RAP</i> (AECOM, 2015a)

7.2 Additional Delineation Sampling Works

7.2.1 Delineation SAQP

Additional delineation sampling of the unsaturated soils is proposed to:

- address identified data gaps and ensure that the unsaturated soils are appropriately characterised; and
- delineate the vertical and lateral extent of the CIM within the unsaturated soils and to determine the remediation extent required to address these materials.

A Delineation Sampling and Analytical Quality Plan (SAQP) would be prepared to detail the scope of the delineation testing and will be provided to the NSW EPA Accredited Site Auditor for endorsement.

In preparing the Delineation SAQP, consideration will be given to the range of historic land uses to which the Site has been subjected – many of which have a relatively low risk of having resulted in contamination. In particular:

- The existing caisson wall, which (with the exception of the historic Southern Cove) forms the western edge of Barangaroo South is reported to be filled with dredged sediments from Darling Harbour;
- The western extent (approximately 25m) of the reclaimed historic Southern Cove comprises of a suspended reinforced slab supported on concrete columns. As such, there is a void below the concrete slab and above Darling Harbour (which extends under the slab to a rock armoured embankment constructed to facilitate reclamation of the historic Southern Cove); and
- The eastern portion of the reclaimed historic Southern Cove has been reported (based on the limited available data) to have been reclaimed with a large proportion of large sandstone cobbles and boulders. In addition, due to the timing of the backfilling in this area it is considered unlikely that the area was backfilled with gasworks related wastes.

7.2.2 Delineation Sampling Works

The additional delineation sampling (to be described by the Delineation SAQP) would be conducted as follows:

- Additional soil samples will be collected such that the net sampling frequency within unsaturated soil across the Site (including both previous investigation locations and additional delineation locations) is at least one sample location per 400 m³, based on a 20 m x 20 m grid. This sampling frequency may be varied, in consultation with the Auditor, based on the historic land uses of particular parts of the Site;
- Where possible, soil samples will be collected from test pits to allow the collection of bulk samples for analysis of asbestos using the gravimetric method prescribed by Schedule B2 of the *ASC NEPM* (NEPC, 1999);
- Soil samples will be collected from depths of approximately 0.5 and 1.5 m bgl;
- Soil samples will be biased toward those zones considered most likely to be impacted based on field observations (including visual/olfactory observations and PID readings);
- All soil samples will be analysed for the CoPC detailed in per Section 16.5 of the *Crown RAP* (AECOM, 2015a) according to the analytical methods detailed in Section 16.5.2 of the *Crown RAP* (AECOM, 2015a); and
- All asbestos analysis would be conducted in accordance with Schedule B2 of the *ASC NEPM* (NEPC, 1999) to facilitate comparison and validation against the SSTCs for asbestos.

7.2.3 Delineation of the Extent of CIM

Based on the results of the additional delineation sampling work, an assessment of the extent and nature of CIM (including SPGWT, if present) in the unsaturated soils will be undertaken. The extent of CIM established by the additional delineation sampling work will be used to inform the extent of remediation required within the unsaturated soil to make the site suitable for use as a park.

These works will be undertaken in consultation with the NSW EPA Accredited Site Auditor.

7.3 Excavation Operations

Excavations will be regularly inspected by a suitably experienced environmental engineer or scientist to confirm that the visual and olfactory characteristics of the excavated materials are consistent with expectations. These regular inspections will also serve to identify hotspots of SPGWT and/or CIM that may not otherwise have been identified by the previous site investigations and additional delineation sampling works (refer to **Section 7.2**).

Odorous materials will be managed as per the requirements of Section 17.3 of the *Crown RAP* (AECOM, 2015a).

Asbestos containing materials will be managed in accordance with the requirements of Section 13.9 of the *Crown RAP* (AECOM, 2015a).

CIM will be selectively excavated and kept separate from other materials. Depending on the nature and concentration of contamination in the excavated CIM, it will be either:

- transferred to the ex-situ treatment facility (likely located off-site) for treatment; or
- transferred directly offsite to a NSW EPA licensed landfill facility, in accordance with the appropriate waste tracking requirements.

If encountered as an unexpected find, SPGWT will be similarly selectively excavated and kept separate from other materials. All SPGWT will be transferred to the offsite ex-situ treatment facility for treatment prior to disposal offsite to a NSW EPA licensed landfill facility in accordance with the appropriate waste tracking requirements.

7.3.1 Dewatering of Excavations

It is proposed that remedial excavations will be limited unsaturated soils. As such, de-watering of groundwater from the remedial excavations is unlikely to be required.

Surface water (and groundwater if applicable) that may accumulate within excavations will be collected and transferred to a temporary Water Treatment Plant (WTP), prior to discharge to Darling Harbour in accordance with the discharge conditions established for the Barangaroo South site.

If required, limited contaminated water may be disposed off-Site with use of truck tankers and/or disposed to sewer (with or without treatment) in accordance with a Sydney Water trade waste licence.

7.3.2 Excavation Support

The depth of excavation required by the remediation strategy is likely to be limited to 2 m bgl. As such engineered excavation support is not anticipated to be required as part of the remediation. Excavation sides are likely to comprise of earth batters constructed at stable gradients.

7.3.3 Groundwater Monitoring

As described by **Section 2.4**, CIM was identified based on the presence of bonded ACM and not groundwater contamination within the Site. As such, it has been determined that existing groundwater quality at the Site does not represent an unacceptable risk to human health or the environment.

Groundwater monitoring is not considered warranted for the following reasons:

- the groundwater concentrations reported within the Site were all less than the groundwater SSTC-X (with the exception of groundwater quality at MW60, which is considered representative of groundwater quality within marine sediments from which there is negligible contaminant flux – refer to Section 6.6.5 of the *Crown RAP* [AECOM, 2015a]);

- as detailed in Section 7.11 of the *ORWN HHERA* (AECOM, 2014), the *VMP Remediation Extent* report (AECOM, 2013a) considers that if the VMP Remediation Works described by the *VMP/Block 4 RAP* (AECOM, 2013b) are implemented, residual gasworks related contamination remaining *in situ* down hydraulic gradient of the Declaration Area (including within the Site) will not represent an unacceptable risk to the environment; and
- as detailed in **Section 3.3**, the *ORWN HHERA* (AECOM, 2014) also considers that residual concentrations of non-gasworks related contamination remaining within the Site do not represent an unacceptable risk to the environment.

7.3.4 Management of Asbestos Containing Materials

All bonded ACM impacted material (CIM) identified by previous investigations within the Site and anticipated based on information from the adjacent ORWS Basement excavation will be managed in accordance with an Asbestos Management Plan.

Identified bonded ACM which requires removal from the Site, including that removed as part of CIM, will be collected and disposed of by a licensed Asbestos Removal Contractor (ARC) in accordance with the requirements of the following:

- *NSW Work Health and Safety Act (2011)*;
- *NSW Work Health and Safety Regulation (2011)*;
- *Code of Practice: How to Safely Remove Asbestos*, Safe Work Australia (2011); and
- *Code of Practice: How to manage and control asbestos in the workplace*, Safe Work Australia (2011).

If required, the bonded ACM removal works would be undertaken as follows:

- The excavation contractor would establish appropriate barriers and signage around the area where bonded ACM has been identified;
- The bonded ACM will be suitably removed from the Site by an ARC;
- Airborne asbestos fibre monitoring will be undertaken around the working area during the works to confirm that the bonded ACM is being removed in an appropriately controlled manner;
- An ARC will conduct a visual inspection of the affected area to confirm that it is free of visible ACM fragments; and
- A clearance certificate will be prepared to document these works.

The requirements for validation of remedial excavations are described by **Section 8.4**. Additional works (if any) required for management of bonded ACM identified in the base of remedial excavations for the protection of construction workers will be determined by the Asbestos Management Plan.

The Asbestos Management Plan and all works associated with or potentially associated with disturbance of asbestos will include consideration of construction worker protection and the following independent report commissioned and endorsed by the NSW EPA:

- Associate Professor Tim Driscoll, Sydney School of Public Health, Sydney Medical School, University of Sydney (March 2013). *The Use of Asbestos-Contaminated Soils on Barangaroo, Report to the Environment Protection Authority*.

7.4 Imported Materials

Materials imported to the Site will be required to meet the requirements of:

- Virgin Excavated Natural Material (VENM) in accordance with the NSW EPA (2014) *Waste Classification Guidelines*;
- Excavated Natural Material (ENM) in accordance with the *Protection of the Environment Operations (Waste Regulation 2005 – General Exemption under part 6, Clause 51 and 51A (2012)*;
- the TSC (refer to **Section 3.4**); and
- the soil SSTC-X (refer to **Section 3.2.1** and **Table T1**).

The frequency of validation sampling will be dependent on the source of the fill material. If the material is brought onto the Site from a quarry, and the material is homogeneous, validation will consist of:

- a certificate warranting that the material is VENM or demonstrating the physical and chemical quality of the fill, including supporting test data; and
- visual confirmation that the material is free from contamination as it is imported to the Site.

If the imported material cannot be certified as VENM or clean quarry material, the following works will occur:

- Site inspection of the source site and the reporting of these findings in the relevant validation reports;
- Visual inspection of the imported material upon arrival/stockpiling at the Site to confirm it is consistent with the material observed at the source site and is free from contamination (including visual evidence of asbestos impacts);
- Collection and analysis of one sample per 100m³ or a minimum of 3 samples per source. This sampling density may be decreased depending on the quantity of material to be imported from a given source and the initial laboratory analytical results. Any change in sampling density will be determined in consultation with the NSW EPA Accredited Site Auditor;
- Visual confirmation that the material is free from contamination as it is imported to the Site.

Whenever possible, samples will be collected from the source location, prior to import of the material to the Site.

All soil samples will be analysed for the following suite of potential contaminants:

- Metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg);
- PAHs and phenols;
- TPH/BTEX;
- OPPs and OCPs;
- PCBs; and
- Asbestos - measured in accordance with Australian Standard 4964 (2004): *Method for the Qualitative Identification of Asbestos in Bulk Samples*.

8.0 Validation Strategy

8.1 Remediation Goals

As described by **Section 3.2.2**, the remediation goals for the protection of human health, as recommended by the *ORWN HHERA* (AECOM, 2014) are:

- As a primary goal, removal / remediation of SPGWT (as defined in **Section 4.1**) to the extent practicable; and
- As a secondary goal, removal / remediation, to the extent practicable, of Confirmed Impacted Material (CIM), which is defined as:
 - Unsaturated soil concentrations exceeding the soil SSTC-X; and
 - Unsaturated and saturated soil concentrations that are considered to be the source of groundwater concentrations exceeding the groundwater SSTC-X.

8.2 Validation Principals

The *ORWN HHERA* (AECOM, 2014) recommends that soil validation data be assessed in accordance with the *ASC NEPM* (NEPC, 1999). This will involve demonstrating that the SSTCs have been achieved through the:

- use of systematic sampling patterns;
- collection of an appropriate number of samples for estimation of the arithmetic average concentration of contaminant(s) within relevant environmental media and exposure areas; and
- estimation of the 95% upper confidence limit (UCL) of the arithmetic average concentration for soils.

All unsaturated soil materials to be retained on-site must comply with the soil SSTC-X as discussed in **Section 3.2.1** and presented in **Table T1**.

8.2.1 Validation Planning

A Validation SAQP will be prepared by a suitably qualified environmental consultant for the bulk excavation works (as required) and will be implemented following the remediation program. The Validation SAQP will include a description of how the statistical analysis recommended by the *ORWN HHERA* (AECOM, 2014) will be adopted by the soil validation testing program.

The Validation SAQP will be endorsed by NSW EPA Accredited Site Auditor.

If new guidelines/legislation are introduced or endorsed by NSW EPA during the course of the excavation and validation works, consideration will be given to modifying the validation program in consultation with the NSW EPA Accredited Site Auditor.

The NSW EPA Accredited Site Auditor will be invited to undertake regular site inspections during the Stage 1C Works.

8.2.2 Groundwater

As described by **Section 7.3.3**, groundwater monitoring during or after the work is not considered to be warranted because the previous groundwater concentrations reported within the Site are not considered to represent an unacceptable risk to human health or the environment. Validation of groundwater at the Site is therefore not considered further by this Addendum.

8.3 Validation of HHERA Assumptions

An important element of the validation process will be confirmation that the key assumptions regarding the proposed development and on which the *ORWN HHERA* (AECOM, 2014) was based (as described in **Section 3.1.2**) have been or will be implemented.

To this end, validation will include review of appropriate documents confirming that the key assumptions either have been or will be constructed. Appropriate documentation may include:

- "Issue for Construction" Drawings that verify that the key elements of the design relied on by the *ORWN HHERA* (AECOM, 2014) will be constructed; and/or

- “As Constructed” Drawings that document that the key elements of the design relied on by the *ORWN HHERA* (AECOM, 2014) have been constructed.

In particular, documentation reviewed as part of the validation will be required to demonstrate that:

- The a depth of at least 0.5 m of Suitable Fill has been provided;
- Increased thickness of Suitable Fill has been provided in areas to be used for deeper rooting trees; and
- The maximum depth of underground services constructed within the Park is 2.0 m below the development finished surface level (refer to **Section 3.1.3**).

This review will also assess any potential implications of changes to the design. Any significant changes to the final development plans will be assessed via the contingency measures detailed in **Section 9.0**. The details of the above review will be included in the Site Validation Report (refer to **Section 8.5**).

8.4 Soil Validation

All validation soil samples detailed in the following Sections will be discrete soil samples only. That is, composited soil samples will not be used for validation purposes.

8.4.1 Validation of Remedial Excavations

Following completion of the remediation works, validation soil sampling would be undertaken to confirm that residual soil CoPC concentrations are less than the soil SSTC-X and the SSTC-X^{asbestos}. The validation sampling would involve the following:

- Wall validation samples will be collected at 20 m lineal metre intervals along the extent of the wall in material identified to be the most impacted (either by visual observations of field screening of samples using a PID); and
- Base validation samples will be collected at 20 m x 20 m grid over the base of completed excavation areas.

All soil samples will be analysed for all CoPC in the soil SSTC-X (as detailed in **Table T1**). Asbestos samples will be analysed as per Schedule B2 of the *ASC NEPM* (NEPC, 1999) to facilitate comparison and validation against the SSTC-X^{asbestos}.

All excavations will also be inspected to confirm that the excavation walls and bases are visually free of SPGWT.

If SPGWT or asbestos concentrations greater than the soil SSTC-X^{asbestos} is identified in the base of the completed remedial excavations, the contingency measures described by **Section 9.3** of this Addendum will be implemented. Validated excavations at the Site will be clearly marked and identified to ensure that cross contamination of surface areas with potential impacted material is mitigated.

8.4.2 Contingency Validation Measures

Materials requiring treatment prior to disposal to landfill will be tested and validated in accordance with Section 16.4.3.1 of the *Crown RAP* (AECOM, 2015a).

If stockpiling works (or on-site ex-situ treatment works, if required) are undertaken onsite, the area that is the subject of the stockpiling will be validated in accordance with Section 16.4.3.2 of the *Crown RAP* (AECOM, 2015a).

8.4.3 Validation Methodology

All validation sampling works will be conducted by a qualified environmental engineer/scientist with experience working on contaminated sites and in accordance with the following methodology:

- Validation Sample Analysis - all soil validation samples will be analysed by National Association of Testing Authorities (NATA) accredited laboratories per Section 16.5.2 of the *Crown RAP* (AECOM, 2015a);
- Soil Sample Collection – per Section 16.6 of the *Crown RAP* (AECOM, 2015a); and
- Data Quality Objectives – per Section 16.7 of the *Crown RAP* (AECOM, 2015a).

8.5 Validation Reporting

Following completion of the remediation and validation works, a Validation Report will be prepared.

The reporting requirements for the Site will be confirmed with the various stakeholders including, but not limited to the Crown, Lend Lease, the NSW EPA Accredited Site Auditor, NSW EPA and the BDA.

It is anticipated that the validation reporting will be undertaken in a manner which enables the NSW EPA Accredited Site Auditor to prepare Site Audit Statements confirming whether the Site has been remediated to a standard suitable for use as a Park. Progressive staging of the remediation works at the Site, may result in preparation of a series of Validation reports to facilitate progressive validation of the site and Site Audit Statements.

The Validation Report will be prepared in accordance with the requirements of the NSW EPA (2011) *Guidelines for Consultants Reporting on Contaminated Sites* and will include the following information:

- An overview of the remediation works carried out for each validation area;
- A summary of the site history and basis for the remediation approach for the validation areas;
- Surveyed figures outlining the extent of the remediation works;
- The location of validation and characterisation samples;
- Descriptions of sampled materials (including visual and olfactory observations);
- Field Equipment calibration certificates/records;
- Details of imported material used at the Site;
- Waste classification certificates and landfill waste disposal information;
- Summary tables for soil analytical results;
- Confirmation that the project DQO's and DQIs have been appropriately met (in accordance with the Validation SAQP);
- NATA registered laboratory analytical certificates;
- Summary of the tracking and fate of materials including materials excavated for potential reuse on-site (if required) or off-site disposal;
- Landfill weighbridge dockets;
- Conclusions as to the suitability of the Site for the potential park land use; and
- Recommendations (if required) for further works.

9.0 Contingency Planning

9.1 Approach

The purpose of the contingency plan is to outline procedures for the identification and management of unexpected issues or events that may occur during the works. The contingency plan will detail the following information:

- The assignment of responsibilities to nominated key personnel;
- The assessment of hazards associated with such situations, and the potential off-site impacts;
- Contingency responses; and
- Procedures for reporting relevant issues to regulatory authorities.

9.2 Potential Unexpected Events

Table 5 summarises the unexpected events which have the potential to occur during the remediation works, the likelihood of such an event occurring and the associated control measure which will mitigate such an event.

Table 5 Potential Unexpected Events and Related Control Measure

Potential Unexpected Event	Likelihood	Reference to Contingency Measure
Potential change in the future intended development strategy	Medium	Section 20.3 of the <i>Crown RAP</i> (AECOM, 2015a)
Variation of contaminant characteristics or identification of unanticipated contaminants and materials	Low	Section 20.4 of the <i>Crown RAP</i> (AECOM, 2015a)
Identification of SPGWT or ACM in the remediation excavation base.	Medium	Section 9.3 of this Addendum
Treatment is required to facilitate offsite disposal to landfill.	Medium	Section 9.4 of this Addendum
Failure of the preferred treatment approach to achieve a treatment standard required for off-site disposal of excavated material	Low	Section 20.8 of the <i>Crown RAP</i> (AECOM, 2015a)
Insufficient storage capacity to stockpile all required materials (<i>ex-situ</i> treatment works)	Low	Section 20.9 of the <i>Crown RAP</i> (AECOM, 2015a)
Operational issues during the remediation works including but not limited to: - Flooding of the Site; - Generation of unacceptable levels of dust during excavation and reinstatement works; - Release of unacceptable levels of fugitive emissions during the excavation works; - Generation of unacceptable odours from the excavation works; - Generation of unacceptable noise levels during site works; - Generation of unacceptable vibration levels during excavation and reinstatement works; and - Spills and leaks of hazardous materials.	Low Medium Medium Medium Low Low Low	Section 20.11 of the <i>Crown RAP</i> (AECOM, 2015a)

9.3 SPGWT or ACM is Identified in the Remediation Excavation Base

If there is visual evidence of potential SPGWT being present at the base of the completed remedial excavation, additional validation samples may be collected and analysed for PAHs to allow comparison to the TCM criteria (as defined in **Section 4.1**). The analytical results from excavation base validation samples (if collected) will be used to confirm the absence (or otherwise) of SPGWT at the base of the excavation.

