CLONBURRIS SDZ Phase 1

Outline Construction & Demolition Waste Management Plan

South Dublin County Council

Project number: 60650394

14 April 2022

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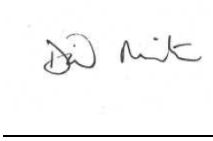		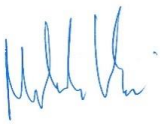	R.O.C.
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
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3. Introduction

AECOM Ireland Limited (hereafter referred to as “AECOM”) was commissioned by South Dublin County Council (the Client) to prepare an Outline Construction & Demolition Waste Management Plan (CDWMP) to support the planning application for the ‘Phase 1’ site comprising approximately 10 hectares on Lynch’s Lane to the south-west area of the Clonburris Strategic Development Zone (SDZ). The plan presented herein is outline in nature as it has been prepared at a stage when exact quantities and volumes of waste material have not yet been determined. This document is considered to be live and is to be updated into a Resource & Waste Management Plan (RWMP) in accordance with the relevant guidance by the appointed contractor as works progress.

The proposed development comprises 263 new homes, a mix of apartments, duplexes and houses and a new community room in a mix of buildings ranging from one to five storeys. The scheme is set within a series of three large strategic open spaces providing local recreation and amenity spaces with links to existing and surrounding communities. Existing accommodation present on the east of the site is to be retained and incorporated in the design.

The proposed site is bounded by the railway tracks to the north, servicing the local Kishogue Railway Station. It is bounded by a dirt road to the south, and adjacent greenfield properties to the east. A farmyard exists to the east of the site. Kishogue Park is a residential park located on the south boundary of the site which will remain when the new development is constructed.

The layout of the Proposed Development is shown in Figure 1 below.

Figure 1. Proposed Development

4. Rationale & Methodology

Construction and demolition (C&D) waste is defined as waste which arises from construction, renovation and demolition activities, together with all waste categories mentioned in Chapter 17 of the List of Waste (LoW)[1]. Also included within the definition are surplus and damaged products and materials arising during construction work or used temporarily during the course of onsite activities.

A bespoke Resource & Waste Management Plan (RWMP) is required for any 'Tier 2' project that is likely to exceed the thresholds set out in the EPA (2021) publication 'Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects', which are set out as follows:

1. New residential development of 10 or more dwellings.
2. Retrofit of more than 20 dwellings.
3. New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area 1,250m^2 or more.
4. Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area of 2,000m^2 or more.
5. Demolition projects generating 100m^3 or more in volume of C&D waste.

This project meets the thresholds for one or more of the criteria above and thus requires a bespoke RWMP.

This outline CDWMP has therefore been prepared with reference to and taking account the following legislation, plans and waste management guidance documents:

- Draft National Hazardous Waste Management Plan 2021-2027;
- The Waste Management Act 1996 – 2008, Amendments & Associated Regulations;
- CIRIA document 133 Waste Minimisation in Construction;
- The Litter Pollution Act 1997;
- The Eastern-Midlands Region Waste Management Plan 2015-2021;
- The South Dublin County Council Development Plan 2016-2022;
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA), September 2009;
- Designing out Waste: A Design Team Guide for Civil Engineering (WRAP); and
- Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects (EPA), 2021.

5. Objective

The objective of this report is to provide an outline of general principles underpinning the preparation of a CDWMP. The ultimate objectives of the CDWMP are to:

- Promote an integrated approach to waste management throughout the project construction stage and to set out appropriate responsibilities;
- Promote sustainable waste management in line with the waste management hierarchy;
- Provide an outline plan for the management of wastes arising from construction works for the project in accordance with the relevant Irish and EU waste management legislation; and

[1] Environmental Protection Agency, *Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-Hazardous,* Valid from 1st June 2015

- Provide a framework for the designers and the Principal Contractor to appropriately manage waste generated during the course of the project. Both the designers and the Principal Contractor will be responsible for implementing the findings and recommendations of the outline CDWMP in their RWMP.

The outline CDWMP sets out methods to achieve the waste prevention, recycling and recovery of waste. It also provides recommendations for the management of the various anticipated waste streams. The plan includes recommendations on collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources).

