BEHANS LAND RESTORATION LIMITED

RESTORATION OF FORMER QUARRY
BLACKHALL, CO. KILDARE

OUTLINE CONTINGENCY PLAN

MAY 2008

Prepared by :
John Barnett and Associates /
SLR Consulting
7 Dundrum Business Park
Windy Arbour
Dublin 14

CONTENTS

Page No.

1 ACCIDENTS AND THEIR CONSEQUENCES

1.1 Introduction

This document is the Contingency Plan for the ongoing site restoration works at the soil recovery facility operated by Behan's Land Restoration Ltd. at Blackhall, Co. Kildare. The works principally comprise importation, placement and compaction of inert soils and recovery (processing) of inert construction and demolition waste.

The purpose of this document is to identify plans and arrangements that will be implemented during and after the proposed restoration works.

This document considers those aspects of on-site operations that may pose a risk of accidents with environmental consequences.

The resultant accident management plan describes the various techniques that will be implemented at the site to minimise the risks presented by site operations to the environment. It does not include those accidents, which may solely affect the health and safety of operatives, contractors or visitors to the site.

1.2 Accident / Hazard Identification

The following categories of potential hazard / accident have been identified and risk management measures are detailed in the following sections, which should be implemented at the site to ensure the environmental risks associated with the hazards are tolerable.

Fire

The fire management plan, which describes the procedures and precautions that will be implemented at the site, is presented in Section 2 of this plan.

Spillage and Leakage

Procedures that will be implemented at the site to minimise the risk from spillage and leakage is presented in Section 3 of this plan.

Stability

The measures to be taken during both the design process and during routine operations to ensure the stability of the site and prevent soil slippage are detailed in Section 4 of this plan.

Security and Vandalism

Measures that will be adopted to minimise the potential environmental impact associated with deliberate damage to control mechanisms such as fuel storage facilities are detailed in Section 5 of this plan.

2. FIRE MANAGEMENT PLAN

2.1 Operational Techniques

Waste management sites can represent a potential fire risk for a number of reasons.

- Site buildings contain electrical appliances and other sources of ignition along with materials that would readily burn.
- Litter and waste materials may support combustion.
- Maintenance activities on plant and equipment can represent a potential fire risk if necessary precautions are not taken.

Specific action that will be taken to prevent and minimise the risk of fires from these particular sources, together with general fire prevention precautions are detailed below.

Site Buildings/Electrical Appliances

All electrical appliances in use at the site will be tested in accordance with the Electrical Testing Regulations.

Housekeeping

Site buildings will be maintained in a tidy condition, and will be regularly cleaned to avoid the accumulation of paper and debris that may present an increased fire risk.

Litter and Combustible Waste

No litter or potentially combustible waste will be permitted to accumulate at the site.

Management Responsibility

The Site Manager will have responsibility for ensuring that potential fire nuisances and hazards arising from site operations are minimised.

Training

All employees will undergo training relevant to their role in fire prevention, use of fire extinguishers, and emergency procedures.

Smoking Policy

Smoking will only permitted at designated areas and specifically not within site buildings.

Fire Protection Equipment

Where appropriate, plant will be fitted with automated fire protection equipment.

Hot Work Permitting System

A formal permit to work system will be in place to ensure appropriate precautions are taken and approval obtained prior to any hot work being carried out on site plant and equipment.

Fire Fighting Equipment

Fire extinguishers will be provided in the site buildings and will be used if it is appropriate and safe to do so, in the event that fire is discovered in the building.

Smoke and Fire Alarms

Smoke and fire alarms will be fitted in the site offices.

2.2 Monitoring Techniques

All operatives will remain vigilant regarding the breakout of fire at the site, and the emergency procedure and action plan outlined below will be followed if fire is observed.

2.3 Fire Action Plan

Fire within Site Buildings

- The person discovering the fire will raise the alarm.
- If the fire cannot be safely tackled using appropriate fire extinguishers the emergency services and the site manager will be informed
- Where applicable, and if it is safe to do so, all electrical supplies will be isolated and made safe in the area of the fire.
- The site manager or his deputy will check for all visitors, contractors and staff to ensure everyone is accounted for.
- The site manager or his deputy will direct the emergency services to any casualties.
- All used fire extinguishers will be returned to the supplier for refilling or replacement.

