

University of Newcastle

University of Newcastle HCCD Project

**Contaminated Land Management Plan and Unexpected Finds
Protocol, Site 1**

5 March 2019



When you
think with a
global mind
problems
get smaller

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University of Newcastle HCCD Project

Prepared for
University of Newcastle

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Contaminated Land Management Plan and Unexpected Finds Protocol, Site 1

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1. Introduction

The University of Newcastle (The University) is preparing to lodge a Development Application (DA) for the enabling works related to Site 1 of the Honeysuckle City Campus Development (the Site). Site 1 consists of lands around buildings A1, A2 and C1. The location of the Site is shown on Figure 1.

Figure 1: Concept Plan University of Newcastle Proposed HCCD



The Site is currently managed under a Site Audit Statement (SAS) WRR15A (Summary Site Audit Report, William Ryall, Contamination Management Pty Ltd, dated 27 September 2002). The Site is also managed under an existing Environmental Management Plan (EMP), Honeysuckle Development Newcastle, Woodward-Clyde 1999 (WDC, 1999) directly linked to the existing WRR15A SAS.

The EMP was developed to address contaminated soils within a wide area called the Waterfront Precinct, formerly known as Civic, Cottage Creek and Hunter Street Precincts. Site 1, under the current HCCD development proposal, falls within the historic area covered under the Waterfront Precinct and therefore, at this time, excavations and management of soils must be undertaken in accordance with the existing WDC 1999 EMP.

The conditions related to the management of soils, generally outlined in the WDC 1999 EMP, will be utilised for the proposed HCCD enabling, early and development works on Site 1.

To guide the excavation programs under the enabling, early and development works packages, the preparation of a Contaminated Land Management Plan (CLMP) with an associated Unexpected Finds Protocol (UFP) was recommended. The CLMP and UFP will allow contractor compliance with Sections 5.2.2 and 5.2.5 of the WDC 1999 EMP and also update soil assessment requirements to the guidelines and legislative requirements currently in force under the Protection of the Environment Operation Act 1997 (POEO Act), National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (ASC NEPM) and NSW EPA Waste Classification Guidelines.

This document contains a Contaminated Land Management Plan (CLMP) and Unexpected Finds Protocol (UFP) prepared by Coffey for the Site. For works to be undertaken within Newcastle City

Council services corridors or on Council lands, the Newcastle City Council, *Newcastle Technical Manual Contaminated Land Management, 2012* has been included as an Appendix for guidance.

This CLMP and UFP must be read in conjunction with the enclosed sheet entitled '*Important Information about your Coffey Environmental Report*', which can be found attached to this report.

1.1. Objectives

The objectives of the CLMP are to:

- Provide information to alert future contractors of the presence and location of known contamination, and provide strategies to prevent exposure to the identified contamination;
- Provide guidance to undertake excavations and site reinstatement in accordance with the existing EMP (Woodward-Clyde, 1999); and
- Provide procedures to manage potentially contaminated materials and unexpected finds during excavation into the site soils undertaken during site works.

It is noted that this CLMP is not a construction environment management plan (CEMP) and only addresses the management of potentially contaminated site soils during excavation for compliance with the existing site EMP.

2. Roles and responsibilities

Table 2.1 below outlines the roles and responsibilities for implementing this plan.

Table 2.1 Roles and Responsibilities

Role	Responsibility
Developer/Project Manager	Submitting the completed plan to Council.
	Developing the site in a way that incorporates the plan.
	Complying with the plan whilst they are in control of the site.
Council	Noting this plan on the relevant Planning documentation.
	Retaining a copy of the plan on relevant records for the site.
Site owner	Implementing and complying with the plan, including ensuring contractors and maintenance workers comply with the plan.
	Making the plan available to contractors.
Contractors	Complying with the plan.
	Notifying the site owner of proposed works, to ensure they comply with the plan.

3. Proposed development

The Site is proposed to be developed in stages to ultimately incorporate three (3) buildings, A1, A2 and C as indicated in Figure 1. The buildings will be constructed in stages 1A, 2 and 3 respectively. The first building proposed for construction, Building A1, will be an Academic facility with no requirement for student accommodation. No student accommodation has been identified for any of the Stages of construction for Site 1.

The enabling works to be covered under this CLMP will include the excavation of trenches for the purposes of services installation as well as bulk earthworks required for the increase in floor level identified in the Honeysuckle Redevelopment Area Study (BMT, 2018). The existing local catchment 1% AEP level is 2.43m AHD. It is proposed that flood planning levels (FPL) be increased to 2.80m AHD. This is an increase of approximately 0.37m above the AEP level. As per the WDC 1999 EMP the site will mainly be covered by buildings and hardstand with any exposed "open space" or "landscaped" areas covered by a minimum a 0.5m clean topsoil.

4. Site information

4.1. Site identification

Site Address	16, 16A and 16B Honeysuckle Drive, Newcastle, NSW, 2300
Title Identifier	Lots 1, 2, 3 DP 1163346
Area	Approximately 9,000m ²
Local Government Area	Newcastle City Council
Site Co-ordinates	32°55'34.21"S 151°46'9.06"E
Surrounding Land Uses	North – Honeysuckle Drive, Lee Wharf Commercial Buildings South – Wright Lane, Wright lane Car Park, Former Rail Corridor East – Settlement Way, Chifley Apartments, Commercial Offices West – Commercial buildings

5. Environmental Requirements

5.1. Relevant Legislation and Guidelines

Legislation in NSW relevant to contaminated land management includes:

- Contaminated Land Management Act (1997);
- Protection of the Environment Operations Act (1997) and Waste Regulation (2014, 2016); and
- The Work Health and Safety Act (2011).

5.2. Guidelines

Relevant guidelines endorsed by the NSW EPA include:

- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), Volume 2, Schedule B1 (ASC NEPM 1999 (2013));
- NSW EPA Waste Classification Guidelines 2014;
- NSW EPA Resource Recovery Orders and Resource Recovery Exemptions under Part 9, Clause 93 of the POEO Waste Regulations (2014);
- NSW EPA (2011) Guidelines for Consultants Reporting on Contaminated Sites; and
- NSW EPA Guidelines for NSW Site Auditor Scheme 3rd Edition (2017)

6. Site Contamination Summary

For this review Coffey has provided summary output from three source documents:

- Summary of Previous Contamination Assessments Honeysuckle Central, Coffey (2013);
- Site Wide Remedial Concept Plan (extract p128-144), JBS&G (2016);
- Detailed Site Investigation, Site 1 (Coffey Ref: 754-NTLEN213472-R08 Rev 1, 5 March 2019);

A summary of these reports is provided in the sections below.

6.1. Summary of Previous Contamination Assessments Honeysuckle Central, Coffey (2013)

The Coffey (2013) Report was based on the review of the following contamination assessment reports:

- Waste Classification Assessment of Lot 3 – Proposed Temporary Carpark, ref: N8459/02-AS dated 15 June 2004, Coffey (2004a);
- Waste Classification of Proposed Roadway (Part Lot 3 and Part Lot 24), ref: N8459/02-AT dated 16 June 2004 (Coffey 2004b);
- Water Quality Assessment Lot 4, Lot 24 and Lot 3, ref: N8459/02-BE dated 21 July 2004 (Coffey 2004c);
- Lee Wharf Development – Contamination Assessment, ref: N8459/05-AD 6 July 2004 (Coffey 2004d);
- Lee Wharf Development – Responses to Mallesons Queries Regarding Contamination Matter, ref: N8459/05-AF 2 June 2004, Coffey (2004e);
- Honeysuckle Central Contamination Assessment, ref: GEOTWARA20903AA-AE, dated 17 December 2008 (Coffey, 2008); and
- Data from fieldwork completed and held on file, but not reported in 2011.

The summary found that based on the location of Site 1, there was a high probability of Acid Sulfate Soils (ASS) being present at depth (ASRIS 2015) as it was located within an area categorised as Class 3 for the probability of occurrence of ASS/Potential ASS. As such, development consent was required for works more than 1 m below ground surface or works by which the water table was likely to be lowered more than 1 m below natural ground surface.

Historically, the site contained an electrician workshop, boiler workshop, blacksmiths, locomotive/machine shop, carpenters workshop, electrical substation, and the Bullock Island causeway. In 1993, there was an electrical substation, railway lines, carriage repair sheds, railway goods loading area, and a plumber's workshop located at the site.

The main contaminants of potential concern (COPC) included total recoverable hydrocarbons (TRH) benzene, toluene, ethylbenzene and xylene (BTEX), Polycyclic aromatic hydrocarbons (PAHs), heavy metals and asbestos. It was noted that an electrical substation was present at the site in 1993. Although Coffey reported Poly chlorinated Bi phenols (PCBs) concentrations below the Limits of Reporting (LOR), there was the potential that these samples were not collected from the area near the former substation. As such, PCB remained a COPC in the former electrical substation areas.

6.1.1. Soil Contamination

The site was (and remains) approximately 9,000m² and the NSW EPA (1995) Sampling Design Guidelines recommended a minimum of 20 sampling locations for characterisation. Coffey carried out sampling from seven (7) locations directly relevant to the Site 1 with a data set inclusive of TRH, BTEX, PAH and metals (Coffey 2004a). Five sites were sampled along the eastern boundary in 2011

but were focused on asbestos, pesticides and PCB's. Figures 1 and 2 (attached) show the historic sample locations.

Soil from earlier reports were compared to the various land use scenarios contained in the ASC NEPM 1999 (2013). The comparison of results showed that the concentrations of contaminants were generally below the adopted criteria (residential with minimal opportunity for soil access), except for lead in two samples at depths of 0.1m to 0.5m, and asbestos detected in two samples along the eastern boundary at 0.1m depth.

From the data re-assessed and summarised in the Coffey (2013) report the following was surmised:

1. An independent review of various files reports and correspondence regarding the Lee Wharf development at Honeysuckle in Newcastle conducted by Coffey (Coffey 2004d) provided an overview of site assessment, remediation, validation and auditor reviews (including Site Audit Statements) performed at the site by other consultants and NSW EPA Accredited Auditors. From this review it was indicated that the onsite (to about 2m depth) contained heavy metals, total recoverable hydrocarbons and PAHs above suitable levels for residential land use with limited soil access (HIL B);
2. Sampling and analysis carried out in 2004 by Coffey (Coffey 2004a) showed that the fill material (0.0m to 1.9m bgs) in the southeast corner and the eastern boundary was contaminated with lead, at concentrations above the health criteria applicable to residential with minimal access to soil and commercial/industrial land use (HIL B and HIL D). Taking into consideration the 95% UCL calculation for lead, a value of 711.9 mg/kg was obtained, resulting in a concentration within the criteria for both residential with minimal access to soils (HIL-B) and commercial / industrial (HIL-D);
3. Based on the samples assessed (Coffey 2004a), the remainder of the site showed concentrations below the adopted criteria for residential with minimal access to soil and commercial/industrial land use; and
4. Sampling and analysis carried out in 2011 by Coffey showed that there was asbestos impact (free fibres) in fill material along the eastern boundary. It was not known if asbestos impact was present in fill on other parts of the site.

6.1.2. Soil Waste Classification

The soil analyses (Coffey 2004a) results were compared to the to the NSW EPA (2014) Waste Classification Guidelines. The results showed that the soils on site classified as general solid waste, except for soils near the eastern Site 1 boundary) at a depth of 0.0m to 1.9m which were classified as restricted solid waste.

In addition, soils which were impacted with asbestos (two samples on the eastern boundary) were classified as Special Waste and required to be managed as asbestos waste. As asbestos was only detected in two of the samples from 2011, further delineation of the extent of the asbestos may be required depending on the extent of excavations, if any, in that area.

6.1.3. Honeysuckle Central Contamination Assessment, ref: GEOTWARA20903AA-AE, dated 17 November 2008.

Coffey was requested by Eureka 2 Project 8 Pty Ltd and BD (NSW) Project 24 Pty Ltd to prepare a contamination assessment in response to Director General's Requirements in respect of the proposed Honeysuckle Central Development. The contamination assessment was proposed to be submitted as part of a Project Application for a high-rise complex comprising mixed commercial and residential land use (with minimal access to soil) with a basement car park.

The Coffey (2008) Report included review of a Site Audit Statement (SAS) for the site which was prepared by Dr William Ryall of Contamination Management Pty Ltd in 2002. The SAS was prepared for Lot 3 DP 883474, which is the subject site (now known as Lots 1, 2 and 3 of DP 1163346).

The SAS, as issued in 2002, covered the proposed use of Site 1 for residential with minimal access to soils and / or commercial / industrial uses. Given that there have been intermittent activities on site since 2002, related to temporary site offices and lay-downs for materials related to other projects in the Honeysuckle precinct, the SAS will need to be updated. Further work is required to complete an assessment, in accordance with the NSW EPA sampling guidelines, the update of the SAS should be incorporated into this activity.

6.2. Coffey (2019) Detailed Site Investigation (Coffey Ref: 754-NTLEN213472-R08 Rev 1 5 March 2019)

This Detailed Site Investigation (DSI) was requested by The University based on a request from NCC to complete the recommendations made in the previous reports on the Site. The reports included:

- Summary of Previous Contamination Assessments Honeysuckle Central, Coffey (2013); and
- Site Wide Remedial Concept Plan (extract p128-144), JBS&G (2016).

Coffey had previously completed a waste classification assessment across the Site (Coffey Ref: Waste Classification Assessment of Lot 3 – Proposed Temporary Carpark, ref: N8459/02-AS dated 15 June 2004). The assessment included 7 locations across the Site. In order to complete a DSI in general accordance with the NSW EPA Sampling Design Guidelines 1995, an additional 13 locations were required.

The scope of work completed for this DSI included:

- Placement of twelve (12) boreholes, with logging of soil returns and collection of soil samples and the collection of two surface soil samples;
- Installation of three (3) groundwater monitoring wells at selected locations;
- Laboratory analysis of selected soil and water samples plus appropriate quality control samples for the contaminants of concern; and
- Preparation of a detailed site investigation contamination report (including a preliminary in-situ waste classification assessment).

Soil analytical results from BHP08 – BHP20 (minus BHP17 due to Aboriginal Heritage issues) and two surface soil samples (SS1 and SS2) were compared to the site assessment and waste classification criteria. The soil results have been combined with the results of seven (7) locations previously sampled during the Coffey (2004) Waste Classification Assessment of Lot 3 (BHE1, BHE2, BHE3, BHE4, BHE5, BHE6 and BHE7). Sampling locations have been provided in Appendix A, Figure 2.

As identified in the initial results obtained from soil locations BHE1 to BHE7 during the previous investigations on site the main contaminants of potential concern from a site suitability perspective were BaP and Lead. For the purposes of the proposed development the adopted SAC is HIL/HSL C open space/recreational to support the inclusion of an open space communal area within the development.

The highest concentrations of BaP and lead were associated with the presence of slag materials in the fill. Slag was identified in the upper 1m bgs soils at BHP08, BHP10, BHP15 and BHP19. Both BaP and lead were elevated in BHP08 and BHP10, with elevated lead also identified in BHP15 and BHP19. From previous experience with slag-based fill, the leachability of these contaminants under both acidic and neutral conditions are typically low.

A comparison of the analytical results against health-based investigation and screening levels reported eight (8) exceedances of the adopted Site Assessment Criteria (SAC) for Lead (600mg/kg HIL C). These included 1,800mg/kg (BHE7 0.5 – 0.6m), 740mg/kg (BHP8 0.2-0.3), 640mg/kg (BHP8 0.9-1.0), 2,200mg/kg (BHP15 0.2-0.3m), 1,800mg/kg (BHP15 0.9-1.0m), 1,100mg/kg (BHP16 0.0-0.2), 1,100mg/kg (BHP18 0.2-0.3) and 1,000mg/kg (BHP19 0.1-0.3). Five (5) exceedances of the SAC for BaP TEQ (3mg/kg) were recorded for BHP8 0.2 – 0.3 (45mg/kg), BHP8 0.9-1.0 (31mg/kg), BHP10 0.2-0.3 (61mg/kg), BHP15 0.9-1.0 (6.9mg/kg) and BHP18 0.2-0.3 (7.4mg/kg).

Three (3) samples were identified as Lead hotspots based on the SAC used. These included BHE7 0.5-0.6, BHP15 0.2-0.3 and BHP15 0.9-1.0. Three (3) samples were identified as BaP hotspots based on the SAC used. These included BHP8 0.2 – 0.3, BHP8 0.9-1.0, BHP10 0.2-0.3. Given the identified hotspots a 95% UCL average calculation was not valid for the assessment of overall lead and BaP average concentrations.

No asbestos containing materials were identified during these works, however, considering the finds made in 2011 one cannot preclude the site is completely asbestos free. This potential for identifying ACM on site (most likely in bonded form) should be managed using an Asbestos Management Plan.

A preliminary in situ waste classification was completed in accordance with the NSW EPA Waste Classification Guidelines (2014) with the following findings:

- 95%UCL lead concentrations (606 mg/kg) for the nineteen (19) locations across the site exceeded the CT2 restricted solid waste criteria without TCLP (400 mg/kg); and
- 95%UCL B(a)P (not TEQ) concentrations (5.2 mg/kg) for the nineteen (19) locations across the site exceeded the CT2 criteria without TCLP (3.2 mg/kg).

Based on a comparison of the results to the waste classification guidelines and considering the results of the statistical appraisal for lead and B(a)P, fill soils were shown to have a preliminary waste classification of **General Solid Waste (TCLP1/SCC1)**, with the exception of soils around BHP08, BHP10 and surface soils to approximately 0.3m bgs at location BHP18.

It was recommended that additional TCLP analysis of lead and BaP in samples exceeding the CT1/CT2 (no leach) criteria be undertaken on specific stockpiles identified for offsite disposal. Should TCLP results exceed the General Solid Waste TCLP/SCC1 criteria, delineation of the soils in the vicinity of those exceedances should be undertaken to limit the extent of soils classified as Restricted Solid Waste SCC2. Remediation and validation sampling of these areas should then be undertaken.

