

**CONSTRUCTION PHASE  
WASTE MANAGEMENT PLAN**

**RELATING TO A PROPOSED  
STRATEGIC HOUSING DEVELOPMENT**

**AT**

**FARANKELLY, GREYSTONES, CO. WICKLOW**

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## 1.0 INTRODUCTION

This document presents the Construction Phase Waste Management Plan (CWMP) for the control, management and monitoring of waste associated with a proposed Strategic Housing Development (SHD) at Farrankelly, Greystones, Co. Wicklow.

The development will consist of the construction of a residential development of 426 no. dwellings, a creche (c. 599 sq. m), residential amenity building (c. 325 sq. m), active open space of c. 4.5 hectares, greenway of c. 2.4 hectares and open space as follows:

- A) 245 no. houses comprising; 148 no. 3 bedroom houses, 93 no. 4 bedroom houses, and 4 no. 5 bedroom houses [houses are provided with two car parking spaces and solar panels – House Type E 3 storey to front – 2 storey to rear; House Types G1,G2,G3, and H dormer House Types, all other house types 2 storey];
- B) 93 no. apartments with balconies in 3 no. 4 storey apartment buildings (Blocks 1 and 2 over part basement/podium – [Block 2, 4 storeys over podium on eastern elevation]) comprising 36 no. 1 bedroom apartments, 53 no. 2 bedroom apartments and 4 no. 3 bedroom apartments;
- C) 44 no. 2 bedroom duplex apartments and 44 no. 3 bedroom duplex apartments in 11 no. 3 storey duplex buildings;
- D) Provision of a 2 storey split level residential amenity building of c. 325 sq. m (3 no. car parking spaces and 12 no. bicycle spaces). Temporary use of the residential amenity building as a marketing suite for a period of 3 years.
- E) Provision of a 2 storey creche of c. 599 sq. m (10 no. car parking & 12 no. cycle spaces), 1 no. ESB substation (beside creche) and ESB kiosks, associated single storey bicycle storage and refuse storage buildings.
- F) Active Open Space of c. 4.5 hectares comprising: 1 no. playing pitch, 1 no. multi-purpose pitch, tennis courts children's play area, trim trail and parking (30 car parking spaces & 20 no. bicycle spaces),
- G) Approximately 4.2 hectares of open space comprising; a greenway (and associated paths, stream crossing and lighting) along the northern boundary at "Three Trouts" stream (c. 2.4 hectares); c. 1.8 hectares of open space within the development (including playground areas); all ancillary landscape works with public lighting, planting and boundary treatments including regrading/re-profiling of site where required as well as provision of cycle paths.
- H) Access to the subject site will be from a priority junction, located on the Kilcoole Road (R761). The proposal includes for vehicular/pedestrian access from Priory Road. Provision for cyclist and pedestrian access to be provided to boundary of Eden Gate development located to the south (3 no. independent vehicular access points from Priory Road to serve 9 no. dwellings), 762 no. car parking spaces and 235 no. cycle spaces.
- I) Surface water and underground attenuation systems as well as all ancillary site development works (reprofiling of site as required) as well as to drainage services (including underground pumping station), all on a site of c. 21.2 hectares.
- J) Temporary marketing signage for a period of 3 years (located beside the Priory Road and Kilcoole Road).

All associated site development and landscape works.

The **Objective of this Waste Management Plan** is to minimise the quantity of waste generated by construction activities, to maximise the use of materials in an efficient manner and to maximise the segregation of construction waste materials on-site to produce uncontaminated waste streams for off-site recycling.

The Waste Management Plan shall be implemented throughout the construction phase of the development to ensure the following:

- That all site activities are effectively managed to minimise the generation of waste and to maximise the opportunities for on-site reuse and recycling of waste materials.
- To ensure that all waste materials are segregated into different waste fractions and stored on-site in a managed and dedicated waste storage area.
- To ensure that all waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.