If SPGWT is confirmed in the base of the completed excavation, the vertical extent of excavations will be increased, to the extent practicable, to facilitate removal of the SPGWT. If the depth of excavation required to remove the identified SPGWT is greater than 4 m bgl, consideration will be given to preparation of a location specific risk assessment in consultation with the NSW EPA Accredited Site Auditor. The location specific risk assessment would consider, among other things:

- the practicabilities of increasing the depth of excavation including:
 - the depth that can be reasonably achieved by a single excavation lift; and
 - minimising the requirement for increased excavation shoring, dewatering and associated water management; and
- provision of adequate separation between any SPGWT remaining *in situ* and future users of the Site including recreational users of a park and/or intrusive maintenance workers.

Removal of the additional material shall be validated through visual observations and documented via field notes and photographs.

The contingency measures implemented should asbestos concentrations greater than the SSTC-X^{asbestos} be reported in the base of the completed excavation will depend on the depth of the excavation base.

If the depth of the remedial excavation is less than 2 m below the current surface level (i.e. within the unsaturated zone) the asbestos impacted material will be removed to a maximum depth of 2 m below the current surface level.

If the depth of the remedial excavation is 2 m below the current surface level (or greater), the asbestos impact will be managed by the Asbestos Management Plan to ensure that construction work health and safety is appropriately protected (refer to **Section 7.3.4**).

9.4 Treatment is Required to Facilitate Disposal to Landfill

Based on the current analytical data set, treatment of materials is not anticipated to be required for the offsite disposal of material to a NSW EPA licensed landfill facility. However, it is possible that CIM will be encountered that requires treatment to facilitate offsite disposal to landfill.

If required, excavated materials would be treated via ex situ stabilisation/ solidification. The ex situ stabilisation works would be conducted in general accordance with Appendix D of the *Crown RAP* (AECOM, 2015a). The final details of the stabilisation methodology would be dependent on a range of considerations including:

- the type of contamination that requires treatment;
- the quantity of material requiring treatment; the end use of the treated material (for example, off-site disposal to landfill); and
- the timing of the material treatment.

It is anticipated that a decision regarding the requirement for and selection of the preferred treatment approach will be made as an outcome of the Additional Delineation Sampling (refer to **Section 7.2**) and/or as part of any applications that may be required for off-site landfill disposal (eg. Immobilisation Approval).

Selection of the preferred remediation approach for treatment of material to facilitate landfill disposal is based on the Remedial Technology Assessment presented in Section 10 of the *VMP/Block 4 RAP* (AECOM, 2013b). This assessment is considered appropriate given the similar material, contaminant types and logistical constraints between the Site and the adjacent Block 4 Development Remediation Works. In particular, Section 10.3.9 of the *VMP/Block 4 RAP* (AECOM, 2013b) concluded that the most appropriate remediation technology was excavation and ex situ stabilisation and offsite disposal to a NSW EPA licensed landfill facility.

It is noted that stabilisation works will not address asbestos contamination. If asbestos is present, then the waste will be classified as Special Waste (asbestos containing) irrespective of the stabilisation process.

10.0 Conclusions

The key remediation objective of this Addendum is to facilitate use of the Site as a park. Specific objectives of the remediation works described by this Addendum are:

- To ensure the remediated site is protective of human health in the context of recreational open space land use (i.e. a park);
- To ensure the remediated site is protective of the environment (specifically groundwater and the adjacent Darling Harbour), to the extent practicable; and
- Comply with applicable legislative and policy requirements including the appropriate requirements of the NSW EPA and NSW Department of Planning and Environment (DoPE).

Based on the available data, and in particular the identification of bonded ACM in the unsaturated soils at the Site, CIM has been identified which requires remediation to ensure that the Site is suitable for use as a park. However, additional delineation sampling of the soils in the unsaturated zone is required to ensure the sampling density is sufficient to properly characterise the unsaturated soil and delineate the extent of CIM present. The extent of the remediation works required to address CIM identified by the delineation sampling works will be determined based on the findings of the additional delineation sampling and in consultation with the NSW EPA Accredited Site Auditor.

The preferred remediation strategy recommended for the Site is:

- Completion of additional delineation sampling works to adequately characterise the presence and extent of CIM requiring remediation within unsaturated soil;
- Selective excavation of CIM identified based on the outcomes of the additional delineation sampling works.
- Off-site disposal of CIM to an EPA licensed landfill, subject to classification in accordance with the NSW EPA (2014) *Waste Classification Guidelines*;
- Validation of the resultant excavation to demonstrate compliance with this Addendum; and
- Backfilling of the remedial excavations using imported Suitable Fill.

This RAP has generally been prepared to meet the requirements of the SEPP 55 (Remediation of Land) (DUAP and NSW EPA, 1998) and the *CLM Act* (NSW Govt, 1997a).

It is concluded that the preferred management strategy described by this RAP will, upon successful implementation as evidenced by the prescribed validation program, ensure that the Site is suitable for use as a Park.

11.0 References

AECOM, 2013a. *VMP Remediation Extent, VMP Remediation Works Area, (Parts of Barangaroo and Hickson Road), Millers Point, NSW.* 23 July.

AECOM, 2013b. *Remedial Action Plan NSW EPA Declared Remediation Site 21122 and Block 4 (Stage 1b) Development Works, Barangaroo, Millers Point, NSW.* 24 July.

AECOM, 2013c. *Addendum to Human Health and Ecological Risk Assessment. Other Remediation Works (South) Area, Barangaroo.* 16 October.

AECOM, 2014. *Human Health and Ecological Risk Assessment. Stage 1c Development (ORWN Area), Barangaroo South.* 10 December.

AECOM, 2015a. *Crown Hotel Development Remedial Action Plan.* 11 April, Revision 10.

AECOM, 2015b. *Amendments to Remedial Action Plan, Crown Hotel Development (Part of ORWN Area), Barangaroo South.* 4 May.

ENVIRON, 2015a. *Site Audit Report, RAP, Crown Sydney Hotel Resort Development, Barangaroo.* Audit Number GN 439B-6. 20 January.

ENVIRON, 2015b. *Reliance on Site Audit Report/Site Audit Statement – Amendments to the Remedial Action Plan, Crown Hotel Development (Part of ORWN Area), Barangaroo South.* 5 May.

NEPC, 1999. *National Environment Protection (Assessment of Site Contamination) Amendment Measure (No. 1)* as amended 2013.

DEC, 2007. *Guidelines for the Assessment and Management of Groundwater Contamination.*

DUAP and NSW EPA (1998). *Managing Land Contamination - Planning Guidelines State Environmental Planning Policy (SEPP) 55 - Remediation of Land.*

NSW EPA, 2014. *Waste Classification Guidelines, Part 1: Classifying Waste.*

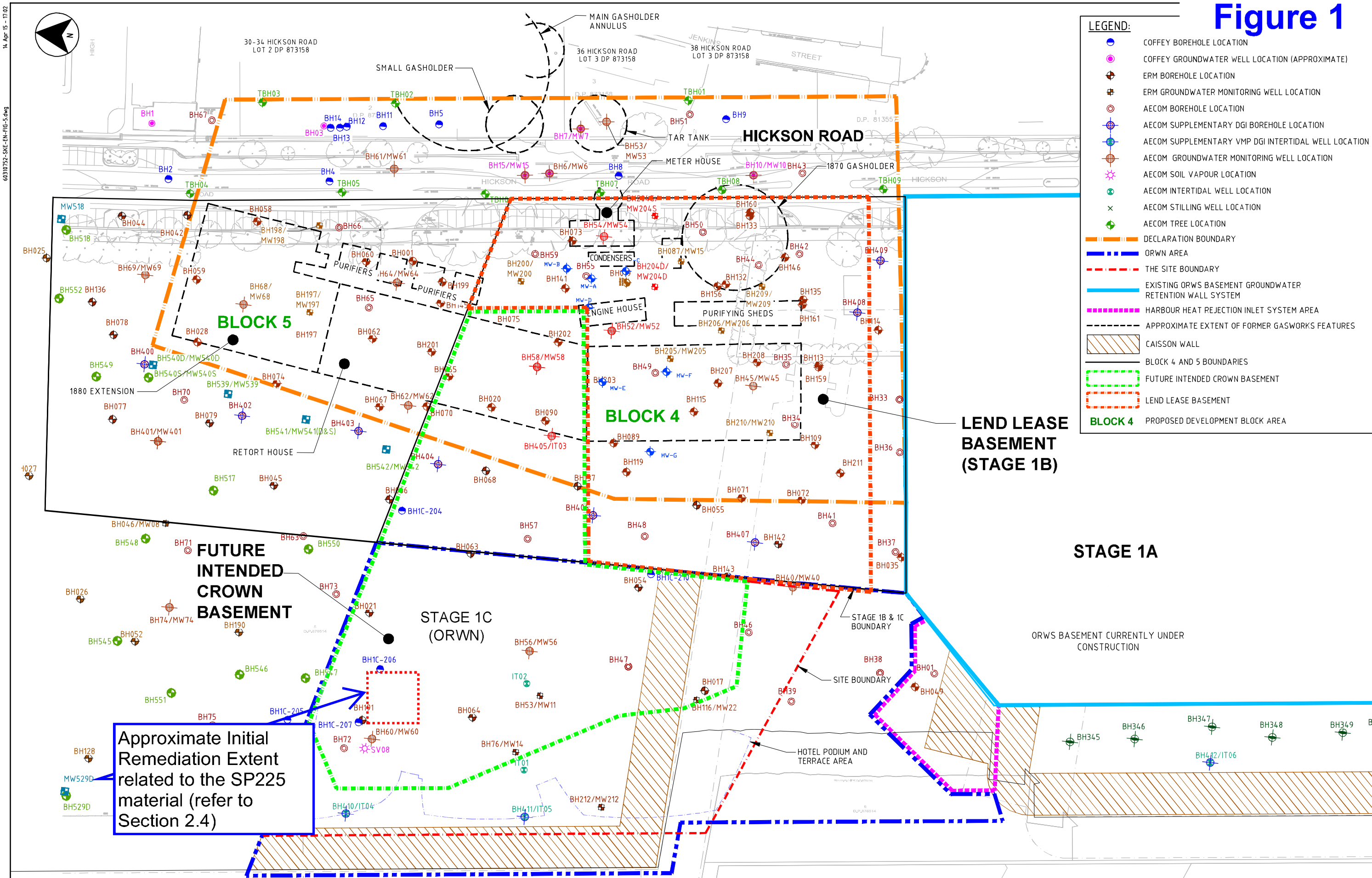
NSW EPA, 2011. *Guidelines for Consultants Reporting on Contaminated Sites*

NSW Govt, 1997. *Contaminated Land Management Act.*

Appendix A

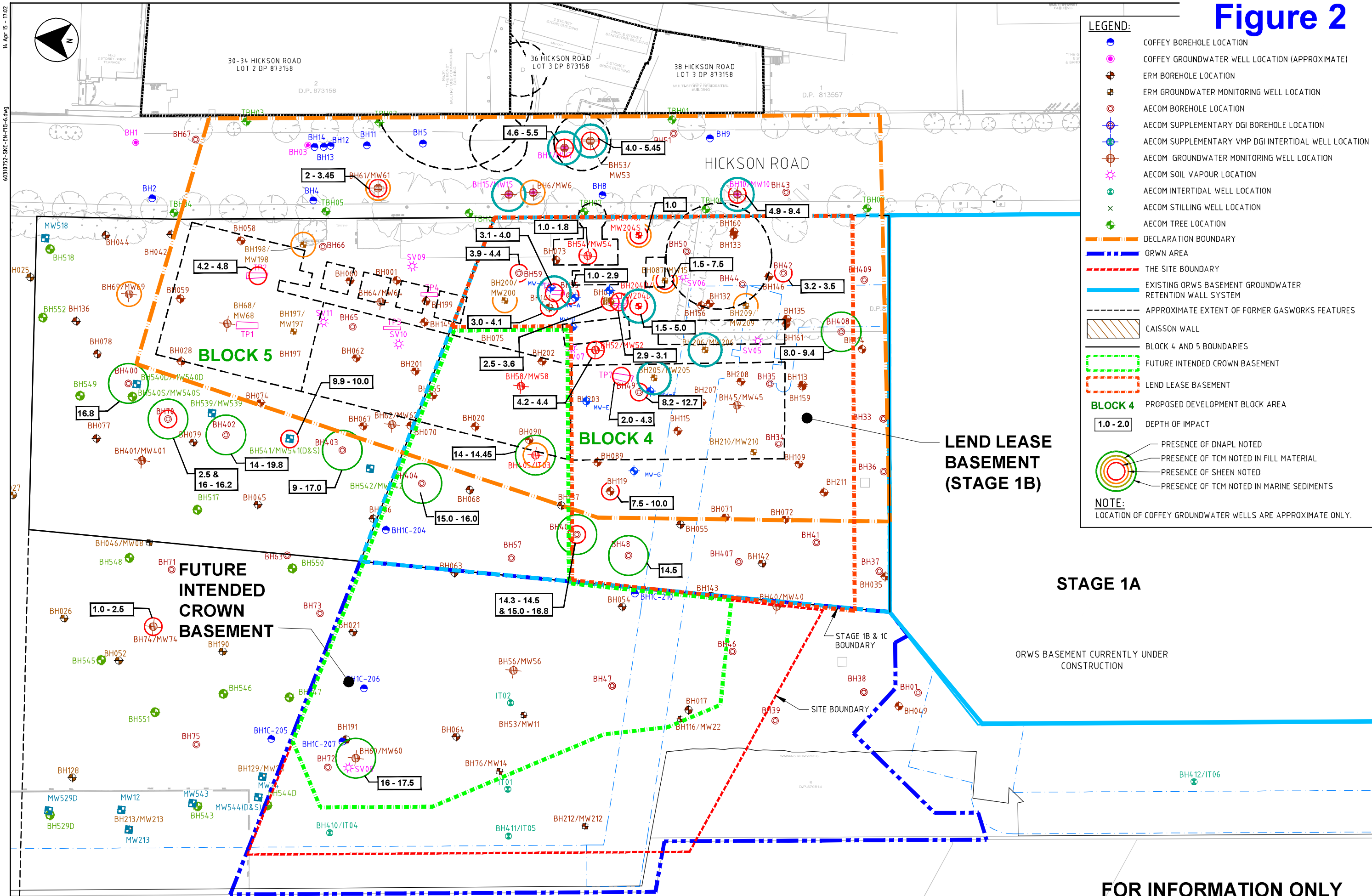
Figures

Figure 1



This drawing is confidential and shall only be used for the purposes of this project.					THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE AECOM QUALITY ASSURANCE SYSTEM TO ISO 9001-2000		CONTRACTOR:		DESIGNER:		FOR INFORMATION ONLY	
					DESIGNED		AR		AECOM		CROWN HOTEL DEVELOPMENT RAP, BARANGAROO	
					DRAWN		PAS				FIGURE F5: SITE PLAN AND SAMPLING LOCATIONS CROWN DEVELOPMENT AREA	
					APPROVED		DATE				STATUS: DRAFT	
											DRAWING NO: 60310752-SKE-EN-FIG-5	
											REV: 04	

Figure 2



Appendix B

Bonded ACM Impacted Material (SP225)

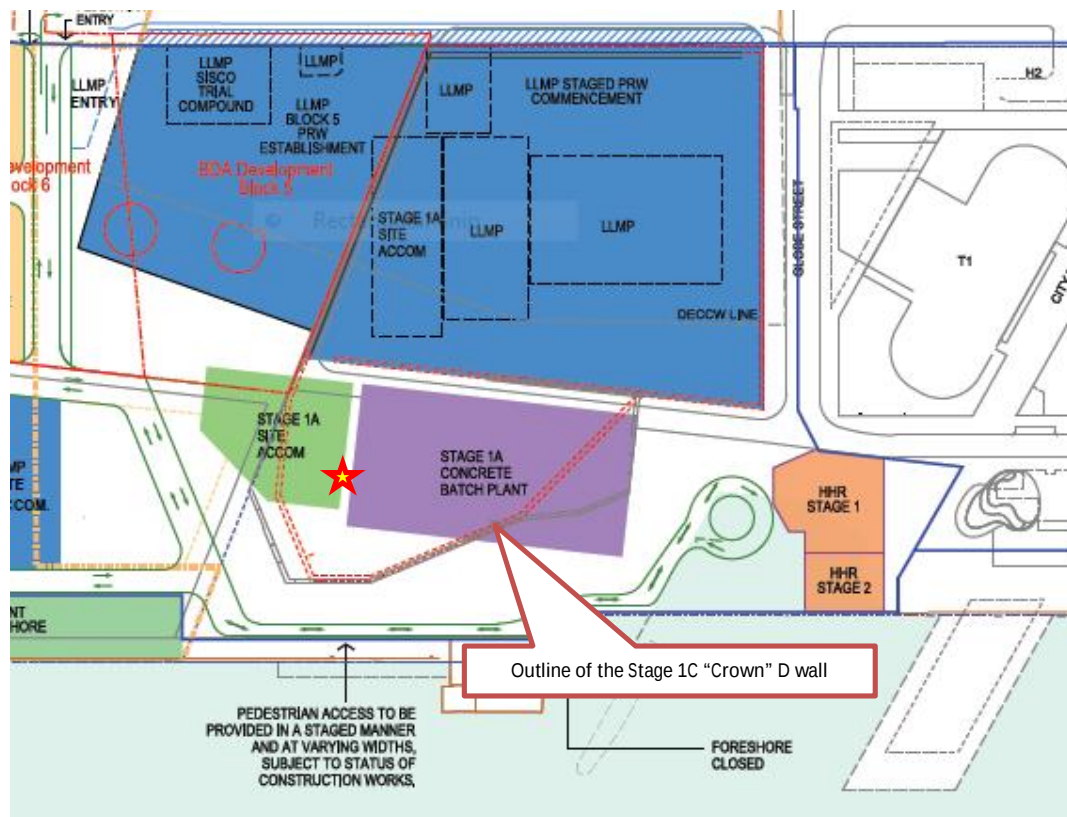
Lend Lease Building

Stage 1A

Unexpected find 20/12/2012: Asbestos

Stockpile 225 Location diagram.

★ = Excavation location of the accommodation sewerage pump out pit where the asbestos containing material was found. Stockpile 225.





STOCKPILE ITP

RECORD NO.	F023511TBA301
DATE	27/09/2012
REV	1

PROJECT	Barangaroo South	DATE	26/12/12	PREPARED BY	Toby Buchanan Nick Pritchett	REVIEWED BY	Mark Charman
STOCKPILE NUMBER	225	SESL Batch Number				APPROVED BY	Greg Lin
APPROX STOCKPILE SIZE	~500m ³						
CONSTRUCTION PROCESS / STAGE	Bulk Excavation, Stage 1 (refer to drawing no. 60153531-DRG-10-ORWS-F1)						

LEGEND

Verification Activity

H – Hold Point

- Work shall not proceed past the Hold Point until released by the organisation imposing the Hold Point.

W – Witness Point

- An inspection point that may be witnessed by the organisation imposing the Witness Point.

I – Inspection

- Formal inspection activity to be undertaken and recorded on a separate checklist.

S – Surveillance

- An activity that is subject to ongoing monitoring.

R – Review

- Review of text reports/records or other evidence of compliance.