The results of the laboratory analysis of groundwater samples collected from monitoring wells (MW01, MW02 and MW03), reported the following exceedances of the GILs:

- Copper (Filtered) ($DTV = 0.00133\mu\text{g/L}$) was detected at a concentration of 0.004mg/L (MW01); and
- Zinc (Filtered) ($DTV = 0.0015\mu\text{g/L}$) was detected at a concentration of 0.087mg/L (MW01) and 0.17mg/L (MW03) respectively.

The results of the laboratory analysis of the Acid Sulfate Soil samples collected during the most recent site investigation indicate the following;

- Field screening of 25 primary soil samples collected in the natural material observed on site was undertaken;
- Samples in a 1:5 mixture with distilled water were recorded at a pH between 8.6 to 9.6 (pH units). A pH less than or equal to 4 being potentially indicative of Actual Acid Sulfate Soils;
- pH_{FOX} ranging from 2.8 to 7.8 (pH units), with reactions recorded between no reaction/ slight reaction to extreme reactions with constant froth, after oxidation in hydrogen peroxide, being observed for the samples. pH_{FOX} of less than 3.5 can be indicative of Potential Acid Sulfate Soils (PASS);
- Chromium suite analyses was undertaken on 14 selected samples (BHP9 3.4-3.5, BHP9 3.8-3.9, BHP11 3.3-3.5, BHP13 2.5-2.6, BHP14 3.3-3.5, BHP18 3.5-3.8, BHP19 3.1-3.3, BHP20 2.9-3.0, MW01 3.8-4.0, MW02 3.8-4.0, MW02 4.8-5.0 and MW03 3.8-4.0). The samples were selected following visual and olfactory screening for Potential ASS characteristics (dark grey marine sediment, sulphurous odour);
- The total pH drop was in the range of 0.6 to 6.2 pH units. A drop of more than 1 unit, plus increase in temperature, effervescence, colour and odour factors can be indicative of PASS;

- Results indicated that 12 of the 14 samples tested (excluding BHP15 2.5-2.8 and BHP16 2.8-3.0) exceeded the adopted SAC for the site of 0.03 % S. Results ranged between 0.032 and 0.44.
- Coffey calculated a liming rate of between 1.5 and 20.59 kg/tonne for the samples that exceeded the above criteria.

Based on a review of available data from previous and recent investigations, and observations made during fieldwork, Coffey concluded that the Site in its current form was not suitable for the proposed development, with remediation required for the BaP and lead hotspots identified, to satisfy a HIL/HSL C SAC. Coffey noted that the site was however compliant with HIL/HSL D Commercial/Industrial land use criteria.

The following recommendations have been included for the remediation of the site, management of excess spoil, groundwater and potential acid sulfate soils:

- Given the identification of lead and BaP TEQ hotspots (in excess of HIL/HSL C SAC) the site requires remediation and validation of these impacted areas in order to make it suitable for the proposed development. It is recommended that delineation, remediation and validation of the identified hotspots be completed and a final 95%UCLaverage be undertaken following completion to assess the remediated site status. Coffey recommends the preparation of a remediation action plan (RAP) to address the delineation, remediation and validation of the Site to a final land use of HIL/HSL C Open Space/Recreational. The soil excavated during the remediation and trenching works can be reused as fill on site provided it is placed below 2m bgs and at least 0.5m above the standing water level. If this material is to be taken off site it is recommended that the stockpiles be assessed against the NSW EPA Waste Classification Guidelines including a TCLP for both PAH and metals (lead being the metal found to be in exceedance in the preliminary assessments). Retention of the material on site should be prioritised over export of material to landfill, regardless of the waste classification criteria obtained;
- Ongoing groundwater assessment during the development stages of this project is recommended. This will be used to assess whether the background levels of heavy metal contamination, or any other COPC, are affected by actions during development. The wells installed on the property during this DSI should be retained if possible and utilised for ongoing groundwater monitoring;
- As recommended in the 2004 with further confirmation during this DSI, the groundwater should be of sufficient quality to be considered suitable for stormwater discharge. Dewatering will need to be managed by undertaking a dewatering assessment and preparation of a site-specific Dewatering Management Plan (DMP). Preliminary discussions with Council regarding the requirements for discharge to stormwater during dewatering should also be undertaken prior to the commencement of early earthworks activities such as trenching for services.
- Future groundwater investigations (dewatering assessment) for the assessment of discharge of groundwater resulting from dewatering activities to the stormwater drains should use an expanded suite of chemicals of potential concern including cations and anions including calcium, magnesium, potassium and sodium, chloride), alkalinity, Kjeldahl nitrogen, nitrate, nitrite, total nitrogen, total phosphorus and sulfate;
- Potential Acid Sulfate Soils (PASS) were identified in sub-surface soil samples collected from approximately 2.5 – 4.0mbgs. Preparation of an Acid Sulfate Soils Management Plan (ASSMP) is recommended for use on site during site development works (including early trenching works for the installation of services and future bulk excavation) that are anticipated to exceed 2.5mbgs;
- Nine (9) soil samples (surface) were assessed for the presence of asbestos in the fill materials with no presence detected in the samples. Observation of the surface soils adjacent to the eastern boundary (where surface asbestos was identified in previous investigations) was undertaken. Three suspected pieces of material were sampled and tested for the presence of asbestos. No asbestos was found to present in the materials sampled. No asbestos containing materials were identified during these works, however, considering the finds made in 2011 one cannot preclude the site is completely asbestos free. This potential for identifying ACM on site (most likely in bonded form) should be managed using an Asbestos Management Plan.;

- A preliminary classification of General Solid Waste (TCLP1/SCC1) has been assessed for the in-situ soils, primarily impacted by elevations of PAH and lead in the 0 – 1.0m bgs fill. With the exception of soils in the vicinity of BHP08, BHP10 and shallow soils (0.3m bgs) at location BHP18 which are classified as Restricted Solid Waste SCC2.
- It is recommended that additional TCLP analysis of lead and BaP in samples exceeding the CT1/CT2 (no leach) criteria be undertaken on all stockpiles identified for offsite disposal; and

Coffey also recommended that prior to the commencement of site redevelopment works, an appropriate Construction Environmental Management Plan (CEMP) is prepared by the appointed construction contractor to manage environmental risk posed to construction workers, and to the surrounding public and environment, by construction works and to manage waste in accordance with appropriate New South Wales statutes. Coffey recommended inclusion of a Contaminated Land Management Plan (CLMP) and Unexpected Finds Protocol (UFP) within the CEMP, to provide a procedure for emergency response should contaminated material (including asbestos) or items of heritage significance be uncovered during site redevelopment.

7. Management Plan

7.1. Potential exposure pathways

Exposure pathways which are relevant to other contaminants as well as asbestos (except for vapours forming from volatile contaminants) are addressed below.

Table 6.1: Potential Exposure Pathways

Source	Contaminant	Potential Pathway
Fill material	Asbestos	Inhalation of fibres
	Semi-volatile hydrocarbons (heavy fraction TPH, PAH), metals and pesticides	Dermal contact with contaminated soil
		Ingestion of contaminated soil

7.2. Measures to eliminate exposure pathways

As per the recommendations in the SAS and EMP, the following land use scenarios are allowed:

- Commercial/light industrial;
- Residential (with Limited Soil Access); and
- Public open space.

There are no residential developments identified for Site 1 with mainly commercial buildings (Academic use) being proposed. It is expected that in order to manage the potential for contaminated soils on Site 1 that exposed existing site surfaces be minimised post-development. The majority of the site surface post construction will be covered by the following:

- Buildings;
- Roads and car parks;
- Hard pavement; and/or
- Landscaped areas.

For landscaped or open space areas the SAS mandates that exposed surfaces be covered with a minimum of 0.5m clean imported topsoil. Imported, “clean” soil in this case has been assumed meet the definition of Virgin Excavated Natural Material (VENM) in the NSW EPA Waste Classification Guidelines 2014 or Excavated Natural Material (ENM) as per the NSW EPA Excavated Natural Material Order 2014 Exemption and Order 2014.

The presence of buildings, hardstand and areas landscaped with a minimum of 500mm imported topsoil will minimise access to the potentially contaminated soils and uncontrolled fill materials and also remove the pathway to groundwater. Based on this, the exposure pathway from the site soils to users of the site in these areas would not be complete (i.e. inhalation of fibres, dermal contact and ingestion of contaminants is prevented).

8. Management Plan for Excavations

For proposed excavations within fill materials during enabling, early works and during site development, the following procedures will need to be followed.

- Preparation of a construction environment management plan (CEMP) for excavations noting the depth location, depth and potential volume of excavated material, and management procedures for handling excavated fill including appropriate PPE. The CEMP will also need to include an Contaminated Land Management Plan prepared by the Site Contractor, which should be prepared in line with this document; and
- During excavations, carry out a visual assessment of excavations and stockpiles to check that excavated materials do not include potentially contaminated materials. Section 8.1 outlines indicators of potential contamination. Should contaminated material be encountered, a suitably qualified environmental consultant should be engaged, and the steps outlined in Section 8.2 implemented.

Procedures for the management of asbestos containing materials are provided in Section 9.

8.1. Visual Assessment of Material

The excavated materials will be visually assessed for indications of contamination as they are excavated and/or moved around the site. The visual assessments will be used to identify indicators of potential contamination. Such indicators will include:

- Fragments of potential Asbestos Containing Material (ACM) that may be currently buried in the fill;
- Soils that exhibit a strong odour;
- Soils that appear to be oil-stained, fibrous or have unusual colours;
- Soils that appear to be black, metalliferous or shiny;

If potentially contaminated materials are identified, these will be stockpiled in a location separate from the other site works and further assessed, in accordance with the procedures outlined in the following sections.

8.2. Management of Potentially Contaminated Material

8.2.1. Temporary Stockpiling

The following general procedures will be followed during stockpiling of excavated potentially contaminated material:

- Potentially contaminated material will be stockpiled separately from other stockpiled soils in an isolated area of the site;
- Access to stockpiles of potentially contaminated fill will be limited by keeping the stockpiles within the site's fencing;
- Stockpiles will be placed on level ground and not within 40m of creeks or streams. Stockpiles will not be placed on slopes greater than 5°;
- Stockpiles will be placed on strong impermeable plastic sheeting such as high-density polyethylene (HDPE) or a hardstand area (such as concrete or bitumen pavements). If this procedure is not followed there is the potential for contaminants to migrate into the surface soils;
- The stockpile heights will be kept to a maximum of approximately 2m;

- Where stockpiles are proposed to remain in a location overnight, the stockpiles will be covered by weighted HDPE sheets or tarpaulins to prevent erosion of stockpiled materials. Heavy objects not containing sharp edges will be placed on the sheets to prevent them from being blown by winds;
- Adequate hay bales and/or silt fences will be placed around the perimeter of the stockpile area to filter runoff from the stockpiles and prevent overland stormwater flow from affecting the base of the stockpiles; and
- A stormwater diversion bund will be created up gradient of the stockpiles to prevent stormwater running through the stockpiles.

The stockpiles should be assessed by a suitably qualified environmental consultant, in accordance with Section 8.2.3, as soon as practical, to remove the risk of stockpiling potentially contaminated materials on site.

8.2.2. Management of Open Excavations

Excavations resulting from the removal of potentially contaminated soil will be barricaded in order to restrict access to the excavation areas. Appropriate warning signs will be placed around the excavations, in accordance with applicable regulations and codes of practice.

The excavations will remain barricaded until such time when the excavations have been validated and backfilled (where appropriate).

The validation of excavations should be carried out by a suitably qualified environmental scientist, in accordance with Section 8.2.5, as soon as practical, to remove the risk of open excavations on site.

8.2.3. Assessment of Potentially Contaminated Stockpiled Materials

Sampling Rates

Following stockpiling, the stockpiled material and the excavation will be visually assessed by a suitably qualified environmental consultant. Appropriate stockpile sampling rates will be assessed for stockpiles onsite. Stockpile sampling guidance can be obtained from the ASC NEPM 1999 -2013 and EPA Victoria Industrial Waste Resource Guidelines for Soil Sampling (IWRG, 2009).

Laboratory Analysis

The stockpile samples will be analysed by a NATA-accredited laboratory for the potential chemicals of concern identified.

Based on the previous assessment, this is expected to be asbestos. Asbestos testing will be required in accordance with (ASC NEPM 1999 (2013)).

For odorous, stained, black, metalliferous or shiny soils, analysis will likely include:

- Total Recoverable Hydrocarbons (TRH);
- Asbestos;
- Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX);
- Phenols;
- Organochlorine and organophosphorus pesticides;
- Polycyclic Aromatic Hydrocarbons (PAH); and,
- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury).

Based on the results, an assessment can be made on the suitability of the stockpiled material for on-site re-use or offsite disposal.

8.2.4. Re-Use or Disposal of Stockpiled Soil

On-Site Re-Use of Stockpiled Soils

If the stockpiled soils are to be re-used on site, the results of the laboratory analysis will be compared to relevant published human health guidelines (ASC NEPM 1999 (2013)). If the results meet the adopted guidelines, the material will be able to be re-used on site. If the results exceed the adopted guidelines, the soils will be either disposed offsite, or appropriately managed on-site.

Off-Site Disposal of Stockpiled Soils

If the stockpiled soils are to be disposed offsite, the results of the laboratory analysis will be compared to the NSW EPA *Waste Classification Guidelines* 2014 in order to provide a waste classification for the stockpiled soils.

Stockpiled fill material, with an appropriate waste classification, can be disposed of at a landfill licensed to accept that type of waste. For example, hazardous waste can only be disposed of to a landfill licensed to accept hazardous waste.

Materials of different waste classifications should not be mixed prior to offsite disposal. Should they become mixed, the material will take on the higher classification. For example, should hazardous waste be mixed with general solid waste, then the entire stockpile will be classed as hazardous waste.

Waste disposal dockets will need to be retained for material being disposed offsite. The dockets will record the amount of material being disposed, the final fate of the material, and demonstrate that the material was disposed appropriately.

If material is disposed offsite, we recommend that a wash down bay or tyre grid be installed at entrance/exit point of the site in order to minimise potentially contaminating material being tracked offsite in vehicle tyres.

Disposal of Bonded Asbestos Materials

Handling and disposal of asbestos waste will be carried out in accordance with an approved Asbestos Management Plan (AMP) prepared by the Contractor. The following general procedures do not constitute an AMP. Further guidance on asbestos is given in Section 9.

Hand-picked asbestos waste (i.e. removal of bonded asbestos fragments) removed during the construction works shall be collected and double bagged in heavy duty, low density polyethylene 0.2mm thick bags. A maximum bag size of 1,200mm (length) x 900mm (width) shall be used and bags shall be filled to no more than 50 per cent capacity.

The bags must be labelled as containing "Asbestos Waste" and that dust inhalation must be avoided. The bags are to be 'double-necked' and sealed by wire ties or tape. The bags shall then be disposed to the nearest licensed facility as asbestos waste. The loaded weight of the bags shall not exceed 20kg each. Each bag or other container shall be labelled on its outermost surface with warning statements.

Bags or primary containers which have held asbestos material shall not be re-used, and containers marked as above shall not be used for other purposes and shall be disposed of accordingly as per requirements for asbestos containing materials (ACM).

Care must be taken to ensure that the integrity of the plastic bags is not damaged during handling or transportation. Vehicles may be checked for cleanliness prior to leaving the work site.

Controlled wetting of waste shall be employed, where practicable, to reduce dust emissions during bag sealing. Excessive water logging shall be avoided as the excess of contaminated water may leak out of the bags, thereby creating a future source of airborne dust.

The asbestos waste shall be disposed of at a landfill licensed to receive asbestos waste in accordance with State and EPA requirements. Documentary evidence (waste disposal dockets) of the disposal shall be collected and provided. This will include name of the authorised waste facility, weighbridge docket and registration number of vehicle for every disposal.

Documentation

Records should be maintained during removal of materials from site, including the quantities of waste disposed offsite. This will also need to be accompanied by waste disposal dockets.

8.2.5. Validation of Excavations

Excavations resulting from the removal of potentially contaminated material will need to be validated prior to works re-commencing in those areas. Validation will be required in order to assess whether the potentially contaminated material has been adequately removed, or if further excavations or management of the material are necessary.

Typically, validation samples are collected at a frequency of one per 25m² on walls and bases of excavations.

Depending on the size of the excavation, the environmental consultant will assess the validation sampling frequency.

The validation samples would be tested for the chemicals of concern identified, as outlined in Section 8.2.3 above.

8.2.6. Application of Liners

Should validation of the holes not be possible or practical due to extensive fill contamination another option is the utilisation of a barrier layer between the contaminated materials and clean imported fill. A geotextile liner can be utilised to isolate the contaminated fill materials on the walls and bases of the services trenches followed by backfilling with clean VENM or ENM. This will further protect future maintenance workers from interfacing with contaminated fill materials. In more severe cases of contamination, an HDPE liner can be used to create a more impermeable barrier. The liner will serve to not only reduce future exposure but also serve as a marker layer indicating the location of the interface between clean and contaminated materials.

9. Management of asbestos contaminated materials

During excavations (after the development is completed), the following management measures will be adopted:

- Establishment of a restricted access area; and
- Asbestos management during construction works.

These steps are to be performed or supervised by a suitably licensed asbestos removal contractor under an approved Asbestos Management Plan. A framework for the AMP is given in the sections below.

9.1. Establishment of a Restricted Access Area

The contractor will be required to establish a restricted access area encompassing the excavation area. Access to designated work areas will be determined by the contractor. Only authorised and inducted persons should be permitted in the designated work area. Other site workers and the general public should not be permitted within the restricted access area.