Plant and Equipment Fire

- The person discovering the fire will raise the alarm.
- If the fire cannot be safely tackled using appropriate fire extinguishers the emergency services and the site manager will be informed
- If it is safe to do so, all electrical supplies will be isolated and made safe in the area of the fire.
- The site manager or his deputy will check for all visitors, contractors and staff to ensure everyone is accounted for.
- The site manager or his deputy will direct the emergency services to any casualties.
- All used fire extinguishers will be returned to the supplier for refilling or replacement.

Records

A fire log will be maintained. It will include the following details: -

- records of the maintenance of fire extinguishers;
- a record of all incidents of fire including date, time, nature and cause of the fire; and
- details on the action taken to extinguish the fire, and any subsequent changes to operational and emergency procedures.

The Environment Protection Agency will be advised of all incidents of fire as soon as practicable.

3 SPILLAGE AND LEAKAGE MANAGEMENT PLAN

3.1 Operational Techniques

In order to prevent spillages and leaks of potentially polluting materials and minimise the impact of any spillages that do occur, the following measures will be implemented at the site.

Unloading Procedure / Overfilling of Tanks

All polluting materials delivered to site will be unloaded by suitably qualified employees from the delivery company, and overseen by a designated site operative. This will prevent the overfilling of fuel bowsers.

Storage Vessels/Containers

Potentially polluting liquids (principally fuel) will be stored in mobile, double skinned bowsers constructed to the appropriate Irish, British or International Standard, meeting the requirements of the Local Government (Water Pollution) Acts 1977 to 1990 and associated regulations.

Other potentially polluting liquids such as lubricating oils, waste oils derived from vehicle maintenance, pesticides etc, will be stored in containers located on the hardstanding area.

All solid wastes arising on site and other solid potentially polluting materials will be segregated according to category and stored within containers which are designed to ensure the contents do not spill or escape.

Inspection and Maintenance

All containers and bowsers will be inspected on a daily basis by the site manager or his designated deputy to ensure their continued integrity, and identify the requirement for any remedial action.

In the event that remedial action is required, arrangements will be made to transfer any potentially polluting materials to secure alternative storage pending completion of the remedial work. Remedial work will be undertaken as soon as possible. Containers and bowsers found to be faulty will not be used for the storage of polluting materials until appropriate remedial action is completed.

Absorbent Materials

A supply of materials suitable for absorbing and containing any minor spillage will be maintained on site.

Sand bags or similar which are suitable for the blockage of the surface water discharge point will be maintained immediately adjacent to the discharge point for use in emergency situations.

3.2 Spill Containment Equipment

Materials suitable for containing spills including sealing devices and substances for damaged containers, drain seals and booms, and overdrums will be maintained at the site.

Plant Maintenance

All plant and equipment will be subject to maintenance in accordance with the suppliers / manufacturer's recommendations to avoid the failure of items of plant and equipment giving rise to potential emissions to the environment.

Drains

Surface water channels and drains will be subject to daily visual inspection by the Site Manager. Action will be taken to remove any obstructions to flow.

Management of Fire Extinguishing Water (Fire Water)

Options for the management of fire extinguishing water (i.e. fire water) depend upon the location and nature of the fire.

The main principle underlying any action in this regard will be to avoid wherever possible, fire water gaining access to the surface water drainage system. This will be achieved by using mobile plant and equipment to construct physical barriers such as earth bunds and interception ditches at strategic locations.

3.3 Monitoring Techniques

All site personnel will be tasked with monitoring for evidence of spillage and leakage, during their day-to-day routine. The condition of bowsers and containers will also be inspected on a daily basis.

A daily and weekly inspection checklist will be used to record inspections of infrastructure, operations, pollution control and amenity management and monitoring. The inspection checklist will be used by the site manager to identify requirements for remedial action.

