

18 WASTE MANAGEMENT

18.1 INTRODUCTION

Wastes are an inevitable aspect of any business activity. These are evident with the current site operations and also will be with the redeveloped site, but there will be two aspects to waste management associated with the redevelopment. Firstly one off wastes will be generated during the construction phase (and in particular the excavated soils and gullies associated with site preparation). Secondly, once the site is developed and operational there will be routine wastes associated with the business activities of the tenants.

There is a great deal of regulatory and financial pressure to manage wastes effectively and avoid landfill disposal where possible. Westlink Group Ltd. has considered this in the context of the proposed development and assessed the waste characteristics of the current site use and the proposed development in order to try and evaluate potential impacts and identify options for sustainable waste management.

18.2 METHODOLOGY

The waste management evaluation has considered the wastes that are likely to be generated as a result of the site usage for its normal business (current and planned) and the construction site preparation related wastes.

The methodology for looking at operational wastes has simply involved examining waste management practices on the site and where possible predicting waste generation activities associated with the redeveloped site. The Development site will not have a centralised waste management contract as it is anticipated that the tenants will have national contracts and waste management packages with different waste management companies that would take precedence over any site based solution. Given this and the fact that the future tenants for the Development site are not fully known at this stage, only general discussion can be provided and general sustainable waste management principles be put forward as part of the tenants requirements.

For the construction related wastes, a detailed evaluation has been undertaken of the site conditions (chemical contamination status) via a comprehensive site investigation (see *Section*

14) and cross referenced with the planned engineering works in order to identify the likely provenance and quantity of waste materials that will be generated. Sustainable solutions have then been researched to enable, as much as possible, the re-use of this material and avoidance of landfill disposal.

These issues are discussed in more detail in the following sections.

18.3 BASELINE CONDITIONS

The current site activities generate a wide range of waste materials both Hazardous Wastes and Non-Hazardous Wastes, although the latter predominates with the main Hazardous Waste of note being waste oil. At present the storage and management of these materials is ad-hoc with AHC having its own waste disposal arrangements and the tenants having separate arrangements. Waste currently identified on site comprises waste oil, packaging waste and general waste generated as a result of various operations undertaken at the site (see *Section 2* for Existing Site Description). No formal site wide waste management plan is in place at present and skips into which waste is placed are positioned on site such that they cannot be attributed to any particular site tenants or activities.

Insofar as AHC's waste management is concerned, the following arrangements exist:

- General Wastes (paper, card, plastic, waste products, etc) are taken away in skips to a waste transfer station and ultimately will be bulked up for landfill disposal. The contract for this is with Widnes Skip and Reclaim who provide 6 general waste skips for the site (one for Foundry Lane and the rest for the West Bank Dock site). The skips are emptied on a weekly basis;
- General wastes are not segregated;
- Where possible cardboard waste is segregated and bailed and some polythene wastes, both of which are sent for recycling;
- Scrap Metal is generally segregated for recycling although an element of metallic waste does enter the general waste stream;

- Waste Oils are barrelled or kept in a tank and periodically sent for oil recovery via OSS Ltd, although some oily wastes (rags for example) are also disposed of into the general waste skips on occasions. The annual disposal of oil (by AHC) typically amounts to less than 2000 litres;
- There are no site wide recycling, segregation or recovery initiatives and no overall waste management philosophy or site procedures. AHC do, however, keep records (Duty of Care Waste Transfer Notes and Hazardous Waste Consignment Notes) for their own waste arisings;
- Wood waste (pallets) are periodically burned; and
- With the exception of small quantities of rubble and contractor waste from minor civils works construction related wastes are not a feature of the current site operations.

A more notable waste feature of the site is the fact that much of the site is made up from chemical waste (galligu) associated with many decades of the chemical (and particularly alkali and soaps industry) in the area. There are also waste products in the ground from other activities. These materials, however, are seldom disturbed by site activities and do not constitute a routine waste stream. A fuller description of these buried materials and their implications for the development are provided in *Section 14 – Soils, Geology and Land Contamination*.