As a minimum, appropriate warning signs should be placed at the entrance and the boundaries of the site, advising the public of the works.

Signage should be in accordance with the following regulations and guidelines:

- AS 1319-1994: “Safety Signs for the Occupational Environment”; and
- National Code of Practice – How to Safely Remove Asbestos in the Workplace (Safe Work Australia, 2011).

9.2. Asbestos Management during Construction Works

Asbestos was previously identified in a fragment of material within fill materials with fibres identified within the soil. This was identified along the Eastern Site boundary. It is therefore assumed that asbestos containing materials may be present in existing fill materials on the site and will be encountered during excavations on site.

To manage asbestos contamination during excavations on the site the following procedures should be carried out:

- Engage a licenced asbestos contractor to undertake or supervise the works;
- Personnel to be made aware of the presence of asbestos and the management procedures;
- Implementation of asbestos management controls;
- Personnel to wear appropriate PPE for handling asbestos;
- Establish and conduct air monitoring;
- If material is required to be removed from site, implement procedures for removal of asbestos impacted materials.

These procedures are discussed in detail in the sections below.

9.2.1. Engage Licenced Asbestos Contractor

An appropriately licenced asbestos Contractor will need to be engaged to undertake or supervise the construction works. A Class B asbestos license is suitable if only bonded asbestos is encountered, a Class A license is required if friable asbestos is encountered.

9.2.2. Asbestos Management Controls

During excavation of soils/fill, the following methods should be employed to minimise dust generation and distribution:

- Dampening the surface of the site and working area; and
- Ceasing work in strong winds.

9.2.3. Establish and Conduct Air Monitoring

Given that asbestos has been detected in fill materials (friable material has not been confirmed) it is recommended that air monitoring will need to be carried out during excavations. Air monitoring is required to verify that the asbestos control measures in place are satisfactory and that there is no egress of fibres to adjacent occupied areas. The air monitoring devices will be placed on the boundaries of the site.

The sample collection and analysis will need to be conducted in accordance with the National Occupational Health and Safety Commission (NOHSC), *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition*, 3003 - 2005.

The analysis will need to be performed by a NATA registered laboratory and reported on endorsed certificates.

The air monitoring samples should be collected from the boundaries of the site, with one located near the decontamination area (see Section 0 for decontamination procedures). The concentration of fibres at the site boundaries should be recorded at <0.01 fibres/mL of air. Concentrations of asbestos fibres should be managed with as follows:

- <0.01 fibres/mL. Action: Continue with control measures;
- Between 0.01 fibres/mL and 0.02 fibres/mL. Action: Review control measures; and
- Greater than or equal to 0.02 fibres/mL. Action: Stop works until the cause of the elevated concentrations is remedied and notify the regulator.

9.2.4. Removal and Disposal of Asbestos Contaminated Fragments and Soil

Should soils and/or asbestos containing materials require removal from the site the procedures in Section 8.2.4 would apply.

9.3. Decontamination of Personnel and Equipment

Machinery used to excavate fill soils are at risk of encountering asbestos containing materials and will need to be decontaminated by washing down.

The decontamination must be carried out such that cross contamination to other areas of the site, or off-site, does not occur. If decontamination is not carried out effectively, and asbestos fibres cross-contaminate other areas of the site, it is likely that additional material will require disposal off-site as asbestos waste.

The wash down area should be established in an area where potential migration of wash-water, or asbestos fibres, will not impact imported material.

Once the machinery has finished, the parts of the machinery that have been in contact with the asbestos (i.e. on an excavator the tracks and bucket) are to be decontaminated in the designated decontamination area. The decontamination area is to be on an impermeable platform if practical.

The decontamination area will need to have appropriate controls to prevent the spread of decontamination water migrating onto other areas of the site. The decontamination will involve hosing and removing soil from the tracks and bucket as far as reasonably practicable by the removalist. Tools used shall be hosed down or wiped clean with a damp cloth. Satisfactory decontamination of the machinery will need to be supervised by the licensed asbestos assessor as part of the clearance process.

Upon completion of works boots and clothing shall be wiped down with a damp cloth and disposable Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) disposed of as asbestos waste. Non-disposable RPE shall be wet-wiped and placed in a sealed container for future use.

9.4. Personal Protective Equipment

In order to reduce short and long-term health risks associated with the potential exposure to the chemicals of concern, the minimum level of Personal Protective Equipment (PPE) required for people, during site preparation, placement of the geo-fabric and placement of the first layer of imported material, is listed below:

- **Body Protection.** Fluorescent disposable coveralls (Tyvek suits) are to be worn during activities undertaken in the asbestos impacted areas. Disposable coveralls are to be considered as potentially contaminated with asbestos and will therefore need to be disposed as asbestos contaminated waste.
- **Respiratory Protection.** Respiratory protection is required to prevent inhalation of airborne dusts. A minimum of a P3 rated disposable mask or respirator fitted with a P3 rated cartridge is to be used whilst working within the impacted areas. The respirator will also be needed to be fit tested.
- **Head Protection.** Personnel working around excavation equipment will be required to wear a hard-hat. The hard hat must be in date, worn properly and not altered in ways that would lessen the degree of protection offered.
- **Eye Protection.** Eye protection is required to prevent eye injuries resulting from contact with dust, contaminated soil or liquid. Safety glasses are required to be worn by site personnel during the works.
- **Foot Protection.** Steel toed boots without laces will be worn by on-site personnel.
- **Skin Protection.** Long sleeves and trousers are to be worn. Skin protection will be required to prevent absorption of contaminated soil into the body. Gloves will be worn by personnel involved

in site activities which will come into contact with contaminated soil or liquid. Sunscreen (SPF +30) shall also be worn to protect exposed skin areas not covered by PPE from the sun.

- **Hearing Protection.** Site workers will be required to have hearing protection (ear plugs or ear muffs) on site during works. Personnel who are likely to be exposed to high noise levels on site will be required to wear hearing protection.

Site personnel will be made aware during induction and at toolbox meetings that PPE required to be worn may limit manual dexterity, hearing, visibility and may increase the difficulty of performing tasks. PPE places an additional strain on the user when performing work that requires physical activity.

Eating, drinking, chewing gum or tobacco, smoking or other practices that involves hand to mouth transfer increases the probability of ingestion of foreign matter into the body. Hands must be thoroughly washed before eating, drinking or smoking.

9.5. Stormwater Management and Sediment Control

Adequate stormwater runoff, run-on and sediment control measures will be put in place for the excavation works. The measures should form a Soil and Water Management Plan, a sub-plan top the CEMP to be prepared by the Contractor for the works.

Where temporary stockpiling of material is required, the stockpiles would need to be managed in a way to prevent harm to the environment and general public from potentially contaminated soils within the stockpiles. Section 8.2.1 provides guidance on managing stockpiled material.

9.6. Dust Control and Air Monitoring

Dust control is required to prevent airborne dust being inhaled by human receptors. Airborne dust may be generated by wind action from loose earth left on the ground. This could cause migration of contaminated dust, as well as cause a nuisance for the surrounding area and must be controlled. A comprehensive Air Quality Management Plan, A sub-plan to the CEMP to be prepared by the Contractor for the works.

Therefore, the following dust control measures are proposed:

- Dust levels will be monitored visually during site work;
- Soil will be kept adequately moist to reduce the generation of dust.

If friable asbestos is encountered, asbestos air monitoring will be established as per Section 9.2.3 to monitor that there is no egress of fibres to adjacent occupied areas.

9.7. Works within the Newcastle City Council Works Corridor

Any works that are conducted within the Newcastle City Council (Council) services corridor on or through lands under the control of the Council will be required to be undertaken in general accordance with the Newcastle City Council, *Newcastle Technical Manual Contaminated Land Management, 2012*. The document outlines the procedures and requirements for the management of contaminated materials encountered on Council lands. The technical manual has been included as Appendix C in this document.

10. References

1. Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth).
2. Coffey (2004a), Waste Classification Assessment of Lot 3 – Proposed Temporary Carpark, ref: N8459/02-AS dated 15 June 2004.
3. Coffey (2004b), Waste Classification of Proposed Roadway (Part Lot 3 and Part Lot 24), ref: N8459/02-AT dated 16 June 2004.
4. Coffey (2004c), Water Quality Assessment Lot 4, Lot 24 and Lot 3, ref: N8459/02-BE dated 21 July 2004.
5. Coffey (2004d), Lee Wharf Development – Contamination Assessment, ref: N8459/05-AD 6 July 2004.
6. Coffey (2004e), Lee Wharf Development – Responses to Mallesons Queries Regarding Contamination Matter, ref: N8459/05-AF 2 June 2004.
7. Coffey, (2008), Honeysuckle Central Contamination Assessment, ref: GEOTWARA20903AA-AE, dated 17 December 2008.
8. Data from fieldwork completed and held on file, but not reported in 2011.
9. Contaminated Land Management Act (1997).
10. Contamination Management Pty Ltd. (2002), Summary Site Audit Report WRR15A, William Ryall.
11. Coroner's Act 2009 (NSW).
12. Heritage Act 1977 (NSW).
13. National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (ASC NEPM 1999 (2013)).
14. National Parks and Wildlife Act 1974 (NSW).
15. Newcastle City Council 2012, Newcastle Technical Manual Contaminated Land Management.
16. NSW EPA Waste Classification Guidelines 2014.
17. NSW EPA Excavated Natural Material Order 2014.
18. Protection of the Environment Operations Act (1997) and Waste Regulation (2014, 2016).
19. Roads and Maritime Services (2012), Unexpected Archaeological Finds.
20. The Work Health and Safety Act (2011).
21. Woodward-Clyde 1999 (1999), Environmental Management Plan (EMP), Honeysuckle Development Newcastle.

Important information about your **Coffey** Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

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

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept apprised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statutes and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but

steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such

assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

Appendix A - Unexpected Finds Protocol

Unexpected Finds Protocol

1. Purpose

This procedure outlines a methodology for consistent response and management of unexpected finds during proposed enabling, early and development works. This procedure considers heritage obligations under the Heritage Act 1977 (NSW), National Park and Wildlife Act 1974 (NSW), Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth) and the Coroners Act 2009 (NSW).

2. Scope

This procedure applies to all contractors and sub-contractors conducting excavation works on Site 1 or in support of works being conducted on Site 1. These include the installation of service trenches, stormwater drains and all bulk earthworks activities.

This procedure considers that an application for a Project specific Aboriginal Heritage Impact Permit (AHIP) has been applied for under Section 90 of the National Parks and Wildlife Act 1974 to manage harm or potential harm to Aboriginal objects and places. Detailed investigations undertaken as part of the AHIP process notwithstanding, unexpected heritage items may still be unearthed during excavation works being undertaken on site. This procedure is applicable in those cases and triggers a cessation of work and guides on the relevant processes of seeking technical advice and regulatory notification.

3. Applicable Legislation and Procedures

- Heritage Act 1977 (NSW);
- National Parks and Wildlife Act 1974 (NSW);
- Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth);
- Coroner's Act 2009 (NSW); and
- Unexpected Archaeological Finds 2012 (RMS).

4. Types of Unexpected Finds

For this procedure an 'Unexpected find' is defined as any unanticipated potential contaminant or archaeological discovery not identified during previous assessments. An unexpected find may include:

- Contaminated materials;
- Buried infrastructure (e.g. underground storage tanks, pipes, footings);
- LNAPL/DNAPL contamination;
- Asbestos;
- Potential acid sulphate soils;
- Aboriginal and Non-Aboriginal Heritage artefacts; and
- Human skeletal remains.

5. General Initial Response

If during enabling, early or development works, there is any unexpected find the following applies;

- Cease Work Immediately and notify the Site Supervisor;
- Identification and classification of the find (Aboriginal/European Heritage, buried infrastructure, possible ACM, Contaminants);
- Evacuate and Isolate the area;

- Provide PPE to workers as required (for contaminated material including Underground Storage Tanks (UST's, pipes, asbestos containing material (ACM));
- Photograph the find and mark the identified location using a GPS;
- Install temporary fencing and signage;
- Notify the University HSE Representative;
- Tool box to all site staff; and
- Notify the University and Engage specialist consultants as required.

6. Management of Asbestos

Asbestos places worker health at risk when elevated levels of asbestos fibres are breathed into the lungs. The Safework NSW guideline for Managing Asbestos in or On Soil, 2014 states the following regarding asbestos exposure:

“The likelihood of exposure occurring depends upon the potential for the asbestos material to release fibres, whether the asbestos material is contained or covered, and any operational control measures or personal protective equipment which have been applied to limit the generation and/or inhalation of airborne fibres.

Non-friable asbestos, previously referred to as ‘bonded asbestos’, in sound condition represents a low human health risk. However, friable asbestos materials or damaged, crumbling bonded asbestos, have the potential to generate, or be associated with, free asbestos fibres and therefore must be carefully managed to minimise the release of asbestos fibres into the air.”

If in situ soil (surface/fill) or stockpiled material is suspected to contain asbestos, the Site Supervisor should be informed immediately. It should be assumed that the soil is asbestos impacted, and work immediately ceased. A suitably qualified environmental consultant or licensed asbestos assessor should be contacted to sample the material for confirmation of asbestos presence and type (friable or bonded).

If confirmed, the Site Supervisor must ensure the implementation of asbestos management procedures as outlined in the approved project specific Asbestos Management Plan based on Section 9 of the CLMP. The control measures will include but not be limited to:

- Identifying contaminant boundaries as determined by an independent licensed asbestos assessor or suitably qualified environmental consultant;
- Minimize disturbance to in situ soils or stockpiles containing potential ACM until the asbestos management procedures have been implemented;
- Isolating, securing and clearly identifying the area of potential ACM impact site using signs and barriers;
- Application of dust reduction/control measures such as spraying of water and application of wetting agents;
- Providing workers with appropriate personal protection equipment (PPE) based on the suspected level of contamination and the control measures implemented;
- Sampling of the suspected contaminated materials and/or air monitoring; and
- Execute a site toolbox talk focused on the provision of information to workers on hazards and safe work practices to minimise airborne dust exposure.

A licensed asbestos assessor should be engaged, and a comprehensive assessment conducted as required. If asbestos is confirmed, any impacted material must be removed by a licensed asbestos removalist and a clearance certificate obtained from a licensed asbestos assessor.

7. Skeletal Remains

During the progression of excavation works bones may be unexpectedly exhumed. If the bones are clearly human in origin, work will cease, access will be prevented to the immediate area by installing barriers and contact the local police immediately. The police may take control of the site for investigative purposes. The bones are not to be touched or disturbed. The coroner will assess the bones to determine if they are under 100 years old. If the bones are assessed to be over 100 years old they are managed, human or otherwise, as heritage items.

If the origin of the bones cannot be immediately identified as human, a suitably qualified Archaeologist or Anthropologist should be engaged to undertake an assessment of origin. Approval from the coroner, police, Aboriginal groups, Office of Heritage, Anthropologist or the client may be required before bones can be removed.

8. Contaminated Materials

In the event suspected contaminated materials (UST's, footings, pipes, flowing free phase hydrocarbons, oily wastes odorous or suspicious looking soils etc.) are discovered, steps must be taken to assess the materials and minimize potential impact on the environment. Upon discovering the items work will cease and an assessment of immediate risks carried out by the Site Supervisor and Project Manager. Following the initial assessment, a suitably qualified environmental consultant will be engaged to assess the short and long-term risks to human health and the environment and provide options for mitigation, management and/or disposal. Contaminated materials must be disposed at a licensed facility under an appropriate waste classification in accordance with the NSW EPA Waste Classification Guidelines (2014).

All contaminated materials on site to be managed in accordance with the CLMP.

9. Potential Acid Sulphate Soils (PASS)

If PASS materials are identified during excavation the following shall apply:

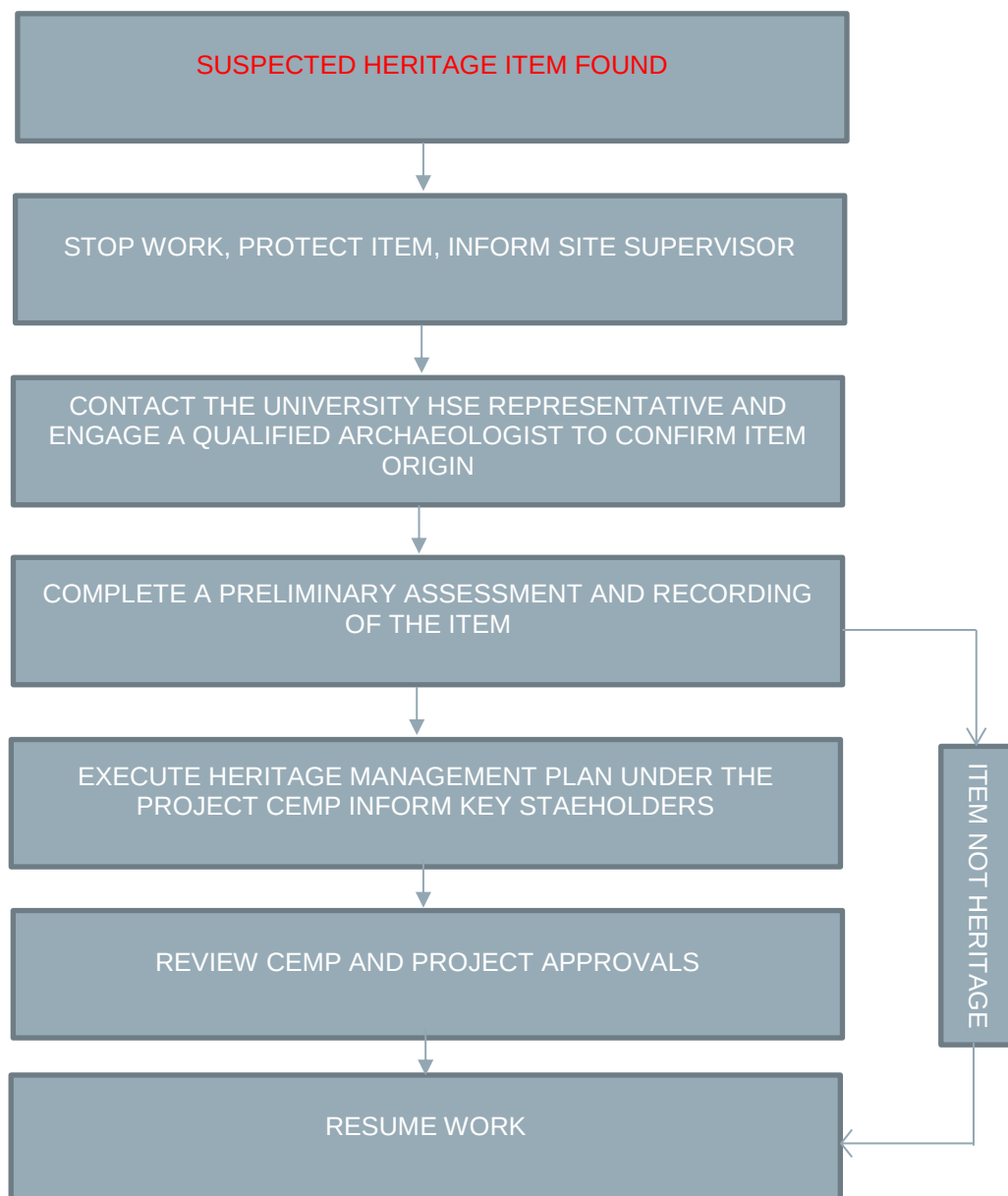
- Works are to stop in the immediate area where the suspected materials are found;
- Engage a suitably qualified environmental consultant to confirm the presence of PASS materials and their mitigation; and
- If PASS materials are identified an Acid Sulphate Management Plan (ASSMP) should be prepared to manage treatment and fins moving forward, if not already available as part of the contractor CEMP.