Responsible Inspectorate

CM – Construction Manager

SM – Site Manager

PE – Project Engineer

SE – Site Engineer

REFERENCE DOCUMENTS

Waste Classification Guidelines Part 1: Classifying Waste (DECCW, Revised 2009)

In-situ Waste Classification, Blocks 1-3 Other Remediation Work South (ORWS),
Barangaroo

APPROVAL/REVISION

Rev	Date	Details	Approved by	Date
0	12/09/2012	Initial development	Greg Lin	12/09/2012
1	27/09/2012	Batch number added to document	Greg Lin	27/09/2012

Date: 27/09/2012

HP = Nick R. Helt
KO = Katherine Oresic

STOCKPILE ITP

RECORD NO. F023511TBA301

DATE 27/09/2012
REV 1

Item No.	Activity / Basic Job Step	Responsible	Activity Complete (Y/N)	Subcontractor verification				LLPM&C verification				Verifying Records / Checklists
				Name / Position	Signature	Date	Type	Name / Position	Signature	Date	Type	
1.0	Inspection - Excavation											
	Visual inspection carried out	NAA	Y	KO/IT		20/12/12	W	NP/DE		20/12	S	
	Bonded Asbestos identified	NAA	Y	KO/IT		20/12/12	H	NP/DE		20/12	H	
	Unexpected find PASS identified	NAA	Y	KO/IT		20/12/12	H	NP/DE		20/12	H	
	Unexpected find HAZARDOUS identified	NAA	Y	KO/IT		20/12/12	H	NP/DE		20/12	H	
	Unexpected find OTHER identified	NAA	Y	KO/IT		20/12/12	H	NP/DE		20/12	H	
2.0	Inspection - Stockpile											
	Visual inspection carried out	NAA	Y	KO/IT		03/10/13	W	NP/DE		20/12	S	
	Bonded Asbestos identified	NAA	Y	KO/IT		03/10/12	H	NP/DE		20/12	H	
3.0	Special Waste Verification											
	Bulk Sample Analysis confirms asbestos present	NAA	Y	KO/IT		03/10/13	R	NP/DE		20/12	R	
	Verification certificate preparation	NAA	Y	KO/IT		03/10/13	R	NP/DE		20/12	R	Verification certificate
4.0	Waste classification											
	Waste classification report preparation	SESL					R				S	Waste classification

Note: Once each stage of the job is completed please sign under the Verification Activity, include name / position and also date when the final task was completed for that line item.

Date: Thursday 3rd January 2013

Attention: Nick Pritchett

Company: Lend Lease
30 Hickson Road
Millers Point NSW 2000

Report: **Stockpile Verification Certificate (New Amenities Area)**

Address: Barangaroo South – Hickson Road, Millers Point NSW

Specific Material: Sourced from Stage 1 combined basement area

Stockpile Ref No. Stockpile 225 (New Amenities Area)

Stockpile Size: ~1,000m³

Verification Date: Thursday 3rd January 2013

NAA Reference: C107332: J112395.SP0225

**Verification
Methodology:**

- ☐ The earthworks contractor excavated an area of hardstand material from the sewerage pump out pit located at the new amenities area. The material was placed into skip bins lined with 200µm thick plastic and transferred to the C3 exclusion zone where it was placed into a stockpile, designated Stockpile 225.
- ☐ Once excavated, an occupational hygienist inspected the open cut area for the presence of ACM;
- ☐ During the excavation and stockpiling works an occupational hygienist collected one (1) representative sample of suspected ACM. This sample was analysed for the presence of asbestos by Polarised Light Microscopy and Dispersion Staining techniques. Refer to Appendix B for the NATA-Accredited Laboratory Analysis Report;
- ☐ Details of the ACM visually identified during the excavation and stockpiling works were documented by the occupational hygienists; and
- ☐ There were approximately **100 fragments** identified during the formation of the abovementioned stockpile.

**Air Monitoring
Results:**

Noel Arnold and Associates (NAA) conducted asbestos fibre air monitoring as per *The Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* [NOHSC:3003(2005)] during the excavation and stockpiling works (Reference J112395.131AR & J112395.134AR).

All air monitoring results for Thursday 20th December 2012 & Thursday 3rd January 2013 have been calculated as less than the reporting limit for the method (i.e. <0.01 fibres/mL).

Conclusion:

Subsequent to comprehensive visual inspection undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present within Stockpile 225.

Limitations:

The following limitations are applied to this verification certificate:

This verification certificate applies only to the abovementioned stockpile sourced from the sewerage pump out pit located by the new amenities.

Regards,

NOEL ARNOLD & ASSOCIATES PTY LTD



China Just

Property Risk Consultant

Stockpile Verification Certificate

Barangaroo South – Hickson Road, Millers Point NSW

Appendix A: Photographs



Photo 1. Stockpile 225, Stockpile Area – **Confirmed asbestos-containing fibre cement fragment**



Photo 2. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragment



Photo 3. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 4. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 5. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 6. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 7. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 8. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 9. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 10. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 11. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 12. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 13. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 14. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 15. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 16. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 17. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 18. Stockpile 225, Excavation Area – Presumed asbestos-containing fibre cement fragments



Photo 19. New Amenities Area, Excavation Area, During excavation works



Photo 20. Overview of Stockpile 225, Within C3 exclusion zone

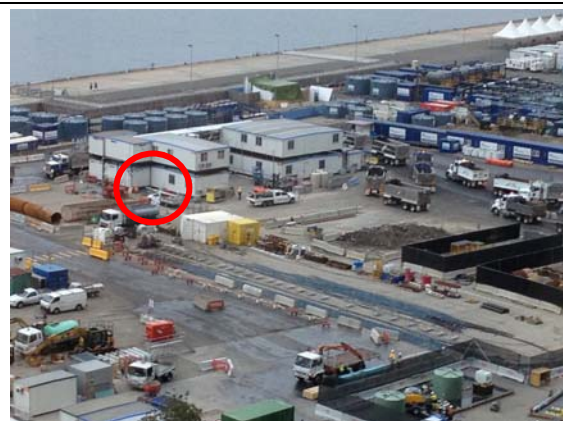


Photo 21. New Amenities, Aerial view of Stockpile 225

Stockpile Verification Certificate

Barangaroo South – Hickson Road, Millers Point NSW

Appendix B: NATA Accredited Sample Analysis Report

Tuesday, 08/01/2013

Our ref: C107332:J112395.SP225

Nick Pritchett
Lend Lease Property Management & Construction
30 The Bond, 30 Hickson Road
MILLERS POINT NSW 2000

Dear Nick,

Re: Asbestos Identification Analysis - C3 Exclusion Area - Barangaroo South Development - Hickson Rd, Barangaroo NSW

This letter presents the results of asbestos fibre identification analysis performed on 1 sample collected by Michael Burgess of Noel Arnold & Associates Pty Ltd on Thursday, 20 December 2012. The sample was stated to be from C3 Exclusion Area - Barangaroo South Development - Hickson Rd, Barangaroo NSW.

All sample analysis was performed using polarised light microscopy, including dispersion staining in our Sydney Laboratory in accordance with Noel Arnold and Associates Pty Ltd Test Method NALAB 302 "Asbestos Identification Analysis" and following the guidelines of Australian Standard AS4964-2004.

The sample will be kept for six months and then disposed of, unless otherwise directed.

The results of the asbestos identification analysis are presented in the appended table.

Should you require further information please contact Katarina Oresic or Scott McIlwain.

Yours sincerely

NOEL ARNOLD & ASSOCIATES PTY LTD



Richard Wilkinson : Approved Identifier



Richard Wilkinson : Approved Signatory



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Corporate Site No. 5450, Site No. 3402 Sydney Laboratory.
The results of the tests, calibrations and/or measurements
included in this document are traceable to
Australian/national standards.

Accredited for compliance with ISO/IEC 17020, Corporate
Site No. 18349.

Sydney Laboratory
Sample Analysis Results



Tuesday, 08/01/2013

Our ref: C107332:J112395.SP225

Site Location:		C3 Exclusion Area - Barangaroo South Development - Hickson Rd, Barangaroo NSW	
	Sample ID	Sample Location/Description/Weight or Size	Analysis Result
1	J112395.SP 225 01	Stock Pile 225 (In Scrape Area) - Fibre cement sheet fragment Unpainted grey compressed fibre cement sheet material ~ 60 x 30 x 6 mm	Chrysotile (white asbestos) Amosite (brown asbestos) Crocidolite (blue asbestos)

* Shaded row with bolded text indicates sample contains a positive result for asbestos.

Stockpile Verification Certificate

Barangaroo South – Hickson Road, Millers Point NSW

Appendix C: Stockpile Data & Site Sheet

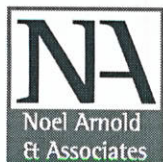
Location	Asbestos Fragments Identified	Date Identified
SP225, Excavation area	Approximately 30 fragments	(20/12/2012)
SP225, Excavation area	Approximately 70 fragments	(03/01/2013)



Doc No:	J112395-OPS-FRM-010
Date Issued:	28/11/2012
Next Review:	28/11/2013

Note: A photo must be taken and documented for every fragment identified and of every stockpile showing flag with stockpile number.

0 - 100 mm



A GREENCAP
CONSULTING COMPANY

Risk Management Services

NOEL ARNOLD & ASSOCIATES PTY LTD
A.C.N. 006 318 010 A.B.N. 76 006 318 010
Level 2, 11 Khartoum Road,
North Ryde, NSW 2113 Australia
Phone: (02) 9889 1800
Fax: (02) 9889 1811
Email: sydney@noel-arnold.com.au
www.noel-arnold.com.au

Stockpile Verification Site Sheet				Consultant: CT
Exclusion Zone: NEAR NEW AVENITY BLOCK				Date: 03-01-13
General Location (Stockpile/Scrape)	Time	Photo Ref	Sample Ref No (If taken)	Comments
SP225	0815	259 260 261	N/A	A number of small and medium fragments visible in open cut and within bucket. Weathered grey fcm sheeting fragments.
SP225	0830	262 263	N/A	Photos of skip bin being covered + taped up for transport to C3 for
SP225	0835	264	N/A	a number of fragments in bucket
SP225	0838	265	N/A	fragments at bottom of excavation ~ 2m depth
SP225	0846	266	N/A	frag on side of open cut adjacent bucket
SP225	0852	267 268	N/A	numerous fragments protruding from side of excavation

Note: A photo must be taken and documented for every fragment identified and of every stockpile showing flag with stockpile number.

Lend Lease Allocated Number	Location	Activity	Description	Date Find Occurred	Amount	ACM Sample ID	Status	Size (mm)	Proposed Corrective Action	Required Date	Close-Out Details	Clearance Certificate No.	Date Closed
272	C3 exclusion zone	Bulk Excavation Area - Stockpile 216	ACM fragments found during excavation & stockpiling works	17/12/2012	1	SP216.01	Positive	80 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	18/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP216	18/12/12
273	C3 exclusion zone	Bulk Excavation Area - Stockpile 217	ACM fragments found during excavation & stockpiling works	17/12/2012	1	SP217.01	Positive	50 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	18/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP217	18/12/12
274	C5 exclusion zone	Bulk Excavation Area - Stockpile 218	ACM fragments found during excavation & stockpiling works	17/12/2012	1	SP218.01	Positive	200 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	18/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP218	18/12/12
275	C3 exclusion zone	Bulk Excavation Area - Stockpile 219	ACM fragments found during excavation & stockpiling works	18/12/2012	2	SP219.01	Positive	60 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	19/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP219	19/12/12
276	C3 exclusion zone	Bulk Excavation Area - Stockpile 220	ACM fragments found during excavation & stockpiling works	18/12/2012	0	-	-	-	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works, NAA has found that no ACM was visibly identified.	19/12/2012	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP220	19/12/2012
277	C3 exclusion zone	Bulk Excavation Area - Stockpile 221	ACM fragments found during excavation & stockpiling works	18/12/2012	8	SP221.01	Positive	30 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	19/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP221	19/12/12
278	C3 exclusion zone	Bulk Excavation Area - Stockpile 222	ACM fragments found during excavation & stockpiling works	19/12/2012	4	SP222.01	Positive	65 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	19/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP222	19/12/12
279	C3 exclusion zone	Bulk Excavation Area - Stockpile 223	ACM fragments found during excavation & stockpiling works	19/12/2012	4	SP223.01	Positive	110 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	19/12/12	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP223	19/12/12
280	C4 exclusion zone	Bulk Excavation Area - Stockpile 224	ACM fragments found during excavation & stockpiling works	18/12/2012	0	-	-	-	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works, NAA has found that no ACM was visibly identified.	19/12/2012	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP224	19/12/2012
281	New Amenity Block (Sewerage Pump Out Pit)	Bulk Excavation Area - Stockpile 225	ACM fragments found during excavation & stockpiling works	3/01/2013	100	SP225.01	Positive	60 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	4/1/13	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP225	4/1/13
282	C3 exclusion zone	Bulk Excavation Area - Stockpile 226	ACM fragments found during excavation & stockpiling works	7/01/2013	4	SP226.01	Positive	90 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	8/1/13	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP226	8/1/13
283	C3 exclusion zone	Bulk Excavation Area - Stockpile 227	ACM fragments found during excavation & stockpiling works	7/01/2013	11	SP227.01	Positive	95 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	8/1/13	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP227	8/1/13
284	C3 exclusion zone	Bulk Excavation Area - Stockpile 228	ACM fragments found during excavation & stockpiling works	7/01/2013	2	SP228.01	Positive	55 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	8/1/13	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP228	8/1/13
285	C3 exclusion zone	Bulk Excavation Area - Stockpile 229	ACM fragments found during excavation & stockpiling works	8/01/2013	3	SP229.01	Positive	80 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	9/1/13	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP229	9/1/13
286	C3 exclusion zone	Bulk Excavation Area - Stockpile 230	ACM fragments found during excavation & stockpiling works	9/01/2013	2	SP230.01	Positive	45 mm	Subsequent to comprehensive visual inspections undertaken during the excavation and stockpiling works and confirmation sample analysis results, NAA has found ACM to be present. Stockpile to be removed as asbestos waste.	10/1/13	Stockpile Verification Certificate uploaded onto Pweb. Stockpiled material disposed of off site at a licensed waste facility by Theos Bros.	SP230	10/1/13

Appendix C

Soil and Groundwater Summary Tables

	SOIL REMEDIATION CRITERIA	
	Soil SSTC-X	
Chemicals of Potential Concern	mg/kg	Land Use Scenario
Benzene	380	Scenario 3
Cresols (Total)	3,100	Scenario 6
Dimethylphenol, 2,4-	36,000	Scenario 6
Lead	11,000	Scenario 6
TPH C ₁₀ -C ₁₆	19,000	Scenario 6
Trimethylbenzene, 1,2,4-	370	Scenario 3
CPAH**	130	Scenario 6
Asbestos ¹	0.05% w/w	Scenario 6

Notes:

All soil criteria in mg/kg

SSTC - Site Specific Target Criteria

TPH - Total Petroleum Hydrocarbons

CPAH= Sum of 8 carcinogenic PAH Compounds (Benz(a)anthracene Benzo(a)pyrene; Benzo(b)fluoranthene; Benzo(g,h,i)perylene; Benzo(k)fluoranthene; Chrysene; Dibenz(a,h)anthracene; Indeno(1,2,3-c,d)pyrene)

¹ Asbestos analysis to be conducted as per Schedule B2 of the NEPM (NEPC, 1999, as amended 2013)

Land Use Scenarios:

Scenario 3: Unpaved Public Domain / Open Space

Scenario 4: Paved Public Domain / Open Space

Scenario 6: Intrusive Maintenance Worker

	GROUNDWATER REMEDIATION CRITERIA	
		Groundwater SSTC-X
Chemicals of Potential Concern	mg/L	Land Use Scenario
Acenaphthylene	33	Scenario 6
Acenaphthene	35	Scenario 6
Ammonia	150	Scenario 6
Aniline	680	Scenario 6
Arsenic	140	Scenario 6
Barium	830	Scenario 6
Benzene	7.0	Scenario 6
Cadmium	110	Scenario 6
Cobalt	250	Scenario 6
Cresols (Total)	2.7	Scenario 6
Dimethylphenol, 2,4-	430	Scenario 6
Ethylbenzene	100	Scenario 6
Lead and compounds	630	Scenario 6
Manganese	27,000	Scenario 6
Methylnaphthalene, 2-	22	Scenario 6
Naphthalene	1.3	Scenario 6
Nickel	1,300	Scenario 6
Phenol	340	Scenario 6
Styrene	47	Scenario 6
Toluene	370	Scenario 6
TPH C ₆ -C ₁₀	560	Scenario 6
TPH >C ₁₀ -C ₁₆	12	Scenario 6
TPH >C ₁₆ -C ₃₄	130	Scenario 6
TPH >C ₃₄ -C ₄₀	853,000	Scenario 6
Trimethylbenzene, 1,2,4-	16	Scenario 6
Trimethylbenzene, 1,3,5-	26	Scenario 6

Notes:

All groundwater criteria in mg/L
 SSTC - Site Specific Target Criteria
 TPH - Total Petroleum Hydrocarbons
 CPAH= Sum of 8 carcinogenic PAH Compounds
 (Benz(a)anthracene Benzo(a) pyrene;
 Benzo(b)fluoranthene; Benzo(g,h,i)perylene;
 Benzo(k)fluoranthene; Chrysene;
 Dibenz(a,h)anthracene; Indeno(1,2,3-c,d)pyrene)

= an SSTC has not been determined for remediation purposes as the derived level is at least 10 times greater than saturation/ solubility limits

Land Use Scenarios:

Scenario 3: Unpaved Public Domain / Open Space
 Scenario 4: Paved Public Domain / Open Space
 Scenario 6: Intrusive Maintenance Worker

	TRH (NEPM, 2013)							TPH (NEPM , 1999)					Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	CPAH (TEF)*	PAHs (Sum of Total)	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	Acenaphthene
	TRH C6-C10	TRH C6-C10 less BTEX	TRH >C10-C16 less Naphthalene	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	C10 - C40 (Sum of total)	TPH C6 - C9	TRH C10-C14	TRH C15-C28	TRH C29-C36	TPH+C10 - C36 (Sum of total)									
EQL	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
NEPC 2013 HIL C - Recreational	10	10	50	50	100	100	50	2	50	100	100	50	0.5	0.5	0.5		300	0.5	0.5	0.5	0.1
CRC CARE 2011 HSL C - Direct Contact				3800	5300	7400															
Soil SSTC-X				19000										130		130					