18.4 IMPACTS OF THE DEVELOPMENT AND PROPOSED MITIGATION

For the proposed High Bay Regional Distribution development site, the anticipated waste types that are predicted for both the construction and operational phases are presented in the table opposite.

Table 18.4(a) - Predicted Waste Types

Construction Phase Wastes	Operational Phase Wastes
Building demolition rubble comprising, brick, glass, timber, concrete.	Small quantities of waste oils and chemicals from site support activities (e.g. fork lift maintenance, boiler water treatment).
Roofing materials comprising asbestos cement sheet.	Paper, cardboard and plastic packaging wastes from business activities.
Excavated soil (ash, clay, topsoil, galligu and potentially contaminated sub-soil) associated with cut and fill, foundation excavations and trenching for services.	Spoiled and damaged goods from storage warehouses.
Spoil from piling operations (especially augured piles)	Soils and possible contamination from minor earthworks (sewer repair, trenching, post boring, etc).
Waste oils, chemicals and potentially hazardous materials from buildings clearance.	Trade effluent from vehicle washing and other business related discharges.
Scrap metal and redundant plant and equipment.	Scrap metal and redundant plant and equipment.
Vegetation from site stripping.	Waste vegetation from routine maintenance of landscaped areas.
Japanese Knotweed contaminated soil.	Sanitary effluent from occupied premises.
Waste paper, plastic, cardboard and wood from delivery of construction materials and site activities during the works.	Wood waste from unused/damaged pallets.
Redundant unused construction materials.	Construction/demolition wastes from periodic contractor activities.
Collected groundwater and rainwater.	Waste oil/water mixtures and sediment from interceptor systems.

These materials will be generated to varying quantities which cannot be specified at this time, it is possible, however, to give a relative assessment of the potential waste quantities and their intended fate.

Table 18.4(b) - Fate of Generated Wastes

Waste Type	Construction Phase (CP) Operational Phase (OP)	Relative Volume	Fate
Building demolition rubble comprising, brick, glass, timber, concrete.	Construction Phase only	Large	Mixture of on-site re-use of most materials and off-site recycling or disposal of unsuitable materials
Roofing materials comprising asbestos cement sheet.	Construction Phase only	Small	Specialist removal by Licensed Contractor and taken to hazardous waste disposal site.
Excavated soil (ash, clay, topsoil, galligu and potentially contaminated sub-soil).	Construction Phase only	Very Large	On site re-use and re-profiling, with treatment where appropriate. Off-site disposal for materials that cannot be managed on site effectively.
Waste oils, chemicals and potentially hazardous materials.	Construction Phase and Operational Phase	Small	Off-site to licensed treatment & disposal facilities.
Scrap metal and redundant plant and equipment.	Construction Phase and Operational Phase	Small	Off site recycling.
Vegetation from site stripping.	Construction Phase and Operational Phase	Moderate	Off site recycling or composting.
Soil and Vegetation from Japanese Knotweed contaminated areas.	Construction Phase only	Moderate	On site burial in accordance with EA policy and guidance.
Waste paper, plastic, cardboard and wood.	Construction Phase and Operational Phase	Moderate	Off site recycling and disposal via contracted waste management firm.
Redundant construction materials.	Construction Phase only	Small	Return to supplier, recycling, sale or disposal.
Collected perched water and rainwater.	Construction Phase only	Moderate	Discharge to site surface or drainage system under controlled conditions if suitable or off-site treatment.
Trade effluent from	Construction Phase	Small	Monitored discharge to

Waste Type	Construction Phase (CP) Operational Phase (OP)	Relative Volume	Fate
vehicle wheel washing and other business related discharges.	only		drainage under Trade Effluent Discharge Consent(s), to sewer.
Waste oil/water mixtures and sediment from interceptor systems.	Operational Phase only	Small	Routine removal by contractor to treatment facility.
Spoiled and damaged goods from storage warehouses.	Operational Phase only	Small	Return to supplier or recycling/disposal where return not possible.
Sanitary Waste	Construction Phase and Operational Phase	Small	Discharge to drainage system under controlled conditions via effluent treatment package plants serving individual site operators.