The outline CDWMP describes the applicable legal and policy framework for C&D waste management in Ireland (both nationally and regionally).

6. General Waste Management Regulatory and Policy Framework

General provisions on waste management policy and regulatory framework are set out as follows:

- Construction and Demolition (C&D) waste can be defined as all waste that arises from construction, renovation and demolition activities and includes all waste listed in Chapter 17 of the LoW, including hazardous and non-hazardous waste types.
- The EU Waste Framework Directive (2008/98/EC), enacted in Ireland under the Waste Directive Regulations, 2011 of the same title, requires Member States to take the necessary measures to achieve the minimum recycling/recovery target of 70% by weight for non-hazardous C&D waste, excluding naturally occurring materials, by 2020. The Directive specifies that such a target should be achieved by preparing for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other material.
- The Eastern-Midlands Region Waste Management Plan 2015 – 2021 (EMR-WMP) was published in May 2015. Notable and relevant points are:
    - There has been a sharp drop in the number of available operational landfills nationally. Historically these were a significant outlet for C&D waste. Therefore, there is a need to maximize diversion of infill of C&D waste and consider alternative uses, for example, crushing and screening of masonry, stone and concrete wastes for reuse in a variety of engineering applications;
    - The need to progress towards a ‘circular economy’ whereby raw materials, traditionally almost entirely becoming waste in a linear life cycle, instead become a much smaller input into a circular approach to materials use from design through to production, through to consumption but then maximising reuse and recycling to close the circle back to design. For example C&D wastes can become raw materials in the design phase of a project;
    - The EMR-WMP plan sets out a target of 70% of C&D waste reuse and recycling (excluding soil and stones) by year 2020; and
    - The EMR-WMP brings in the concept of ‘upcycling’ which is the re-purposing of items that otherwise are seen as waste or useless products.

The primary legislative instruments that govern waste management in Ireland and are deemed applicable to the project are:

- Waste Management Act 1996 (S.I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001. Sub-ordinate legislation to this Act include:
    - European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended 2011 (S.I. No 323 of 2011);
    - Waste Management (Collection Permit) Regulations S.I No. 820 of 2007 as amended 2008 (S.I No 87 of 2008);
    - Waste Management (Facility permit and Registration) Regulations, S.I No. 821 of 2007 as amended 2008 (S.I No. 86 of 2008);

- Waste Management (Licensing) Regulations 2000 (S.I No. 185 of 2000) as amended 2004 (S.I. No. 395 of 2004), 2010 and (S.I. No. 350 of 2010);
- Waste Management (Packaging) Regulations 2003 (S.I. No. 61 of 2003) as amended 2004 (S.I. No. 871 of 2004), 2006 (S.I. No. 308 of 2006) and 2007 (S.I. No. 798 of 2007);
- Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997);
- Waste Management (Landfill Levy) (Amendment) Regulations 2012 (S.I. No. 221 of 2012), as amended 2015 (S.I. No. 189 of 2015);
- European Communities (Waste Electrical and Electronic Equipment) Regulations 2011;
- Waste Management (Registration of Brokers and Dealers) Regulations 2008 (S.I. 113 of 2008); and
- Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009), as amended 2015 (S.I. 190 of 2015).

- Protection of the Environment Act 2003 (S.I. No. 413 of 2003).
- Litter Pollution Act 1997 (S.I. No. 12 of 1997).

These Acts and subordinate Regulations enable the transposition of relevant European Union Policy and Directives into Irish law.

7. Roles and Responsibilities

All parties involved in the Project will have responsibility for waste management. Responsibility will vary at different stages of the project lifecycle. Key responsibilities are set out in **Table 1**.

Some responsibility assignments indicated in Table 1 may change, depending on the agreed project contractual arrangements and project design requirements.

The appointed Principal Contractor will be responsible for refining and implementing the findings of the outline CDWMP within their own over-arching RWMP.