10. Aboriginal Heritage

The identification of any relic, artefact or material suspected to be of Aboriginal origin triggers an immediate cessation of works. The Site Supervisor and or Project Manager shall be notified immediately, who will in turn contact the University HSE representative. A qualified archaeologist must be engaged to confirm the find.

Following this, the Site Supervisor and or Project Manager must complete a preliminary assessment and recording of the item. If the item was identified to not be of Aboriginal origin works will immediately recommence following that clearance. Should Aboriginal Heritage items be confirmed the University HSE representative will then notify NSW Police, National Parks and Wildlife Service and Local Aboriginal stakeholders. If an approved Heritage Management Plan exists as part of an approved CEMP this must be executed.

The following flowchart illustrates the required actions following the suspected identification of Aboriginal heritage objects.



The Office of Environment and Heritage require notification and an AHIP permit is required prior to removal of artefacts. Site inductions should include an introduction and awareness to the possible presence of Aboriginal heritage and the expectation and procedures regarding their management.

Aboriginal Artefacts could include but not limited to stone tools, shell middens, axe grinding grooves, rock art, burials and scarred trees. Please refer to the included RMS guidance (Appendix) (Unexpected Heritage Items Procedure 2014) for further procedural and visual guidance.

Appendix B – RMS, 2015 Standard Management Procedure, Unexpected Heritage Items

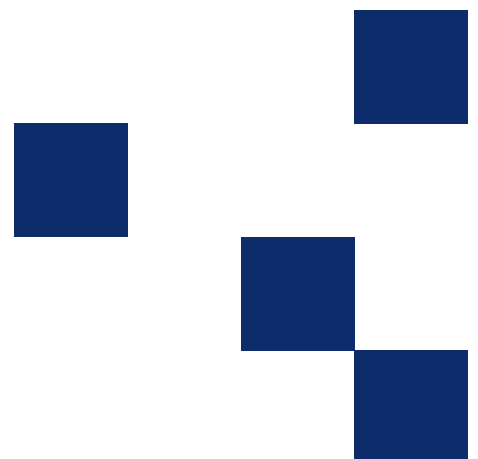


Transport
Roads & Maritime
Services

STANDARD MANAGEMENT PROCEDURE

Unexpected Heritage Items

March 2015



About this release

RMS/ISBN numbers	RMS 12.003 ISBN 9781922040305
Title	Unexpected Heritage Items Procedure

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Version	Date	Revision Description
Final	1 November 2011	First Draft
Revised	23 July 2012	Amended to reflect that (a) unexpected finds do not include items covered by a relevant approval; (b) Aboriginal people must be consulted where an unexpected find is likely to be an Aboriginal object; (c) the Department of Planning and Environment must be notified in accordance with Step 5 of this procedure for Part 3A and Part 5.1 projects.
Revised	09 October 2013	Amended to clarify that the procedure applies to all types of unexpected heritage items, not just archaeological items. The procedure introduces the term 'Historic Items' to cover both 'archaeological relics' and 'other historic items' such as works, structures, buildings and movable objects. The title of the document has been amended to better reflect this clarification.
Revised	16 March 2015	The procedure was streamlined to address all project types including maintenance works. The separate maintenance procedure (formerly Appendix B) was removed. Names and titles updated throughout.

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Please note

This procedure applies to all development and activities concerning roads, road infrastructure and road related assets undertaken by Roads and Maritime.

For advice on how to manage unexpected heritage items as a result of activities related to maritime infrastructure projects, please contact the Senior Environmental Specialist (Heritage).

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Unexpected heritage items procedure

1. Purpose

This procedure has been developed to provide a consistent method for managing unexpected heritage items (both Aboriginal and non-Aboriginal) that are discovered during Roads and Maritime activities. This procedure includes Roads and Maritime's heritage notification obligations under the *Heritage Act 1977* (NSW), *National Parks and Wildlife Act 1974* (NSW), *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) and the *Coroner's Act 2009* (NSW).

This document provides relevant background information in Section 3, followed by the technical procedure in Sections 6 and 7. Associated guidance referred to in the procedure can be found in Appendices A-H.

2. Scope

This procedure assumes that an appropriate level of Aboriginal and non-Aboriginal heritage assessment has been undertaken prior to on site project work commencing. In some case, such as exempt development, detailed heritage assessment may not be required.

Despite appropriate and adequate investigation, unexpected heritage items may still be discovered during maintenance and construction works. When this happens, this procedure must be followed. This procedure provides direction on when to stop work, where to seek technical advice and how to notify the regulator, if required.

This procedure applies to all Road and Maritime construction and maintenance activities

This procedure **applies to**:

- The discovery of any unexpected heritage item (usually during construction), where Roads and Maritime does not have approval to disturb the item or where safeguards for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.
- All Roads and Maritime projects that are approved or determined under Part 3A (including Transitional Part 3A Projects), Part 4, Part 5 or Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), or any development that is exempt under the Act.

This procedure must be followed by Roads and Maritime staff, alliance partners (including local council staff working under Road Maintenance Council Contracts, [RMCC]), developers under works authorisation deeds or any person undertaking Part 5 assessment for Roads and Maritime.

This procedure **does not apply to**:

- The legal discovery and disturbance of heritage items as a result of investigations being undertaken in accordance with OEH's *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (2010); an Aboriginal Heritage Impact Permit (AHIP) issued under the *National Parks and Wildlife Act*

1974; or an approval issued under the *Heritage Act 1977*¹.

- The legal discovery and disturbance of heritage items as a result of investigations (or other activities) that are required to be carried out for the purpose of complying with any environmental assessment requirements under Part 3A (including Transitional Part 3A Projects) or Part 5.1 of the EP&A Act.
- The legal discovery and disturbance of heritage items as a result of construction related activities, where the disturbance is permissible in accordance with an AHIP²; an approval issued under the *Heritage Act 1977*; the Minister for Planning's conditions of project approval; or safeguards (apart from this procedure) that are contained in the relevant environmental impact assessment.

All construction environment management plans (CEMPs) must make reference to and/or include this procedure (often included as a heritage sub-plan). Where approved CEMPs exist they must be followed in the first instance. Where there is a difference between approved CEMPs and this procedure, the approved CEMP must be followed. Where an approved CEMP does not provide sufficient detail on particular issues, this procedure should be used as additional guidance. When in doubt always seek environment and legal advice on varying approved CEMPs.

3. Types of unexpected heritage items and their legal protection

The roles of project, field and environmental staff are critical to the early identification and protection of unexpected heritage items. **Appendix A** illustrates the wide range of heritage discoveries found on Roads and Maritime projects and provides a useful photographic guide. Subsequent confirmation of heritage discoveries must then be identified and assessed by technical specialists (usually an archaeologist).

An 'unexpected heritage item' means any unanticipated discovery of an actual or potential heritage item, for which Roads and Maritime does not have approval to disturb³ or does not have a safeguard in place (apart from this procedure) to manage the disturbance.

These discoveries are categorised as either:

- (a) Aboriginal objects
- (b) Historic (non-Aboriginal) heritage items
- (c) Human skeletal remains.

The relevant legislation that applies to each of these categories is described below.

3.1 Aboriginal objects

The *National Park and Wildlife Act 1974* protects *Aboriginal objects* which are defined as:

¹ RMS' heritage obligations are incorporated into the conditions of heritage approvals.

² RMS *Procedure for Aboriginal cultural heritage consultation and investigation* (2011) recommends that Part 4 and Part 5 projects that are likely to impact Aboriginal objects during construction seek a whole-of-project AHIP. This type of AHIP generally allows a project to impact known and potential Aboriginal objects within the entire project area, without the need to stop works. It should be noted that an AHIP may exclude impact to certain objects and areas, such as burials or ceremonial sites. In such cases, the project must follow this procedure.

³ Disturbance is considered to be any physical interference with the item that results in it being destroyed, defaced, damaged, harmed, impacted or altered in any way (this includes archaeological investigation activities).

“any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non Aboriginal extraction, and includes Aboriginal remains”⁴.

Examples of Aboriginal objects include stone tool artefacts, shell middens, axe grinding grooves, pigment or engraved rock art, burials and scarred trees.

IMPORTANT!

All Aboriginal objects, regardless of significance, are protected under law.

If any impact is expected to an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) is usually required from the Office of Environment and Heritage (OEH)⁵. Also, when a person becomes aware of an Aboriginal object they must notify the Director-General of OEH about its location⁶. Assistance on how to do this is provided in Section 7 (Step 5).

3.2 Historic heritage items

Historic (non-Aboriginal) heritage items may include:

- Archaeological ‘relics’
- Other historic items (i.e. works, structures, buildings or movable objects).

3.2.1 Archaeological relics

The *Heritage Act 1977* protects *relics* which are defined as:

“any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and is of State or local heritage significance”⁷.

Relics are archaeological items of local or state significance which may relate to past domestic, industrial or agricultural activities in NSW, and can include bottles, remnants of clothing, pottery, building materials and general refuse.

⁴ Section 5(1) *National Park and Wildlife Act 1974*.

⁵ Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.

⁶ This is required under s89(A) of the *National Park and Wildlife Act 1974* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.

⁷ Section 4(1) *Heritage Act 1977*.

IMPORTANT!

All relics are subject to statutory controls and protections.

If a relic is likely to be disturbed, a heritage approval is usually required from the NSW Heritage Council⁸. Also, when a person discovers a relic they must notify the NSW Heritage Council of its location⁹. Advice on how to do this is provided in Section 7 (Step 5).

3.2.2 Other historic items

Some historic heritage items are not considered to be ‘relics’; but are instead referred to as works, buildings, structures or movable objects. Examples of these items that Roads and Maritime may encounter include culverts, historic road formations, historic pavements, buried roads, retaining walls, tramlines, cisterns, fences, sheds, buildings and conduits. Although an approval under the *Heritage Act 1977* may not be required to disturb these items, their discovery must be managed in accordance with this procedure.

As a general rule, an archaeological relic requires discovery or examination through the act of excavation. An archaeological excavation permit under Section 140 of the *Heritage Act 1977* is required to do this. In contrast, ‘other historic items’ either exist above the ground’s surface (e.g. a shed), or they are designed to operate and exist beneath the ground’s surface (e.g. a culvert).

Despite this difference, it should be remembered that relics can often be associated with ‘other heritage items’, such as archaeological deposits within cisterns and underfloor deposits under buildings.

3.3 Human skeletal remains

Human skeletal remains can be identified as either an Aboriginal object or non-Aboriginal relic depending on ancestry of the individual (Aboriginal or non-Aboriginal) and burial context (archaeological or non-archaeological). Remains are considered to be archaeological when the time elapsed since death is suspected of being 100 years or more. Depending on ancestry and context, different legislation applies.

As a simple example, a pre-contact archaeological Aboriginal burial would be protected under the *National Park and Wildlife Act 1974*, while a historic (non-Aboriginal) archaeological burial within a cemetery would be protected under the *Heritage Act 1977*. For these cases, the relevant heritage approval and notification requirements described in the above sections 3.1 and 3.2 would apply. In addition to the *National Park and Wildlife Act 1974*, finding Aboriginal human remains also triggers notification requirements to the Commonwealth Minister for the Environment under s20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

⁸ Except when Part 3A, Division 4.1 of Part 4 or Part 5.1 of the *EP&A Act* applies.

⁹ This is required under s146 of the *Heritage Act 1977* and applies to **all projects** assessed under Part 3A, Part 4, Part 5 and Part 5.1 of the *EP&A Act*, including exempt development.

 IMPORTANT!

All human skeletal remains are subject to statutory controls and protections.

All bones must be treated as potential human skeletal remains and work around them must stop while they are protected and investigated urgently.

However, where it is suspected that less than 100 years has elapsed since death, the human skeletal remains come under the jurisdiction of the State Coroner and the *Coroners Act 2009* (NSW). Such a case would be considered a 'reportable death' and under legal notification obligations set out in s35(2); a person must report the death to a police officer, a coroner or an assistant coroner as soon as possible. This applies to all human remains less than 100 years old¹⁰ regardless of ancestry (ie both Aboriginal and non-Aboriginal remains). Public health controls may also apply.

Guidance on what to do when suspected human remains are found is provided in **Appendix E**.

¹⁰ Under s19 of the *Coroners Act 2009*, the coroner has no jurisdiction to conduct an inquest into reportable death unless it appears to the coroner that (or that there is reasonable cause to suspect that) the death or suspected death occurred within the last 100 years.

4. Responsibilities

The following roles and responsibilities are relevant to this procedure.

Role	Definition/responsibility
Aboriginal Cultural Heritage Advisor (ACHA)	Provides Aboriginal cultural heritage advice to project teams. Acts as Aboriginal community liaison for projects on cultural heritage matters. Engages and consults with the Aboriginal community as per the Roads and Maritime <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> .
Aboriginal Sites Officer (ASO)	Is an appropriately trained and skilled Aboriginal person whose role is to identify and assess Aboriginal objects and cultural values. For details on engaging Aboriginal Sites Officers, refer to Roads and Maritime <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> .
Archaeologist (A)	Professional consultant, contracted on a case-by-case basis to provide heritage and archaeological advice and technical services (such as reports, heritage approval documentation etc). Major projects with complex heritage issues often have an on call Project archaeologist.
Project Manager (PM)	Ensures all aspects of this procedure are implemented. The PM can delegate specific tasks to a construction environment manager, Roads and Maritime site representatives or regional environment staff, where appropriate.
Regional Environment Staff (RES)	Provides advice on this procedure to project teams. Ensuring this procedure is implemented consistently by supporting the PM. Supporting project teams during the uncovering of unexpected finds. Reviewing archaeological management plans and liaising with heritage staff and archaeological consultants as needed.
Registered Aboriginal Parties (RAPs)	RAPs are Aboriginal people who have registered with Roads and Maritime to be consulted about a proposed Roads and Maritime project or activity in accordance with OEH's Aboriginal cultural heritage consultation requirements for proponents (2010).
Senior Environmental Specialist (Heritage) (SES(H))	Provides technical assistance on this procedure and archaeological technical matters, as required. Reviewing the archaeological management plans and facilitating heritage approval applications, where required. Assists with regulator engagement, where required.
Team Leader - Regional Maintenance Delivery (TL-RMD)	Ensures Regional Maintenance Delivery staff stop work in the vicinity of an unexpected heritage item. Completes Unexpected Heritage Item Recording Form 418 and notifies WS-RMD.
Technical Specialist	Professional consultant contracted to provide specific technical advice that relates to the specific type of

	unexpected heritage find (eg a forensic or physical anthropologist who can identify and analyse human skeletal remains).
Works Supervisor - Regional Maintenance Delivery (WS-RMD)	Ensures Regional Maintenance Delivery staff are aware of this procedure. Supports the Team Leader - Regional Maintenance Delivery during the implementation of this procedure and ensures reporting of unexpected heritage items through environment management systems.

5. Acronyms

The following acronyms are relevant to this procedure.

Acronym	Meaning
A	Archaeologist
ACHA	Aboriginal Cultural Heritage Advisor
AHIP	Aboriginal Heritage Impact Permit
ASO	Aboriginal Site Officer
CEMP	Construction Environment Management Plan
OEH	Office of Environment and Heritage.
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PM	Project Manager
RAP	Registered Aboriginal Parties
RES	Regional Environmental Staff
SES(H)	Senior Environmental Specialist (Heritage)
TL-RMD	Team Leader – Regional Maintenance Division
RMD	Regional Maintenance Delivery
RMS	Roads and Maritime
WS-RMD	Works Supervisor - Regional Maintenance Division

6. Overview of the procedure

On discovering something that could be an unexpected heritage item ('the item'), the following procedure must be followed. There are eight steps in the procedure. These steps are summarised in **Figure 1** below and explained in detail in Section 7.