Location	Field ID	Sample Depth	Date	Matrix	Type																					
AECOM BH39	BH39 0.15-0.25	0.15-0.25	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AECOM BH40	BH40 1.0-1.2	1-1.2	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AECOM BH46	BH46-1.0-1.2	1-1.2	23/02/2010	Fill	Normal	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	-	-	-	<1.21	<8	-	-	<0.5	
AECOM BH46	QC56	1-1.2	23/02/2010		Field_D	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	-	-	-	<1.21	<8	-	-	<0.5	
AECOM BH47	BH47-1.0-1.2	1-1.2	22/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AECOM BH60	BH60 0.17-0.27	0.17-0.27	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AECOM BH72	BH72 0.15-0.25	0.15-0.25	25/02/2010	Fill	Normal	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	-	-	-	-	-	-	-	<10	<50	<100	<100	<50	-	-	-	<1.11	<7	<0.5	<0.5	<0.5	
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH017	BH017 0.5-0.6	0.5-0.6	8/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH017	BH017 1.5-1.95	1.5-1.95	8/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH021	BH021 1.5-1.95	1.5-1.95	9/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH053	BH053-0.3-0.5	0.3-0.5	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH053	BH053-1.5-1.95	1.5-1.95	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	<100	<100	<250	-	-	-	<1.21	<8	-	-	<0.5	
BH054	BH054-1.5-1.6	1.5-1.6	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	<100	<100	<250	-	-	-	-	-	-	-	-	
BH064	BH064-1.5-1.95	1.5-1.95	1/06/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	<100	<100	<250	-	-	-	-	-	-	-	-	
BH076	BH076 0.3-0.5	0.3-0.5	6/06/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	<100	<100	<250	-	-	-	<1.21	<8	-	-	<0.5	
BH076	BH076 1.5-1.95	1.5-1.95	6/06/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	<100	<100	<250	-	-	-	0.06	2.9	-	-	<0.5	
BH116	BH116 1.5 1.95	1.5-1.95	28/06/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	350	410	760	-	-	-	-	-	-	-	-	
BH116	BH116 1.5 1.95	1.5-1.95	27/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	2.5	-	-	<0.5	
BH129	BH129 0.4-0.6	0.4-0.6	5/07/2006	Fill	Normal	-	-	-	-	-	-	-	<2	<50	<100	<100	<250	-	-	-	0.982	7.1	-	-	<0.5	
BH143	BH143 1.5 1.95	1.5-1.95	10/07/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH191	BH191 0 - 2.2	0-2.2	15/04/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH191	BH191 0.5 - 0.6	0.5-0.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH191	BH191 1.2 - 1.3	1.2-1.3	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH191	BH191 1.5 - 1.6	1.5-1.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH1C-205	BH1C 205 - 0.5-0.9m	0.5-0.9	11/12/2013	Fill	Normal	<10	<10	180	180	2500	640	3320	<10	90	1770	1140	3000	62.7	62.7	62.7	-	502	-	-	0.8	
BH1C-205	BH1C 205 - 1.1-1.5m	1.1-1.5	11/12/2013	Fill	Normal	<10	<10	<50	<50	260	110	370	<10	<50	160	150	310	4.9	5.2	4.7	-	41	-	-	<0.5	
BH1C-205	BH1C 205 - 1.4m	1.4	11/12/2013	Fill	Normal	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50	0.6	1.2	<0.5	-	<0.5	-	-	<0.5	
BH1C-206	BH1C 206 - 0.4-0.5m	0.4-0.5	11/12/2013	Fill	Normal	<10	<10	<50	<50	240	<100	240	<10	<50	160	130	290	2.2	2.4	1.9	-	13.7	-	-	<0.5	
BH1C-206	BH1C 206 - 1.1-45m	1-1.45	11/12/2013	Fill	Normal	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50	0.6	1.2	<0.5	-	<0.5	-	-	<0.5	
BH1C-207	BH1C 207 0.4-0.5	0.4-0.5	17/12/2013	Fill	Normal	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50	1.8	2.1	1.6	-	13.1	-	-	<0.5	
BH1C-207	BH1C 207 1-1.45	1-1.45	17/12/2013	Fill	Normal	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50	3.3	3.6	3	-	24.5	-	-	<0.5	
BH1C-207	DUP 1	0.4-0.5	17/12/2013	Fill	Field_D	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50	1.6	1.8	1.3	-	9.9	-	-	<0.5	
BH212	BH212 0 - 2.1	0-2.1	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH212	BH212 0.6 - 0.7	0.6-0.7	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH212	BH212 0.95 - 1.05	0.95-1.05	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH212	BH212 1.5 - 1.6	1.5-1.6	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH212	BH212 1.8 - 1.9	1.8-1.9	18/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH544D	BH544D	0.55-0.65	16/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	

Data Entry: KP
Data Review: AR
AECOM

	TRH (NEPM, 2013)							TPH (NEPM, 1999)														
	TRH C6-C10	TRH C6-C10 less BTEX	TRH >C10-C16 less Naphthalene	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	C10 - C40 (Sum of total)	TPH C6 - C9	TRH C10-C14	TRH C15-C28	TRH C29-C36	TPH+C10 - C36 (Sum of total)	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	CPAH (TEF)*	PAHs (Sum of Total)	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	Acenaphthene	
	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	10	10	50	50	100	100	50	2	50	100	100	50	0.5	0.5	0.5			0.5	0.5	0.5	0.1	
NEPC 2013 HIL C - Recreational																	300					
CRC CARE 2011 HSL C - Direct Contact				3800	5300	7400																
Soil SSTC-X				19000										130		130						

Location	Field ID	Sample Depth	Date	Matrix	Type																			
JBS BH544D	BH544D	0.9-1	16/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
JBS BH544D	BH544D	1.4-1.5	16/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
JBS BH544D	BH544D	1.9-2	16/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
JBS BH547	BH547	0.5	23/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7
JBS BH547	BH547	1	23/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1
JBS BH547	BH547	1.5	23/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6

Statistical Summary																					
Number of Results	8	8	8	8	8	8	8	19	19	19	19	19	8	8	8	8	16	1	1	1	23
Number of Detects	0	0	1	1	3	2	3	0	1	4	4	4	8	8	6	3	9	0	0	0	4
Minimum Concentration	<10	<10	<50	<50	<100	<100	<50	<2	<50	<100	<100	<50	0.6	1.2	<0.5	0.06	<0.5	<0.5	<0.5	<0.1	
Minimum Detect	ND	ND	180	180	240	110	240	ND	90	160	130	290	0.6	1.2	1.3	0.06	2.5	ND	ND	ND	0.6
Maximum Concentration	<10	<10	180	180	2500	640	3320	<10	90	1770	1140	3000	62.7	62.7	62.7	<1.21	502	<0.5	<0.5	<0.5	1.1
Maximum Detect	ND	ND	180	180	2500	640	3320	ND	90	1770	1140	3000	62.7	62.7	62.7	0.982	502	ND	ND	ND	1.1
Average Concentration	5	5	44	44	406	131	507	3.5	28	168	136	281	9.7	10	9.5	0.51	40				0.31
Median Concentration	5	5	25	25	50	50	25	5	25	50	50	125	2	2.25	1.75	0.605	4	0.25	0.25	0.25	0.25
Standard Deviation	0	0	55	55	851	207	1144	2	15	395	258	681	21	21	22	0.31	124				0.25
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

Notes:
mg/kg = milligrams per kilogram
*CPAH (TEF) summation of detected CPAH compounds x TEF, < denotes no detected CPAH compounds
TRH = Total recoverable hydrocarbons
TPH = Total petroleum hydrocarbons
SSTC - Site Specific Target Criteria
HIL = Health Investigation Level
HSL = Health Screening Level

	PAHs																	Phenols		Asbestos	
	Acenaphthylene	Acetophenone	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	2,4-dimethylphenol	Phenol	Asbestos fibres	weight of sample
	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	-	g
EQL	0.1	0.5	0.1	0.1	0.05	0.2	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.1	0.01
NEPC 2013 HIL C - Recreational																			40000		
CRC CARE 2011 HSL C - Direct Contact															1900						
Soil SSTC-X																		36000			

Location	Field ID	Sample Depth	Date	Matrix	Type																					
AECOM BH39	BH39 0.15-0.25	0.15-0.25	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 1.0-1.2	1-1.2	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-1.0-1.2	1-1.2	23/02/2010	Fill	Normal	<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	-	-
AECOM BH46	QC56	1-1.2	23/02/2010		Field D	<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	-	-
AECOM BH47	BH47-1.0-1.2	1-1.2	22/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	49.9
AECOM BH60	BH60 0.17-0.27	0.17-0.27	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 0.15-0.25	0.15-0.25	25/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 0.5-0.6	0.5-0.6	8/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 1.5-1.95	1.5-1.95	8/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH021	BH021 1.5-1.95	1.5-1.95	9/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH053	BH053-0.3-0.5	0.3-0.5	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH053	BH053-1.5-1.95	1.5-1.95	29/05/2006	Fill	Normal	<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	-	-	-	-
BH054	BH054-1.5-1.6	1.5-1.6	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH064	BH064-1.5-1.95	1.5-1.95	1/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH076	BH076 0.3-0.5	0.3-0.5	6/06/2006	Fill	Normal	<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	-	-	-	-
BH076	BH076 1.5-1.95	1.5-1.95	6/06/2006	Fill	Normal	<0.5	-	<0.5	<0.5	<0.5	-	0.6	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	0.5	0.9	-	-	-	-
BH116	BH116 1.5 1.95	1.5-1.95	28/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH116	BH116 1.5 1.95	1.5-1.95	27/06/2006	Fill	Normal	<0.5	-	<0.5	<0.5	<0.5	-	0.7	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	-	-
BH129	BH129 0.4-0.6	0.4-0.6	5/07/2006	Fill	Normal	<0.5	-	<0.5	0.8	0.8	-	0.9	0.5	<0.5	0.7	<0.5	1.4	<0.5	<0.5	<0.5	0.6	1.4	-	-	-	-
BH143	BH143 1.5 1.95	1.5-1.95	10/07/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 0 - 2.2	0-2.2	15/04/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 0.5 - 0.6	0.5-0.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 1.2 - 1.3	1.2-1.3	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 1.5 - 1.6	1.5-1.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 0.5-0.9m	0.5-0.9	11/12/2013	Fill	Normal	20.2	-	15.4	46.3	43.5	-	55.2	17.4	19.6	37.5	4.9	88	1.4	16.5	3 - 8.8	35	92	-	-	-	-
BH1C-205	BH1C 205 - 1.1-1.5m	1.1-1.5	11/12/2013	Fill	Normal	1.6	-	1.4	4	3.5	-	4.6	1.5	1.5	3.3	<0.5	6.9	<0.5	1.4	<1 - 0.8	3.5	7	-	-	-	-
BH1C-205	BH1C 205 - 1.4m	1.4	11/12/2013	Fill	Normal	<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	-	-	-	-
BH1C-206	BH1C 206 - 0.4-0.5m	0.4-0.5	11/12/2013	Fill	Normal	<0.5	-	<0.5	1.4	1.4	-	1.9	0.9	0.7	1.2	<0.5	2.1	<0.5	0.8	<0.5	1.1	2.2	-	-	-	-
BH1C-206	BH1C 206 - 1.1-45m	1-1.45	11/12/2013	Fill	Normal	<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	-	-	-	-
BH1C-207	BH1C 207 0.4-0.5	0.4-0.5	17/12/2013	Fill	Normal	0.7	-	<0.5	1.2	1.2	-	1.3	0.6	0.6	1.1	<0.5	2.5	<0.5	0.5	<0.5	0.8	2.6	-	-	-	-
BH1C-207	BH1C 207 1-1.45	1-1.45	17/12/2013	Fill	Normal	1	-	0.7	2.1	2.3	-	2.6	1.4	1.3	2	<0.5	4	<0.5	1.2	<0.5	1.6	4.3	-	-	-	-
BH1C-207	DUP 1	0.4-0.5	17/12/2013	Fill	Field D	0.5	-	<0.5	1.1	1	-	1.1	<0.5	0.6	0.9	<0.5	1.9	<0.5	<0.5	<0.5	0.9	1.9	-	-	-	-
BH212	BH212 0 - 2.1	0-2.1	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0.6 - 0.7	0.6-0.7	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0.95 - 1.05	0.95-1.05	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 1.5 - 1.6	1.5-1.6	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 1.8 - 1.9	1.8-1.9	18/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	0.55-0.65	16/05/2012	Fill	Normal	<0.1	-	0.1	0.3	0.3	0.4	-	0.2	-	0.3	<0.1	0.6	<0.1	0.2	<0.1	0.4	0.6	-	-	-	-

	PAHs																	Phenols		Asbestos	
	Acenaphthylene	Acetophenone	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	2,4-dimethylphenol	Phenol	Asbestos fibres	weight of sample
	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	-	g
EQL	0.1	0.5	0.1	0.1	0.05	0.2	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.1	0.01
NEPC 2013 HIL C - Recreational																			40000		
CRC CARE 2011 HSL C - Direct Contact															1900						
Soil SSTC-X																		36000			

Location	Field ID	Sample Depth	Date	Matrix	Type																					
JBS BH544D	BH544D	0.9-1	16/05/2012	Fill	Normal	0.1	-	0.2	0.8	0.99	1.2	-	0.6	-	0.6	0.1	1.6	<0.1	0.5	<0.1	0.8	1.7	-	-	-	-
JBS BH544D	BH544D	1.4-1.5	16/05/2012	Fill	Normal	<0.1	-	0.1	0.4	0.42	0.6	-	0.2	-	0.4	<0.1	0.8	<0.1	0.2	<0.1	0.5	0.9	-	-	-	-
JBS BH544D	BH544D	1.9-2	16/05/2012	Fill	Normal	<0.1	-	0.1	0.5	0.57	0.8	-	0.3	-	0.4	<0.1	1	<0.1	0.3	<0.1	0.5	1.1	-	-	-	-
JBS BH547	BH547	0.5	23/05/2012	Fill	Normal	5.8	-	7.3	16	18	26	-	7.4	-	15	2	31	3.6	8.7	2.8	21	29	-	-	-	-
JBS BH547	BH547	1	23/05/2012	Fill	Normal	8.7	-	11	24	30	37	-	10	-	22	2.8	64	5.9	12	4.2	33	61	-	-	-	-
JBS BH547	BH547	1.5	23/05/2012	Fill	Normal	5.7	-	7.4	17	19	27	-	7.5	-	16	2	31	3.6	8.7	2.8	21	31	-	-	-	-

Statistical Summary																					
Number of Results	23	1	23	23	23	8	15	23	15	23	23	23	23	23	23	23	23	4	4	1	1
Number of Detects	9	0	10	14	14	7	9	13	6	14	5	16	4	12	5	15	16	0	0	1	1
Minimum Concentration	<0.1	<0.5	0.1	0.3	0.3	0.4	<0.5	0.2	<0.5	0.3	<0.1	<0.5	<0.1	0.2	<0.1	0.4	<0.5	<0.5	<0.5	0	49.9
Minimum Detect	0.1	ND	0.1	0.3	0.3	0.4	0.6	0.2	0.6	0.3	0.1	0.6	1.4	0.2	2.8	0.4	0.6	ND	ND	ND	49.9
Maximum Concentration	20.2	<0.5	15.4	46.3	43.5	37	55.2	17.4	19.6	37.5	4.9	88	5.9	16.5	8.8	35	92	<0.5	<0.5	0	49.9
Maximum Detect	20.2	ND	15.4	46.3	43.5	37	55.2	17.4	19.6	37.5	4.9	88	5.9	16.5	8.8	35	92	ND	ND	ND	49.9
Average Concentration	2.1		2	5.1	5.4	12	4.7	2.2	1.8	4.5	0.68	10	0.8	2.3	0.87	5.4	10	0.25	0.25		
Median Concentration	0.25	0.25	0.25	0.5	0.57	1	0.7	0.25	0.25	0.4	0.25	1	0.25	0.25	0.25	0.5	1.1	0.25	0.25	0	49.9
Standard Deviation	4.6		4.1	11	11	16	14	4.3	4.9	9.4	1.2	23	1.5	4.5	1.5	11	23	0	0		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes:
 mg/kg = milligrams per kilogram
 *CPAH (TEF) summation of detected CPAH compounds x TEF, < denotes no detected CPAH compounds
 TRH = Total recoverable hydrocarbons
 TPH = Total petroleum hydrocarbons
 SSTC - Site Specific Target Criteria
 HIL = Health Investigation Level
 HSL = Health Screening Level

	BTEX						Metals														
	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Total Xylene	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	
	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	0.2	0.2	0.2	0.2	0.5	4	10	1	0.5	1	0.5	2	1	50	1	5	0.1	1	5	
NEPC 2013 HIL C - Recreational							300		90	90		300	300	17000		600	19000	80	1200		
CRC CARE 2011 HSL C - Direct Contact	120	5300	18,000			15,000															
Soil SSTC-X	380															11000					

Location	Field ID	Sample Depth	Date	Matrix	Type																				
AECOM BH39	BH39 0.15-0.25	0.15-0.25	18/02/2010	Fill	Normal	-	-	-	-	-	-	<5	20	<1	<1	2	-	13	247	-	6	819	<0.1	7	139
AECOM BH40	BH40 1.0-1.2	1-1.2	18/02/2010	Fill	Normal	-	-	-	-	-	-	<5	20	<1	<1	9	-	3	<5	-	10	181	<0.1	4	13
AECOM BH46	BH46 1.0-1.2	1-1.2	23/02/2010	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<5	270	<1	<1	20	-	5	7	-	11	285	<0.1	6	13
AECOM BH46	QC56	1-1.2	23/02/2010		Field D	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<5	300	<1	<1	11	-	5	5	-	12	352	<0.1	6	14
AECOM BH47	BH47 1.0-1.2	1-1.2	22/02/2010	Fill	Normal	-	-	-	-	-	-	<5	120	<1	<1	8	-	3	19	-	164	137	<0.1	4	21
AECOM BH60	BH60 0.17-0.27	0.17-0.27	24/02/2010	Fill	Normal	-	-	-	-	-	-	<5	30	<1	<1	16	-	39	106	-	<5	649	<0.1	149	28
AECOM BH72	BH72 0.15-0.25	0.15-0.25	25/02/2010	Fill	Normal	-	-	-	-	-	-	<5	70	<1	<1	19	-	36	77	-	<5	626	<0.1	117	47
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<1	<5	160	<1	<1	9	<0.5	4	14	10,600	446	214	<0.1	6	18
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 0.5-0.6	0.5-0.6	8/05/2006	Fill	Normal	-	-	-	-	-	-	<5	-	-	<1	5	-	-	150	-	30	-	<0.1	6	-
BH017	BH017 1.5-1.95	1.5-1.95	8/05/2006	Fill	Normal	-	-	-	-	-	-	<5	-	-	<1	35	-	-	49	-	21	-	<0.1	6	-
BH021	BH021 1.5-1.95	1.5-1.95	9/05/2006	Fill	Normal	-	-	-	-	-	-	<5	-	-	<1	22	-	-	24	-	70	-	0.1	21	-
BH053	BH053 0.3-0.5	0.3-0.5	29/05/2006	Fill	Normal	-	-	-	-	-	-	<5	-	-	<1	21	-	-	66	-	<5	-	<0.1	164	-
BH053	BH053 1.5-1.95	1.5-1.95	29/05/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	6	-	-	9	-	630	-	0.1	<2	-
BH054	BH054 1.5-1.6	1.5-1.6	29/05/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	8	-	-	6	-	24	-	<0.1	4	-
BH064	BH064 1.5-1.95	1.5-1.95	1/06/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	8	-	-	<5	-	118	-	<0.1	<2	-
BH076	BH076 0.3-0.5	0.3-0.5	6/06/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	15	-	-	44	-	12	-	<0.1	47	-
BH076	BH076 1.5-1.95	1.5-1.95	6/06/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	14	-	-	10	-	57	-	0.2	16	-
BH116	BH116 1.5 1.95	1.5-1.95	28/06/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	9	-	-	30	-	23	-	<0.1	4	-
BH116	BH116 1.5 1.95	1.5-1.95	27/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH129	BH129 0.4-0.6	0.4-0.6	5/07/2006	Fill	Normal	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<5	-	-	<1	16	-	-	ma	-	153	-	0.2	13	-
BH143	BH143 1.5 1.95	1.5-1.95	10/07/2006	Fill	Normal	-	-	-	-	-	-	<5	-	-	<1	8	-	-	11	-	6	-	<0.1	4	-
BH191	BH191 0 - 2.2	0-2.2	15/04/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 0.5 - 0.6	0.5-0.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 1.2 - 1.3	1.2-1.3	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 1.5 - 1.6	1.5-1.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 0.5-0.9m	0.5-0.9	11/12/2013	Fill	Normal	0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	20	-	-	39	-	287	-	0.6	30	-
BH1C-205	BH1C 205 - 1.1-1.5m	1.1-1.5	11/12/2013	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	12	-	-	25	-	77	-	<0.1	8	-
BH1C-205	BH1C 205 - 1.4m	1.4	11/12/2013	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	11	-	-	<5	-	16	-	<0.1	5	-
BH1C-206	BH1C 206 - 0.4-0.5m	0.4-0.5	11/12/2013	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	15	-	-	25	-	145	-	0.2	12	-
BH1C-206	BH1C 206 - 1.1-45m	1-1.45	11/12/2013	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	9	-	-	8	-	27	-	<0.1	<2	-
BH1C-207	BH1C 207 0.4-0.5	0.4-0.5	17/12/2013	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	15	-	-	14	-	24	-	<0.1	18	-
BH1C-207	BH1C 207 1-1.45	1-1.45	17/12/2013	Fill	Normal	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	16	-	-	22	-	61	-	<0.1	20	-
BH1C-207	DUP 1	0.4-0.5	17/12/2013	Fill	Field D	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	-	-	<1	17	-	-	24	-	20	-	<0.1	41	-
BH212	BH212 0 - 2.1	0-2.1	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0.6 - 0.7	0.6-0.7	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0.95 - 1.05	0.95-1.05	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 1.5 - 1.6	1.5-1.6	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 1.8 - 1.9	1.8-1.9	18/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	0.55-0.65	16/05/2012	Fill	Normal	-	-	-	-	-	-	<4	-	-	<0.5	8	-	-	14	-	36	-	<0.1	10	-

