Environmental Management Plan
for
Parks and Playgrounds
within the
Leichhardt Council Local Government Area

27 September 2006

Prepared for:
Leichhardt Council
PO Box 45
Leichhardt NSW 2040

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Environmental Management Plan
Leichhardt Council Parks and Playgrounds
27 September 2006

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APPENDICES

1 INTRODUCTION

This Environmental Management Plan (EMP) has been prepared for Leichhardt Council (Council) and relates to the management of potential health risks associated with contaminated fill materials that may have been used to establish parts of Councils' parks and playgrounds.

As a result of the long industrial use within large parts of Council's local government area, waste materials contaminated with a number of types of contaminants have been used to fill land. Some of these materials are known to have been used on some of Council's parks and playgrounds, although comprehensive assessment has not been undertaken on all parks and playgrounds.

Typical contaminants identified in fill materials comprise heavy metals, especially lead, that was used in paint, pipes and solder, polynuclear aromatic hydrocarbons (PAHs) that result from partial burning of coal and coke, and heavy petroleum hydrocarbons that result from their use as oils and lubricants. In some instances, fragments of asbestos cement materials (ACM), commonly referred to as "fibro", have been incorporated into the fill materials.

This EMP has been prepared to assist Council in managing parks and playgrounds so that users of these facilities, including members of the public and maintenance workers, are protected.

The principal elements of the EMP are:

- Assigning responsibilities for implementation of the EMP;
- Protection of the health of users of the parks and playgrounds by ensuring maintenance of the clean surface cover to prevent exposure to contaminants that may be present in fill materials at depth;
- Protection of the health of maintenance workers when the surface cover is disturbed by works;
- Ensuring contaminated or potentially contaminated fill materials encountered during maintenance works are disposed of properly or are replaced at depth beneath the restored surface cover; and
- Maintaining records of inspection of the integrity of the surface cover and of maintenance works.

For the purpose of this EMP, the surface cover is required to be:

- Topsoil, topsoil with grass cover, or mulch or wood chips, all to a minimum thickness of 50 mm; or
- A durable artificial fabric, such as artificial turf, rubberised matting, etc that is securely attached to the surface of the park or playground; or
- Pavements or roadways constructed of concrete, asphaltic cement or other materials such as bricks, paving stones, etc, that cannot be removed by users in the course of their expected use of the park or playground.

2 PURPOSE

The purpose of this EMP is to document procedures required to ensure that:

- The surface covers of Council's parks and playgrounds are maintained so that users are not exposed to potentially contaminated fill materials; and
- works requiring disturbing the surface of parks and playgrounds are undertaken in a manner that protects the heath of the workers and members of the public .

3 APPLICATION OF THE EMP

3.1 Reference to the EMP

The EMP should be referred to under the following circumstances:

- Periodically, to ensure the surface cover material is maintained and that contaminated or potentially contaminated materials are not present at the surface; and
- Prior to commencing works, including both “minor works” and “major works” (as defined below) that involve the disturbance of the surface. .

For the purposes of this EMP:

- “Minor works” comprise works that require minimal disturbance to the surface cover and comprise activities such as:
  - maintenance of surfaces, including mowing, weeding;
  - replacement of artificial turf or other surface covers;

- “Major works” comprise larger scale disturbance to the surface cover and the underlying materials and comprise activities such as:
  - excavation of soils for the construction of pathways, walkways, playing equipment areas and the like;
  - construction/maintenance of open space and parklands;
  - construction and maintenance of sub-surface services, such as gas, electricity, stormwater, surface drainage, telephone, cabling and water supply;
  - installation of equipment (eg: seats, telephone boxes, garbage bins etc) that require excavation of soils for placement of footings; and
  - installation and maintenance of landscaped areas, including the planting and removal of trees and shrubs.

3.2 Responsibilities

Council’s Vince Cusumano – Manager Parks & Streetscapes is responsible for the overall implementation and maintenance of the EMP and for ensuring that Council Staff and contractors working at Council’s parks and playgrounds have been informed of the requirements of the EMP prior to commencement of works.

The supervisor or person-in-charge of works at the park or playground is responsible for implementing the requirements of the EMP during course of the works and at the completion of the works.