Table 1. Construction Stage Waste Management - Key Responsibilities

Responsible party	Responsibility	Project Stage
Client	Establish ambition and performance targets for Project	Project initiation and subsequent tendering phases
	Appointment of competent Principal Contractor and Design Team	All project stages
	Responsibility of waste management from 'cradle to grave', including documentation of same.	
Principal Contractor	Construction & Demolition Waste Management Plan implementation	Project Implementation
	Refinement and implementation of the outline CDWMP within their own over-arching RWMP	Project Implementation
	Appoint competent and authorized waste management contractor(s)	Project tendering phase
	Appoint trained, competent Resource Manager[2]	Construction phase

[2] The Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects (EPA, 2021) outline that a Resource Manager should be appointed. This Resource Manager may well be a number of different individuals over the life-cycle of the Project, but in general is intended to be a reliable person chosen from within the Planning/Design / Contracting Team, who is technically competent and appropriate trained, who takes the responsibility to ensure that the objectives and measures within the Project Waste Management Plan are delivered and who is assigned the requisite authority to secure achievement of this purpose. The role will include the important activities of conducting waste checks/ audits and adopting construction and demolition methodology that is designed to facilitate maximum reuse and/or recycling of waste.

Responsible party	Responsibility	Project Stage
Resource Manager	RWMP implementation	Project implementation
	Ensure that the objectives of the RWMP are achieved.	Construction stage
	Waste characterisation. Selection of techniques and design to minimize waste and to maximize recovery and recycling of waste during the project.	Project Design Phase and during project implementation
	Maintenance of Waste Documentation for 3 years.	Post-construction stage
	Completion of Final Waste Management Report	Construction stage
	Educate colleagues, site staff, external contractors and suppliers about alternatives to conventional construction waste disposal.	Project Design Phase and during project implementation
Design Team	Identification of Key Waste Streams	Project Design Phase
	Design to minimize waste generation in lifecycle of completed construction.	Project Design Phase
	Design of Soil Excavation Plan	Project Design Phase
	Adequately provide for waste management in tender documents and declare all relevant information & data.	Project Procurement Phase
Subcontractors	Comply with RWMP	Project Implementation

8. Waste Hierarchy

Beside the requirements that the off-site handling of waste generated by this project are subject to the required statutory authorisations under the Waste Management Act, there is also a necessity that it conforms to the Waste Hierarchy[3]. This hierarchy outlines that waste prevention and minimisation are the priority in managing wastes, followed by waste reuse and recycling, with disposal being considered as a last resort.

The EU Waste Directive (2008/98/EC) also mandates that hazardous waste generation should be avoided or at least limited.

[3] Waste Hierarchy as set out in Article 4 of the Waste Framework Directive (2008/98/EC) and transposed into Irish law via Section 21A of the Waste Management Act.

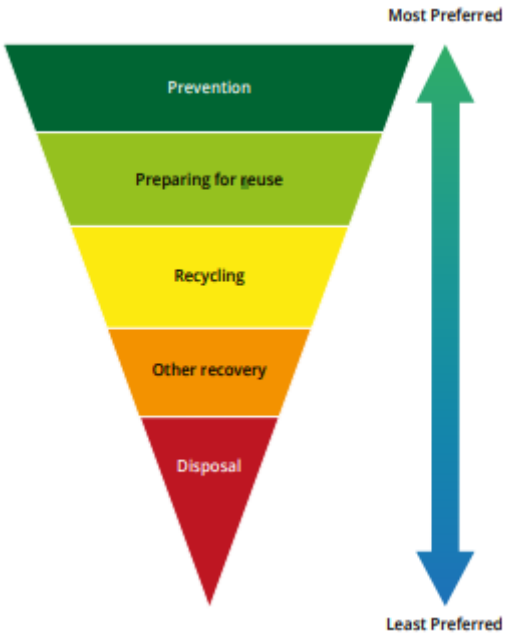

Figure 2. EU Waste Hierarchy (EPA National Hazardous Waste Management Plan 2021 - 2027)

Definitions defined in the Waste Framework Directive of key terms indicated in Figure 1 are (in order of priority):

- **Prevention** includes measures taken before a substance, material or product has become waste, that reduce (a) the quantity of waste, including through the reuse of products or the extension of the lifespan of products, (b) the adverse impacts of the generated waste on the environment and human health or (c) the content of harmful substances in materials and products.
- **Reuse** is defined as any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.
- **Recycling** is any recovery operation by which waste materials are processed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.
- **Recovery** is defined as any operation, the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

The Waste Hierarchy only applies to material that is defined as “waste”, so does not apply to the proportion of the spoil that is handled on-site in conformity with the statutory exclusions.