	BTEX						Metals														
	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Total Xylene	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	
	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	0.2	0.2	0.2	0.2	0.5	4	10	1	0.5	1	0.5	2	1	50	1	5	0.1	1	5	
NEPC 2013 HIL C - Recreational							300		90	90		300	300	17000		600	19000	80	1200		
CRC CARE 2011 HSL C - Direct Contact	120	5300	18,000			15,000															
Soil SSTC-X	380															11000					

Location	Field ID	Sample Depth	Date	Matrix	Type																				
JBS BH544D	BH544D	0.9-1	16/05/2012	Fill	Normal	-	-	-	-	-	-	<4	-	-	<0.5	13	-	-	18	-	66	-	<0.1	18	-
JBS BH544D	BH544D	1.4-1.5	16/05/2012	Fill	Normal	-	-	-	-	-	-	<4	-	-	<0.5	9	-	-	11	-	45	-	<0.1	5	-
JBS BH544D	BH544D	1.9-2	16/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH547	BH547	0.5	23/05/2012	Fill	Normal	-	-	-	-	-	-	<4	-	-	<0.5	14	-	-	55	-	67	-	0.1	11	-
JBS BH547	BH547	1	23/05/2012	Fill	Normal	-	-	-	-	-	-	7	-	-	<0.5	14	-	-	45	-	100	-	0.3	18	-
JBS BH547	BH547	1.5	23/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Statistical Summary																				
Number of Results	18	18	18	18	18	18	33	8	8	33	33	1	8	32	1	33	8	33	33	8
Number of Detects	1	0	0	0	0	0	1	8	0	0	33	0	8	29	1	30	8	8	30	8
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<4	20	<1	<0.5	2	<0.5	3	<5	10600	<5	137	<0.1	<2	13
Minimum Detect	0.4	ND	ND	ND	ND	ND	7	20	ND	ND	2	ND	3	5	10600	6	137	0.1	4	13
Maximum Concentration	0.4	<0.5	<0.5	<0.5	<0.5	<1	7	300	<1	<1	35	<0.5	39	247	10600	630	819	0.6	164	139
Maximum Detect	0.4	ND	ND	ND	ND	ND	7	300	ND	ND	35	ND	39	247	10600	630	819	0.6	164	139
Average Concentration	0.12	0.19	0.19	0.19	0.19	0.27	2.6	124	0.5	0.46	13		14	37		84	408	0.092	24	37
Median Concentration	0.1	0.25	0.25	0.25	0.25	0.25	2.5	95	0.5	0.5	13	0.25	5	20.5	10600	30	318.5	0.05	8	19.5
Standard Deviation	0.071	0.075	0.075	0.075	0.075	0.11	0.81	111	0	0.091	6.3		15	50		134	255	0.11	40	43
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

Notes:

mg/kg = milligrams per kilogram

*CPAH (TEF) summation of detected CPAH compounds x TEF, < denotes no detected CPAH compounds

TRH = Total recoverable hydrocarbons

TPH = Total petroleum hydrocarbons

SSTC - Site Specific Target Criteria

HIL = Health Investigation Level

HSL = Health Screening Level

	OCPs									OPPs	PCBs	SVOCs	VOCs
	Zinc	Aldrin + Dieldrin	DDT+DDE+DDD	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyrifos	Safrole	PCBs (Sum of total)	Pentachlorophenol	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene
	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	1			0.05	0.05	0.05	0.2	0.05	0.5	0.1	1		0.5
NEPC 2013 HIL C - Recreational	30000	10	400	20	10	10	400	250	700	1	120		
CRC CARE 2011 HSL C - Direct Contact													
Soil SSTC-X													370

Location	Field ID	Sample Depth	Date	Matrix	Type												
AECOM BH39	BH39 0.15-0.25	0.15-0.25	18/02/2010	Fill	Normal	52	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 1.0-1.2	1-1.2	18/02/2010	Fill	Normal	20	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-1.0-1.2	1-1.2	23/02/2010	Fill	Normal	29	-	-	-	-	-	-	-	-	<2	-	-
AECOM BH46	QC56	1-1.2	23/02/2010		Field D	34	-	-	-	-	-	-	-	-	<2	-	-
AECOM BH47	BH47-1.0-1.2	1-1.2	22/02/2010	Fill	Normal	177	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 0.17-0.27	0.17-0.27	24/02/2010	Fill	Normal	41	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 0.15-0.25	0.15-0.25	25/02/2010	Fill	Normal	50	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	165	<1	<2	<0.5	<0.5	<1	-	<0.5	<0.5	-	<1	<0.5
AECOM BH72	BH72 1.0-1.2	1-1.2	3/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 0.5-0.6	0.5-0.6	8/05/2006	Fill	Normal	71	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 1.5-1.95	1.5-1.95	8/05/2006	Fill	Normal	56	-	-	-	-	-	-	-	-	-	-	-
BH021	BH021 1.5-1.95	1.5-1.95	9/05/2006	Fill	Normal	65	-	-	-	-	-	-	-	-	-	-	-
BH053	BH053-0.3-0.5	0.3-0.5	29/05/2006	Fill	Normal	46	-	-	-	-	-	-	-	-	-	-	-
BH053	BH053-1.5-1.95	1.5-1.95	29/05/2006	Fill	Normal	172	-	-	-	-	-	-	-	-	-	-	-
BH054	BH054-1.5-1.6	1.5-1.6	29/05/2006	Fill	Normal	20	-	-	-	-	-	-	-	-	-	-	-
BH064	BH064-1.5-1.95	1.5-1.95	1/06/2006	Fill	Normal	39	-	-	-	-	-	-	-	-	-	-	-
BH076	BH076 0.3-0.5	0.3-0.5	6/06/2006	Fill	Normal	45	-	-	-	-	-	-	-	<0.1	-	-	-
BH076	BH076 1.5-1.95	1.5-1.95	6/06/2006	Fill	Normal	65	-	-	-	-	-	-	-	<0.1	-	-	-
BH116	BH116 1.5 1.95	1.5-1.95	28/06/2006	Fill	Normal	38	-	-	-	-	-	-	-	-	-	-	-
BH116	BH116 1.5 1.95	1.5-1.95	27/06/2006	Fill	Normal	-	<0.1	<0.3	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<2	-
BH129	BH129 0.4-0.6	0.4-0.6	5/07/2006	Fill	Normal	154	-	-	-	-	-	-	-	-	-	-	-
BH143	BH143 1.5 1.95	1.5-1.95	10/07/2006	Fill	Normal	18	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 0 - 2.2	0-2.2	15/04/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 0.5 - 0.6	0.5-0.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 1.2 - 1.3	1.2-1.3	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191 1.5 - 1.6	1.5-1.6	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 0.5-0.9m	0.5-0.9	11/12/2013	Fill	Normal	129	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 1.1-1.5m	1.1-1.5	11/12/2013	Fill	Normal	45	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 1.4m	1.4	11/12/2013	Fill	Normal	35	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 0.4-0.5m	0.4-0.5	11/12/2013	Fill	Normal	113	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 1.1-45m	1-1.45	11/12/2013	Fill	Normal	16	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 0.4-0.5	0.4-0.5	17/12/2013	Fill	Normal	49	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 1-1.45	1-1.45	17/12/2013	Fill	Normal	58	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	DUP 1	0.4-0.5	17/12/2013	Fill	Field D	52	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0 - 2.1	0-2.1	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0.6 - 0.7	0.6-0.7	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 0.95 - 1.05	0.95-1.05	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 1.5 - 1.6	1.5-1.6	14/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212 1.8 - 1.9	1.8-1.9	18/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	0.55-0.65	16/05/2012	Fill	Normal	46	-	-	-	-	-	-	-	-	-	-	-

	OCPs								OPPs		PCBs	SVOCs	VOCs
	Zinc	Aldrin + Dieldrin	DDT+DDE+DDD	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyrifos	Saflor	PCBs (Sum of total)	Pentachlorophenol	1,2,4-trichlorobenzene	1,2,4-trimethylbenzene
	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	1			0.05	0.05	0.05	0.2	0.05	0.5	0.1	1		0.5
NEPC 2013 HIL C - Recreational	30000	10	400	20	10	10	400	250	700	1	120		
CRC CARE 2011 HSL C - Direct Contact													
Soil SSTC-X													370

Location	Field ID	Sample Depth	Date	Matrix	Type												
JBS BH544D	BH544D	0.9-1	16/05/2012	Fill	Normal	120	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	1.4-1.5	16/05/2012	Fill	Normal	62	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	1.9-2	16/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	0.5	23/05/2012	Fill	Normal	44	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	1	23/05/2012	Fill	Normal	68	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	1.5	23/05/2012	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary

Number of Results	33	2	2	2	2	2	1	2	1	2	4	1
Number of Detects	33	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	16	<0.1	<0.3	<0.05	<0.05	<0.05	<0.2	<0.05	<0.5	<0.1	<1	<0.5
Minimum Detect	16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	177	<1	<2	<0.5	<0.5	<1	<0.2	<0.5	<0.5	<0.1	<2	<0.5
Maximum Detect	177	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	66										0.88	
Median Concentration	50	0.275	0.575	0.1375	0.1375	0.2625	0.1	0.1375	0.25	0.05	1	0.25
Standard Deviation	46										0.25	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

mg/kg = milligrams per kilogram

*CPAH (TEF) summation of detected CPAH compounds x TEF, < denotes no detected CPAH compounds

TRH = Total recoverable hydrocarbons

TPH = Total petroleum hydrocarbons

SSTC - Site Specific Target Criteria

HIL = Health Investigation Level

HSL = Health Screening Level

EOL	0.5	0.5	0.5		0.5	50	50	100	100	10	50	100	100	10									0.5	0.01	0.01	0.01	0.01	0.5	0.01	0.01	0.01	0.2	0.01	0.01
-----	-----	-----	-----	--	-----	----	----	-----	-----	----	----	-----	-----	----	--	--	--	--	--	--	--	--	-----	------	------	------	------	-----	------	------	------	-----	------	------

AECOM	BH39	BH39-11.5-11.7	11.5-11.7	24/02/2010	Fill	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	<1.21	<8	<8	<5	<3	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	
AECOM	BH39	BH39-16.0-16.2	16-16.2	24/02/2010	Fill	Normal	-	-	-	<4 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th><1.21</th> <th><8</th> <th><8</th> <th><5</th> <th><3</th> <th>-</th> <th>-</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th>	-	-	-	-	-	-	-	-	<1.21	<8	<8	<5	<3	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	
AECOM	BH39	BH39-2.5-2.7	2.5-2.7	23/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AECOM	BH39	BH39-20.5-20.7	20.5-20.7	24/02/2010	Fill	Normal	-	-	-	<3	<0.5	-	-	-	-	-	-	-	<1.11	<7	<7	<4	<3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	<0.5		
AECOM	BH39	BH39-4.0-4.2	4-4.2	24/02/2010	Fill	Normal	-	-	-	<4 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th><1.21</th> <th><8</th> <th><8</th> <th><5</th> <th><3</th> <th>-</th> <th>-</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th>	-	-	-	-	-	-	-	-	<1.21	<8	<8	<5	<3	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	
AECOM	BH39	BH39-7.0-7.2	7-7.2	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	
AECOM	BH39	QC101	16-16.2	24/02/2010		Field_D	-	-	-	<4 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th><1.21</th> <th>2</th> <th>2</th> <th>2</th> <th><3</th> <th>-</th> <th>-</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th>	-	-	-	-	-	-	-	-	<1.21	2	2	2	<3	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	
AECOM	BH39	QC102	16-16.2	24/02/2010		Interlab_D	-	-	-	<3 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th><1.11</th> <th><7</th> <th><7</th> <th><4</th> <th><3</th> <th>-</th> <th>-</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th><0.5</th> <th><0.5</th> <th><1</th> <th>-</th> <th><0.5</th>	-	-	-	-	-	-	-	-	<1.11	<7	<7	<4	<3	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<1	-	<0.5
AECOM	BH40	BH40_13.0-13.2	13-13.2	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
AECOM	BH40	BH40_16.5-16.7	16.5-16.7	18/02/2010	Natural Sandy Clay	Normal	-	-	-	25.8	<0.5	-	-	-	-	-	-	-	8.52	288.6	288.6	76.8	211.8	<0.5	28.6	<0.5	2.5	13.1	<0.5	10	8.4	6.8	6	-	2	
AECOM	BH40	BH40_17.8-18.0	17.8-18	18/02/2010	Natural Sandy Clay	Normal	-	-	-	<3	<0.5	-	-	-	-	-	-	-	<1.11	2.2	2.2	<4	2.2	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	-	<0.5	
AECOM	BH40	BH40_17.8-18.0	17.8-18	18/02/2010	Natural Sandy Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
AECOM	BH40	BH40_19.0-19.4	19-19.4	18/02/2010	Natural Sandy Clay	Normal	-	-	-	4.3 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>1.042</th> <th>35.3</th> <th>35.3</th> <th>11.5</th> <th>23.8</th> <th>-</th> <th>-</th> <th>-</th> <th><0.5</th> <th>2</th> <th>-</th> <th>2</th> <th>1.4</th> <th>0.8</th> <th>-</th> <th>0.9</th> <th><0.5</th>	-	-	-	-	-	-	-	-	1.042	35.3	35.3	11.5	23.8	-	-	-	<0.5	2	-	2	1.4	0.8	-	0.9	<0.5	
AECOM	BH40	BH40_7.0-7.2	7-7.2	18/02/2010	Fill	Normal	-	-	-	<4 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th><1.21</th> <th><8</th> <th><8</th> <th><5</th> <th><3</th> <th>-</th> <th>-</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th> <th><0.5</th> <th>-</th> <th><0.5</th> <th><0.5</th>	-	-	-	-	-	-	-	-	<1.21	<8	<8	<5	<3	-	-	-	<0.5	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	
AECOM	BH40	BH40_8.5-8.7	8.5-8.7	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
AECOM	BH40	QC54	8.5-8.7	18/02/2010		Field_D	-	-	-	<4 <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th>-</th> <th><1.21</th> <th><8</th> <th><8</th> <th><5</th> <th><3</th> <th>-</th> <th>-</th> <th>-</th>	-	-	-	-	-	-	-	-	<1.21	<8	<8	<5	<3	-	-	-										

26/05/2015
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Aecation	Field ID	Sample Depth	Date	Matrix	Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 11.5-11.7	11.5-11.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 16.0-16.2	16-16.2	2/03/2010	Natural Clayey Sand	Normal	-	-	-	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 17.5-17.7	17.5-17.7	2/03/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 17.5-17.7	17.5-17.7	2/03/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 19.0-19.2	19-19.2	2/03/2010	Natural Sandstone	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 2.5-2.7	2.5-2.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 20.5-20.7	20.5-20.7	2/03/2010	Natural Sandstone	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 7.0-7.2	7-7.2	2/03/2010	Fill	Normal	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
AECOM BH73	BH73 8.5-8.7	8.5-8.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH017	BH017 21.5-22	21.5-22	8/05/2006	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH017	BH017 3.0-3.45	3-3.45	8/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH021	BH021 16.0-16.5	16-16.5	9/05/2006	Natural Clayey Sand	Normal	-	-	-	21.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH053	BH053-3.0-3.25	3-3.25	29/05/2006	Fill	Normal	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH054	BH054-3.0-3.45	3-3.45	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH064	BH064-3.0-3.45	3-3.45	1/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH116	BH116 3.0 3.45	3-3.45	28/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH116	BH116 3.0 3.45	3-3.45	27/06/2006	Fill	Normal	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH129	BH129 12.5-1.3	12.5-13	3/07/2006	Natural Clayey Sand	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH129	BH129 3.0-3.45	3-3.45	3/07/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH143	BH143 3.0 3.45	3-3.45	10/07/2006	Fill	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH191	BH191/16.5	16.5	14/04/2008	Natural Clay	Normal	-	-	-	47.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH191	BH191/18.2	18.2	14/04/2008	Natural Clay	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH191	BH191/3.7	3.7	27/03/2008	Fill	Normal	-	-	-	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH191	BH191/5.6	5.6	11/04/2008	Fill	Normal	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-205	BH1C 205 - 12/12/13	12	12/12/2013		Normal	5	5.3	4.8	-	-	<50	<50	250	140	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-205	BH1C 205 - 3.4m	3.4	12/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-205	BH1C 205 - 5.2m	5.2	11/12/2013		Normal	2.1	2.4	1.8	-	-	<50	<50	130	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-205	BH1C 205 - 6.3m	6.3	12/12/2013		Normal	1.4	1.7	1.1	-	-	<50	<50	900	110	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-205	BH1C 205 - 7.0m	7	12/12/2013		Normal	3.9	4.2	3.7	-	-	<50	<50	220	130	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-205	BH1C 205 - 8.7-8.9m	8.7-8.9	12/12/2013		Normal	1	1.4	0.7	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 10- 10-3m	10-10.3	12/12/2013		Normal	67.5	67.5	67.5	-	-	190	130	1920	1020	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 2.2-2.7m	2.2-2.7	11/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	620	860	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 3.3-4.5m	3.3-4.5	11/12/2013		Normal	3.7	4	3.4	-	-	90	<50	550	460	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 4.4-4.5m	4.4-4.5	12/12/2013		Normal	47.6	47.6	47.6	-	-	120	70	1440	850	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 5-5.45m	5-5.45	12/12/2013		Normal	8.3	8.6	8.1	-	-	<50	<50	440	210	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 6.8-7.5 m	6.8-7.5	12/12/2013		Normal	4.2	4.5	4	-	-	<50	<50	220	130	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 8 - 8.3m	8-8.3	12/12/2013		Normal	21.1	21.1	21.1	-	-	100	<50	790	410	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-206	BH1C 206 - 9- 9.45m	9-9.45	12/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 10-10.45	10-10.45	18/12/2013		Normal	1	1.3	0.7	-	-	<50	<50	720	500	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 11-11.45	11-11.45	18/12/2013		Normal	9.8	9.8	9.8	-	-	140	90	740	330	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 2-2.45	2-2.45	17/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 3-3.45	3-3.45	17/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 4-4.45	4-4.45	17/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 6-6.45	6-6.45	17/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 7-7.45	7-7.45	17/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH1C-207	BH1C 207 8-8.45	8-8.45	17/12/2013		Normal	0.6	1.2	<0.5	-	-	<50	<50	<100	<100	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH212	BH212/12.2	12.2	28/03/2008	Fill	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH212	BH212/26.0	26	31/03/2008	Natural Sandy Clay	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH212	BH212/3.1	3.1	18/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH212	BH212/4.8	4.8	25/03/2008	Fill	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH212	D01 180308	3.1	18/03/2008	Fill	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	BH410 17.0-17.5	17-17.5	11/05/2011	Natural Silty Clay	Normal	-	-	-	46.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	BH410 2.0-2.2	2-2.2	10/05/2011	Fill	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	BH410 23.0-23.2	23-23.2	11/05/2011	Natural Sand	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	BH410 26.0-26.2	26-26.2	12/05/2011	Natural Sand	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	BH410 32.0-32.2	32-32.2	12/05/2011	Natural Clayey Sand	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	BH410 7.0-7.2	7-7.2	10/05/2011	Fill	Normal	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH410	QC639	17-17.5	11/05/2011	Natural Silty Clay	Normal	-	-	-	48.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
BH411	BH411 10.0-10.1	10-10.1	12/04/2011	Fill	Normal	-	-	-	3.93	-	-	-	-	-	<50	<100	<100	-	1.0194	11.55	11.55	7.94	3.61	-	0.08	<0.01	0.06	0.34	-	0.62	0.97	0.7	-	0.62	0.15
BH411	BH411 15.0-15.1	15-15.1	12/04/2011	Fill	Normal	-	-	-	<4	-	-	-	-	-	1330	1210	120	<10	<1.21	1.9	1.9	1.9	<3	-	-	-									