The specific responsibilities of Vince Cusumano – Manager Parks & Streetscapes, Craig Barnett – Parks & Streetscapes Coordinator North and Michael Koeford – Parks & Streetscapes Coordinator South and the supervisor or person-in-charge of the works are as follows:

Position and Company	Responsibilities
Leichhardt Council Vince Cusumano – Manager Parks & Streetscapes, Craig Barnett – Parks & Streetscapes Coordinator North and Michael Koeford – Parks & Streetscapes Coordinator South Ph: 9367 9222 Fax: 9367 9111	- Approve the EMP. - Advise persons working at Council's parks and playgrounds of the requirements of the EMP. - Ensure appropriate consents and licences (as required) are obtained for the works. - Provide training and induction of employees and contractors before and during the works, as appropriate (Appendix A). - Provide a copy of the EMP to the supervisor or person-in-charge of Council employees and/or contractor/s who are undertaking the works. - Ensure implementation of the EMP. Maintain a log of Project Personnel (Appendix B). - Ensure Council staff and contractors comply with the requirements of the EMP. - Ensure Council staff and contractors clearly understand the requirements of the EMP and ensure that compliance with the EMP is a condition of any agreement with these parties. - Ensure the conditions of the EMP are implemented and supplemented, if necessary, by conditions of a Development Consent. - Update the EMP if the condition of the park or playground is changed, and, if necessary, inform other parties of the changes. - Ensure the park or playground is maintained in accordance with the EMP. - Provide the EMP for inclusion on the relevant records maintained by Council. - Ensure an inspection of the surface of the park or playground is undertaken at six-monthly intervals or at another interval decided by Council and record the results of the inspections in Appendix C of the EMP. - Ensure all non-conformance and/or complaints are recorded in Appendix D of the EMP.

Position and Company	Responsibilities
Supervisor or person-in-charge of works on the Site (Council staff / Contractors/ Sub-contractors)	- Implement the EMP to ensure compliance. - Complete the registers, databases and records required by the EMP. - Conduct works in an environmentally responsible manner. - Meet relevant OH&S regulatory requirements. - Implement the works in a safe and responsible manner. - Ensure that environmental protection measures are in place and are functioning correctly during the works and after completion of the works, if required. o Notify Council's Manager Parks & Streetscapes if suspected asbestos containing material is encountered during works on the Site. o Complete non-conformance and corrective action reports as required and undertake follow-up corrective actions, as required. - Conduct monitoring as required in the EMP. - Undertake audits of activities in accordance with the requirements of the EMP. - Ensure non-conformance and/or complaints are reported to the Manager Parks & Streetscapes - Undertake corrective actions in response to requests made by Council's Manager Parks & Streetscapes regarding specific environmental or safety issues. - Ensure all works comply with relevant regulatory requirements. - Inform Manager Parks & Streetscapes if conditions change significantly from those documented in the EMP.

3.3 Document Revision

This EMP is required to be reviewed annually and to be up-dated or amended, as necessary.

It is the responsibility of Manager Parks & Streetscapes to ensure the EMP supplied to any person is the current up-dated or amended version.

It is the responsibility of the supervisor or person-in-charge of works proposed to be undertaken to ensure they have the current version of the EMP.

The up-to-date version of the EMP will be available from the Manager Parks & Streetscapes

4 RISKS AND CONTROL MEASURES

4.1 Exposure Pathways

Council's parks and playgrounds are actively utilised for open space recreational purposes and the presence of contaminants at depth within filling materials does not affect the safe use of these facilities when the surface cover is complete.

However, if the surface cover is disturbed, it is possible that a risk of exposure to contaminants may result. In order to develop appropriate measures to control this increased exposure, it is necessary to understand the potential exposure pathways, which comprise inhalation (breathing dust and vapours), skin contact and ingestion (swallowing).

A summary of contaminants commonly identified in materials used to fill land in the Leichhardt local government area, including their potential health affects and exposure pathways, are summarised in the table below.

Contaminant of Concern	Source	Chemicals	Physiological Effect	Exposure Pathway
Polynuclear aromatic hydrocarbons (PAHs) Petroleum hydrocarbons	Waste from industrial activities.	PAHs (e.g., naphthalene, fluorene, acenapthene, anthracene, benzo(a)pyrene and chrysene). Long-chain petroleum hydrocarbons (generally oils and lubricants). Volatile hydrocarbons (e.g., short-chain petroleum hydrocarbons and benzenes, toluene and xylenes) are less likely to be present.	Inhalation of PAHs (as dust as PAHs are not very volatile) may cause bronchitis and possibly cancer of the respiratory system. Repeated skin contact may result in allergic dermatitis and skin cancer. Inhalation of volatile hydrocarbons, if present, may cause central nervous system effects such as headaches, blurred vision and narcosis when present in high concentrations. Skin contact may cause dermatitis. Long term or chronic exposure may result in liver damage, effects on the blood forming- systems, Exposure to benzene may result in leukaemia.	Inhalation of vapours or contaminated dust. Skin contact with contaminated liquids or soil. Ingestion of contaminated liquids or soil.
Metals /	Waste from	Metals and	Exposure may result	Inhalation of