Key: *Small = tens of tonnes*
Moderate = hundreds of tonnes
Large = thousands of tonnes
Very Large = tens of thousands of tonnes

The demolition rubble and excavated soils associated with the site clearance and construction works will be the dominant and most environmentally significant waste stream associated with this project, but this will be transient in nature and will be handled almost entirely on site (see *Section 14* for full details). Insofar as a summary of the management of rubble and contaminated soils arising on the site is concerned the following aspects are pertinent:

- Asbestos containing materials will be removed from all buildings prior to demolition and disposed of off site by a licensed asbestos contractor;
- Tenants will be obliged to remove all redundant equipment and waste materials associated with their activities on vacating the current premises;
- Demolition rubble will be screened and crushed (where suitable) for re-use on the site as bulk fill;

- Excavated galligu will be treated by blending it with cement based additives to form a structurally stable non leachable material that can then be re-used on site as either general fill or sub-base and sub-grade where site levels need raising or ground conditions require improvement to enable the development to proceed;
- Hydrocarbon contaminated soils will either be sent for off-site disposal or will be treated on site using bio-remediation methods (which degrade the hydrocarbons) until the hydrocarbon levels reach an acceptable concentration;
- Japanese Knotweed contaminated soil that is disturbed as part of the development works will be carefully quarantined and disposed of on site within one of the deeper excavations in accordance with EA special policy on controlling Japanese Knotweed;
- All excavations will be monitored and analysed by qualified and experienced field scientists to ensure the chemical characteristics of the materials are understood and that they are handled and segregated appropriately (e.g. contaminated soils will not be mixed with uncontaminated soils);
- Arisings from the piling operations will be treated similarly to other excavated materials and monitored, analysed and managed; and
- Detailed records and (and where appropriate a photolog) will be kept of all construction phase waste arisings and their management and fate. This will be reported to the Local Authority and EA in a remediation validation report on completion of the construction phase.

As referred to in *Section 14* (Soils, Geology and Contamination), once the proposals have received planning consent a subsequent round of investigation will be undertaken and further risk assessments performed in order to define a detailed remediation strategy and materials management strategy. This will be communicated to and agreed with the regulatory authorities prior to such works commencing on site.

The wastes associated with the operational phase will be much less problematic and will be governed by a site wide Waste Management Policy as described below.

Westlink Group Waste Management Policy

Given that the proposed tenants will be national retail, freight and logistic companies, it is highly likely that they will be obligated under the *Producer Responsibility (Packaging Waste) Regulations 1999*, requiring individual waste generators to recover and/or recycle packaging waste generated as a result of their activities. The majority of the tenants' wastes will fall in to this category. It is considered highly likely therefore that individual tenants' waste management arrangements will have been arranged nationally and contracted to national waste/packaging recycling organisations. As such, it will not be possible to have a centralised waste management agreement and associated contract for the entire site. Tenants will therefore be responsible for the storage and subsequent off-site disposal of all their own waste materials, but in order to ensure adequate standards of waste management at the site tenants will be required to subscribe to a site wide Waste Management Policy that will be set out in the tenants handbook. The Waste Management Policy will include the following provisions:

- all wastes must be stored in appropriately labelled waste storage receptacles on suitably hard surfaced areas, away from drains;
- the waste receptacles shall be located in designated areas at each unit;
- waste storage areas must be kept clean and tidy and must be litter free at all times;
- where possible wastes should be segregated to facilitate off-site recycling or reuse;
- the disposal of wastes to landfill should be avoided where possible;
- the tenants must retain Duty of Care Waste Transfer Notes and Hazardous Waste Consignment Notes for the appropriate length of time; and
- the tenants must provide the Westlink Group site management with details of all appointed waste contractors who may have reason to access the site.