Table T4
Soil Analytical Results - Saturated

											4. TRH (NEPM 2010)				PAHs																	
	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	CPAH (ESDAT)	Pronamide	TRH >C10-C16 less Naphthalene (F2)	TRH C10-C14	TRH C15-C28	TRH C29-C36	TRH C6-C9	>C10 - C40 Fraction (sum)	>C16 - C34 Fraction	>C34 - C40 Fraction	TRH C6-C10 less BTEX (F1)	CPAH (TEF)	PAH (ESDAT TOTAL)	PAH (total, NSW Waste 2008)	Sum of 10 PAHs	Sum of 5 PAHs	2-chloronaphthalene	2-methylnaphthalene	3-methylcholanthrene	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b)&(k)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	
	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	0.5		0.5	50	50	100	100	10	50	100	100	10							0.5	0.01	0.01	0.01	0.01	0.5	0.01	0.01	0.2	0.01	0.01	

Location	Field ID	Sample Depth	Date	Matrix	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Statistical Summary																																	
Number of Results	22	22	22	77	11	22	22	22	22	22	11	11	11	29	77	77	77	77	77	12	24	16	103	103	12	103	103	103	19	84	103		
Number of Detects	22	22	13	37	0	5	3	13	12	0	3	3	3	0	37	45	45	44	40	0	7	0	31	38	0	45	52	49	9	45	37		
Minimum Concentration	0.6	1.2	<0.5	<0.08	<0.5	<50	<50	<100	<100	<10	<50	<100	<100	<10	<0.0242	0.01	0.01	0.01	<0.06	<0.5	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<1	<0.01	<0.01		
Minimum Detect	0.6	1.2	0.7	0.6	ND	90	70	130	110	ND	1330	1210	120	ND	0.06	0.01	0.01	0.01	0.6	ND	0.01	ND	0.01	0.09	ND	0.12	0.46	0.48	1.4	0.44	0.14		
Maximum Concentration	67.5	67.5	67.5	86.9	<0.5	190	130	1920	1020	<10	2290	1610	680	<10	19.535	653.8	653.8	187.8	466	<0.5	28.6	<0.5	6.3	44.2	<0.5	32.6	58.5	47.4	10	55.6	14.5		
Maximum Detect	67.5	67.5	67.5	86.9	ND	190	130	1920	1020	ND	2290	1610	680	ND	19.535	653.8	653.8	187.8	466	ND	28.6	ND	6.3	44.2	ND	32.6	58.5	47.4	10	55.6	14.5		
Average Concentration	8.3	8.6	8	14	0.25	48	35	427	257	5	544	436	162	5	3.3	64	64	28	35	0.25	1.5	0.19	0.79	2.8	0.25	3.2	4	3	2.3	4.1	1.3		
Median Concentration	1.2	1.55	0.9	2	0.25	25	25	220	120	5	25	50	50	5	0.605	4	4	2.5	1.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.46	0.25	0.5	0.55	0.25		
Standard Deviation	17	17	17	22	0	47	27	504	303	0	918	669	233	0	5.1	123	123	46	84	0	5.8	0.11	1.3	6.5	0	6	8.3	6.3	2.8	8.5	2.2		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

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[illegible]



Table T4
Soil Analytical Results - Saturated

												Phenols							TPH																
	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Polycyclic aromatic hydrocarbons EPA448	Pyrene	2,4-dimethylphenol	2-methylphenol	2-nitrophenol	3-&4-methylphenol	3-Methylphenol	4-chloro-3-methylphenol	4-methylphenol	4-nitrophenol	Phenol	Phenolics Total	TPH C15-C36	TPH C10 - C14	TPH C15-C28	TPH C29-C36	TPH C6 - C9	TPH+C10 - C36 (Sum of total)	C10 - C40 (Sum of total)	TRH >C10-C16	TRH >C16-C34	TRH C10-36 (Total)	TRH >C34-C40	TPH C6-C10		
EQL	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	50	100	100	2	mg/kg	50	mg/kg	50	100	50	100	10

Location	Field ID	Sample Depth	Date	Matrix	Type	3	5.5	<0.5	17	1.2	2.2	<1 - 1.1	-	5.4	-	17.7	-	-	-	-	-	-	1890	<50	1130	760	<10	1890	-	<50	-	-	-	-
BH411	QC632	18-18.1	13/04/2011	Natural Silty Clay	Field_D	-	2.4	0.4	4.1	0.1	1.7	0.1	-	1.1	-	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	11.9-12	16/05/2012		Normal	-	3.8	0.5	7.5	0.3	2.5	0.2	-	3.5	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	3.9-4	16/05/2012		Normal	-	0.7	<0.1	1.8	0.1	0.5	0.1	-	1.2	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	7	23/05/2012		Normal	-	0.8	<0.1	2.3	0.1	0.5	<0.1	-	1.5	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																																		
Number of Results	84	103	103	103	103	103	103	11	103	29	103	65	65	65	61	4	65	4	4	65	3	82	82	82	82	78	82	29	33	22	22	22	3	
Number of Detects	32	48	23	64	36	37	39	10	59	21	66	14	4	0	7	1	0	1	0	3	3	29	10	28	25	7	32	16	6	13	13	8	1	
Minimum Concentration	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	0	110	<50	<100	<100	<2	<50	<50	<50	<100	<50	<100	<10	
Minimum Detect	0.26	0.42	0.06	0.5	0.02	0.13	0.03	55.7	0.42	0.5	0.01	0.01	0.8	ND	0.6	0.02	ND	0.01	ND	0.02	0.7	110	60	130	110	12	110	160	70	160	130	150	22	
Maximum Concentration	22.3	48.3	4.4	91.2	38.6	14.5	256	654	88.3	617	92.7	5.9	3.9	<0.5	8.1	0.02	<0.5	0.01	<0.01	3.1	0.7	2600	760	1660	940	84	3040	3300	240	2520	3070	1100	22	
Maximum Detect	22.3	48.3	4.4	91.2	38.6	14.5	256	654	88.3	617	92.7	5.9	3.9	ND	8.1	0.02	ND	0.01	ND	3.1	0.7	2600	760	1660	940	84	3040	3300	240	2520	3070	1100	22	
Average Concentration	1.7	3.2	0.43	8.8	2.6	1.2	13	214	9.3	70	8.3	0.6	0.34	0.23	0.75	0.0088	0.23	0.0063	0.005	0.29	0.23	428	51	267	164	7.3	419	764	43	567	664	191	11	
Median Concentration	0.25	0.25	0.25	1	0.25	0.25	0.25	196	0.8	6.6	1	0.25	0.25	0.25	0.5	0.005	0.25	0.005	0.005	0.25	0	100	25	50	50	5	25	290	25	295	350	50	5	
Standard Deviation	3.4	6.6	0.57	16	6.5	2.1	41	215	18	140	15	1	0.51	0.059	1.1	0.0075	0.059	0.0025	0	0.37	0.4	617	103	404	225	10	691	955	46	678	835	260	9.8	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EQL																																						
		1. CAHs					BTEX						Cyanides	Metals																								
	TRH C6-C10	Tetrachloroethene	Trichloroethene	cis-1,2-dichloroethene	Vinyl chloride	Sum of BTEX	Total Xylene (ESDAT)	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Cyanide (WAD)	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	Zinc	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin						
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						
	10	0.5	0.5	0.5	1	0.2	0.5	0.2	0.2	0.2	0.2	0.2	1	4	10	1	0.5	1	0.5	2	1	50	1	5	0.1	1	5	1	0.05	0.05	0.05							

Location	Field ID	Sample Depth	Date	Matrix	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									</
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[illegible]



Table T4
Soil Analytical Results - Saturated

EQL	1. CAHs																																BTEX						Cyanides	Metals																	
	TRH C6-C10	Tetrachloroethene	Trichloroethene	cis-1,2-dichloroethene	Vinyl chloride	Sum of BTEX	Total Xylene (ESDAT)	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Cyanide (WAD)	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium (hexavalent)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	Zinc	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin																									
	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																									
	10	0.5	0.5	0.5	1	0.2	0.5	0.2	0.2	0.2	0.2	0.2	1	4	10	1	0.5	1	0.5	2	1	50	1	5	0.1	1	5	1	0.05	0.05	0.05																										

Location	Field ID	Sample Depth	Date	Matrix	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</
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Statistical Summary																																	
Number of Results	33	13	13	13	13	29	101	101	101	101	101	101	3	123	65	65	123	123	18	65	123	20	123	65	121	123	65	123	12	12	12	12	
Number of Detects	0	0	0	0	0	3	13	16	5	12	11	8	0	29	53	0	1	122	1	24	82	20	112	44	30	81	57	97	0	0	0	0	
Minimum Concentration	<10	<0.5	<0.5	<0.5	<5	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<1	6	<1	<0.1	<2	<0.5	<1	2	480	<5	<5	<0.05	1	<5	<5	<0.5	<0.5	<0.5	<1	
Minimum Detect	ND	ND	ND	ND	ND	0.8	0.5	0.3	0.5	0.6	0.5	0.8	ND	2	6	ND	1	2	1.4	1	2	480	5	5	0.1	1	6	5	ND	ND	ND	ND	
Maximum Concentration	<10	<0.5	<0.5	<0.5	<5	2.1	22.8	5.8	1.3	16.4	17.2	5.6	<1	38	290	<1	1	210	1.4	6	281	60600	764	214	6.2	27	116	1020	<0.5	<0.5	<0.5	<1	
Maximum Detect	ND	ND	ND	ND	ND	2.1	22.8	5.8	1.3	16.4	17.2	5.6	ND	38	290	ND	1	210	1.4	6	281	60600	764	214	6.2	27	116	1020	ND	ND	ND	ND	
Average Concentration	5	0.25	0.25	0.25	2.5	0.22	1.2	0.3	0.27	0.89	0.82	0.43	0.5	4.8	48	0.5	0.48	13	0.33	1.9	24	9849	90	72	0.29	4.8	20	85	0.25	0.25	0.25	0.5	
Median Concentration	5	0.25	0.25	0.25	2.5	0.1	0.5	0.1	0.25	0.25	0.25	0.25	0.5	2.5	20	0.5	0.5	9	0.25	1	8	6510	26	44	0.05	3	13	36	0.25	0.25	0.25	0.5	
Standard Deviation	0	0	0	0	0	0.42	3.2	0.81	0.14	2.7	2.4	0.8	0	6.3	61	0	0.11	20	0.27	1.4	39	13618	134	74	0.86	5	20	136	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EQL	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	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.5
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[illegible]

60310752_Table T4_Soil Sat__15May15_KP.xlsm

EQL	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	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.5
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60310752_Table T4_Soil Sat__15May15_KP.xlsm

Table T4
Soil Analytical Results - Saturated

	Organochlorine Pesticides																																			
	p-BHC	cis-Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	trans-chlordane	Azinophos methyl	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	cis-Isosafrole	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton			
EQL	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.2	mg/kg	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.2	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.5	mg/kg 0.5	mg/kg 0.5	mg/kg 0.5	mg/kg 0.05	mg/kg 0.05	mg/kg 0.05	mg/kg 0.5			

Location	Field ID	Sample Depth	Date	Matrix	Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	QC632	18-18.1	13/04/2011	Natural Silty Clay	Field D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	11.9-12	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	3.9-4	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	7	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	9	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																																	
Number of Results	12	1	12	12	12	12	12	12	12	12	12	1	1	12	12	12	12	1	1	1	0	0	11	12	11	8	1	1	1	12	12	12	1
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<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	99999	99999	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<1	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.25		0.25	0.25	0.44	0.94	0.25	0.25	0.25	0.25	0.25			0.25	0.25	0.25	0.42						0.25	0.25	0.25	0.25				0.25	0.25	0.25	
Median Concentration	0.25	0.25	0.25	0.25	0.5	1	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation	0		0	0	0.11	0.11	0	0	0	0	0			0	0	0	0.12						0	0	0	0				0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible]

AECOM	Field ID	Sample	Depth	Date	Matrix	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</
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EQ1	0.05	0.5	0.5	0.5	0.5	0.05	0.05	0.5	0.2	0.5	0.2	0.5	0.05	0.05	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.5	0.5	0.5	0.5	0.5	0.1	0.01	0.01	0.01	0.01	0.5	0.01	0.5
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[illegible]

60310752_Table T4_Soil Sat__15May15_KP.xlsm

Organophosphorous Pesticides																				PCBs																		
Ethion	Ethoprop	Ethyl methanesulfonate	Fenitrothion	Fensulfothion	Fenthion	Malathion	Methyl methanesulfonate	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Phorate	Pirimphos-ethyl	Prothiotos	Ronnel	Safrole	Stirophos	trans-Isosafrole	Trichloronate	PCBs (Sum of total)	1,2,4,5-tetrachlorobenzene	1,3,5-Trichlorobenzene	1,3,5-Trinitrobenzene	1,4-dinitrobenzene	1-naphthylamine	2-(acetylamino) fluorene	2,3,4,6-tetrachlorophenol	2,4,5-trichlorophenol	2,4,6-trichlorophenol	2,4-dichlorophenol	2,4-Dinitrotoluene	2,6-dichlorophenol	2,6-dinitrotoluene						
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	0.05	0.5	0.5	0.5	0.5	0.05	0.05	0.5	0.2	0.5	0.2	0.5	0.05	0.05	0.5	0.5	0.5	0.5	0.5	0.1	0.5	0.5	0.5	0.5	0.5	0.1	0.01	0.01	0.01	0.01	0.01	0.5	0.01	0.5				
Location	Field ID	Sample Depth	Date	Matrix	Type																																	
BH411	QC632	18-18.1	13/04/2011	Natural Silty Clay	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
JBS BH544D	BH544D	11.9-12	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
JBS BH544D	BH544D	3.9-4	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
JBS BH547	BH547	7	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
JBS BH547	BH547	9	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Statistical Summary						11	1	9	1	1	12	12	9	1	1	0	1	11	12	1	9	1	8	1	3	9	8	11	1	12	16	13	65	65	65	12	62	12
Number of Results						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Detects						<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	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.01	<0.01	<0.01	<0.5	<0.01	<0.5	
Minimum Concentration						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Minimum Detect						<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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1				
Maximum Concentration						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Detect						0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.25	0.25	0.25	0.25	0.25	0.2	0.17	0.23	0.23	0.23	0.44	0.23	0.44			
Average Concentration						0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.25	0.5				
Median Concentration						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Standard Deviation						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.089	0.12	0.059	0.059	0.059	0.11	0.061	0.11				
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Data Entry:
Data Review:
AECOM

Data Entry:
Data Review:
AECOM



Table T4
Soil Analytical Results - Saturated

					SVOCs																																			
					2-chlorophenol	Methyl Ethyl Ketone	2-hexanone (MBK)	2-naphthylamine	2-nitroaniline	2-Picoline	3,3-Dichlorobenzidine	3-nitroaniline	4-(dimethylamino) azobenzene	4-aminobiphenyl	4-bromophenyl phenyl ether	4-chloroaniline	4-chlorophenyl phenyl ether	4-nitroaniline	4-Nitroquinoline-N-oxide	2-methyl-5-nitroaniline	7,12-dimethylbenz(a)anthracene	Aniline	Azobenzene	Benzo(e)pyrene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl) ether	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Carbazole	Chlorobenzilate	Coronene	Dibenzofuran	Diethylphthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate		
					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	mg/kg	mg/kg
EQL					0.01	5	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	0.01	0.5	1	0.01	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.01	0.5	0.5	0.5	0.5	0.5
Location	Field ID	Sample Depth	Date	Matrix	Type																																			
BH411	QC632	18-18.1	13/04/2011	Natural Silty Clay	Field D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH544D	BH544D	11.9-12	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	3.9-4	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	7	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	9	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																																								
Number of Results						65	12	12	1	12	11	11	12	12	12	12	12	12	11	12	16	12	12	4	1	12	1	12	12	12	12	11	4	19	12	12	12	12		
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	2	5	0	0	0	0		
Minimum Concentration						<0.01	<5	<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	<0.01	<0.5	<0.5	<0.01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.5	<0.5	<0.5	<0.5	<0.5		
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.28	ND	ND	ND	ND	ND	ND	3.9	ND	0.02	0.5	ND	ND	ND	ND	
Maximum Concentration						<0.5	<5	<5	<0.5	<1	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	0.4	<0.5	<0.5	<0.5	<5	<0.5	5.3	<0.5	0.02	8.9	<0.5	<0.5	<0.5	<0.5		
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	ND	ND	ND	ND	5.3	ND	0.02	8.9	ND	ND	ND	ND	
Average Concentration						0.23	2.5	2.5		0.44	0.25	0.25	0.44	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.19	0.25	0.48	0.17		0.25		0.25	1.9	0.25	0.98	0.25	0.013	1.1	0.25	0.25	0.25	0.25		
Median Concentration						0.25	2.5	2.5	0.25	0.5	0.25	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.1425	0.25	0.25	0.25	2.5	0.25	0.25	0.25	0.0125	0.25	0.25	0.25	0.25	0.25		
Standard Deviation						0.059	0	0		0.11	0	0	0.11	0	0	0	0	0	0	0	0	0.11	0	0.072	0.2		0		0	1	0	1.7	0	0.0087	2.2	0	0	0	0	
Number of Guideline Exceedances						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

[illegible][illegible]

60310752_Table T4_Soil Sat__15May15_KP.xlsm

[illegible]

AECOM	BH73	BH73 11.5-11.7	11.5-11.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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60310752_Table T4_Soil Sat__15May15_KP.xlsm