The proposed Waste Management Plan has been prepared to demonstrate how the Construction Phase will comply with the following relevant legislation and relevant Best Practice Guidelines:

*Waste Management Acts 1996*

*Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)*

*Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)*

*Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006*

The Construction Phase Waste Management Plan has been prepared in accordance with strategy, policy and objectives of the Wicklow County Development Plan 2016 – 2022 as detailed below:

### **Waste Management Strategy**

To promote and facilitate best practice in prevention, re-use, recovery, recycling and disposal of all waste and environmental emissions produced in the County.

### **Solid Waste Management:**

It is the policy of the Council, as set out in the Regional Waste Management Plan, to:

- prevent or minimise the production of waste in the first instance;
- reduce, re-use and recycle to the maximum extent possible;

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Construction Phase Waste Management Plan

- endeavour to recover energy from waste where possible; and
- ensure the efficient and safe disposal of any residual waste.

The role of a land-use plan in the achievement of these objectives is somewhat limited, but it will play a role in guiding the location of new facilities and services that are necessary to implement the Waste Management Plan.

### **Solid Waste Management Objectives:**

#### **WE1**

To require all developments likely to give rise to significant quantities of waste, either by virtue of the scale of the development or the nature of the development (e.g. one that involves demolition) to submit a construction management plan, which will outline, amongst other things, the plan for the safe and efficient disposal of waste from the site.

## **2.0 DESCRIPTION OF PROPOSED DEVELOPMENT SITE ACTIVITIES**

The range of development works to which this Waste Management Plan will be integrated into during the construction phase of the development are summarised as follows:

- Site hoarding and office and waste compounds set-up
- Ground preparation / clearance works / soil stripping and stockpiling
- Demolition of existing buildings on-site
- Development of site infrastructure, services and utilities
- Construction of buildings and hardstanding areas
- Landscaping of entire site including open soft landscaped areas

## **3.0 WASTE MANAGEMENT PLAN – CONSTRUCTION PHASE**

Waste materials generated by construction activities will be managed according to the Department of the Environment, Heritage and Local Government's 2006 Publication - *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects*.

The Waste Management Plan specifically addresses the following points:

- Analysis of waste arisings / material surpluses
- Specific Waste Management objectives for the Project including the potential to re-use existing on-site materials for further use in the construction phase.
- Methods proposed for Prevention, Reuse and Recycling
- Waste Handling Procedures
- Waste Storage Procedures
- Waste Disposal Procedures
- Waste Auditing
- Record Keeping

### **3.1 Waste Minimisation**

Waste minimisation and prevention shall be the primary responsibilities of the Construction Project Manager who shall ensure the following:

- Materials will be ordered on an “as needed” basis to prevent over supply
- Materials shall be correctly stored and handled to minimise the generation of damaged materials
- Materials shall be ordered in appropriate sequence to minimise materials stored on site
- Sub contractors will be responsible for similarly managing their wastes

### **3.2 Programme of Waste Management for Construction Works**

It is proposed that the construction Contractor as part of regular site inspection audits will determine the effectiveness of the waste management statement and will assist the project manager in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

### **3.3 Construction Waste Disposal Management**

It is proposed that from the outset of construction activities, a dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the active construction phase of the development site.

In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the site construction manager to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.

It will be the responsibility of the Project Construction Manager to ensure that a written record of all quantities and natures of wastes exported -off site are maintained on-site in a Waste File at the Project office.

It is the responsibility of the Project Manager or his/her delegate that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:

*Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)*

*Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)*

*Waste Management (Facility Permit and Registration) Regulations S.I.821 of 2007 and the Waste Facility Permit under the Waste Management (Facility Permit and Registration) Amendment Regulations S.I.86 of 2008.*

Typical Waste materials that are to be generated or anticipated to be generated by construction works are classified as follows under *EPA's Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous*) as detailed in Table 2.

It is proposed that waste materials will be collected and stored in separate clearly labelled skips in a predefined waste storage area in the site compound and that these materials will be collected by a Permitted Waste Contractor holding an appropriate Waste Collection permit in compliance with *Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)* and *Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)* and that they will be sent for disposal or further processing to appropriately Permitted / Licensed Waste Facilities in compliance with *Waste Management (Facility Permit and Registration) Regulations S.I. No. 821 of 2007* and *the Waste Management (Facility Permit and Registration) Amendment Regulations S.I. No. 86 of 2008*.

