ATTACHMENT D

Infrastructure & Operation

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ATTACHMENT D.1

Infrastructure

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Attachment D.1 Infrastructure

Details of the proposed infrastructure at the site are shown on Drawing No. 1360 P1. All drawings referenced are included in the Project Description document which accompanies the application.

D.1. Infrastructure

a. Site Security Arrangements

A security fence will be installed around the entire site boundary. The details of the proposed fencing are shown on Drawing No. 1360 P4. A lockable field gate will be provided on the temporary access road and lockable security gates provided at the site entrance as shown on Drawing No. 1360 P1.

b. Design For Site Roads

Permanent site access will be via a proposed accommodation road to be built by Wicklow County Council west of the proposed N11 interchange via a link to the re-aligned Coolbeg Road (L1113) to the south facilitating access to the improved N11. Pending the completion of these works a temporary access road will be provided, as shown on Drawing No. 1360 P3, to accommodate traffic to and from the facility when operational. Construction access will be facilitated by this proposed temporary access road and also at the north end of the site via an existing right of way onto the N11. Construction details for the access roads are shown on Drawing No. 1360 – P4.

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c. Hardstanding Areas

Vehicle parking will be provided to the east of the building on a paved area. The composting areas and vehicle access and parking areas will be paved to National Road Authority specification. Details of the proposed hardstanding are shown on Drawing No. 1360 – P4.

d. Weighbridge

A weighbridge will be located at the site entrance as shown on Drawing No. 1360 – P1. All waste delivery vehicles will be weighed upon entry to and exit from the site. All vehicles transferring waste from the site will also be weighed before leaving the facility.

e. Wheel Cleaning

It is not proposed to install a wheel cleaner on-site as all vehicles will have traveled significant distances on public roads and will therefore have very little dirt attached to them. Road vehicles will not travel over waste off-loading and segregation areas inside the building.

f. Laboratory Facilities

It is not proposed to provide laboratory facilities at the site.

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g Fuel Storage

Facility operations will involve the storage and handling of fuel for the site plant and trucks, and engine and lubricating oils used in plant and equipment maintenance. Fuel oil will be stored in a bunded above ground tank that will be located inside the workshop. The bund will have a capacity of 110% of the tank volume and will be water tight. All tank valves and outlets will be inside the bund.

Engine and lubricating oil will be stored in drums in a contained area e.g. bunded pallets, or dedicated storage unit e.g. ChemStore inside the workshop. Waste oils generated during plant maintenance will be stored in drums in a dedicated contained area inside the workshop. Oil spill containment and clean-up equipment will be stored in the workshop.

h Waste Quarantine Areas

A waste quarantine area will be provided at the location shown on Drawing No. 1360 P1. This area will be paved and run-off will be collected and directed to the leachate storage lagoon. Any unsuitable waste loads delivered to the site will be inspected and stored in the Quarantine Area pending removal off-site.

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i Waste Inspection

The Waste Quarantine Area will also serve as a Waste Inspection Area.

j Traffic Control

All vehicles entering the facility must pass over the weighbridge. There will be a maximum speed limit within the site of 10 mph. Inside the site dedicated areas have been assigned for the public to unload small quantities of green waste and to load small quantities of compost. The location of this area is shown on Drawing No. 1360 P1.

k. All Services

A three phase electricity supply and phone line will be provided. There are no piped services in the vicinity of the site. Water for sanitary use will be obtained from an on-site bored well. The well location will comply with the recommendations for distances between wells and potential up and downgradient sources of pollution specified in the DELG/EPA/GSI Groundwater Protection Schemes 1999.

l. Sewerage and Surface Water Infrastructure

Foul sewage from the toilets and canteen will be discharged to a proprietary wastewater treatment plant as shown on Drawing No. 1360-P1. The treated effluent will be discharged to ground via a polishing filter.

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The treatment plant and polishing filter will comply with the design and site characterisation requirements of the *EPA Wastewater Treatment Manual, Treatment System for Single Houses and the EPA Wastewater Treatment Manual, Treatment System for Small Communities, Business, Leisure Centers and Hotels.* Details of the proposed treatment plant is included in the Project Description that accompanies this application.