Table T4
Soil Analytical Results - Saturated

EQL	Diphenylamine	EPN	Hexachlorocyclopentadiene	Hexachloroethane	Hexachlorophene	Hexachloropropene	Isosafrole	Methapyrilene	Nitrobenzene	N-Nitrosodiphenyl & Diphenylamine	N-nitrosodiethylamine	N-nitrosodi-n-butylamine	N-nitrosodi-n-propylamine	N-Nitrosomethylethylamine	N-nitrosomorpholine	N-nitrosopiperidine	N-nitrosopyrrolidine	2-methylaniline	Pentachlorobenzene	Pentachloronitrobenzene	Pentachlorophenol	Perylene	Phenacetin	1,1,1,1,2-tetrachloroethane	1,1,1,1-trichloroethane	1,1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichlorobenzene	1,2,3-trichloropropane	1,2,4-trichlorobenzene
	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

Location	Field ID	Sample Depth	Date	Matrix	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Statistical Summary																																	
Number of Results	1	1	12	12	4	12	1	11	12	11	12	12	12	11	12	12	12	1	12	12	65	4	12	13	13	13	13	13	13	13	13	13	12
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.01	<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	<0.01	<0.01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<2.5	<0.5	<0.01	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<2	0.17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration			0.98	0.25	0.005	0.25		0.25	0.25	0.43	0.25	0.25	0.25	0.25	0.25	0.25	0.44		0.25	0.25	0.82	0.075	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Median Concentration	0.25	0.25	1.25	0.25	0.005	0.25	0.25	0.25	0.25	0.5	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.25	0.25	0.25	1	0.0625	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Standard Deviation			0.45	0	0	0		0	0	0.12	0	0	0	0	0	0	0.11		0	0	0.3	0.083	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Data Entry:
Data Review:
AECOM

Data Entry:
Data Review:
AECOM

Table T4
Soil Analytical Results - Saturated

VOCs																																		
	1,2,4-trimethylbenzene	1,2-dibromo-3-chloropropane	1,2-dibromoethane	1,2-dichlorobenzene	1,2-dichloroethane	1,2-dichloropropane	1,3,5-trimethylbenzene	1,3-dichlorobenzene	1,3-dichloropropane	1,4-dichlorobenzene	2,2-dichloropropane	2-chlorotoluene	4-chlorotoluene	4-Methyl-2-pentanone	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,3-dichloropropene	cis-1,4-Dichloro-2-butene	Cyclohexane	Dibromomethane	Dichlorodifluoromethane	Hexachlorobutadiene	Iodomethane	
	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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5	0.5	1	0.5	0.5	1	0.5	0.5	0.5	0.5	1	0.5	1	0.5	0.5	1	0.5	1	0.5	0.5	
Location	Field ID	Sample Depth	Date	Matrix	Type																													
BH411	QC632	18-18.1	13/04/2011	Natural Silty Clay	Field D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH544D	BH544D	11.9-12	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH544D	BH544D	3.9-4	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH547	BH547	7	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
JBS BH547	BH547	9	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Statistical Summary																																		
Number of Results	13	13	7	12	13	13	13	12	13	12	13	13	13	12	13	0	13	13	13	13	13	13	13	13	13	13	13	12	0	13	13	12	12	
Number of Detects	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<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	<5	<0.5	99999	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	99999	<0.5	<5	<0.5	<0.5	
Minimum Detect	1.3	ND	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	7.5	<0.5	<0.5	<0.5	<0.5	<0.5	3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	0	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	0	<0.5	<5	<0.5	<0.5	
Maximum Detect	7.5	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	1.3	0.25	0.25	0.25	0.25	0.25	0.68	0.25	0.25	0.25	0.25	0.25	0.25	2.5	0.25		0.25	0.25	2.5	0.25	0.25	0.25	0.25	2.5	0.25	2.5	0.25	0.25		0.25	2.5	0.25	0.25	
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	0.25		0.25	0.25	2.5	0.25	0.25	0.25	0.25	2.5	0.25	2.5	0.25	0.25		0.25	2.5	0.25	0.25	
Standard Deviation	2.4	0	0	0	0	0	0.97	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table T4
Soil Analytical Results - Saturated

EQ	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
EQ	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	1	5

Location	Field ID	Sample Depth	Date	Matrix	Type													
AECOM BH39	BH39-11.5-11.7	11.5-11.7	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH39	BH39-16.0-16.2	16-16.2	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH39	BH39-2.5-2.7	2.5-2.7	23/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH39	BH39-20.5-20.7	20.5-20.7	24/02/2010	Fill	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH39	BH39-4.0-4.2	4-4.2	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH39	BH39-7.0-7.2	7-7.2	24/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH39	QC101	16-16.2	24/02/2010		Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH39	QC102	16-16.2	24/02/2010		Interlab D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 13.0-13.2	13-13.2	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 16.5-16.7	16.5-16.7	18/02/2010	Natural Sandy Clay	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.7	<0.5	<0.5	<0.5	<5	<5
AECOM BH40	BH40 17.8-18.0	17.8-18	18/02/2010	Natural Sandy Clay	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<5	<5
AECOM BH40	BH40 17.8-18.0	17.8-18	18/02/2010	Natural Sandy Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 19.0-19.4	19-19.4	18/02/2010	Natural Sandy Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 7.0-7.2	7-7.2	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	BH40 8.5-8.7	8.5-8.7	18/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH40	QC54	8.5-8.7	18/02/2010		Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-14.5-14.7	14.5-14.7	23/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-19.0-19.2	19-19.2	23/02/2010	Natural Clayey Sand	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH46	BH46-19.0-19.2	19-19.2	23/02/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-20.5-20.7	20.5-20.7	23/02/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-23.5-23.7	23.5-23.7	23/02/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-4.0-4.2	4-4.2	23/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	BH46-7.0-7.2	7-7.2	23/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	QC57	7-7.2	23/02/2010		Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH46	QC58	7-7.2	23/02/2010		Interlab D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH47	BH47-10.0-10.2	10-10.2	22/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH47	BH47-13.0-13.2	13-13.2	22/02/2010	Fill	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH47	BH47-18.6-18.8	18.6-18.8	22/02/2010	Natural Sandstone	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH47	BH47-4.0-4.2	4-4.2	22/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH47	BH47-8.5-8.7	8.5-8.7	22/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH47	QC74	18.6-18.8	22/02/2010		Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH47	QC75	18.6-18.8	22/02/2010		Interlab D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 11.5-11.7	11.5-11.7	4/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 13.0-13.2	13-13.2	5/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 14.5-15.0	14.5-15	5/03/2010	Fill	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH56	BH56 17.5-17.8	17.5-17.8	5/03/2010	Natural Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 2.5-2.7	2.5-2.7	4/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 20.5-20.9	20.5-20.9	5/03/2010	Natural Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 21.4-21.6	21.4-21.6	5/03/2010	Natural Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 4.25-4.6	4.25-4.6	4/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	BH56 7.0-7.2	7-7.2	4/03/2010	Fill	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH56	BH56 7.0-7.2	7-7.2	4/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH56	QC125	14.5-15	5/03/2010		Field D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH56	QC126	14.5-15	5/03/2010		Interlab D	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH57	BH57 11.5-11.7	11.5-11.7	25/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH57	BH57 16.5-16.7	16.5-16.7	25/02/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH57	BH57 4.0-4.2	4-4.2	25/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH57	BH57 7.0-7.2	7-7.2	25/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH57	BH57 7.0-7.2	7-7.2	25/02/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 13.0-13.4	13-13.4	1/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 16.0-16.4	16-16.4	1/03/2010	Natural Sandy Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 16.0-16.4	16-16.4	1/03/2010	Natural Sandy Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 17.5-17.7	17.5-17.7	2/03/2010	Natural Silty Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 2.5-2.9	2.5-2.9	1/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 20.5-20.9	20.5-20.9	2/03/2010	Natural Sand	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH60	BH60 20.5-20.9	20.5-20.9	2/03/2010	Natural Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 7.0-7.2	7-7.2	1/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	BH60 8.5-8.9	8.5-8.9	1/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	QC110	7-7.2	1/03/2010		Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	QC120	17.5-17.7	2/03/2010		Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH60	QC121	17.5-17.7	2/03/2010		Interlab D	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 13.0-13.2	13-13.2	3/03/2010	Natural Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 16.0-16.2	16-16.2	4/03/2010	Natural Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 19.0-19.2	19-19.2	4/03/2010	Natural Clay	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH72	BH72 19.0-19.2	19-19.2	4/03/2010	Natural Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 2.5-2.7	2.5-2.7	3/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 20.5-20.7	20.5-20.7	4/03/2010	Natural Sandstone	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH72	BH72 5.5-5.7	5.5-5.7	3/03/2010	Fill	Normal	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5

Table T4
Soil Analytical Results - Saturated

						Isophorone	Isopropylbenzene	n-butylbenzene	n-propylbenzene	Pentachloroethane	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Vinyl acetate
						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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	5
Location	Field ID	Sample Depth	Date	Matrix	Type														
AECOM BH73	BH73 11.5-11.7	11.5-11.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 16.0-16.2	16-16.2	2/03/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 17.5-17.7	17.5-17.7	2/03/2010	Natural Clayey Sand	Normal	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.2	<0.5	<0.5	<0.5	<0.5	<5	<5
AECOM BH73	BH73 17.5-17.7	17.5-17.7	2/03/2010	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 19.0-19.2	19-19.2	2/03/2010	Natural Sandstone	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 2.5-2.7	2.5-2.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 20.5-20.7	20.5-20.7	2/03/2010	Natural Sandstone	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 7.0-7.2	7-7.2	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AECOM BH73	BH73 8.5-8.7	8.5-8.7	2/03/2010	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 21.5-22	21.5-22	8/05/2006	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH017	BH017 3.0-3.45	3-3.45	8/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH021	BH021 16.0-16.5	16-16.5	9/05/2006	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH053	BH053-3.0-3.25	3-3.25	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH054	BH054-3.0-3.45	3-3.45	29/05/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH064	BH064-3.0-3.45	3-3.45	1/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH116	BH116 3.0 3.45	3-3.45	28/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH116	BH116 3.0 3.45	3-3.45	27/06/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH129	BH129 12.5-1.3	12.5-13	3/07/2006	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH129	BH129 3.0-3.45	3-3.45	3/07/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH143	BH143 3.0 3.45	3-3.45	10/07/2006	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191/16.5	16.5	14/04/2008	Natural Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191/18.2	18.2	14/04/2008	Natural Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191/3.7	3.7	27/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH191	BH191/5.6	5.6	11/04/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 12/12/13	12	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 3.4m	3.4	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 5.2m	5.2	11/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 6.3m	6.3	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 7.0m	7	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-205	BH1C 205 - 8.7-8.9m	8.7-8.9	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 10- 10-3m	10-10.3	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 2.2-2.7m	2.2-2.7	11/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 3.3-4.5m	3.3-4.5	11/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 4.4-4.5m	4.4-4.5	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 5-5.45m	5-5.45	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 6.8-7.5 m	6.8-7.5	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 8 - 8.3m	8-8.3	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-206	BH1C 206 - 9- 9.45m	9-9.45	12/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 10-10.45	10-10.45	18/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 11-11.45	11-11.45	18/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 2-2.45	2-2.45	17/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 3-3.45	3-3.45	17/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 4-4.45	4-4.45	17/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 6-6.45	6-6.45	17/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 7-7.45	7-7.45	17/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1C-207	BH1C 207 8-8.45	8-8.45	17/12/2013		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212/12.2	12.2	28/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212/26.0	26	31/03/2008	Natural Sandy Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212/3.1	3.1	18/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	BH212/4.8	4.8	25/03/2008	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH212	D01 180308	3.1	18/03/2008	Fill	Field_D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	BH410 17.0-17.5	17-17.5	11/05/2011	Natural Silty Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	BH410 2.0-2.2	2-2.2	10/05/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	BH410 23.0-23.2	23-23.2	11/05/2011	Natural Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	BH410 26.0-26.2	26-26.2	12/05/2011	Natural Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	BH410 32.0-32.2	32-32.2	12/05/2011	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	BH410 7.0-7.2	7-7.2	10/05/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH410	QC639	17-17.5	11/05/2011	Natural Silty Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 10.0-10.1	10-10.1	12/04/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 15.0-15.1	15-15.1	12/04/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 18.0-18.1	18-18.1	12/04/2011	Natural Silty Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 19.0-19.1	19-19.1	12/04/2011	Natural Silty Clay	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 2.0-2.1	2-2.1	12/04/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 23.0-23.1	23-23.1	12/04/2011	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 26.0-26.1	26-26.1	12/04/2011	Natural Clayey Sand	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 3.1-3.2	3.1-3.2	12/04/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 4.0-4.1	4-4.1	12/04/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH411	BH411 8.0-8.1	8-8.1	12/04/2011	Fill	Normal	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table T4
Soil Analytical Results - Saturated

	Isophorone	Isopropylbenzene	n-butylbenzene	n-propylbenzene	Pentachloroethane	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	trans-1,4-Dichloro-2-butene	Trichlorofluoromethane	Vinyl acetate
	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
EQI	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	5

Location	Field ID	Sample Depth	Date	Matrix	Type													
BH411	QC632	18-18.1	13/04/2011	Natural Silty Clay	Field D	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	11.9-12	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH544D	BH544D	3.9-4	16/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	7	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-
JBS BH547	BH547	9	23/05/2012		Normal	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary															
Number of Results	12	13	13	13	13	13	13	13	13	13	13	13	12	13	13
Number of Detects	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
Minimum Concentration	<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	<5	<5
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	0.9	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.7	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	6.7	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	0.25	0.25	0.25	0.25	0.25	2.5	2.5
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	2.5	2.5
Standard Deviation	0	0	0	0	0	0	0	1.9	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Table T5:
Site wide Asbestos Analytical Results

Crown RAP Addendum
ORWN Area, Barangaroo
Crown Sydney Property Ltd Pty

		Consultant	ERM	AECOM	AECOM	AECOM	AECOM	AECOM	AECOM	Coffey	Coffey
		Field_ID	BH191/5.6	BH47-1.0-1.2	BH47-10.0-10.2	BH48-11.5-11.7	BH56_4.25-4.6	BH60_8.5-8.9	BH73_8.5-8.7	BH1C_204_1-1.2M	BH1C_204_2.2-2.4M
		LocCode	BH191	BH47	BH47	BH48	BH56	BH60	BH73	BH1C_204	BH1C_204
		Sample_Depth_Range	5.6	1-1.2	10-10.2	11.5-11.7	4.25-4.6	8.5-8.9	8.5-8.7	1-1.2	2.2-2.4
		Sampled_Date-Time	04/11/2008	22/02/2010	22/02/2010	23/02/2010	04/03/2010	01/03/2010	02/03/2010	13/01/2014	13/01/2014
		Sample_Details	Saturated	Unsaturated	Saturated	Saturated	Saturated	Saturated	Saturated	Unsaturated	Saturated
Method_Type	ChemName	Detected									
Asbestos Identification in bulk solids	Asbestos	Yes/No	No	No	Yes	No	No	No	No	No	No
Asbestos Type			-	-	Am and UMF	UMF	UMF	-	-	-	-
Comments			-	-	No description provided	-	-	-	-	-	-

Notes
UMF = Unidentified Mineral Fibres
Am = Amosite (brown asbestos)
Ch = Chrysotile (white asbestos)
Yes = asbestos detected
No = asbestos not detected
ACM = Asbestos Cement Sheeting
* - reported adjacent to the Site and considered indicative of Site materials



Table T5:
Site wide Asbestos Analytical Results

Crown RAP Addendum
ORWN Area, Barangaroo
Crown Sydney Property Ltd Pty

		Consultant	Coffey	Coffey	Coffey	Coffey	Coffey	Coffey	Coffey	Coffey
		Field ID	BH1C_204_2.4M	BH1C_204_3.2-3.4M	BH1C_204_3.2M	BH1C_204_5.0-5.2M	BH1C_204_5.0M	BH1C_204_7.4M	BH1C_204_8.2-8.4M	BH1C_204_8.2M
		LocCode	BH1C_204	BH1C_204	BH1C_204	BH1C_204	BH1C_204	BH1C_204	BH1C_204	BH1C_204
		Sample Depth Range	2.4	3.2-3.4	3.2	5-5.2	5	7.4	8.2-8.4	8.2
		Sampled Date-Time	13/01/2014	13/01/2014	13/01/2014	13/01/2014	13/01/2014	13/01/2014	13/01/2014	13/01/2014
		Sample Details	Saturated	Saturated	Saturated	Saturated	Saturated	Saturated	Saturated	Saturated
Method_Type	ChemName	Detected								
Asbestos Identification in bulk solids	Asbestos	Yes/No	No	Yes	Yes	No	No	Yes	Yes	Yes
Asbestos Type			-	Ch	Ch + Am	-	-	Ch + Am	Ch	Ch
Comments			-	Several small pieces of ACM	One small piece of ACM	-	-	Several friable asbestos fibre bundles	Several small pieces of ACM	Several small pieces of ACM

Notes
UMF = Unidentified Mineral Fibres
Am = Amosite (brown asbestos)
Ch = Chrysotile (white asbestos)
Yes = asbestos detected
No = asbestos not detected
ACM = Asbestos Cement Sheeting
* - reported adjacent to the Site and considered indicative of Site materials

Table T5:
Site wide Asbestos Analytical Results

		Consultant	Coffey	Coffey	Coffey	Coffey
		Field_ID	BH1C_204_10.2-10.4M	BH1C_204_10.4M	BH1C_204_11.3-11.4M	BH1C_204_11.4M
		LocCode	BH1C_204	BH1C_204	BH1C_204	BH1C_204
		Sample_Depth_Range	10.2-10.4	10.4	11.3-11.4	11.4
		Sampled_Date-Time	13/01/2014	13/01/2014	13/01/2014	13/01/2014
		Sample_Details	Saturated	Saturated	Saturated	Saturated
Method_Type	ChemName	Detected				
Asbestos Identification in bulk solids	Asbestos	Yes/No	Yes	Yes	No	No
Asbestos Type			Ch	Ch + Am	-	-
Comments			Several small pieces of ACM	One small piece of ACM	-	-

Notes

UMF = Unidentified Mineral Fibres

Am = Amosite (brown asbestos)

Ch = Chrysotile (white asbestos)

Yes = asbestos detected

No = asbestos not detected

ACM = Asbestos Cement Sheeting

* - reported adjacent to the Site and considered indicative of Site materials

Field_ID	IT04S	IT04S	QC644	QC645	IT04M	IT04M	IT04D	IT04D	IT05S	IT05S	IT05M	IT05M	IT05D	QC643	IT05D	IT1_SHALLOW	IT1_MID	QC331
Sample_Type	Normal	Normal	Field_D	Interlab_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Normal	Normal	Normal	Field_D
RAP_Site_Area	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A	Area A/C	Area A/C	Area A/C
Location_Code	BH410	BH410	BH410	BH410	BH410	BH410	BH410	BH410	BH411	BH411	BH411	BH411	BH411	BH411	BH411	AECOM_IT1	AECOM_IT1	AECOM_IT1
Sampled_Date_Time	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	19/05/2011	25/03/2010	24/03/2010	24/03/2010