Prior to the commencement of the Project, the Construction / Project Manager shall identify a permitted Waste Contractor who shall be employed to collect and dispose of all wastes arising from the project works. In addition, the Construction / Project Manager shall identify and all waste licensed / permitted facilities that will accept all expected waste exported off-site and will maintain copies of all relevant Waste Permits / Licences as required.

All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous in accordance with the *EPA's Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* document dated 1<sup>st</sup> June 2015 to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility.

**Table 1** Typical Construction Site Waste Composition

Description of Waste	%
Mixed Construction & Demolition Waste	33
Wood	28
Plasterboard (Gypsum materials)	10
Ferrous Metals	8
Concrete	6
Mixed other wastes	15
<i>Total</i>	<i>100</i>

*Ref. EPA National Waste Report*

**Table 2** Typical Construction Waste Types

Description of Waste	LoW Code
Concrete	17 01 01
Bricks	17 01 02
Tiles and Ceramics	17 01 03
Mixture of concrete, bricks tiles & ceramics	17 01 07
Wood	17 02 01
Glass	17 02 02
Plastic	17 02 03
Bituminous mixtures, coal tar and products	17 03
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02
Bituminous Mixtures containing other than those mentioned in 17 03 01	17.03 02
Copper, Bronze, Brass	17 04 01
Aluminium	17 04 02
Lead	17 04 03
Zinc	17 04 04
Iron and Steel	17 04 05
Tin	17 04 06
Mixed Metals	17 04 07
Cables other than those mentioned in 17 04 10	17 04 11
Insulation and Construction Materials	17 06 04
Gypsum based construction material	17 08 02
Insulation materials containing asbestos	17 06 01*
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	17 09 04
Septic Tank Sludge	20 03 04
Paper and Cardboard	20 01 01
Wood other than that mentioned in 20 01 37	20.01 38
Soil and Stones	20 02 02
Mixed Municipal Waste	20 03 01

**Table 3** Predicted Waste Generation

Waste Type	Predicted tonnage to be produced	Re-Use		Recyclable		Disposal	
		Tonnage	%	Tonnage	%	Tonnage	%
Mixed C&D	1250	125	10	1000	80	125	10
Timber	1000	400	40	550	55	50	5
Plasterboard	500	150	30	300	60	50	10
Metals	250	12.5	5	225	90	12.5	5
Concrete	200	60	30	130	65	10	5
Mixed waste	800	160	20	480	60	160	20
Total	4000	907.5		2685		407.5	

**Soils & Stones**

It is estimated that 69,062 tonnes of excavation material will be generated from the proposed development. An estimated 70% of this excavation material, or 48,343 tonnes, may be suitable for reuse within the proposed development subject to testing to ensure it is suitable for its proposed end use. Therefore an estimated 20,719 tonnes excavation material may require removal from site.

**3.4 On-Site Waste Reuse and Recycling Management**

Construction waste material such as soils, damaged or broken concrete slabs, blocks, bricks and tiles generated that is deemed by the Project Engineer to be suitable for reuse on the Project site for ground-fill material and landscaping. This initiative shall provide a positive environmental impact to the construction phase as follows:

- Reduction in the requirement for virgin aggregate materials from quarries
- Reduction in energy required to extract, process and transport virgin aggregates
- Reduced HGV movements associated with the delivery of imported aggregates to the site
- Reduced noise levels associated with reduced HGV movements
- Reduction in the amount of landfill space required to accept C&D waste
- Reduction in the volume of soils to be exported off-site



### 3.5 Waste Storage Compound

A waste storage compound shall be set up on-site from the commencement of site activities. The compound shall include the following:

Separate waste skips labelled with signage stating the nature of waste materials that can only be placed in the skips including:

- Wood
- Plastic
- Wrapping
- Ferrous metals
- Non-Ferrous metals
- Gypsum / plasterboard waste
- Domestic wastes

Waste oils / containers shall be placed in dedicated mobile bunds units.