The development of the site will involve extensive regrading of the site to achieve formation levels. The site will fall from the north to the south to facilitate the collection of contaminated run-off and leachate and the entire site will, when development is complete, be paved. In Stage 1 the area provided for windrows will be limited in order to minimise the volumes of contaminated run-off generated (Ref. Drawing No. 1360 WP 1). Surface water run-off from the adjoining lands will be diverted from the process areas by a perimeter kerb, details of which are shown on Drawing No. 1360 P4.

As there are no surface water courses within or in close proximity to the site boundary, clean surface water from roofs, non-process areas and the access roads will be collected and directed to soakaways at the locations shown on Drawing No. 1360 P1. Run-off from paved areas used for vehicle parking will be directed to a klargester Class 1 or equivalent oil-water separator, with the outfall connected to a soakaway as shown on Drawing No. 1360 P1.

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m. Plant Sheds, Garages and Equipment Compound

The Stage 1 layout is shown on Drawing No. 1360 WP1 and will include the reception office (240 m^2), workshop (540 m^2) and weighbridge and parking areas, the waste reception area (c. 1250 m^2), windrows (c. 720 m^2), maturation area (700 m^2), finished product storage (c. 2375/2 m^2) and a leachate storage lagoon (1250 m^2). Stage 2 will involve the extension of the windrow area to ca 9500 m^2 to accommodate the processing of up to 40,000 tonnes of waste annually. The final site layout is shown on Drawing No. 1360-P1.

There will be one main building which will be occupied by offices and a workshop as shown on Drawing No. 1360 P1. A weighbridge will be located at the south western side of the building. Elevations, plan and sections through the building are detailed on Drawings Nos. 1360 P6 and P7.

n Site Accommodation

Offices and toilet facilities for facility personnel will be provided in the main building building.

o Fire Control System

Fire extinguishers will be strategically located around the site. All trucks and/or plant equipment operating on-site will be provided with fire extinguishers.

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p. Civic Amenities

It is not proposed to provide any civic amenity facilities on-site.

q. Any Other Waste Recovery Infrastructure

Loading Shovel

A loading shovel will be used to transfer materials around the site and to load the finished product onto transport vehicles.

Shredder

Waste may be sent through a coarse shredder in advance of the composting to enhance the composting process.

Hydraulic Excavator

An hydraulic excavator will be used to turn the windrows.

Mobile Trommel

Compost will be sent through the trommel as part of the refinement process remove unsuitable materials.

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ATTACHMENT D.2

Facility Operation

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Attachment D.2 Facility Operation

Operational History

The site is a worked out sand and gravel quarry. There are no above ground or underground storage tanks at the site and there is no record of any historical incident at the site that could have resulted in soil or groundwater contamination.

Proposed Operations

The proposed development involves the construction of a green waste composting facility. The green waste will comprise wood wastes generated by the KTS tree surgery business, garden and park waste produced during improvement and maintenance works by landscape gardeners, grass and shrub trimmings produced by individual householders and timber and wood waste recovered during construction and demolition works.

The site encompasses approximately 2.5 ha and will be occupied by the waste acceptance and composting areas, ancillary buildings including the reception office, workshop and weighbridge and parking areas (Ref. Drawing No. 1360 P1). The majority of the site will, when the facility is operating at maximum capacity, be occupied by the composting process areas which will comprise the waste reception area, windrows, maturation area, finished product storage and a leachate storage lagoon.

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The composting operation will involve pre-treatment to shred and mix the green waste, composting in open windrows, maturation and post treatment to remove impurities. The finished product will be suitable for horticultural and agricultural use. When fully operational the facility will accept approximately 40,000 tonnes of green waste annually and produce approximately 25,000 tonne of compost. A flow diagram of the proposed waste operations is shown on Figure D.2 and more detailed information presented below.

Waste Reception

Green waste accepted at the facility may contain a small percentage of contaminants, e.g. glass, metal and plastic. Large items will be removed from the waste manually and placed in a container for subsequent removal to a licensed landfill or if the material is suitable for recovery to a permitted recovery/recycling facility.