Chem_Group	ChemName	Units	EQL	MWQC	Groundwater SSTC-X																		
TRH (NEPM 1999)	TRH C6-C9	mg/L	0.02		560	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	0.09	0.03	<0.02	<0.02	<0.02	
	TRH C10-C14	mg/L	0.05		12	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	0.12	<0.05	<0.05	0.1	0.14	
	TRH C15-C28	mg/L	0.1		130	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	0.95	
	TRH C29-C36	mg/L	0.05		853,000	<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	0.45	0.34	
	TRH C10-36 (Total)	mg/L	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	1.45	1.43	
PAHs	1-Methylnaphthalene	mg/L	0.0001			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2-chloronaphthalene	µg/L	0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.9	<1	<1	
	2-methylnaphthalene	µg/L	0.1	2.1	22,000	<0.1	<0.1	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.3	1	0.1	<0.9	4	4	
	3-methylcholanthrene	µg/L	0.1			<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	<1	<1	
	Acenaphthene	µg/L	0.01	5.8	35,000	<0.1	<0.1	0.3	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	6	6	
	Acenaphthylene	µg/L	0.01	5.8	33,000	<0.1	<0.1	0.1	4.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.9	10	11
	Acetophenone	µg/L	0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.9	2	<1	
	Anthracene	µg/L	0.01	0.01		<0.1	<0.1	0.2	1.8	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	6	6	
	Benz(a)anthracene	µg/L	0.01	0.01		<0.1	<0.1	<0.1	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	7	8	
	Benzo(a) pyrene	µg/L	0.01	0.1		<0.05	<0.05	0.07	5.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.9	7	6	
	Benzo(b)&(k)fluoranthene	µg/L	0.05	0.01		-	-	-	9.8	-	-	-	-	-	-	-	-	-	-	<2	12	12	
	Benzo(b)fluoranthene	µg/L	0.1	0.01		<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	
	Benzo(g,h,i)perylene	µg/L	0.01	0.001		<0.1	<0.1	<0.1	2.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	3	3	
	Benzo(k)fluoranthene	µg/L	0.1	0.01		<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	
	Chrysene	µg/L	0.01	0.001		<0.1	<0.1	<0.1	4.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	7	8	
	Dibenz(a,h)anthracene	µg/L	0.01	0.1		<0.1	<0.1	<0.1	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	<1	<1	
	Fluoranthene	µg/L	0.01	1		<0.1	<0.1	0.5	9.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	13	15	
	Fluorene	µg/L	0.01	3		<0.1	<0.1	0.3	0.5	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	11	12	
	Indeno(1,2,3-c,d)pyrene	µg/L	0.01	0.01		<0.1	<0.1	<0.1	2.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	2	2	
	Naphthalene	µg/L	0.01	70	1,300	<0.1	<0.1	0.4	0.8	0.2	<0.1	4.3	0.5	<0.1	<0.1	<0.1	<0.1	80.2	63.7	6	<0.9	16	17
	Phenanthrene	µg/L	0.01	0.6		<0.1	<0.1	0.9	4.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.9	20	22
	Pyrene	µg/L	0.01	0.025		<0.1	<0.1	0.6	13	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	14	15	
	CPAH	µg/L	-			<0.75	<0.75	0.07	22.5	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<5.4	26	27
	CPAH (TEF)	µg/L	-			<0.192	<0.192	0.07	7.443	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<0.192	<1.998	8	7.11
	PAH (TOTAL)	µg/L	-			<1.55	<1.55	3.37	56.5	1.8	<1.55	4.3	0.5	<1.55	<1.55	<1.55	<1.55	80.3	63.9	6.2	<12.6	122	131
Phenols	2,4-dimethylphenol	µg/L	0.1	2	430,000	<0.1	<0.1	<0.1	<2	<0.1	<0.1	18.8	8.3	<0.1	<0.1	<0.1	<0.1	12.8	10.3	7.3	<0.9	<1	1
	2-methylphenol	µg/L	0.1	13		<0.1	<0.1	<0.1	<2	<0.1	<0.1	5.4	3.5	<0.1	<0.1	<0.1	<0.1	2.1	2	1.9	<0.9	<1	<1
	3-&4-methylphenol	µg/L	0.5	13		-	-	-	<4	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	
	cresols (total)	µg/L	0.5		2,700	-	-	-	<4	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	
	2-nitrophenol	µg/L	0.1			<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.9	<1	<1	
	3-Methylphenol	µg/L	0.1	13		<0.1	<0.1	<0.1	-	<0.1	<0.1	1.5	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	
	4-chloro-3-methylphenol	µg/L	0.05			<0.05	<0.05	<0.05	<2	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.9	<1	<1	
	4-methylphenol	µg/L	0.1	13		<0.1	<0.1	<0.1	-	<0.1	0.1	0.3	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	
	4-nitrophenol	µg/L	0.1			<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	
	Phenol	µg/L	0.1	400	340,000	<0.1	<0.1	<0.1	<2	<0.1	0.4	0.2	0.6	<0.1	0.3	<0.1	0.2	<0.1	<0.1	0.5	<0.9	<1	<1
CAHs	Tetrachloroethene	ug/L	0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	
	Trichloroethene	ug/L	0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	
	cis-1,2-dichloroethene	ug/L	0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	
	Vinyl chloride	ug/L	0.3			-	-	-	-	-	-	-	-	-	-	-	-	-	-	<50	<50	<50	
BTEX	Benzene	ug/L	0.5	700	7,000	<1	<1	<1	-	<1	<1	7	3	<1	<1	<1	<1	34	32	18	<1	<1	<1
	Ethylbenzene	ug/L	0.5	80	100,000	<2	2	<2	-	<2	2	<2	4	<2	2	<2	3	<2	<2	3	<2	<2	<2
	Toluene	ug/L	0.5	180	370,000	<5	<5	<5	-	<5	<5	<5	<5	<5	<5	<5	8	8	<5	<5	<5	<5	
	Xylene (m & p)	ug/L	1	75		<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	12	13	3	<2	<2	<2
	Xylene (o)	ug/L	0.5	75		<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2	<2	5	5	<2	<2	<2	<2
Inorganics	Total																						

Chem_Group	ChemName	Units	EQL	MWQC	Groundwater SSTC-X																				
TRH (NEPM 1999)	TRH C6-C9	mg/L	0.02		560	<0.05	0.21	0.04	0.03	0.35	<0.02	<0.02	-	<0.02	-	-	-	-	-	1.46	4.36				
	TRH C10-C14	mg/L	0.05		12	0.07	1.35	<0.05	0.21	1.86	<0.05	<0.05	-	<0.05	-	-	-	-	-	0.44	18.5				
	TRH C15-C28	mg/L	0.1		130	<0.2	3.05	0.24	3.58	2.79	<0.1	<0.1	-	<0.1	-	-	-	-	-	0.92	2.63				
	TRH C29-C36	mg/L	0.05		853,000	0.05	0.95	0.09	0.32	0.2	<0.05	<0.05	-	<0.05	-	-	-	-	-	<0.05	0.12				
	TRH C10-36 (Total)	mg/L	0.05			0.12	5.35	0.33	4.11	4.85	<0.05	<0.05	-	<0.05	-	-	-	-	-	1.36	21.25				
PAHs	1-Methylnaphthalene	mg/L	0.0001			-	-	-	-	-	-	-	-	-	-	-	-	-	0.0002	-	-				
	2-chloronaphthalene	µg/L	0.5			<2	<10	<1	<1	<1	<2	<2	-	<0.5	<0.9	-	-	-	-	<0.9	<0.9				
	2-methylnaphthalene	µg/L	0.1	2.1	22,000	2	<10	<1	7	4	<2	<2	-	<0.5	36	-	-	-	-	0.2	<0.9	71			
	3-methylcholanthrene	µg/L	0.1			<2	<10	<1	<1	<1	<2	<2	-	<0.5	<0.9	-	-	-	-	<0.9	<0.9				
	Acenaphthene	µg/L	0.01	5.8	35,000	6	<10	1	6	1	<2	<2	<0.1	<0.5	4	<0.1	<0.1	<0.1	<0.1	<0.9	5				
	Acenaphthylene	µg/L	0.01	5.8	33,000	11	12	<1	2	2	<2	<2	<0.1	<0.5	16	<0.1	<0.1	<0.1	<0.1	<0.9	20				
	Acetophenone	µg/L	0.5			<2	<10	<1	<1	<1	<2	<2	-	<0.5	<0.9	-	-	-	-	<0.9	<0.9				
	Anthracene	µg/L	0.01	0.01		3	10	<1	2	<1	<2	<2	<0.1	<0.5	3	<0.1	0.1	0.2	0.5	<0.9	2				
	Benz(a)anthracene	µg/L	0.01	0.01		<2	21	<1	<1	<1	<2	<2	<0.1	<0.5	<0.9	<0.1	<0.1	<0.1	0.3	<0.9	<0.9				
	Benzo(a) pyrene	µg/L	0.01	0.1		<2	17	<1	<1	<1	<2	<2	<0.1	<0.5	<0.9	<0.1	<0.1	<0.1	0.2	<0.6	<0.9				
	Benzo(b)&(k)fluoranthene	µg/L	0.05	0.01		<4	39	<2	<2	<2	<4	<4	<0.2	<1	<2	<0.2	<0.2	<0.2	<0.2	<2	<2				
	Benzo(b)fluoranthene	µg/L	0.1	0.01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-	-			
	Benzo(g,h,i)perylene	µg/L	0.01	0.001		<2	10	<1	<1	<1	<2	<2	<0.1	<0.5	<0.9	<0.1	<0.1	<0.1	<0.1	<0.9	<0.9				
	Benzo(k)fluoranthene	µg/L	0.1	0.01		-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-				
	Chrysene	µg/L	0.01	0.001		<2	21	<1	<1	<1	<2	<2	<0.1	<0.5	<0.9	<0.1	<0.1	0.1	0.2	<0.9	<0.9				
	Dibenz(a,h)anthracene	µg/L	0.01	0.1		<2	<10	<1	<1	<1	<2	<2	<0.1	<0.5	<0.9	<0.1	<0.1	<0.1	<0.1						

Table T7:
Historic Groundwater Analytical Results (pre 2010)

Field_ID	MW11	MW11	D01-140807	MW14	MW14	MW14	MW22	MW22	MW24	MW24	D01_150807	MW24	MW212	MW212
Sample_Type	Normal	Normal	Field_D	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Field_D	Normal	Normal	Normal
SDG	+ ES0608744 +	ES0711270	ES0711270	08744 + ES060	ES0711270	ES0806416	08744 + ES060	ES0806416	+ ES0609632 +	ES0711324	ES0711324	ES0806308	8/5/2008	ES0806635
RAP_Site_Area	Area A	Area A	Area A	Area A/C	Area A/C	Area A/C	Area A/C	Area A/C	Area A	Area A	Area A	Area A	Area A	Area A
Location_Code	BH053	BH053	BH053	BH076	BH076	BH076	BH116	BH116	BH129	BH129	BH129	BH129	BH129	BH129
Sampled_Date_Time	14/07/2006	14/08/2007	14/08/2007	17/07/2006	14/08/2007	7/05/2008	17/07/2006	7/05/2008	25/07/2006	15/08/2007	15/08/2007	6/05/2008	8/05/2008	12/05/2008

Chem_Group	ChemName	Units	EQL	MWQC	Groundwater SSTC-X														
TRH (NEPM 1999)	TRH C6-C9	mg/L	0.02		560	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	-
	TRH C10-C14	mg/L	0.05		12	<0.05	0.05	0.06	<0.05	<0.05	<0.05	0.09	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	-
	TRH C15-C28	mg/L	0.1		130	0.2	0.7	0.7	<0.1	<0.1	<0.1	0.4	0.2	0.3	<0.1	<0.1	<0.1	<0.1	-
	TRH C29-C36	mg/L	0.05		853,000	<0.05	0.14	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	0.44	<0.05	<0.05	<0.05	<0.05	-
	TRH C10-36 (Total)	mg/L	0.05			0.2	0.89	0.88	<0.2	<0.2	<0.2	0.49	0.3	0.74	<0.2	<0.2	<0.2	-	-
PAHs	Acenaphthene	µg/L	0.01	5.8	35,000	<1	<1	<1	<1	<1	<1	1.2	<1	<1	<1	<1	<1	<1	<0.1
	Acenaphthylene	µg/L	0.01	5.8	33,000	1.5	<1	1	<1	<1	<1	1.1	<1	<1	<1	<1	<1	<1	<0.1
	Anthracene	µg/L	0.01	0.01		<1	<1	<1	<1	<1	<1	<1	<1	4.2	<1	<1	<1	<1	<0.1
	Benz(a)anthracene	µg/L	0.01	0.01		<1	<1	<1	<1	<1	<1	<1	<1	2.5	<1	<1	<1	<1	<0.1
	Benzo(a) pyrene	µg/L	0.01	0.1		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.4	<0.5	<0.5	<0.5	<0.5	<0.05
	Benzo(b)fluoranthene	µg/L	0.1	0.01		<1	<1	<1	<1	<1	<1	<1	<1	2.6	<1	<1	<1	<1	<0.1
	Benzo(g,h,i)perylene	µg/L	0.01	0.001		<1	<1	<1	<1	<1	<1	<1	<1	1.4	<1	<1	<1	<1	<0.1
	Benzo(k)fluoranthene	µg/L	0.1	0.01		<1	<1	<1	<1	<1	<1	<1	<1	1.8	<1	<1	<1	<1	<0.1
	Chrysene	µg/L	0.01	0.001		<1	<1	<1	<1	<1	<1	<1	<1	2.7	<1	<1	<1	<1	<0.1
	Dibenz(a,h)anthracene	µg/L	0.01	0.1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1
	Fluoranthene	µg/L	0.01	1		2.2	1.7	2	<1	<1	<1	<1	<1	9	<1	<1	<1	<1	<0.1
	Fluorene	µg/L	0.01	3		1.6	<1	<1	<1	<1	<1	1.4	<1	<1	<1	<1	<1	<1	<0.1
	Indeno(1,2,3-c,d)pyrene	µg/L	0.01	0.01		<1	<1	<1	<1	<1	<1	<1	<1	1.2	<1	<1	<1	<1	<0.1
	Naphthalene	µg/L	0.01	70	1,300	2.8	<1	<1	<1	<1	<1	9.9	<1	3.8	7.6	<1	<1	<1	<0.1
	Phenanthrene	µg/L	0.01	0.6		<1	<1	<1	<1	<1	<1	1.3	<1	6.6	<1	<1	<1	<1	<0.1
	Pyrene	µg/L	0.01	0.025		1.9	2.2	2.5	<1	<1	<1	<1	<1	6.8	<1	<1	<1	<1	<0.1
	CPAH	µg/L				<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	14.6	<7.5	<7.5	<7.5	<7.5	<0.75
	CPAH (TEF)	µg/L				<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	3.251	<1.92	<1.92	<1.92	<1.92	<0.192
	PAH (TOTAL)	µg/L				10	3.9	5.5	<15.5	<15.5	<15.5	14.9	<15.5	45	7.6	<15.5	<15.5	<15.5	<1.55
Phenols	2,4-dimethylphenol	µg/L	0.1	2	430,000	-	<1	<1	-	<1	<1	-	<1	-	1.2	<1	<1	<1	-
	2-methylphenol	µg/L	0.1	13		-	<1	<1	-	<1	<1	-	<1	-	<1	<1	<1	<1	-
	3-&4-methylphenol	µg/L	0.5	13		-	<2	<2	-	<2	<2	-	<2	-	<2	<2	<2	<2	-
	cresol (total)	µg/L	0.5		2,700	-	<2	<2	-	<2	<2	-	<2	-	<2	<2	<2	-	-
	2-nitrophenol	µg/L	0.1			-	<1	<1	-	<1	<1	-	<1	-	<1	<1	<1	<1	-
	4-chloro-3-methylphenol	µg/L	0.05			-	<1	<1	-	<1	<1	-	<1	-	<1	<1	<1	<1	-
	Phenol	µg/L	0.1	400	340,000	-	<1	<1	-	<1	<1	-	<1	-	<1	<1	<1	<1	-
BTEX	Benzene	ug/L	0.5	700	7,000	<1	<1	<1	<1	<1	<1	5	2	<1	<1	<1	<1	<1	-
	Ethylbenzene	ug/L	0.5	80	100,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-
	Toluene	ug/L	0.5	180	370,000	<2	<2	<2	<2	<2	<5	4	<5	<2	<2	<2	<5	<5	-
	Xylene (m & p)	ug/L	1	75		<2	<2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	-
	Xylene (o)	ug/L	0.5	75		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-
	Total Xylene	ug/L	1.5			<4	<4	<4	<4	<4	<4	2	<4	<4	<4	<4	<4	<5	-
Field	Dissolved Oxygen	mg/L				-	-	-	-	-	2.05	-	-0.05	-	-	-	0.9	1.4	0.44
	pH (Field)	pH Units				-	-	-	-	-	7.6	-	6.8	-	-	-	7.86	7.92	7.93
	Electrical conductivity	uS/cm				-	-	-	-	-	47.2	-	42.4	-	-	-	48.5	-	-
	Redox	mV				-	-	-	-	-	-52	-	-140	-	-	-	57	52	-113
	Temperature	°C				-	-	-	-	-	22.7	-	22.1	-	-	-	21.8	20.1	21
Inorganics	Alkalinity as CaCO3	mg/L	1			-	241	227	-	137	167	-	233	-	126	124	134	118	-
	Ammonia as N	mg/L	0.005	0.91	150	-	6.05	8.36	-	1.07	0.144	-	1.24	-	<0.1	<0.1	0.138	<0.015	-
	Anions Total	meq/L	0.01			-	529	510	-	631	591	-	544	-	609	588	617	691	-
	Bicarbonate	mg/L	1			-	241	227	-	137	167	-	233	-	126	124	134	118	-
	Carbonate	mg/L	1			-	<1	<1	-	<1	<1	-	<1	-	<1	<1	<1	<1	-
	Cations Total	meq/L	0.01			-	559	518	-	625	595	-	515	-	625	638	586	644	-
	Chloride	mg/L	0.5			-	17,500	16,700	-	20,200	18,500	-	17,300	-	19,500	18,600	19,100	19,600	-
	Cyanide (Free)	mg/L	0.004	0.004		-	<0.004	<0.004	-	<0.004	-	-	-	<0.004	<0.004	<0.004	-	-	-
	Cyanide Total	mg/L	0.004	0.004		0.04	-	-	<0.005	-	0.0093	0.014	<0.004	0.013	-	-	<0.004	<0.004	-
	Hydroxide Alkalinity as CaCO3	mg/L	1			-	<1	<1	-	<1	<1	-	<1	-	<1	<1	<1	<1	-
	Ionic Balance	%	0.01			-	2.81	0.78	-	0.48	0.36	-	2.8	-	1.33	4.14	2.6	3.58	-
	Sulphate	mg/L	0.5			1270	1440	1640	2380	2770	3170	2140	2480	-	2740	2850	3640	6540	-
	Sulphate (Filtered)	mg/L	1			-	-	-	-	-	-	-	-	2690	-	-	-	-	-
Metals	Arsenic (Filtered)	µg/L	0.5	2.3	140,000	<10	<10	<10	<10	<10	1.4	<1	0.5	<10	<10	<10	0.8	1.2	-
	Cadmium (Filtered)	µg/L	0.1	0.7	110,000	<1	<1	<1	<1	16	0.3	<0.1	0.6	<1	<1	<1	<0.2	0.2	-
	Calcium	mg/L	0.1			-	1110	1210	-	448	453	-	412	-	435	444	426	418	-
	Chromium (Filtered)	µg/L	0.5	27.4		<10	<10	<10	<10	<10	<0.5	<1	<0.5	<10	<10	<10	<0.5	<0.5	-
	Copper (Filtered)	µg/L	1	1.3		<1	<20	<20	<1	<20	3	<1	<1	2	30	44	<1	<1	-
	Lead (Filtered)	µg/L	0.2	4.4	630,000	0.3	<10	<10	0.4	<10	<0.2	<0.2	<0.2	4.7	<10	12	1.2	1.5	-
	Magnesium	mg/L	0.1		27,000	-													