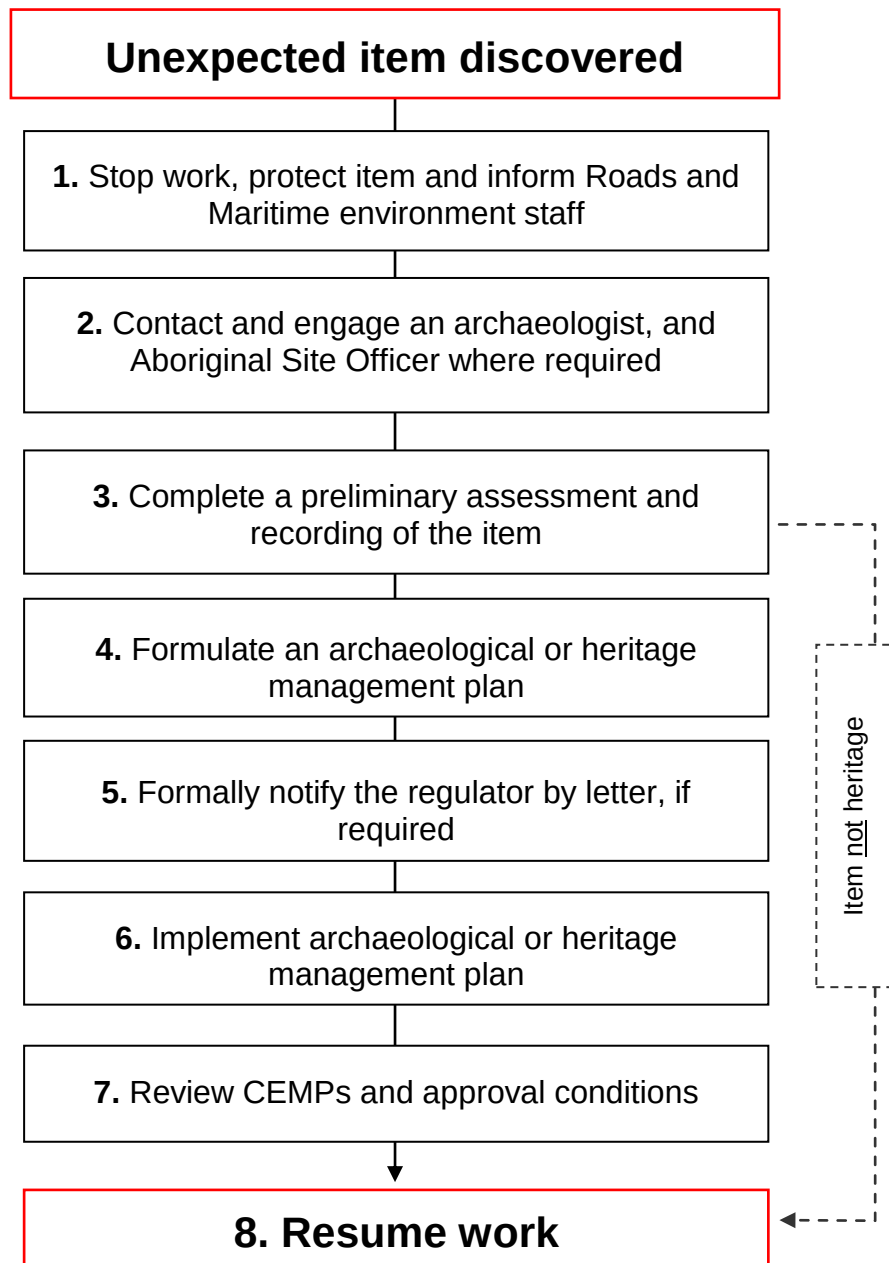


Figure 1: Overview of steps to be undertaken on the discovery of an unexpected heritage item.

IMPORTANT!

RMS may have approval or specific safeguards in place (apart from this procedure) to impact on certain heritage items during construction. If you discover a heritage item and you are unsure whether an approval or safeguard is in place, **STOP** works and follow this procedure.

7. Unexpected heritage items procedure

Table 1: Specific tasks to be implemented following the discovery of an unexpected heritage item.

Aboriginal Cultural Heritage Advisor (ACHA); Aboriginal Sites Officer (ASO); Archaeologist (A); Project Manager (PM); Regional Environment Staff (RES); Registered Aboriginal Parties (RAPs); Senior Environmental Specialist (Heritage) (SES(H)); Team leader – Roads and Maintenance Division (TL - RMD); Works supervisor – Roads and Maintenance Division (WS - RMD).

Step	Task	Responsibility	Guidance & Tools
1	Stop work, protect item and inform Roads and Maritime environment staff		
1.1	Stop all work in the immediate area of the item and notify the Project Manager or Team Leader-RMD. (For maintenance activities, the Team Leader is to also notify the Works Supervisor-RMD)	All	Appendix A (Identifying Unexpected Heritage items)
1.2	Establish a 'no-go zone' around the item. Use high visibility fencing, where practical.	PM or TL-RMD	
1.3	Inform all site personnel about the no-go zone. No further interference, including works, ground disturbance, touching or moving the item must occur within the no-go zone.	PM or TL-RMD	
1.4	Inspect, document and photograph the item using 'Unexpected Heritage Item Recording Form 418'.	PM or TL-RMD	Appendix B (Unexpected Heritage Item Recording Form 418) Appendix C (Photographing Unexpected Heritage items)

Step	Task	Responsibility	Guidance & Tools
1.5	Is the item likely to be bone? If yes, follow the steps in Appendix E – ‘Uncovering bones’. Where it is obvious that the bones are human remains, you must notify the local police by telephone immediately. They may take command of all or part of the site. If no, proceed to next step.	PM or WS-RMD	Appendix E (Uncovering Bones)
1.6	Is the item likely to be: a) A relic? (A relic is evidence of past human activity which has local or state heritage significance. It may include items such as bottles, utensils, remnants of clothing, crockery, personal effects, tools, machinery and domestic or industrial refuse) and/or b) An Aboriginal object? (An Aboriginal object may include a shell midden, stone tools, bones, rock art or a scarred tree). If yes, proceed directly to Step 1.8 If no, proceed to next step.	PM or WS-RMD	Appendix A (Identifying heritage items)
1.7	Is the item likely to be a “work”, building or standing structure? (This may include tram tracks, kerbing, historic road pavement, fences, sheds or building foundations). If yes, can works avoid further disturbance to the item? (E.g. if historic road base/tram tracks have been exposed, can they be left in place?) If yes, works may proceed without further disturbance to the item. Complete Step 1.8 within 24 hours. If works cannot avoid further disturbance to the item, works must not recommence at this time. Complete the remaining steps in this procedure.	PM or WS-RMD	Appendix A (Identifying heritage items)

Step	Task	Responsibility	Guidance & Tools
1.8	Inform relevant Roads and Maritime Regional Environmental Staff of item by providing them with the completed 'Form 418'.	PM or WS-RMD (RES)	Appendix D (Key Environmental Contacts)
1.9	Regional Environmental Staff to advise Project Manager or Works Supervisor whether RMS has an approval or safeguard in place (apart from this procedure) to impact on the 'item'. (An approval may include an approval under the <i>Heritage Act</i>, the <i>National Parks and Wildlife Act</i> or the <i>Planning and Assessment Act</i>). Does RMS have an approval, permit or appropriate safeguard in place to impact on the item? If yes, work may recommence in accordance with the approval, permit or safeguard. There is no further requirement to follow this procedure. If no, continue to next step.		
1.10	Liaise with Traffic Management Centre where the delay is likely to affect traffic flow.	PM or WS-RMD	
1.11	Report the item as a 'Reportable Event' in accordance with the Roads and Maritime <i>Environmental Incident Classification and Reporting Procedure</i> . Implement any additional reporting requirements related to the project's approval and CEMP, where relevant.	PM or WS-RMD	RMS Environmental Incident Classification and Reporting Procedure
2	Contact and engage an archaeologist and, where required, an Aboriginal site officer		
2.1	Contact the Project (on-call) Archaeologist to discuss the location and extent of the item and to arrange a site inspection, if required. The project CEMP may contain contact details of the Project Archaeologist. OR	PM or WS-RMD (A; RES; SES(H))	Also see Appendix D (Key Environmental Contacts)

Step	Task	Responsibility	Guidance & Tools
	Where there is no project archaeologist engaged for the works, engage a suitably qualified and experienced archaeological consultant to assess the find. A list of heritage consultants is available on the RMS contractor panels on the Buyways homepage. Regional environment staff and Roads and Maritime heritage staff can also advise on appropriate consultants.		<u>Buyways</u>
2.2	Where the item is likely to be an Aboriginal object, speak with your Aboriginal Cultural Heritage Advisor to arrange for an Aboriginal Sites Officer to assess the find. Generally, an Aboriginal Sites Officer would be from the relevant local Aboriginal land council. If an alternative contact person (ie a RAP) has been nominated as a result of previous consultation, then that person is to be contacted.	PM or WS-RMD (ACHA; ASO)	
2.3	If requested, provide photographs of the item taken at Step 1.4 to the archaeologist, and Aboriginal Sites Officer if relevant.	PM or WS-RMD (RES)	Appendix C (Photographing Unexpected Heritage items)
3	Preliminary assessment and recording of the find		
3.1	In a minority of cases, the archaeologist (and Aboriginal Sites Officer, if relevant) may determine from the photographs that no site inspection is required because no archaeological constraint exists for the project (<i>eg the item is not a 'relic', a 'heritage item' or an 'Aboriginal object'</i>). Any such advice should be provided in writing (eg via email) and confirmed by the Project Manager or Works Supervisor - RMD.	A/PM/ASO/ WS-RMD	Proceed to Step 8
3.2	Arrange site access for the archaeologist (and Aboriginal Sites Officer, if relevant) to inspect the item as soon as practicable. In the majority of cases a site inspection is required to conduct a preliminary assessment.	PM or WS-RMD	
3.3	Subject to the archaeologist's assessment (and the Aboriginal Sites Officer's assessment, if relevant), work may recommence at a set distance from the item. This is to protect any other archaeological material that may exist in the vicinity, which has not yet been uncovered. Existing protective fencing established in Step 1.2 may need to be adjusted to	A/PM/ASO/ WS-RMD	

Step	Task	Responsibility	Guidance & Tools
	reflect the extent of the newly assessed protective area. No works are to take place within this area once established.		
3.4	The archaeologist (and Aboriginal Sites Officer, if relevant) may provide advice after the site inspection and preliminary assessment that no archaeological constraint exists for the project (<i>eg the item is not a 'relic', a 'heritage item' or an 'Aboriginal object'</i>). Any such advice should be provided in writing (eg via email) and confirmed by the Project Manager or Works Supervisor - RMD.	A/PM/ASO/ WS-RMD	Proceed to Step 8
3.5	Where required, seek additional specialist technical advice (such as a forensic or physical anthropologist to identify skeletal remains). Regional environment staff and/or Roads and Maritime heritage staff can provide contacts for such specialist consultants.	RES/SES(H)	Appendix D (Key Environmental Contacts)
3.6	Where the item has been identified as a 'relic', 'heritage item' or an 'Aboriginal object' the archaeologist should formally record the item.	A	
3.7	The regulator can be notified informally by telephone at this stage by the archaeologist, Project Manager (or delegate) or Works Supervisor - RMD. Any verbal conversations with regulators must be noted on the project file for future reference.	PM/A/WS-RMD	
4	Prepare an archaeological or heritage management plan		
4.1	The archaeologist must prepare an archaeological or heritage management plan (with input from the Aboriginal Sites Officer, where relevant) shortly after the site inspection. This plan is a brief overview of the following: (a) description of the feature, (b) historic context, if data is easily accessible, (c) likely significance, (d) heritage approval and regulatory notification requirements, (e) heritage reporting requirements, (f) stakeholder consultation requirements, (g) relevance to other project approvals and management plans etc.	A/ASO	Appendix F (Archaeological/ Heritage Advice Checklist)
4.2	In preparing the plan, the archaeologist with the assistance of regional environment staff must review the CEMP, any heritage sub-plans, any conditions of heritage approvals, conditions of project approval (and or Minister's Conditions of Approval) and heritage assessment documentation (eg Aboriginal Cultural Heritage Assessment Report). This will outline if the unexpected item is consistent with previous heritage/project approval(s)	A/RES/PM	Appendix F (Archaeological/ Heritage Advice Checklist)

Step	Task	Responsibility	Guidance & Tools
	and/or previously agreed management strategies. The Project Manager and regional environment staff must provide all relevant documents to the archaeologist to assist with this. Discussions should occur with design engineers to consider if re-design options exist and are appropriate.		
4.3	The archaeologist must submit this plan as a letter, brief report or email to the Project Manager outlining all relevant archaeological or heritage issues. This plan should be submitted to the Project Manager as soon as practicable. Given that the archaeological management plan is an overview of all the necessary requirements (and the urgency of the situation), it should take no longer than two working days to submit to the Project Manager.	A	
4.4	The Project Manager or Works Supervisor must review the archaeological or heritage management plan to ensure all requirements can reasonably be implemented. Seek additional advice from regional environment staff and Roads and Maritime heritage staff, if required.	PM/RES/SES(H)/ WS-RMD	
5	Notify the regulator, if required.		
5.1	Review the archaeological or heritage management plan to confirm if regulator notification is required. Is notification required? If no , proceed directly to Step 6 If yes , proceed to next step.	PM/RES/SES(H)/ WS-RMD	
5.2	If notification is required, complete the template notification letter.	PM or WS-RMD	Appendix G (Template Notification Letter)
5.3	Forward the draft notification letter, archaeological or heritage management plan and the site recording form to regional environment staff and Senior Environmental Specialist (Heritage) for review, and consider any suggested amendments.	PM/RES/SES(H)/ WS-RMD	

Step	Task	Responsibility	Guidance & Tools
5.4	Forward the signed notification letter to the relevant regulator (ie notification of relics must be given to the Heritage Division, Office of Environment and Heritage (OEH), while notification for Aboriginal objects must be given to the relevant Aboriginal section of OEH). Informal notification (via a phone call or email) to the regulator prior to sending the letter is appropriate. The archaeological management plan and the completed site recording form must be submitted with the notification letter. For Part 3A and Part 5.1 projects, the Department of Planning and Environment must also be notified.	PM or WS-RMD	Appendix D (Key Environmental Contacts)
5.5	A copy of the final signed notification letter, archaeological or heritage management plan and the site recording form should be kept on file by the Project Manager or Works Supervisor- RMD and a copy sent to the Senior Environmental Specialist (Heritage).	PM or WS-RMD	
6	Implement archaeological or heritage management plan		
6.1	Modify the archaeological or heritage management plan to take into account any additional advice resulting from notification and discussions with the regulator.	A/PM or WS-RMD (RES)	
6.2	Implement the archaeological or heritage management plan. Where impact is expected, this would include such things as a formal assessment of significance and heritage impact assessment, preparation of excavation or recording methodologies, consultation with registered Aboriginal parties, obtaining heritage approvals etc, if required.	PM or WS-RMD (RAPs and RES)	PACHCI Stage 3
6.3	Where heritage approval is required contact regional environment staff for further advice and support material. Please note time constraints associated with heritage approval preparation and processing. Project scheduling may need to be revised where extensive delays are expected.	PM/RES/WS-RMD	
6.4	For Part 3A/Part 5.1 projects, assess whether heritage impact is consistent with the project approval or if project approval modification is required from the Department of Planning and Environment. Seek advice from regional environment staff and Environment Branch specialist staff if unsure.	PM/RES	

Step	Task	Responsibility	Guidance & Tools
6.5	Where statutory approvals (or project approval modification) are required, impact upon relics and/or Aboriginal objects must not occur until heritage approvals are issued by the appropriate regulator.	PM or WS-RMD	
6.6	Where statutory approval (or Part 3A/Part 5.1 project modification) is not required and where recording is recommended by the archaeologist, sufficient time must be allowed for this to occur.	PM or WS-RMD	
6.7	Ensure short term and permanent storage locations are identified for archaeological material or other heritage material is removed from site, where required. Interested third parties (eg museums or local councils) should be consulted on this issue. Contact regional environment staff and Senior Environmental Specialist (Heritage) for advice on this matter, if required.	PM or WS-RMD	
7	Review CEMPs and approval conditions		
7.1	Check whether written notification is required to be sent to the regulator before re-commencing work. Where this is not explicit in heritage approval conditions, expectations should be clarified directly with the regulator.	PM	
7.2	Update the CEMP, site mapping and project delivery program as appropriate with any project changes resulting from final heritage management (eg retention of heritage item, salvage of item). Updated CEMPs must incorporate additional conditions arising from any heritage approvals, and Aboriginal community consultation if relevant. Include any changes to CEMP in site induction material and update site workers during toolbox talks.	PM	
8	Resume work		
8.1	Seek written clearance to resume project work from regional environment staff and the archaeologist (and regulator, if required). Clearance would only be given once all archaeological excavation and/or heritage recommendations (where required) are complete. Resumption of project work must be in accordance with the all relevant project/heritage approvals/determinations.	RES/A/PM/WS-RMD	
8.2	If required, ensure archaeological excavation/heritage reporting and other heritage	PM/AWS-RMD	

Step	Task	Responsibility	Guidance & Tools
	approval conditions are completed in the required timeframes. This includes artefact retention repositories, conservation and/or disposal strategies.		
8.3	Forward all heritage/archaeological assessments, heritage location data and its ownership status to the Senior Environmental Specialist (Heritage). They will ensure all heritage items in Roads and Maritime ownership and/or control are considered for the Roads and Maritime S170 Heritage and Conservation Register.	PM/SES(H)/ WS-RMD	
8.4	If additional unexpected items are discovered this procedure must begin again from Step 1.	PM/TL-RMD	

8. Seeking advice

Advice on this procedure should be sought from Roads and Maritime regional environment staff in the first instance. Contractors and alliance partners should ensure their own project environment managers are aware of and understand this procedure. Regional environment staff can assist non-Roads and Maritime project environment managers with enquires concerning this procedure.