Any evidence of spillage or leakage will be reported immediately to the Site Manager or his deputy for appropriate remedial action.

3.4 Leaks and Spillage Action Plan

In the event of spillage of polluting materials, immediate action will be taken to contain the spillage.

The spillage will be reported to the Site Manager, who will assess the situation and decide on the most appropriate course of action.

The action taken will depend upon the size of the spillage, the location of the spillage in relation to sensitive receptors and the chemical and physical nature of the spilled material.

Action taken may include some or all of the following: -

- if possible the leak will be stopped;
- if it safe to do so, the cause of the spill or leak will be isolated;
- if the spillage is small, spill granules will be used immediately if necessary to prevent the spill spreading. The area will be cleared and all contaminated material will be sent to an appropriately licensed site for disposal;
- if the spill is larger, inert materials such as clay or sand will be used to make a containment bund and specialist help will be sought to assist in clean up;
- in the event of a potentially serious spillage that may give rise to pollution of surface water, immediate action will be taken if possible to prevent the spread of the spill into surface water channels and drains using suitable covers and barriers. The Environment Protection Agency will be informed immediately, and remedial action will be agreed.
- if the spillage cannot be contained using approved materials, the Environment Protection Agency and senior management will be contacted immediately and specialist help obtained;
- if a vehicle is found to be leaking, it will be moved to a position where the spillage can be contained i.e. quarantine area, or other hard surfaced area, if it is safe to do so; and
- all personnel will follow instructions provided by managers or other competent persons. Appropriate precautions will be taken depending upon the nature of the spilled material to prevent any harm to human health, and all personnel involved in clean up will wear protective clothing appropriate for the nature of the spilled material.

All spillage incidents, site inspections, and remedial actions will be recorded in the site diary.

4 STABILITY MANAGEMENT PLAN

To ensure the long-term integrity of the slopes at the restoration site, precautions will be incorporated both at the design stage and during backfilling operations as detailed below.

4.1 Design Considerations / Stability Assessment

Stability of slopes prior to, during and following restoration is a prime consideration during the design process.

The following factors have been taken into account during the design process: -

- *nature of substrata*, i.e. the presence of any historical mining and quarrying, presence of superficial deposits, variation in the water table, geotechnical and hydraulic properties of any materials to be utilised at the site;
- *stability of waste body*, i.e. stability of temporary slopes during site backfilling; and
- *stability of capping and restoration layers*, i.e. surface gradients and effects of soil settlement.

4.2 Operational Techniques

The following operational techniques to ensure stability of the backfilled mass, will be adopted at the site.

- *Waste compaction :* Inert waste will be levelled and compacted as soon as possible after discharge at the working area. This will minimise any future settlement and enhance stability of the backfilled soil mass;
- *Large objects :* All large inert construction and demolition waste (concrete, boulders etc.) will be crushed to ensure that voids do not develop in the backfilled soil mass;
- *Height of tipping face :* The maximum height of the tipping face after compaction will be 2.5 metres. The end-tipping of uncompacted soil over high unstable faces will therefore be avoided.
- *Gradient of temporary slopes :* During restoration of the site, the slope adopted for temporary unrestored faces sloping to the floor will depend upon the nature of the soil, its moisture content, the height of the slope, nature of the foundation soil and the consequences of failure.

4.3 Monitoring Techniques

The following action will be taken to monitor the stability and settlement of the soil slopes: -

Visual Inspections

Visual inspections will be carried out at weekly intervals to identify the following: -

- evidence of cracks in temporary slopes caused by movement of the inert waste;
- evidence of instability or movement and
- evidence of differential settlement causing depressions in the restored landform or damage to the drainage system.

4.4 Action Plan

In the event that stability or settlement problems are discovered, appropriate remedial action will be taken as detailed below: -

Instability of Waste Mass

If there is visual evidence of movement within the inert soil mass, or evidence from the regular topographical surveys, the situation will be reviewed by an independent engineer, and appropriate remedial action will be taken in agreement with the Environment Protection Agency.