The Waste Management Hierarchy will be activated for any material which does not satisfy the exclusions; in this regard the contract documents for the detailed design/ construction project will clearly set out the staged approach which the contractor will be required to adhere to through the use of the Waste Hierarchy.

8.1 Limiting and Prevention of Waste

The following waste limiting measures will be implemented during the course of the construction works:

- Facilitate recycling and appropriate disposal by on site segregation of all waste materials generated during construction into appropriate categories, including:
  - Topsoil, subsoil, gravel hard-core
  - Concrete, bricks, tile, ceramics, plasterboard
  - Asphalt, tar and tar products
  - Metals
  - Dry Recyclables e.g. cardboard, plastic, timber
- All waste assessed by the Resource Manager as ‘not suitable for reuse’ will be stored in skips or other suitable receptacles in a designated area of the site, to prevent cross contamination between waste streams, dispersion and leaching;
- Wherever possible, leftover materials (e.g. timber off cuts) and any suitable demolition materials will be reused on-site;
- Uncontaminated excavated material (top-soil, sub soil, etc.) will be segregated, stockpiled and reused on site in preference to importation of clean fill, where possible;
- If excavated material cannot be used on site, the potential for its transfer to another site under, for example, Article 27 of the European Communities (Waste Directive) Regulations 2011 should be explored;
- Where possible, the Resource Manager will ensure that all waste leaving site will be recycled or recovered.

9. Waste Identification, Classification, Quantification and Handling

The majority of waste generated will be soil excavated during the course of the construction works. Should appropriate reuse be required and practical, clean soil will be retained on site and reused in areas of soft landscaping, backfilling, etc. A record of the volumes and reuse requirements will be maintained by the Principal Contractor as part of their RWMP.

The RWMP will identify suitability criteria for excavated soils to be reused on site or off site, as well as suitable recycling and/or recovery options where this is deemed a waste.

The potential for asbestos to be present on site will be assessed during the preliminary works and a management plan put in place for their safe removal and disposal if necessary, during demolition.

During the construction phase, there will be some building material and packaging waste generated. This will mainly include excess ready-mix concrete and mortar, timber off cuts, plastics, metal off cuts, cladding and tile offcuts, as well as plastic and cardboard waste from packaging and potential over-supply of materials.

Where possible, individual waste arisings shall be identified, classified, and quantified (volume, weight) as early in the project lifecycle as possible but, inevitably, unanticipated waste arisings may occur as site work progresses, necessitating the need for a procedure to provide for waste classification as the site work proceeds.

It is anticipated that the majority of non-hazardous and inert waste generated will be suitable for reuse, recovery or recycling and will be segregated to facilitate the reuse, recovery and/or recycling, as appropriate.

A non-exhaustive list of anticipated wastes from the construction phase and preliminary classification as either hazardous or non-hazardous is presented in Table 2.

Table 2. Potential Non Hazardous and Hazardous Waste Classification

Hazardous waste	Non-Hazardous Waste
• Excess Electrical & Electronic Components • Asphalt (bituminous) • Liquid Fuels • Batteries • Brick and stone (not contaminated with dangerous substances) • Concrete (contaminated with dangerous substances) • Excavated Soil (contaminated with dangerous substances) • Other construction and demolition wastes containing dangerous substances	• Asphalt (non-bituminous) • Metals (stainless steel, mild steel, copper, aluminium) • Wood (Clean), glass, plastic, paper and cardboard • Brick and stone (not contaminated with dangerous substances) • Concrete (not contaminated with dangerous substances) • Excavated soil/fill (not contaminated with dangerous substances) • Municipal waste

Waste arising for the project will be segregated, identified and classified by the Principal Contractor in accordance with applicable waste regulations and guidance.