Waste Pre-treatment

Proper mixing of the material is important to allow for both a proper composting process and the production of compost with a consistent quality. As a rule of thumb the mixture should have a dry solids content of at least 30 - 40%. In addition some green waste streams may contain relatively high or low concentrations of certain elements, e.g. nitrogen, sulphur. To prevent process disturbances (e.g. high C/N ratio), excessive emissions (e.g. ammonia, H_2S) and bad quality compost, proper mixing is essential. To achieve proper mixing certain waste streams (e.g. branches, timber, stumps) will be chipped/shredded.

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Windrows

The green waste will be placed on the ground at the front of the windrow using an industrial front-end loader. In the early stages of the process the windrow will be turned two to three times a week using a hydraulic excavator. Subsequently, the turning frequency will be reduced. The excavator will work through the composting section from the back-end to the front-end: it starts by removing the mature compost (at the back-end) to the compost refinement area, and subsequently move (turn) the material along the windrow. Once it has turned the whole composting section, the area at the front-end will be empty and ready for the intake of fresh green waste. It is envisaged that the composting cycle will be 8 - 12 weeks.

The mechanical turning loosens and homogenises the composting material, while at the same time water can be added (if necessary) to further enhance the process. As the waste inputs increase over time the excavator may be replaced by a specialised windrow turner.

Initially approximately 400 tonnes of material will be present in the windrow in any given week, which will increase to a maximum capacity of approximately 7,700 tonnes. The industrial front end loader and the hydraulic excavator will both be capable of operating at a rate of 75 - 100 tonnes/hr which equates to approximately 5 operational hours/week for each item of plant in the initial phase.

During the composting process, the material will be dried to approximately 60 - 70% dry solids and the quantity of finished product compost will be approximately 60% of the green waste input (approximately 25,000 tonnes at full capacity). The height of each windrow will be kept constant over the total composting period, so that the area occupied by a charge of green waste decreases as the composting period advances.

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Screening and Maturation

Following the composting process, the material will be transferred to the maturation area using the front loading shovel, where it will be screened to remove impurities. The equipment used will comprise a mobile hopper/trommel system, with adjustable sieving plates in the trommel. The compost will initially be screened over a diameter between 15 and 25 mm. The material retained in the trommel will be conveyed to a container and either returned to the composting cycle, or if it contains mainly non-biodegradable impurities, transported off-site to an appropriately licensed landfill. The compost will remain in the maturation area for a period of approximately 8 weeks to allow for proper maturation, following which it will be moved to the finished product storage area.

Finished Product Storage

The finished product will be stored on-site in the dedicated product storage area. This is designed to accommodate seasonal fluctuations in demand. The product will be loaded onto trucks for removal off-site to its final destination/end market.

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In the initial phase it is estimated that approximately 10 tonnes of finished product will be produced daily and one truck will be loaded with compost on average every 2 days. At the projected maximum annual production of 25,000 tonnes of finished product at a maximum of 100 tonnes/day, 5 trucks will be loaded with compost every day.

Process Control

Primary process control will be achieved by temperature sensors placed at different locations and depths in each windrow. These will be monitored on a daily basis by KTS personnel to ensure that optimum temperatures are maintained. The windrows will also be visually inspected on a daily basis to confirm the moisture level is in the optimum range. Leachate/contaminated run-off from the on-site leachate storage lagoon will be added to the windrow as required to maintain optimum moisture conditions.

Emissions

The potential emissions associated with facility operations include, surface water, leachate, odours, noise, dust and bioaerosols. Further information on emissions is presented in Section 6 of the Project Description Document that accompanies this application.