IMPORTANT!

Roads and Maritime Services staff and contractors are not to seek advice on this procedure directly from the Office of Environment and Heritage without first seeking advice from regional environment staff and heritage policy staff.

Technical archaeological or heritage advice regarding an unexpected heritage item should be sought from the contracted archaeologist. Technical specialist advice can also be sought from heritage policy staff within Environment Branch to assist with the preliminary archaeological identification and technical reviews of heritage/archaeological reports.

9. Related information

Contact details: Senior Environmental Specialist (Heritage), Environment Branch, 02 8588 5754

Effective date: 01 February 2015

Review date: 01 February 2016

This procedure should be read in conjunction with:

- Roads and Maritimes' *Heritage Guidelines 2015*.
- Roads and Maritime Services *Environmental Incident Classification and Reporting Procedure*
- Roads and Maritime's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*
- RTA *Environmental Impact Assessment Guidelines*.

This procedure replaces:

- Procedure 5.5 ("*unexpected discovery of an archaeological relic or Aboriginal object*") outlined in the RTA's *Heritage Guidelines 2004*.

Other relevant reading material:

- NSW Heritage Office (1998), *Skeletal remains: guidelines for the management of human skeletal remains*.
- Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal remains*.
- Department of Health (April 2008), *Policy Directive: Burials - exhumation of human remains*¹¹.

¹¹ http://www.health.nsw.gov.au/policies/pd/2008/pdf/PD2008_022.pdf

10. List of appendices

The following appendices are included to support this procedure.

Appendix A	Identifying Unexpected Heritage items
Appendix B	Unexpected Heritage Item Recording Form 418
Appendix C	Photographing Unexpected Heritage Items
Appendix D	Key Environment Contacts
Appendix E	Uncovering Bones
Appendix F	Archaeological Advice Checklist
Appendix G	Template Notification Letter

Appendix A

Identifying unexpected heritage items

The following images can be used to assist in the preliminary identification of potential unexpected items (both Aboriginal and non-Aboriginal) during construction and maintenance works. Please note this is not a comprehensive typology.



Top left hand picture continuing clockwise: Stock camp remnants (Hume Highway Bypass at Tarcutta); Linear archaeological feature with post holes (Hume Highway Duplication), Animal bones (Hume Highway Bypass at Woomargama); Cut wooden stake; Glass jars, bottles, spoon and fork recovered from refuse pit associated with a Newcastle Hotel (Pacific Highway, Adamstown Heights, Newcastle area).



Top left hand picture continuing clockwise: Woodstave water pipe with tar and wire sealing (Horsley Drive); Tram tracks (Sydney); Brick lined cistern (Clyde); Retaining wall (Great Western Highway, Leura).



Top left hand picture continuing clockwise: Road pavement (Great Western Highway, Lawson); Sandstone kerbing and guttering (Parramatta Road, Mays Hill); Telford road (sandstone road base, Great Western Highway, Leura); Ceramic conduit and sandstone culvert headwall (Blue Mountains, NSW); Corduroy road (timber road base, Entrance Road, Wamberai).



Alignment pin



Survey tree



Alignment stone



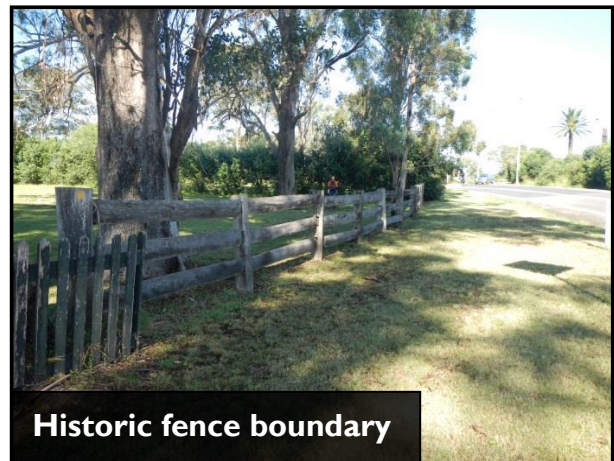
Survey tree



Milestone



Top left hand corner continuing clockwise: Alignment Pin (Great Western Highway, Wentworth Falls); Survey tree (MR7, Albury); Survey tree (Kidman Way, Darlington Point, Murrumbidgee); Survey tree (Cobb Highway, Deniliquin); Milestone (Great Western Highway, Kingswood, Penrith); Alignment Stone (near Guntawong Road, Riverstone). Please note survey marks may have additional statutory protection under the *Surveying and Spatial Information Act 2002*.



Top left hand corner continuing clockwise: Remnant bridge piers (Putty Road, Bulga); Wooden boundary fence (Campbelltown Road, Denham Court); Dairy shed (Ballina); Golden Arrow Mine Shaft.



Top left hand corner: Culturally modified stone discovered on Main Road 92, about two kilometres west of Sassafras. The remaining images show a selection of stone artefacts retrieved from test and salvage archaeological excavations during the Hume Highway Duplication and Bypass projects from 2006-2010.

Appendix B

Unexpected heritage item recording form 418



This form is to be filled in by a project manager (or their delegate) or a team leader – Road and Maintenance Division, on the discovery of an unexpected heritage item during construction or maintenance works.

Date:		Recorded by: (Include name and position)	
Project name:			
Description of works being undertaken (eg Removal of failed pavement by excavation and pouring concrete slabs in 1m x 1m replacement sections).			
Description of exact location of item (eg Within the road formation on Parramatta Road, east bound lane, at the corner of Johnston Street, Annandale, Sydney).			
Description of item found (What type of item is it likely to be? Tick the relevant boxes).			
A. A relic	☐	A 'relic' is evidence of a past human activity relating to the settlement of NSW with local or state heritage significance. A relic might include bottles, utensils, plates, cups, household items, tools, implements, and similar items.	
B. A 'work, building or structure'	☐	A 'work' can generally be defined as a form infrastructure such as tram tracks, a culvert, road base, a bridge pier, kerbing, and similar items.	
C. An Aboriginal object	☐	An 'Aboriginal object' may include stone tools, stone flakes, shell middens, rock art, scarred trees and human bones.	
D. Bone	☐	Bones can either be human or animal remains. Remember that you must contact the local police immediately by telephone if you are <u>certain</u> that the bone(s) are <u>human remains</u>.	
E. Other	☐		

Provide short description of item (eg Metal tram tracks running parallel to road alignment. Good condition. Tracks set in concrete, approximately 10cms (100 mm) below the current ground surface).	
Sketch (Provide a sketch of the item's general location in relation to other road features so its approximate location can be mapped without having to re-excavate it. In addition, please include details of the location and direction of any photographs of the item taken).	
Action taken (Tick either A or B)	
A. Unexpected item would not be further impacted on by works ☐	
Describe how works would avoid impact on the item. (eg The tram tracks will be left <i>in situ</i> , and recovered with road paving).	
B. Unexpected item would be further impacted on by works ☐	
Describe how works would impact on the item. (eg Milling is required to be continued to 200 mm depth to ensure road pavement requirements are met. Tram tracks will need to be removed).	
Important: It is a statutory offence to disturb Aboriginal objects and historic relics (including human remains) without an approval. All works affecting objects and relics must cease until an approval is sought. Approvals may also be required to impact on certain works. Contact your regional environment staff for guidance.	
Project manager / works supervisor signature	

Appendix C

Photographing unexpected heritage items

✋ Removal of the item from its context (e.g. excavating from the ground) for photographic purposes is not permitted.

Photographs of unexpected items in their current context (*in situ*) may assist heritage staff and archaeologists to better identify the heritage values of the item. Emailing good quality photographs to specialists can allow for better quality and faster heritage advice. The key elements that must be captured in photographs of the item include its position, the item itself and any distinguishing features. All photographs must have a scale (ruler, scale bar, mobile phone, coin) and a note describing the direction of the photograph.

Context and detailed photographs

It is important to take a general photograph (Figure 1) to convey the location and setting of the item. This will add much value to the subsequent detailed photographs also required (Figure 2).



Figure 2: Close up detail of the sandstone surface showing material type, formation and construction detail. This is essential for establishing date of the feature.

Figure 1: Telford road uncovered on the Great Western Highway (Leura) in 2008.

Photographing distinguishing features

Where unexpected items have a distinguishing feature, close up detailed photographs must be taken of this, where practicable. In the case of a building or bridge, this may include diagnostic details architectural or technical features. See Figures 3 and 4 for examples.



Figure 3: Ceramic bottle artefact with stamp.

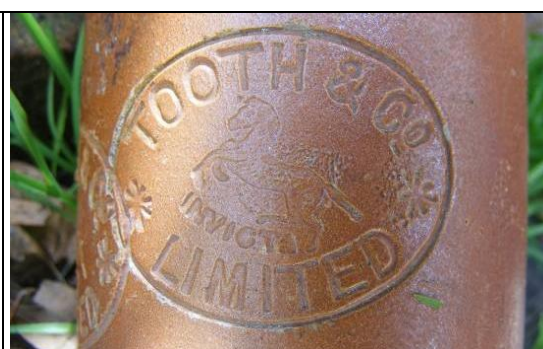


Figure 4: Detail of the stamp allows 'Tooth & Co Limited' to be made out. This is helpful to a specialist in gauging the artefact's origin, manufacturing date and likely significance.

Photographing bones

The majority of bones found on site will those of be recently deceased animal bones often requiring no further assessment (unless they are in archaeological context). However, if bones are human, Roads and Maritime must contact the police immediately (see Appendix F for detailed guidance). Taking quality photographs of the bones can often resolve this issue quickly. Heritage staff in Environment Branch can confirm if bones are human or non-human if provided with appropriate photographs. Ensure that photographs of bones are not concealed by foliage (Figure 5) as this makes it difficult to identify. Minor hand removal of foliage can be undertaken as long as disturbance of the bone does not occur. Excavation of the ground to remove bone(s) should not occur, nor should they be pulled out of the ground if partially exposed. Where sediment (adhering to a bone found on the ground surface) conceals portions of a bone (Figure 6) ensure the photograph is taken of the bone (if any) that is not concealed by sediment.



Figure 5: Bone concealed by foliage.



Figure 6: Bone covered in sediment

Ensure that all close up photographs include the whole bone and then specific details of the bone (especially the ends of long bones, the *epiphysis*, which is critical for species identification). Figures 7 and 8 are examples of good photographs of bones that can easily be identified from the photograph alone. They show sufficient detail of the complete bone and the epiphysis.



Figure 7: Photograph showing complete bone.



Figure 8: Close up of a long bone's epiphysis.

Appendix D

Key environmental contacts

Hunter region	Environmental Manager (Hunter)	4924 0440
	Aboriginal Cultural Heritage Advisor	4924 0383
Northern region	Environment Manager (North)	6640 1072
	Aboriginal Cultural Heritage Advisor	6604 9305
Southern region	Environmental Manager (South)	6492 9515
	Aboriginal Cultural Heritage Advisor	4221 2767
South West region	Environment Manager (South West)	6937 1634
	Aboriginal Cultural Heritage Advisor	6937 1647
Sydney region	Environment Manager (Sydney)	8849 2516
	Aboriginal Cultural Heritage Advisor	8849 2583
Western region	Environment Manager (West)	6861 1628
	Aboriginal Cultural Heritage Advisor	6861 1658
Pacific Highway Office	Environment Manager	6640 1375
Regional Maintenance Delivery	Environment Manager	9598 7721
Environment Branch	Senior Environmental Specialist (Heritage)	8588 5754

Heritage Regulators

Heritage Division Office of Environment and Heritage Locked Bag 5020 Parramatta NSW 2124 Phone: (02) 9873 8500	Department of the Environment (Clth) GPO Box 787 Canberra ACT 2601 Phone: (02) 6274 1111
Office of Environment and Heritage (Sydney Metropolitan) Planning and Aboriginal Heritage Section PO Box 668 Parramatta NSW 2124 Phone: (02) 9995 5000	Office of Environment and Heritage (North Eastern NSW) Planning and Aboriginal Heritage Section Locked Bag 914 Coffs Harbour NSW 2450 Phone: (02) 6651 5946
Office of Environment and Heritage (North Western NSW) Environment and Conservation Programs PO Box 2111 Dubbo NSW 2830 Phone: (02) 6883 5330	Office of Environment and Heritage (Southern NSW) Landscape and Aboriginal Heritage Protection Section PO Box 733 Queanbeyan NSW 2620 Phone: (02) 6229 7188

Project-Specific Contacts

Position	Name	Phone Number
Project Manager		
Site/Alliance Environment Manager		
Regional Environmental Officer		
Aboriginal Cultural Heritage Advisor		
Consultant Archaeologist		
Local Police Station		
OEHS: Environment Line		131 555

Appendix E

Uncovering bones

Hand icon All matters relating to uncovering bones and RMS' human remains notification obligations should involve RMS regional environment and heritage staff. They will guide Project Managers through occurrences of uncovering bones.

This appendix provides Project Managers with advice (1) on what to do on first uncovering bones (2) the range of human skeletal notification pathways and (3) additional considerations and requirements when managing the discovery of human remains.

1. First uncovering bones

Stop all work in the vicinity of the find. All bones uncovered during project works should be **treated with care and urgency** as they have the potential to be human remains. Therefore they must be identified as either human or non-human as soon as possible by a qualified forensic or physical anthropologist. These specialist consultants can be sought by contacting regional environment staff and/or heritage staff at Environment Branch.

On the very rare occasion where it is *instantly obvious* from the remains that they are human, the Project Manager (or a delegate) should **inform the police by telephone** prior to seeking specialist advice. It will be obvious that it is human skeletal remains where there is no doubt, as demonstrated by the example in Figure 1. Often skeletal elements in isolation (such as a skull) can also clearly be identified as human. Note it may also be obvious that human remains have been uncovered when soft tissue and clothing are present.

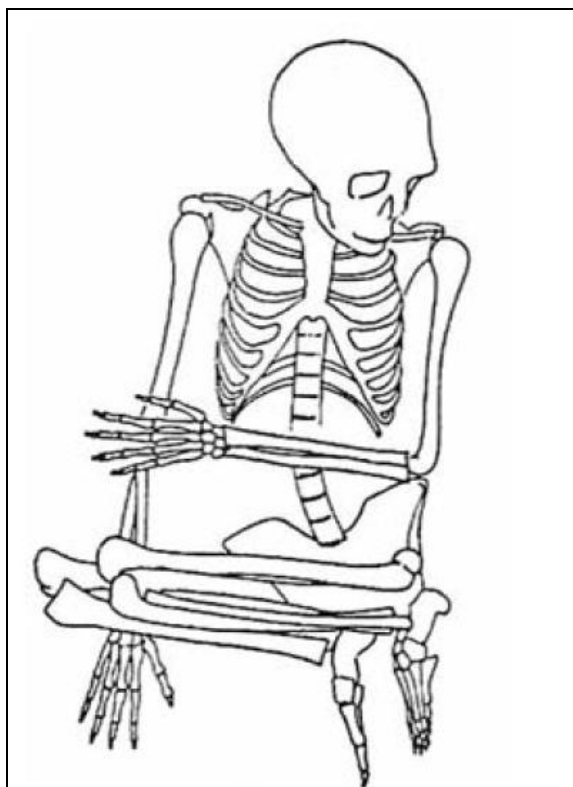


Figure 1: Schematic of a complete skeleton that is 'obviously' human¹².



Figure 2: Disarticulated bones that require assessment to determine species.

¹² After Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal Remains*: 17.

This preliminary phone call is to let the police know that Roads and Maritime is undertaking a specialist skeletal assessment to determine the approximate date of death which will inform legal jurisdiction. The police may wish to take control of the site at this stage. If not, a forensic or physical anthropologist must be requested to make an on-site assessment of the skeletal remains.

Where it is not 'obvious' that the bones are human (in the majority of cases, illustrated by Figure 2), specialist assessment is required to establish the species of the bones. Photographs of the bones can assist this assessment if they are clear and taken in accordance with guidance provided in Appendix C. Good photographs often result in the bones being identified by a specialist without requiring a site visit; noting they are nearly always non-human. In these cases, non-human skeletal remains must be treated like any other unexpected archaeological find.

If the bones are identified as human (either by photographs or an on-site inspection) a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and burial context (archaeological or forensic). This assessment is required to identify the legal regulator of the human remains so **urgent notification** (as below) can occur. Preliminary telephone or verbal notification by the Project Manager or regional environment staff is considered appropriate. This must be followed up later by Roads and Maritime's formal letter notification as per Appendix G when a management plan has been developed and agreed to by the relevant parties.

2. Range of human skeletal notification pathways

The following is a summary of the different notification pathways required for human skeletal remains depending on the preliminary skeletal assessment of ancestry and burial context.

A. Human bones are from a recently deceased person (*less than 100 years old*).

☒ Action

A police officer must be notified immediately as per the obligations to report a death or suspected death under s35 of the *Coroners Act 2009* (NSW). It should be assumed the police will then take command of the site until otherwise directed.