Soils contaminated by accidental on-site spillages of oils / construction hydrocarbons shall be stored in clearly identified hazardous waste storage containers.

Spill kits with instructions shall be located in the waste storage compound.

**Figure 1** Waste segregation skips



**Figure 2** Spill Kit



**Figure 3** Bund for waste oil container storage



### 3.6 Soils

As the subject development site is currently greenfield and in agricultural use with no evidence of historic dumping or industrial use, it is predicted that the top and subsoils will be characterised as being inert in accordance with *Landfill Directive (2003/33/EC)*.

Top and subsoils shall be re-used on-site for landscaping purposes to minimise the volume of soils to be exported off-site

Excess soils shall be exported to an appropriately waste permitted/licenced facility.

The project manager shall inform Wicklow County Council of the volume of excess soils generated and the permitted / licenced waste facility they shall be exported to.

Excess soils shall be removed off-site throughout the duration of the construction phase. Prior to being removed off-site the excess soils shall be characterised as being inert, non-hazardous or hazardous in accordance with *Landfill Directive (2003/33/EC)*. The classification of the soils shall be established by WAC testing which shall occur throughout the construction phase.

Excavated excess soils that are required to be exported off-site shall be tested to determine their classification as hazardous or non-hazardous in accordance with EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous*. *Non-Hazardous soils may be suitable for re-use in other construction sites and may be declared as a by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011*. Article 27 requires that the material classified not a waste but a by-product must meet specific criteria and that that a declaration of a material as a by-product is notified to the EPA.

#### Contaminated Soils

Where contaminated soils/materials are discovered or occur as a result of accidental spillages of oils or fuels during the construction phase, these areas of ground will be isolated and tested in accordance with the *2002 Landfill Directive (2003/33/EC)* for contamination, and pending the results of laboratory WAC testing, will be excavated

and exported off-site by an appropriately Permitted Waste Contractor holding an appropriate Waste Collection permit and that this hazardous material will be sent for appropriate treatment / disposal to an appropriately Permitted / Licenced Waste Facility.

The records of all WAC tests shall be maintained in the site's Waste File and shall be made available to Wicklow County Council as required.

### **3.7 Inert Wastes**

The waste material generated by site construction works will be mixed construction waste, comprising of soil and stone, concrete, tiles, ceramics, and bricks. Material may be processed on site if necessary using an on-site crusher unit, which will process fill material into suitable size classes for the reuse as on-site construction materials for internal haul road construction. Mixed construction waste with large non-uniform stone or compacted soils will be passed through a mobile crusher unit which will render the backfill material into a uniform shape and size which will allow for improved backfilling and compaction to required engineering standards.

All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

Plastics and ferrous and non-ferrous metals shall be deposited in individual waste skips.

### **3.8 Hazardous Wastes**

The management of all hazardous waste arisings such as oil spills should they occur, shall be coordinated in liaison with Health and Safety Management.

All hazardous wastes shall be transported off-site by an appropriately permitted contractor to an appropriately permitted / licenced waste acceptance facility.

### **4.0 Record Keeping**

It is the responsibility of the Project Manager or his/her delegate that a written record of all quantities and natures of all wastes reused / recycled and exported off-site and Article 27 declarations during the project are maintained in a Waste File at the Project office.

The following information shall be recorded for each load of waste exported off-site:

- Waste Type EWC Code and description
- Volume of waste collected
- Waste collection contractor's Waste Collection Permit Number and collection receipt including vehicle registration number
- Destination of waste load including Waste Permit / Licence number of facility
- Description of how waste at facility shall be treated : disposal / recovery / export

The waste records shall be issued to Wicklow County Council as required / requested.

## **5.0 Waste Management Auditing**

In order to ensure that construction wastes generated during the course of the development are being effectively managed and recorded, a waste management audit shall be conducted on a routine basis by an independent waste management consultant to determine compliance with the Construction Phase Waste Management Plan.