Wastes shall not be removed from the site until properly classified, assigned a correct LoW code and all appropriate tracking and disposal documentation is in place.

For each waste stream identified and classified, and for each waste stream that may arise during the course of the works, the following shall be identified and documented by the Principal Contractor in their RWMP:

- An appropriate waste classification and correct LoW code; Where a waste type is considered a mirror entry, the classification of materials as non-hazardous and/or hazardous waste will be determined in accordance with EPA (2018) Guidance “Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-hazardous” using the www.hazwasteonline.com web-based waste assessment system (as recognized by the Environmental Protection Agency) and using Waste Acceptance Criteria in accordance with the European Communities (EC) Council Decision 2003/33/EC, which establishes criteria for the acceptance of waste at landfills;
- A suitable Waste Collection Contractor in possession of a valid Waste Collection Permit for the collection of waste within the South Dublin County Council area;
- Appropriate waste recovery, recycling or disposal facilities, including any required transfer stations whereupon the said facilities shall be in possession of a valid Waste Facility Certificate of Registration, permit or Waste License, as appropriate;

A recovery, recycling or disposal plan for the waste, where applicable. Where any material is being recovered onsite or offsite for reuse, the Principal Contractor will provide confirmation of any application to the EPA under Article 27 or Article 28 to classify material as a by-product or as end-of-life waste respectively; and final reconciled waste quantities generated, including details of waste disposal, reuse and recovery quantities.

9.1 Segregation and Storage

Waste generated during works will be segregated and temporarily stored on site (pending collection or for reuse on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Principal Contractor as part of their RWMP).

The following minimum segregation and storage strategy requirements will be detailed:

- Waste streams will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on site drawings;
- Waste storage, fuel storage and stockpiling and movement are to be undertaken with a view to protecting any essential services (electricity, gas, water) and with a view to protecting existing localised groundwater quality boreholes (if applicable);
- Roles and responsibilities of those managing the segregation and storage areas will be identified;

- The waste storage area should contain suitably sized containers for each waste stream and will be agreed with the waste contractors in advance of the commencement of the project;
- All segregation and waste storage areas will be inspected regularly by the appointed Resource Manager;
- Waste will be stored on site, including metals, asphalt and soil stockpiles, in such a manner as to:
  - Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour/pest control measures, as may be required);
  - Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent reuse, recycling and recovery; and
  - Prevent hazards to site workers and the general public during construction phase (largely noise, vibration, dust and pests).

9.2 Waste Permitting, Licences & Documentation

Under the Waste Management (Collection Permit) Regulations 2007, as amended, a collection permit to transport waste, which is issued by the National Waste Collection Permit Office (NWCPO), must be held by each waste collection contractor.

Waste may only be treated or disposed of at facilities that are licenced or permitted to carry out that specific activity (e.g. recovery, chemical treatment, landfill, incineration, etc.) for a specific waste type.

Operators of such facilities cannot receive any waste, unless they are in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments or a waste licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste permitted to be received, stored, recycled, recovered and/or disposed of at the specified site.

Records of all waste movements and associated documentation should be held at the site. Records management and maintenance will be the responsibility of the Principal Contractor.

Further detail on waste documentation is provided in Section 12.

10. Soil Management

Project works will result in the excavation of soils as part of the site development. Current cut/fill projections suggest an estimated 1,681m^3 of cut and approx. 46,311m^3 of fill will be required following a topsoil strip of approximately 29,950m^3, although these figures are subject to change following detailed design.

Prior to detailed design stage, an intrusive site investigation will be undertaken to inform soil waste classification. This will highlight any localised hotspots of contamination encountered during the site investigation. It is also possible that other hotspots of contaminated materials may be encountered during the construction stage.