B. Human bones are archaeological in nature (*more than 100 years old*) and are likely to be Aboriginal remains.

☒ Action

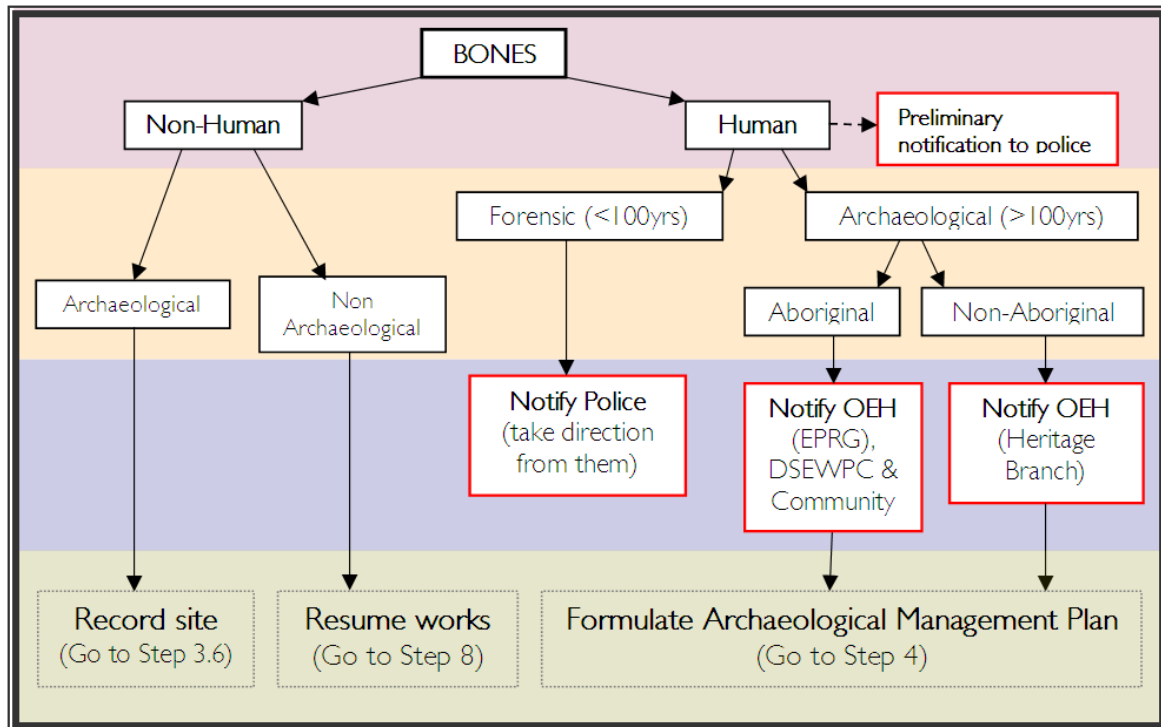
The OEH and the RMS Aboriginal Cultural Heritage Advisor (ACHA) must be notified immediately. The ACHA must contact and inform the relevant Aboriginal community stakeholders who may request to be present on site. Relevant stakeholders are determined by the RTA's *Procedure for Aboriginal Cultural Heritage Consultation and Investigation*.

C. Human bones are archaeological in nature (*more than 100 years old*) and likely to be non-Aboriginal remains.

☒ Action

The OEH (Heritage Branch, Conservation Team) must be notified immediately.

The simple diagram below summarises the notification pathways on finding bones.



After the appropriate verbal notifications (as described in B and C), the Project Manager must proceed through the *Unexpected Heritage Items Procedure* to formulate an archaeological management plan (Step 4). Note no archaeological management plan is required for forensic cases (A), as all future management is a police matter. Non-human skeletal remains must be treated like any other unexpected archaeological find and so must proceed to recording the find as per Step 3.6.

3. Additional considerations and requirements

Uncovering archaeological human remains must be managed intensively and needs to consider a number of additional specific issues. These issues might include facilitating culturally appropriate processes when dealing with Aboriginal remains (such as repatriation and cultural ceremonies). Roads and Maritime's ACHA can provide advice on this and how to engage with the relevant Aboriginal community. Project Managers, more generally, may also need to consider overnight site security of any exposed remains and may need to manage the onsite attendance of a number of different external stakeholders during assessment and/or investigation of remains. Project Managers may also be advised to liaise with local church/religious groups and the media to manage community issues arising from the find. Additional investigations may be required to identify living descendants, particularly if the remains are to be removed and relocated.

If exhumation of the remains (from a formal burial or a vault) is required, Project Managers should also be aware of additional approval requirements under the *Public Health Act 1991* (NSW). Specifically, Roads and Maritime is required to apply to the Director General of NSW Department of Health for approval to exhume human remains as per Clause 26 of the *Public Health (Disposal of Bodies) Regulation 2002* (NSW)¹³. Further, the exhumation of such remains needs to consider health risks such as infectious disease control, exhumation procedures and reburial approval and registration. Further guidance on this matter can be found at the NSW Department of Health [website](#).

In addition, due to the potential significant statutory and common law controls and prohibitions associated with interfering with a public cemetery, project teams are

¹³ This requirement is in addition to heritage approvals under the *Heritage Act 1977*.

advised, when works uncover human remains adjacent to cemeteries, to confirm the cemetery's exact boundaries.

Appendix F

Archaeological/heritage advice checklist

The archaeologist must advise the Project Manager of an appropriate archaeological or heritage management plan as soon as possible after site inspection (see Step 4). An archaeological or heritage management plan can include a range of activities and processes, which differ depending on the find and its significance. In discussions with the archaeologist the following checklist can be used by the Project Manager and the archaeologist as a prompt to ensure all relevant archaeological issues are considered when developing this plan. This will allow the project team to receive clear and full advice to move forward quickly and in the right direction. Archaeological and/or heritage advice on how to proceed can be received in a letter or email outlining all relevant archaeological and/or heritage issues.

	Required	Outcome/notes
Assessment and investigation		
• Assessment of significance	Yes/No	
• Assessment of heritage impact	Yes/No	
• Archaeological excavation	Yes/No	
• Archival photographic recording	Yes/No	
Heritage approvals and notifications		
• AHIPs, Section 140, S139 exceptions etc	Yes/No	
• Regulator relics/objects notification	Yes/No	
• Roads and Maritime's S170 Heritage and Conservation Register listing requirements	Yes/No	
• Compliance with CEMP or other project heritage approvals	Yes/No	
Stakeholder consultation		
• Aboriginal stakeholder consultation requirements and how it relates to RTA <i>Procedure for Aboriginal Cultural Heritage Consultation and Investigation</i> (PACHCI).	Yes/No	
• Advice from regional environmental staff, Aboriginal Cultural Heritage Advisor, Roads and Maritime heritage team.	Yes/No	
Artefact/ heritage item management		
• Retention or conservation strategy (eg items may be subject to long conservation and interpretation) • Disposal strategy (eg former road pavement) • Short term and permanent storage locations (interested third parties should be	Yes/No	

Roads & Maritime Services

consulted on this issue).		
• Control Agreement for Aboriginal objects.	Yes/No	
Program and budget		
• Time estimate associated with archaeological or heritage conservation work.		
• Total cost of archaeological/heritage work.		

Appendix G

Template notification letter

[Select and type date]

[Select and type reference number]

[Select and type file number]

[Insert recipient's name and address, see **Appendix D**]

[Select and type salutation and name],

Re: Unexpected heritage item discovered during Roads and Maritime Services project works.

I write to inform you of an unexpected [select: relic, heritage item or Aboriginal object] found during Roads and Maritime Services construction works at [insert location] on [insert date]. [Where the regulator has been informally notified at an earlier date by telephone, this should be referred to here].

This letter is in accordance with the notification requirement under [select: Section 146 of the *Heritage Act 1977* (NSW) or Section 89(A) of the *National Parks and Wildlife Act 1974* (NSW)] **NB:** There may be not be statutory requirement to notify of the discovery of a 'heritage Item that is not a relic or Aboriginal object'].

NB: On finding Aboriginal human skeletal remains this letter must also be sent to the Commonwealth Minister for Sustainability, Environment, Water, Populations and Communities (SEWPC) in accordance with notification requirements under Section 20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth).

[Provide a brief overview of the project background and project area. Provide a summary of the description and location of the item, including a map and image where possible. Also include how the project was assessed under the *Environmental Planning and Assessment Act 1979* (NSW) (eg Part 5). Also include any project approval number, if available].

Roads and Maritime Services [or contractor] has sought professional archaeological advice regarding the item. A preliminary assessment indicates [provide a summary description and likely significance of the item]. Please find additional information on the site recording form attached.

Resulting from these preliminary findings, Roads and Maritime Services [or contractor] is proposing [provide a summary of the proposed archaeological/heritage approach (eg develop archaeological research design (where relevant), seek heritage approvals, undertake archaeological investigation or conservation/interpretation strategy). Also include preliminary justification of such heritage impact with regard to project design constraints and delivery program].

The proposed approach will be further developed in consultation with a nominated Office of Environment and Heritage staff member.

Please contact me if you have any input on this approach or if you require any further information.

Yours sincerely

[Sender name and position]

[Attach the archaeological/heritage management plan and site recording form].

Appendix C – Newcastle City Council, Technical Manual Contaminated Land Manual



Technical Manual

Contaminated Land Management

Production:

*Newcastle Technical Manual
Contaminated Land Management*
was prepared by the Future City
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1. Contaminated Land Management

This Manual:

- supplements Section 5.02 of the Newcastle DCP 2012 by providing detailed technical information relating to the use and development of land that is or may be contaminated
- outlines procedures and requirements for the early identification of sites, determination of rezoning and development applications, the recording and use of information and the provision of information to the community
- outlines requirements for the carrying out of remediation work.
- provides a statement of policy to be followed by The City of Newcastle when exercising its planning functions in relation to land that may be contaminated
- provides a local context for decision making that is generally consistent with the Contaminated Land Planning Guidelines notified under Section 145C of the *Environmental Planning and Assessment Act 1979*.

2. Contaminated Land Management Principles

Contaminated land management is a process that may take place at any phase of development including plan making, site preparation, construction, demolition and ongoing site use.

Appropriate management of contaminated land is important to the health and safety of the community and to ensure that contaminated sites can be remediated for sustainable reuse.

Council functions to which this Technical Manual applies

- the preparation of local environmental plans
- the preparation and approval of development control plans
- the preparation and adoption of plans of management for community land
- the determination of development applications
- the modification of development consents
- the determination of activities under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (where the Council is the determining authority)
- the recording and keeping of information relating to land contamination, and the furnishing of such information to the public, such as by the issue of Planning Certificates under section 149 of the EP&A Act.

SEPP 55 - Remediation of Land

This Technical Manual specifies requirements in respect of 'category 2 remediation work', as provided for under clause 9(f) of State Environmental Planning Policy No. 55 - Remediation of Land.

Category 2 remediation work does not require Council development consent however it is required to comply with the requirements of this Technical Manual.

3. Development Assessment

Initial evaluation

When making a determination in respect of any of the applicable matters referred to above that would authorise a change of use of land or the carrying out of earthworks, the Council is to undertake an initial evaluation generally in accordance with the Contaminated Land Planning Guidelines.

Matters to be considered include:

- whether the land is within an investigation area or remediation area
- whether the land is currently used for an activity listed in Part 8 – Potentially Contaminating Activities
- whether Council records show that an activity listed in Part 8 – Potentially Contaminating Activities has ever been carried out, approved, licensed or otherwise regulated on the land
- if a site inspection is held, whether there is any obvious evidence that the land may have been associated with an activity listed in Part 8 – Potentially Contaminating Activities
- whether the land has at any time been previously zoned for industrial, agricultural or defence purposes
- whether any Council records indicate that the use of the land has been restricted due to possible contamination (for example, notices issued by the NSW State Government that have been forwarded to the Council)
- whether any Council records indicate that the land has been the subject of complaints concerning pollution or illegal dumping of wastes
- whether the Council is aware of the results of previous investigations concerning contamination of the land
- whether the Council is aware of information concerning contamination impacts on immediately adjacent land which could affect the subject land.

Conditions of consent

In making its determination, the Council is to consider:

- the need to impose conditions relating to the remediation issues outlined in Part 5 – Remediation Work
- in the case of development applications, whether it would be appropriate to issue a deferred commencement consent or a staged consent
- the management of soil and groundwater contamination to ensure that the community is not unduly disadvantaged by accepting the dedication of public assets which have increased human health or environmental risks or have potentially higher asset management costs due to contamination.

4. Dedication of assets to Council

Contamination investigation requirements

The investigation of soil and groundwater contamination should be carried out in accordance with NSW State Government approved contaminated sites sampling design guidelines.

Acceptable soil contaminations levels

Assets to be dedicated to Council must meet the following National Environment Protection (Assessment of Site Contamination) Measure (**NEPM**) **Health Investigation Level (HIL)** and must also at a minimum meet the **General solid waste** (non-putrescible) criteria as defined in the NSW DECC Waste Classification Guidelines as outlined in Table 1 below.

Table 1. Investigation levels and waste classification criteria that must be met:

	Investigation levels and waste criteria that must be met	
	NEPM Health Investigation Level (HIL)	Waste classification
Soil under roads	HIL 'F' (Commercial/Industrial)	General solid waste
Open space & footpath areas	HIL 'E' (Parks, recreational open space)	General solid waste
Other assets	Use appropriate HIL for most sensitive land use permissible under the zoning	General solid waste

Specific investigation requirements for sampling of road parcels

For the detailed investigation of contamination of road areas the road must be regarded as a separate parcel of land for the purposes of the sampling design. Accordingly an appropriate number of samples must be taken within the actual parcel of land to be dedicated to Council in order to adequately investigate/delineate contamination.

At a minimum soil samples should be taken at 3 depths per sampling location to define the possible vertical extent of contamination including one surface sample and one at the depth of the lowest possible service.

Note: this should be considered a minimum requirement and further samples may be required to adequately categorise contamination in accordance with NSW State Government approved sampling guidelines.

5. Remediation Work

Applicable matters

This Part applies to remediation work, that is, works carried out for the purpose of:

- removing, dispersing, destroying, reducing, mitigating or containing the contamination of any land
- eliminating or reducing any hazard arising from the contamination of the land (including by preventing the entry of persons or animals on the land).

Category 1 remediation work

Category 1 remediation work is a special category of remediation work defined by State Environmental Planning Policy No. 55 - Remediation of Land (SEPP 55). Under SEPP 55, category 1 remediation work may only be carried out with development consent.

The exact definition of category 1 remediation is complicated, and interested persons should refer to clauses 9 and 14 of SEPP 55.

Category 2 remediation work

Category 2 remediation work is any remediation work that is not Category 1 remediation work.

Under SEPP 55, category 2 remediation work may be carried out without development consent. However, if remediation work is carried out in a manner that does not comply with a policy adopted under the Contaminated Land Planning Guidelines (that is, this Technical Manual), such work is then classified as category 1 remediation work.

In accordance with clause 16 of SEPP 55, prior notice of category 2 remediation work to Council is required at least 30 days before commencement of works.

In addition to the information that must be submitted to Council in clause 16 of SEPP 55, Council will require the following information to be submitted at least 14 days prior to the commencement of category 2 remediation works:

- copies of any Preliminary Investigation, Detailed Investigation and Remedial Action Plan for the subject site
- contact details for the remediation contractor and party responsible for ensuring compliance of remediation work with all relevant regulatory requirements (if different to remediation contractor).

Although consent is not required for Category 2 remediation work, Council will need to be satisfied that the site is suitable for the proposed use when considering any subsequent development applications for the subject site. Hence it is recommended that comprehensive records are maintained during the remediation and validation works for all sites.

Requirements for category 2 remediation work

Category 2 remediation work must be carried out in accordance with the following required site management provisions. These provisions have been formulated to ensure that category 2 remediation work does not adversely impact on the environment or public amenity.

Note: These site management provisions have been adapted from the SSROC (1999) Model Policy on Contaminated Land.

All category 2 remediation works shall be conducted in accordance with the site management provisions listed below. The site management provisions apply to all of the Newcastle Local Government Area (LGA).

Category 2 remediation work that does not comply with the site management provisions outlined in this section will be classified as category 1 remediation work and will require development consent.

Development applications lodged for category 1 remediation works should identify any areas of non-compliance with the site management provisions listed below and identify any alternative site management measures to be implemented.

Note: It is the responsibility of those remediating a site to ensure compliance with all relevant environmental legislation and regulations. Compliance with the site management provisions outlined below does not imply that all relevant environmental legislation and regulations have been complied with. Non-compliance with relevant environmental legislation and regulations such as the Protection of the Environment Operations Act 1997 may incur on-the-spot fines for minor offences or more substantial fines and imprisonment for more serious offences.

It is the responsibility of those remediating a site to ensure compliance with the Heritage Act 1995 in relation to excavation permits for land that is likely to result in the disturbance of relics.

Hours of Operation

All remediation work which is audible on residential premises shall be conducted within the following hours:

Monday - Friday 7am - 6pm

Saturday 8am - 1pm

No work is permitted on Sundays or Public Holidays.

Soil and Water Management

The *Managing Urban Stormwater: Soils and Construction 4th Edition - Vol. 1* (the "Blue Book") published by Landcom, 2004 outlines Council's requirements for the preparation of a soil and water management plan. All remediation works shall be conducted in accordance with a soil and water management plan. A copy of the plan shall be kept onsite and made available to Council Officers on request. All erosion and sediment measures must be maintained in a functional condition throughout the remediation works.

A summary of the soil and water management measures for category 2 remediation work in relation to stockpiles, site access, excavation pump-out, landscaping/rehabilitation and bunding are discussed below:

Stockpiles

- no stockpiles of soil or other materials shall be placed on footpaths or nature strips unless prior Council approval has been obtained
- all stockpiles of soil or other materials shall be placed away from drainage lines, gutters or stormwater pits or inlets
- all stockpiles of soil or other materials likely to generate dust or odours shall be covered
- all stockpiles of contaminated soil shall be stored in a secure area and be covered if remaining more than 24 hours. (A secure area is addressed by the requirement for **Site Security** below.)
- if landfarming techniques are being employed, alternative control measures and contingencies must be put in place to address the potential for odour and dust impacting off-site.

Site Access

Vehicle access to the site shall be stabilised to prevent the tracking of sediment onto the roads and footpath. Soil, earth, mud or similar materials must be removed from the roadway by sweeping, shovelling, or a means other than washing, on a daily basis or as required. Soil washings from wheels shall be collected and disposed of in a manner that does not pollute waters.