In addition to solid wastes, the construction phase of the project also has the potential to generate liquid wastes.

Wastewater Generation and Management

In addition to solid wastes, the development will also generate waste waters. As with most aspects of the Development, construction and operational phases need to be considered separately. During the construction phase, the principal wastewaters will be the sanitary waters for Site Workers and Occupants (which will utilise the current sanitary facilities and foul-water systems) and more notably, "waste" waters arising from de-watering of excavations. This may in some places be contaminated. During the operational lifetime of the Development, de-watering will not be necessary, however, there will be a requirement for sanitary systems and discharge arrangements for each of the proposed units. In broad terms the anticipated waste waters will comprise:

- Clean surface water run-off;
- Contaminated surface water run off;
- Groundwater (likely to be contaminated to varying degrees);
- Sanitary water from toilet facilities and washrooms; and
- Trade effluent (mainly from vehicle cleaning or a temporary wheel wash during construction works.

These issues are discussed in more detail below.

Construction Phase

Waste waters likely to be generated on site during the construction phase include the following:

- temporary septic tanks/portaloos facilities to be utilised by the construction workers;
- temporary discharges associated with changeover from the old drainage system to the new drainage system and its management;
- waste waters from the dewatering of excavations although quantification of the possible volume involved cannot be undertaken at this stage as this is dependent upon the depth and extent of excavation, the incidence of rainfall and the rate of inflow;

- dirty water from a temporary on-site wheelwash, should one be required during the construction works; and
- redundant chemicals/oil left by vacating tenants.

Operational Phase

None of the wastewaters identified above will be associated with the operational phase. The main wastewater once the site is operational will be sanitary waste water from the toilet blocks, washrooms and catering facilities associated with the site tenants.

It is also possible, however, that there will be discharges from small scale vehicle and floor washing facilities. If this is the case then it is likely that they will require a discharge consent as there could be suspended solids and oil contamination in the wash waters and occasionally heavy metals. The frequency and volume of such discharges will be very low however.

Mitigation

Clearly although the surface waters on or close to the site are known to be contaminated, it will not be acceptable to simply discharge waste waters to these bodies and on site waste water management will be required.

During the construction phase, the existing sanitary facilities will be used where possible but these will need to be supplemented with temporary portable toilet units at strategic locations as the works progress. These units will be emptied frequently under a maintenance contract with the supplier who will tanker away the waste.

The waters arising from excavations will in all cases be sampled and analysed to enable their contamination status to be assessed. Based upon the results of this a number of options are available for the management of this water. These include:

- Direct discharge to Ditton Brook or Stewards Brook (under a temporary discharge consent from the EA);

- Spraying on to unsurfaced areas of the site to allow evaporation and re-infiltration of the waters (with appropriate EA approval);
- Discharge to foul sewer under a temporary discharge consent with United Utilities (although there are no such foul sewers serving the site itself); and
- Temporary storage on site and off-site removal in road tankers to a wastewater treatment facility.

Once the site is operational, given the absence of access to a foul sewer, it will be necessary for each unit to have a small bespoke sewage treatment plant (package plant) that will treat the sanitary waste to a sufficient standard to allow discharge of the treated wastewater to the nearby water courses. The project is not yet at a stage where the detailed design or capacity of these plants can be established, but there will be full consultation in this with the EA to ensure the plants are acceptable. It is envisaged that there will be at least one and perhaps several discharge consents applied for to allow the discharge to the water courses.

The management and maintenance of the package plants will fall under the control of the Westlink Group facilities management team to ensure consistent levels of attention and management are applied to each of the units.

All underground pipework will be laid in clean sealed backfill to prevent these runs becoming conduits for contaminated groundwater migration associated with the surrounding soils.