Taking the above into consideration, the Principal Contractor will, as part of their RWMP, prepare a project-specific Soil Management Plan, which will detail the following as a minimum:

- Detail in-situ (prior to excavation) and ex-situ (post excavation) methodologies to classify waste soil for appropriate disposal, in accordance with relevant Irish and EU legislation and guidance.
- Identify reuse requirements and soils suitable for reuse on site in consultation with the design team, including assessment methodology to determine which soils are suitable for reuse onsite.
- Site management procedures, including waste reduction, stockpile management, temporary storage procedures, waste licence requirements.
- Waste Management documentation, including waste generation record keeping, waste transfer notes, confirmation of appropriate disposal and details of any rejected consignments.

10.1 Excavated Soil & Materials

The RWMP to be developed by the Principal Contractor will detail relevant procedures including further environmental sampling, testing and assessment requirements, sampling protocols and sample density targets to supplement the existing soil data.

Where any hotspots of potential contamination are encountered, and prior to disposal, further assessment will be undertaken by a suitably qualified environmental scientist to determine the nature and extent of remediation required.

Relevant guidance should be followed, for example the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009).

10.1.1 Soil for Reuse on Site

Where the Principal Contractor proposes to reuse excavated soil within the works, e.g. as backfill, and where reuse is permitted in accordance with the relevant legislation, the Principal Contractor shall set out their proposal for its management, documentation and reuse. This shall include:

- Define the criteria by which the suitability of the soils for reuse will be assessed (e.g. analytical parameters and limits), the engineering requirements for the material to be used within the works;
- Delineation of areas where excavated soil is intended for disposal off-site as waste, and where it is intended for reuse on site;
- Identification and recording of the location from where the soil will be excavated and its proposed reuse location and function;
- Engineering assessment to confirm its suitability for reuse; and
- Any proposed treatment or processing required to enable its reuse, as well as any associated treatment permits or licences required.

10.1.2 Soil for Removal Off-site

Where appropriate, excavated soil and material intended for recovery or disposal offsite shall require appropriate waste classification in order to select an appropriate receiving facility for the waste.

Assessment of the excavated material shall be carried out with due regard to the following guidance and legislation:

- EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002);
- Regulation (EC) No. 1272/2008: the classification, labelling and packaging of substances and mixtures (CLP);
- Environmental Protection Agency document entitled Waste Classification; List of waste and determining if waste is Hazardous or Non Hazardous;
- Environmental Protection Agency documented entitled Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities;
- UK Environment Agency Technical Guidance WM3: Waste Classification – Guidance on the classification and assessment of waste; and
- Any other that might be applicable or relevant at the time of disposal

Waste soil and material intended for offsite disposal, recycling or recovery shall not be removed from site prior to appropriate waste classification and receiving written confirmation of acceptance from the selected waste receiving facility.

10.1.3 Transport of Waste Soils

In order to minimise potential traffic impacts of excavation activities, truck movements will be limited to designated routes and movements during peak hours will be avoided as far as possible. Details of such provisions will be included in the Traffic Management Plan (TMP) for the works.

10.1.4 Stockpile Management

Soil stockpiles might be generated as part of the operations, for example while classification and acceptance at a waste facility is pending or awaiting reuse. The contractor should consider the following measures to ensure that stockpiles are managed in an appropriate manner:

- A suitable temporary storage area shall be identified and designated;
- All stockpiles shall be assigned a stockpile number;
- Stockpiles shall not be positioned adjacent to ditches, watercourses or existing or future excavations;
- Contaminated or potentially contaminated soil shall be stockpiled only on hard-standing or high-grade polythene sheeting to prevent cross-contamination of the soil below;
- Soil stockpiles shall be covered with high-grade polythene sheeting to prevent run-off of rainwater and leaching of potential contaminants from the stockpiled material generation and/or the generation of dust; and
- Mixing of unclassified stockpiles of different origin, or of stockpiles having different classification, should not be carried out. When a stockpile has been sampled for classification purposes, it shall be considered to be complete and no more soil shall be added to that stockpile prior to disposal.

An excavation/ stockpile register shall be maintained on site showing at least the following information:

- Stockpile number;
- Origin (i.e. location and depth of excavation);
- Approximate volume of stockpile;
- Date of creation;
- Description and Classification of material;
- Date sampled;
- Date removed from site;
- Disposal/recovery destination; and
- Photograph.