Excavation Pump-out

All excavation pump-out water must also be analysed for suspended solid concentrations, pH and any contaminants of concern identified during the preliminary or detailed site investigation, prior to discharge to the stormwater system. The analytical results must comply with relevant NSW State Government endorsed standards and guidelines for water quality as applicable to the contaminants and the receiving waters. Other options for the disposal of excavation pump-out water include disposal to sewer with prior approval from the Hunter Water Corporation, or off-site disposal by a liquid waste transporter for treatment/disposal to an appropriate waste treatment/processing facility.

Landscaping/Rehabilitation

All exposed areas shall be progressively stabilised and/or revegetated to prevent dust and erosion on the completion of remediation works.

Bunding

All landfarming areas for hydrocarbon contaminated soils shall be bunded to contain surface water runoff from the landfarm areas and to prevent the leaching of hydrocarbons into the subsurface. All surface water discharges from the bunded areas to Council's stormwater system must comply with relevant NSW State Government endorsed standards and guidelines for water quality as applicable to the contaminants and the receiving waters.

Noise

Category 2 remediation work shall comply with appropriate NSW State Government construction noise guidelines.

All equipment and machinery shall be operated in an efficient manner to minimise the emission of noise.

Vibration

The use of any plant and/or machinery shall not cause vibrations in excess of the relevant NSW State Government guidelines and Australian Standards, on any premises.

Dust Control

Dust emissions shall be confined within the site boundary. The following dust control procedures shall be employed to comply with this requirement:

- erection of dust screens around the perimeter of the site
- securely covering all loads entering or exiting the site
- use of water sprays across the site to suppress dust
- covering of all stockpiles of contaminated soil remaining more than 24 hours
- keeping excavation surfaces moist.

Odour Control

No offensive odours shall be detected at any boundary of the site during remediation works by an authorised Council Officer relying solely on sense of smell. The following procedures may be employed to comply with this requirement:

- use of appropriate covering techniques such as the use of plastic sheeting to cover excavation faces or stockpiles
- use of fine mist sprays
- use of a hydrocarbon mitigating agent on the impacted areas/materials
- adequate maintenance of equipment and machinery to minimise exhaust emissions.

Volatile or semi-volatile compounds that could generate odours include monocyclic aromatic hydrocarbons (styrene, benzene, toluene, xylene, ethyl benzene, butyl benzene), polycyclic aromatic hydrocarbons (PAHs), hydrogen sulfide, hydrogen cyanide, pesticides, polychlorinated biphenyls (PCBs) and herbicides.

Groundwater

Any contamination assessment should address the potential for contamination of groundwater at the site to have occurred. Any work below the water table requires a licence from the NSW State Government under Part 5 of the *Water Act 1912*, and the *Water Management Act 2000*. These works include bores for water supply, testing and monitoring, and any extraction. If groundwater at the site is found to be contaminated then the appropriate NSW State Government agency is to be notified. Any remedial actions proposed for the site to remediate contaminated groundwater should consider monitoring provisions and the NSW State Government groundwater policies.

Copies of all Groundwater Investigations (Preliminary and Detailed) and the Remedial Action Plan for the site are to be submitted to the appropriate NSW State Government department 14 days prior to the commencement of works.

Groundwater shall be analysed for pH and any contaminants of concern identified during the preliminary or detailed site investigation, prior to discharge to the stormwater system. The analytical results must comply with relevant NSW State Government guidelines and standards for water quality.

Other options for the disposal of groundwater include disposal to sewer with prior approval from the Hunter Water Corporation, or off-site disposal by a liquid waste transporter for treatment/disposal to an appropriate waste treatment/processing facility.

Transport

All haulage routes for trucks transporting soil, materials, equipment or machinery to and from the site shall be selected to meet the following objectives:

- comply with all road traffic rules
- minimise noise, vibration and odour to adjacent premises
- utilise State Roads and minimise use of local roads.

Applicants may consult Council prior to selecting the most suitable transport route.

Category 2 remediation work shall ensure that all site vehicles:

- conduct deliveries of soil, materials, equipment or machinery during the hours of remediation work identified above under **Hours of Operation**
- securely cover all loads to prevent any dust or odour emissions during transportation
- exit the site in a forward direction
- do not track soil, mud or sediment onto the road.

Hazardous Materials

Hazardous and/or liquid wastes arising from the remediation work shall be removed and disposed of in accordance with the requirements of the relevant NSW State Government agencies, together with the relevant regulations, namely:

- *Protection of the Environment Operations Act 1997* and Regulations
- *Occupational Health and Safety Act 2000* and Regulations
- *Contaminated Land Management Act 1997* and Regulations
- *Environmentally Hazardous Chemicals Act 1985* and Regulations.

Disposal of Contaminated Soil

The disposal of contaminated soil shall have regard to the provision of both the *Protection of the Environment Operations Act 1997* and Regulations and relevant state agency waste guidelines.

Any queries associated with the off-site disposal of waste from a contaminated site should be referred to the appropriate NSW state government agency. If contaminated soil or other waste is transported to a site unlawfully, the owner of the waste and the transporter are both guilty of an offence.

Containment/Capping of Contaminated Soil

No contaminated soil shall be encapsulated or capped on the site that contains concentrations of contaminants that are above the soil investigation levels for urban development sites in NSW for the range of landuses permissible on the subject site. For example, a site zoned commercial/industrial shall not encapsulate or cap soil containing concentrations of contaminants above the 'commercial or industrial NEHF F health-based investigation levels'. The soil investigation levels for urban redevelopment in NSW are contained in Guidelines approved by the NSW State Government.

Note: Approval to cap contaminated soil which exceeds the soil investigation levels for the range of landuses permissible on the site can be sought through a development application to Council (category 1 remediation).

Importation of Fill

All fill imported on to the site shall be validated to ensure it is suitable for the proposed land use from a contamination perspective and will not impact adversely on the drainage of the site.

Council may require details of appropriate validation of imported fill material to be submitted with any application for future development of the site. Hence all fill imported onto the site should be validated by either one or both of the following methods during remediation works:

- imported fill should be accompanied by documentation from the supplier which certifies that the material has been excavated or quarried from areas that are not contaminated with manufactured chemicals or

process residues, as a result of industrial, commercial, mining or agricultural activities, and that it does not contain any sulfidic ores or soils or any other waste

- sampling and analysis of the fill material conducted in accordance with the NSW State Government approved sampling design guidelines to ensure that the material is not contaminated.

Site Signage and Contact Numbers

A sign displaying the contact details of the remediation contractor (and site manager if different to remediation contractor) shall be displayed on the site adjacent to the site access. This sign shall be displayed throughout the duration of the remediation works.

Community Consultation

Owners and/or occupants of premises adjoining and across the road from the site shall be notified by the proponent at least two days prior to the commencement of category 2 remediation works.

Site Security

The site shall be secured to prevent unauthorised access by means of an appropriate fence.

Occupational Health & Safety

It is the employer's responsibility to ensure that all site remediation works comply with all Occupational Health and Safety and Construction Safety Regulations of the NSW WorkCover Authority.

Removal of Underground Storage Tanks

The removal of underground storage tanks shall be undertaken in accordance with the requirements of all relevant NSW State Government Agencies including WorkCover NSW. The tank removal shall be conducted in accordance with all relevant standards, guidelines, codes of practice and legislation including the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008*.

6. Plan Making

Initial evaluation

Evaluation is to be based upon records held by Newcastle City Council that are readily accessible, and may also be based upon factual information gained from a site inspection. There is no requirement to research or consider records held by other agencies.

Matters to be considered include:

- whether the land is within an investigation area or remediation area
- whether the land is currently used for an activity listed in Part 8 – Potentially Contaminating Activities
- whether Council records show that an activity listed in Part 8 – Potentially Contaminating Activities has ever been carried out, approved, licensed or otherwise regulated on the land
- if a site inspection is held, whether there is any obvious evidence that the land may have been associated with an activity listed in Part 8 – Potentially Contaminating Activities

- whether the land has at any time been previously zoned for industrial, agricultural or defence purposes
- whether any Council records indicate that the use of the land has been restricted due to possible contamination (for example, notices issued under the *Contaminated Land Management Act 1997* by State Government Agencies that have been forwarded to the Council)
- whether any Council records indicate that the land has been the subject of complaints concerning pollution or illegal dumping of wastes
- whether the Council is aware of the results of previous investigations concerning contamination of the land
- whether the Council is aware of information concerning contamination impacts on immediately adjacent land which could affect the subject land.

Is a site investigation required?

Where a site investigation is required, it is to be carried out in accordance with the Contaminated Land Planning Guidelines.

Insufficient information on which to make a decision exists if there are significant gaps in historical information for a site, or if land uses are not described in sufficient detail to identify the presence or absence of uses listed in Part 8 - Potentially Contaminating Activities during periods in which such uses could be lawfully carried out.

Site investigation process

If contamination is or may be present, the site is to be the subject of a site investigation process. Please refer to Part 3 – Development Assessment for details pertaining to the site investigation process.

7. Information Management

Record keeping

So as to facilitate the exercise of its planning functions generally in accordance with the Contaminated Land Planning Guidelines, the Council is to keep sufficient and appropriate records relating to the existence or likelihood of land contamination. Such records may include:

- previous property descriptions (for cross-referencing purposes)
- chronological land use history
- complaints about contamination or potentially contaminating activities and whether the complaints were substantiated
- information from any initial evaluations
- information from any site investigations, including preliminary investigation reports, detailed investigation reports, remedial action plans, validation and site monitoring reports or any other contamination assessment reports
- site audit statements and site audit reports

- notifications of remediation given under State Environmental Planning Policy No. 55 - Remediation of Land
- previous zones and permissible uses, particularly uses listed in Part 8 – Potentially Contaminating Activities
- rezoning requests, development consents and building approvals for uses listed in Part 8 -Potentially Contaminating Activities or where contamination was an issue
- rezoning requests, development applications and building applications that were refused on the basis of contamination-related issues
- declarations, orders and notices under the *Contaminated Land Management Act 1997* (where the Council has been informed by the Environment Protection Authority)
- voluntary investigation proposals and voluntary remediation proposals under the *Contaminated Land Management Act 1997* (where the Council has been informed by the Environment Protection Authority).

Supply of information

Information about land contamination held within the Council's records is to be supplied to the public only by the following means:

- by issuing Planning Certificates (upon application by any person, and subject to payment of the prescribed fee)
- by making the following documents identified on the Planning Certificates and held by the Council available for inspection (upon request by the holder of the Planning Certificate, free of charge):
 - site investigation reports (including preliminary investigation reports, detailed investigation reports, remedial action plans, validation and site monitoring reports) or any other contamination assessment reports prepared by consultants
 - site audit reports
 - site audit statements.
- by making the following documents held by the Council available for inspection (upon request by any person, free of charge):
 - the register of development applications and consents kept under clause 264 of the *Environmental Planning and Assessment Regulation 2000*
 - documents relating to development applications and development consents kept available for public inspection under clause 266 of the *Environmental Planning and Assessment Regulation 2000*
 - the record of approvals kept under section 113 of the *Local Government Act 1993*
 - business papers and minutes of council and committee meetings
 - other documents that may be inspected under section 12(1) of the *Local Government Act 1993*.
- by providing access to documents in accordance with the *Government Information (Public Access) Act 2009 (GIPA Act)*.

Planning Certificates - prescribed information

This clause applies to the provision of information on planning certificates under section 149(2) of the EP&A Act, as prescribed by Schedule 4 of the *Environmental Planning and Assessment Regulation 2000* and section 59(2) of the *Contaminated Land Management Act 1997*.

The Council is to provide the following prescribed information:

- a statement that Council has by resolution adopted a policy to restrict development of the land because of the likelihood of the land being contaminated – if it is considered to be contaminated or potentially contaminated
- a statement that the land is significantly contaminated land - if it is within such an area or site at the date when the certificate is issued*

Note: This disclosure relates to the matter “whether or not the council has adopted a policy to restrict the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation subsidence, acid sulphate soils or any other risk”. (Item 7 of Schedule 4, EP&A Regulation 2000).

- a statement that the land is subject to a management order - if it is subject to such an order at that date*
- a statement that the land is the subject of a voluntary management proposal or ongoing maintenance order that is subject to an agreement with the NSW State Government - if it is the subject of such a proposal or order which has not been fully carried out, at the date when the certificate is issued*
- a statement that the land is the subject of a site audit statement - if a copy of such a statement has been provided at any time to the Council.

*** Information provided only to the extent that the Council has been informed by the NSW State Government.**

Planning Certificates – additional information

This clause applies to the provision of additional information on planning certificates under section 149(5) of the EP&A Act.

Where an applicant for a Planning Certificate has requested (and paid for) additional information under section 149(5), the Council is to disclose the following information.

- If the Council is in possession of a site investigation report, site audit report, or any other contamination assessment report relating to the land:
 - a statement that the Council is in possession of any such report
 - details of the author, title and date of each report
 - whether or not the report or reports indicate that the land is affected by elevated concentrations of soil or groundwater contaminants, (and if so, whether any recommendations have been made regarding restrictions or special conditions over the use or development of the land)
 - a statement that the reports held by the Council may be examined upon request at the office of the Council
 - a statement that any person relying on the certificate is advised to examine and consider the contents of each report.

- If the Council is in possession of records evidencing that a potentially contaminating activity may have been conducted on the land:
 - a statement that a potentially contaminating activity may have been conducted on the land
 - brief details of the known potentially contaminating activity
 - a statement that any person relying on the certificate is advised to make their own investigations as to whether the land is affected by elevated concentrations of soil or groundwater contaminants.
- If the Council is in possession of records evidencing that the land may be affected by soil or groundwater contaminant migration originating from nearby land:
 - a statement that the land may be affected by soil or groundwater contaminant migration originating from nearby land
 - brief details of the known possible source of soil or groundwater contaminant migration
 - a statement that any person relying on the certificate is advised to make their own investigations as to whether the land is affected by elevated concentrations of soil or groundwater contaminants.
- Details of the date, subject matter and informant of any notice of remediation work under State Environmental Planning Policy No. 55 - Remediation of Land - if any such notice has been received by the Council in relation to the land.

Note: It is the aim of Council to record all contaminated sites on the property information system and s149 certificates, however this is a very time consuming process which requires continual updating and review as land is subdivided and new potentially contaminating activities are commenced and discovered. Therefore, the lack of reference to contamination on a s149 certificate should not be taken as an assurance that the site is not contaminated.

8. Potentially Contaminating Activities

- acid or alkali plant and formulation
- agricultural or horticultural activities
- airports
- asbestos production and disposal
- chemicals manufacture and formulation
- defence works
- drum reconditioning works
- dry cleaning establishments
- electrical manufacturing (transformers)
- electroplating and heat treatment processes
- engine works
- explosives industry
- gas works

- iron and steel works
- landfill sites
- metal treatment
- mining and extractive industries
- oil production and storage
- paint formulation and manufacture
- pesticide manufacture and formulation
- power stations
- railway yards
- scrap yards
- service stations
- sheep and cattle dips
- smelting and refining
- tanning and associated trades
- waste storage and treatment
- wood preservation
- other activities that the Council considers to be a potentially contaminating activity.

Source: Based on Table 1 in Department of Urban Affairs and Planning and Environment Protection Authority (1998) Managing Land Contamination: Planning Guidelines, DUAP, Sydney.

9. Sources of Site History Information

- Past aerial photographs
- Council records - town planning, development and building applications, complaints, pollution incident reports
- local historical publications
- current and previous site owners
- current and previous site workers
- long-term residents
- past and present telephone books
- Noxious Trades Act register of Noxious Trades
- NSW Environment Protection Authority Section 35 Notices, past and present scheduled premises, unhealthy building land
- Hunter Water Corporation Trade Waste Agreements

- WorkCover Authority Dangerous Goods Branch
- Energy Australia sites containing present and past electrical substations.

Source: Adapted from SSROC (1999) Model Policy on Contaminated Land.

10. References

These references include both current and superseded references on which the policy was made.

- *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites 1992* (Australia and New Zealand Environment Conservation Council and National Health and Medical Research Council)
- *Code of Practice The Removal and Disposal of Underground Petroleum Storage Tanks AIP CP22 -1994* (Australian Institute of Petroleum)
- *Contaminated Land Management Act 1997 and Regulations*
- *Contaminated Land Management Technical Manual 13*
- *Contaminated Sites: Guidelines for Assessing Service Station Sites 1994* (EPA)
- *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme 1998* (EPA)
- *Contaminated Sites: Sampling Design Guidelines 1995* (EPA)
- *Draft Noise Guide for Local Government 2002* (EPA)
- *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes 1999* (EPA)
- *Environmentally Hazardous Chemicals Act 1985 and Regulations*
- *Environmental Criteria for Road Traffic Noise 1999* (EPA)
- *Environmental Guidelines: Solid Waste Landfills 1996* (EPA)
- *Environmental Noise Control Manual* (EPA)
- *Guidelines on Significant Risk of Harm from Contaminated Land and the Duty to Report 1999* (EPA)
- *Government Information (Public Access) Act 2009 (GIPA Act).*
- *Guidelines for Consultants Reporting on Contaminated Sites 1997* (EPA)
- *Interim Construction Noise Guideline 2009* (NSW DECC)
- *Managing Land Contamination: Planning Guidelines SEPP55 - Remediation of Land 1998* (DUAP and EPA)
- *Managing Urban Stormwater: Soils and Construction 4th Edition - Vol. 1* (the "Blue Book") published by Landcom, 2004
- *Model Policy on Contaminated Land 1999* (SSROC)
- *NSW Industrial Noise Policy 2000* (EPA)
- *Occupational Health and Safety Act 2000 and Regulations*

- *Preparing an Erosion and Sediment Control Plan* (Department of Land and Water Conservation)
- *Protection of the Environment Operations Act 1997* and Regulations
- *State Environmental Planning Policy No. 55 - Remediation of Land 1998* (NSW Government)
- *Waste Classification Guidelines* (NSW DECC).

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