The action taken will depend upon the severity of the movement, the timescales over which the unstable mass will remain unsupported, and the consequences of failure.

Action taken may include one or more of the following: -

- the situation will continue to be monitored through regular visual inspections and topographical surveys;
- prohibit operations at the base of the slope, which may place operatives at potential risk;
- adjustment to phasing of restoration operations to provide additional support to the inert soil mass as soon as possible;
- engineering work to reduce the gradient of the slope and reduce the risk of failure; and
- revised design for future phases to reduce slope gradients and/or height of slopes and reduce time period over which temporary slopes remain unprotected.

Records

Records will be maintained as follows: -

- the results of visual inspections and topographical surveys;
- stability problems including date, nature and suspected cause of the problem; and
- details on the corrective action taken, and any subsequent changes to site design or operational procedures.

5 SECURITY MANAGEMENT PLAN

Many potential problems can arise from inadequate control over access to waste management sites. These problems include: -

- non-permitted waste being imported in contravention of the Waste Licence;
- fly tipping of wastes at the site entrance; and
- damage to plant and equipment.

Such problems not only disrupt safe operation of the waste facility but can also have significant financial implications for the operator who will be required to replaced or repair stolen or damaged equipment. Environmental damage can also result if control systems are compromised.

5.1 Operational Techniques

In order to minimise the risk of problems arising as a result of inadequate security, the following measures will be implemented at the site.

Building Security

The site control office will have the benefit of a security alarm to discourage intruders. Windows will also be fitted with bars and /or shutters to prevent damage by vandals.

Lighting

The main site control office and hardstanding area will have security lighting to discourage unauthorised visitors during the hours of darkness.

Fencing

The site will have the benefit of security fencing which will extend around the perimeter of the site.

Security Gates

Security gates, which span the full width of the access road will be provided at the entrance to the site. The gates will be locked outside operational hours to deter unauthorised vehicular and pedestrian access.

Inspection

Gates and fencing will be inspected weekly by the site manager or his nominated deputy, to identify deterioration and damage, and the need for any repairs.

Maintenance and Repair

The fencing and gates will be maintained and repaired when required to ensure their continued integrity. In the event that damage is sustained a temporary repair will be made within 24 hours until permanent repairs can be effected.

Warning Notices

Notices warning against unauthorised access (and alerting potential trespassers to on site hazards) will be erected at the site entrance and adjacent to the footpath, and will be repeated as necessary at locations around the perimeter of the site.

Authorised Access System

All visitors to the site will be required to register their presence by signing in the visitors book on entry to the site, and again on exit. This will minimise the risk of unauthorised visitors being present on site.

Reporting Systems

In the event of fly-tipped material being found at the entrance to the site, the fly tipped material will be examined for evidence of ownership. In the event of evidence being found, the Environment Protection Agency and Local authority will be advised so that legal action may be considered.

5.2 Monitoring Techniques

The operational procedures outlined above, including the regular inspections, security and reporting systems will ensure continual monitoring of security provision at the site.

5.3 Action Plan

In the event of a breach of security at the site, the following course of action will be followed;

Unauthorised Access

The route of access will be determined, and consideration given to the following measures as appropriate: -

- repair of gates or fencing;
- replacement of gates or fencing with more secure design;
- erection of warning signs; and
- installation or implementation of additional security measures for example security cameras, more frequent patrols.

Unauthorised Tipping

- the material will be examined for evidence of ownership;
- the Environment Protection Agency and Local Authority will be informed;
- with the agreement of the Environment Protection Agency and/or Local Authority, the material will be removed and disposed of correctly;
- if appropriate, additional warning signs will be erected; and
- additional security measures will be considered.

Records

A record relating to the management and monitoring of security will be maintained. It will include the following details: -

- records of the inspections and maintenance of security fencing and gates;
- a record of all breaches of security and incidents of fly tipping, and investigations of these breaches of security; and
- details of the action taken to replace or repair security equipment, and investigate fly tipping, including any subsequent changes to operational procedures.