11. Hazardous Materials Waste Management

A minor volume of hazardous waste may be generated during the course of the construction stage, see Table 2 for anticipated potential material types.

Where hazardous waste is generated, the Principal Contractor will undertake the following:

- Immediate notification of the nature of the hazardous waste to the Design Team in writing;
- Submission of a revised RWMP detailing the nature and management of the hazardous waste prior to off-site waste disposal; and
- Although it is considered to be a low risk given the site setting, should asbestos containing materials (ACM) be encountered during excavation works, the Principal Contractor shall establish a specific procedure for the management of asbestos wastes that may arise during the construction works. The

management of such wastes shall be co-ordinated with the Client representative and in accordance with the Safety and Health Plan for the overall works, in order to ensure that personnel within the construction site and the local residents are protected against exposure to asbestos. Prior to commencement of any asbestos removal works, the Principal Contractor shall identify a suitable Waste Collection Contractor with a Waste Collection Permit for the transfer of asbestos wastes from the site.

12. Waste Management Documentation

A Waste Documentation System will be prepared by the Principal Contractor and included in their RWMP.

The Principal Contractor will be responsible for implementation and auditing the Waste Documentation System on a regular basis. The Client's Representative may also undertake verification auditing.

The documentation to be maintained, as a minimum, shall be the following:

- The names of the agent(s) and transporter(s) of the wastes;
- The name(s) of the person(s) responsible for the ultimate recycling, recovery or disposal of the wastes;
- The ultimate destination(s) of the wastes;
- Written confirmation of the acceptance and recovery, recycling or disposal of any waste consignments;
- The tonnages and LoW code for all waste materials;
- Details of any rejected waste consignments;
- Waste Transfer Forms (WTF) for hazardous wastes transferred from site and associated appendices;
- Completed Transfrontier Shipment Forms (TFS) for hazardous wastes transferred abroad;
- Written documentation of waste classifications, including any related analyses; and
- Certificates of Recycling, Recovery, Reuse or Disposal for all wastes transferred from the site.

All waste records will be maintained for at least a period of 3 years and must be subject to verification and validation.

All waste documentation will be maintained by the Principal Contractor and made available for inspection. This will be stored in a safe place, preferably on site, during the project implementation phase. Electronic records will be placed on a secure server that is backed up regularly.

Allowance of time and resources will be made to collate outstanding waste records once the project implementation phase has been completed.

13. Waste Audits

Details of the inputs of materials to the project site and the outputs of wastage arising from the Project will be investigated and recorded in a Waste Audit undertaken by the Principal Contractor.

This audit will identify the amount, nature and composition of the waste generated on the site. The Waste Audit will examine the manner in which the waste is produced and will provide a commentary highlighting how management policies and practices may inherently contribute to the production of demolition waste.

The Principal Contractor will be responsible for undertaken regular waste auditing. The Design team may undertake verification audits to review the findings of the Contractor's audits during the course of the construction stage.

It is noted that the RWMP should be treated as a "live" document and regular review and update should be informed by the audit findings.

14. Resource and Waste Management Plan Awareness & Training

Copies of the RWMP and the Principal Contractor's Site Waste Management Plan will be made available to all personnel on site.

All site personnel and sub-contractors will be instructed about the objectives of these plans and informed of the responsibilities which will fall upon them as a consequence of its provisions. Where source segregation and selective material reuse techniques apply, each member of staff will be given instructions and training on how to comply with the RWMP.

Posters will be designed to reinforce the key messages within the RWMP and will be displayed prominently for the benefit of site staff. Specialist training (e.g. asbestos-containing materials handling) will be assessed and provided, as required.

15. Operational Waste

The Proposed Development will produce quantities of operational waste, which are likely to predominantly comprise domestic general waste and recyclable materials. An Operational Waste Management Plan (OWMP) will be prepared ahead of the development.

The OWMP will set out the approach to waste segregation and collection and will provide an indication of bin numbers and types, as well as access routes for waste collection vehicles

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