Contaminant of Concern	Source	Chemicals	Physiological Effect	Exposure Pathway
metalloids	industrial activities.	metalloids including arsenic, cadmium, copper, chromium, lead, mercury, nickel and zinc. Lead is the most common heavy metal identified in fill materials at levels of concern.	in liver and kidney damage, irritation of the eyes and respiratory system, and dermatitis. Exposure to high concentrations of some metals has been linked to cancer.	vapours or contaminated dust. Skin contact with contaminated liquids or solid materials. Metals other than mercury are not volatile, and exposure by inhalation is expected to constitute a low risk.
Asbestos	Uncontrolled filling materials containing ACM.	Asbestos fibres	May cause serious health effects, such as asbestosis, mesothelioma, lung cancer and pleural disease. The risk is greater with increased exposure and even minor exposures can have serious health effects.	Inhalation of asbestos fibres into the lungs.

4.2 Control Measures for Current Activities

Measures to control the risk posed by potential contaminants have been implemented on Council's parks and playgrounds through the presence of a surface cover, which generally comprises clean soil, grassed and landscaped areas, artificial turf and matting and pavements. These measures are required to be maintained into the future to ensure that the risk of exposure to potential contaminants in fill materials at depth is eliminated.

The maintenance measures for the surface cover are as follows:

- Vegetation, including grassed areas, landscaped areas and topsoil, are required to be maintained; and
- Paving concrete and other physical barriers are required to be maintained.

4.3 Control Measures for Future Activities

For future use of Council's parks and playgrounds for recreational and non-intrusive maintenance purposes ("minor works") the surface cover is required to be maintained.

Where intrusive maintenance is required to be undertaken ("major works"), additional control measures may be required depending on the scope of the works. Whilst it is not possible to assess the impacts from all future activities, it is possible to consider exposure scenarios likely to be associated with a range of general maintenance and intrusive works.

"Minor works", involving activities such as lawn mowing, weeding gardening and general maintenance activities do not require specific controls, providing the works do not disturb the surface cover and the underlying fill materials.

"Major works" that result disturbance of the surface cover and exposure to the underlying fill materials, require control measures to be implemented, as documented in the following table:

Works	Possible Risks to Site Users	Possible Risks to the Environment	Control Measures Required
Minor works Minor works comprise maintenance activities involving contact with the surface cover including the topsoil and grass capping layer and minimal contact with the underlying fill materials. Typical activities include maintenance of grass cover, landscaping and planting of shallow-rooted shrubs.	Ingestion, inhalation and skin contact with soils containing contaminants.	Low risk of runoff from contaminated soil may impact surrounding land and/or waterways if not appropriately contained.	No eating, drinking, smoking; avoid contact with soil (wear gloves); wash hands and clothes after work and before eating or smoking. A P2 face mask should be used if dusty conditions develop. Dust generation should be controlled by dampening the materials. If minor quantities of soil / fill materials are required to be excavated (e.g. for shallow tree planting), remove the surface cover material separately, cover excavated fill materials with plastic sheeting. When required, replace the fill material back into its original position prior to reinstating surface cover layer. Ensure all potentially contaminated fill materials are placed in excavation pit prior to reinstatement of the clean surface cover. If visible fragments of potential asbestos containing materials are encountered, refer to the specific instructions below.

Major works Major works involve significant contact with fill materials underlying the surface cover of topsoil and grass. Typical activities may include repairs to underground pipes, cables and intrusive earthworks.	Ingestion, inhalation and skin contact with fill materials containing contaminants.	Potential for runoff / leaching from contaminated soil to impact surrounding land and/or waterways, if not appropriately contained. Acid sulfate soils (ASS) may be present in low-lying areas (< 5m AHD) near the bays and estuaries. In the event that ASS soils are likely to be present or their presence is confirmed, a separate acid sulfate management should be implemented according to the requirements of NSW Acid Sulfate Soil Management Advisory Committee (1998) *Acid Sulfate Soil Manual*.	No eating, drinking, smoking; avoid contact with soil; wear Level D PPE including latex gloves, hard-hat, steel-toed boots, high-visibility vest and safety glasses during manual handling of soil in an excavation and in soil stockpiles; wash hands and clothes after work. Prevent dust by dampening fill materials prior to and during excavation. If dust is generated or asbestos containing materials are identified or suspected, wear a P2 face mask suitable for asbestos (at a minimum). If soil / fill materials are required to be excavated, excavate capping material separately, cover excavated materials with plastic, then place it back into original position prior to reinstating capping layer. Ensure all potentially contaminated fill materials are placed in excavation pit prior to reinstatement of clean capping layer. Develop safety documentation for works. If disposal of surplus excavated materials is required, classification is required to be undertaken in accordance with NSW EPA (2004) *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non Liquid Wastes* for disposal to a facility licensed by NSW DEC to receive the class of waste material. Records of disposal to be maintained and recorded in the materials tracking register (Appendix E)