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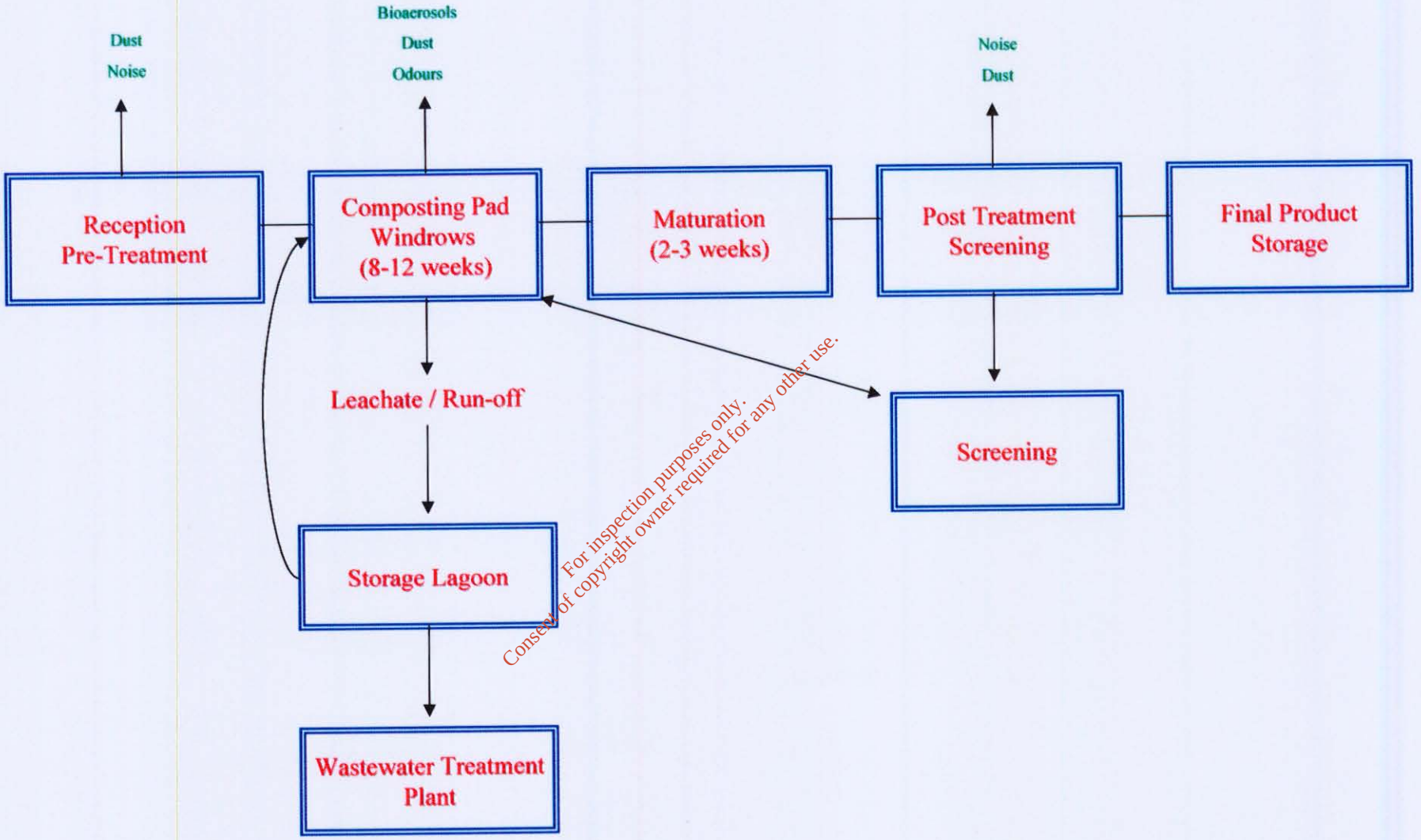

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Figure D.2. Proposed Greenwaste
Composting Facility

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ATTACHMENT D.3

Materials Management

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Attachment D.3 Materials Management

The on-site materials handling and management procedures are described in Attachments D.2 and E. Only non hazardous wastes are accepted and managed on-site. Relevant European Waste Catalogue (EWC) codes for the various waste streams are described below.

EWC Code	Description
02 Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing	
02 01 Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing	
02 01 03	Plant Tissue
02 01 07	Waste from forestry
03 Wastes from Wood Processing and the Production of Panels and Furniture, Pulp, Paper and Cardboard	
03 01	
03 01 01	Waste bark and cork
17 Construction and Demolition Wastes (including excavated soil from contaminated sites)	
17 02 Wood, Glass and Plastic	
17 02 01	Wood
20 Municipal Wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions	
20 02 Garden and Park Waste (including cemetery waste)	
20 02 01	

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It is anticipated that the volumes of waste delivered to the facility will be subject to seasonal variations with more delivered in the Spring to Autumn period than in the winter months, when the volumes of garden and park wastes will be significantly reduced.

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