4.4 Asbestos materials

4.4.1 Small quantities of asbestos fragments

All asbestos containing materials disposed in an uncontrolled manner is required, as a precautionary measure, to be considered as friable (meaning can be reduced to a powder between the fingers). However, common sense is required to be exercised. For example, if a few fragments of bonded asbestos cement materials (commonly referred to as “fibro”) are present, it is safe to pick them us and to place them in double plastic bags for disposal in the dedicated container at Council’s depot.

However, if a large number of fragments of bonded asbestos cement materials or friable material is encountered, the procedure described below is required to be implemented.

4.4.2 Significant quantities of asbestos materials

If either a large quantity of cement-bonded asbestos fragments or friable asbestos are identified or suspected during intrusive activities, excavation works should stop and the materials should be covered with substantial plastic sheeting that is securely anchored to the ground surface and be enclosed within a barrier to prevent access. Appropriate signage should be displayed to warn of the presence of these materials.

At the earliest practical time after the identification of a large number of asbestos cement fragments and/or potentially friable asbestos materials, the works supervisor should contact Council’s Manager Parks & Streetscapes for advice on how to proceed. It is expected that a suitably qualified Occupational Hygienist or Environmental Consultant should be contacted by Council for further advice.

4.4.3 Leaving excavated soils

Excavated fill materials or soils containing or suspected of containing significantly contaminated materials or potentially friable asbestos materials must not be left unattended. If it is necessary to leave the site unattended, the fill materials or soils are required to be dampened to prevent generation of dust, and placed back in the excavation and the surface cover reinstated so that exposure to these materials cannot be gained by users of the park or playground.

Appendix A: EMP Induction Register

EMP INDUCTION REGISTER

The purpose of the Induction register is to acknowledge acceptance and compliance with the procedures outlined within this EMP by signing the attached log. Copies of this document must be made available for review and be readily available at the job Site.

The Induction register is required to be completed by each person inducted into the EMP undertaking “minor” or “major works” at parks and playgrounds within the Leichhardt Council Local Government Area.

Date	Person	Company	Signature/ Position

Appendix B: Log of Project Personnel

PROJECT PERSONNEL LIST AND EMP PLAN ACKNOWLEDGMENT RECORD

The purpose of the Log of Project Personnel is to maintain a record of personnel working on parks and playgrounds within the Leichhardt Council Local Government Area. All personnel are required to sign this document, indicating they have read and understand the EMP.

Copies of this EMP must be made available for review and be readily available at the work-site.

LOG OF PROJECT PERSONNEL

Employee Name/Job Title/Location	Date	Signature

Appendix C: Inspection Record

INSPECTION REPORT

The purpose of the Inspection Report is to maintain a record of inspections undertaken on Council parks and playground areas and to record the results of the inspections including a record of any corrective actions that are required.

The Inspection Report is required to be completed by the Parks & Streetscapes Coordinator following completion of the inspection.

Date:	
Inspector:	Name: Sign:
Time:	
Site / Area:	
Observations:	
Problems (if observed):	
Report to:	Project Manager (Name):
Corrective Action (if required):	
Signed by HCC Manager of Parks and Gardens upon completion:	
Feedback Response to Prevent Future Occurrences	
Date:	

Appendix D: Complaints and Environmental Incident Register

COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER

The purpose of the Complaints and Environmental Incident Register is to maintain a register of complaints from local residents or concerned parties, which will include a record of any action taken with respect to the complaints.

The Complaints and Environmental Incident Register is required to be completed immediately following the receipt of any complaints associated with works undertaken on Council parks and playground.

Date	Time	Type of communication	Name, address contact ph of complainant	Nature of complaint	Response/ Corrective Action	Date of Response	Date Complainant Notified of Response Taken	Signature/ Position

Appendix E: Materials Tracking Register

MATERIALS TRACKING REGISTER

The purpose of the Materials Tracking Register is to document the movement of fill materials both on and off Council parks and playground areas.

The Materials Tracking Register is required to be completed Parks & Streetscapes Coordinator following the import or export of fill materials on Council parks and playground areas.

Date	Description of Material	Amount	Destination	Verification (Name/Initials)