

Attachment H.1 Waste Types

Wastes to be processed at the facility:

Waste material	EWC Code	Main source
Plant-tissue waste	02 01 03	Wastes from agriculture, horticulture & forestry
Sludges from washing and cleaning	02 02 01	Wastes from the preparation and processing of meat, fish and other foods of animal origin
Materials unsuitable for consumption or processing	02 02 03	Wastes from the preparation and processing of meat, fish and other foods of animal origin
Waste not otherwise specified	02 02 99	Wastes from the preparation and processing of meat, fish and other foods of animal origin
Sludges from washing, cleaning, peeling, centrifuging and separation	02 03 01	Wastes from fruit, vegetable & cereal processing
Materials unsuitable for consumption or processing	02 03 04	Wastes from fruit, vegetable & cereal processing
Materials unsuitable for consumption or processing	02 05 01	Wastes from the dairy products industry
Wastes not otherwise specified	02 05 99	Wastes from the dairy products industry
Materials unsuitable for consumption or processing	02 06 01	Wastes from the baking and confectionery industry
Wastes from spirits distillation	02 07 02	Wastes from the production of alcoholic and non-alcoholic beverages
Materials unsuitable for consumption or processing	02 07 04	Wastes from the production of alcoholic and non-alcoholic beverages
Waste not otherwise specified	02 07 99	Wastes from the production of alcoholic and non-alcoholic beverages
Wood	19 12 07	Wastes from the mechanical treatment of waste
Organic fraction of mechanically treated waste	19 12 12	Wastes from the mechanical treatment of waste
Biodegradable kitchen and canteen waste	20 01 08	Municipal wastes including separately collected fractions
Edible oil and fat	20 01 25	Municipal wastes including separately collected fractions
Biodegradable waste	20 02 01	Garden and park wastes

The facility can compost up to 50,000 tonnes per annum- 4th Schedule Class 2 of the Waste Management Acts 1996-2003.

Upon entry to the facility waste will be temporarily stored prior to processing- 4th Schedule Class 13 of the Waste Management Acts 1996-2003.

Primary materials produced will be Grade 1 compost for re-use, stabilised bio-waste for re-use and residual oversize materials including plastics, metals and glass remaining after the process. It is expected that the majority of these will be suitable for further recycling off-site- 4th Schedule Class 3 and 4 of the Waste Management Acts 1996-2003.

In the unlikely event that the compost product or biowaste are not suitable for re-use the product will be sent to landfill prior to temporary storage on-site- 3rd Schedule Class 6 and 13 of the Waste Management Acts 1996-2003.

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Attachment H.2 Waste Acceptance Procedures

Before any type of material for processing will be accepted at the facility, it will be evaluated to ensure compliance with all relevant regulatory requirements and Greenport Environmental Ltd quality standards to determine its suitability as a material for processing.

Material will only be accepted from pre-approved suppliers. As part of the pre-approval procedure, Greenport Environmental Ltd will request the following information to determine the suitability of the material for processing at the facility:

- Source, description, EWC Code of the material
- Quality and quantity of the material

The following operational controls will be in place for acceptance of material at the facility:

- Material will be accepted at the facility within the designated delivery times.
- All deliveries of material to the facility will pass over a weighbridge all relevant details of the load will be recorded.
- The reception area will be designed to prevent cross-contamination of the delivery vehicle wheels by the material being delivered.
- Each load of material arriving at the facility shall be visually inspected upon tipping. If any wastes deemed to be unsuitable for acceptance at this facility shall be removed for disposal/recovery at an appropriate alternative facility. Details of rejected loads will be recorded
- All material will be received in an enclosed reception area and shall be transferred to a composting container within 24 hours of receipt unless otherwise agreed in advance with the Agency.
- The floor of the reception area shall be cleaned regularly.

Attachment H.3 Waste Handling

Waste receiving and preparation

After entering the facility gate, the loads are weighed and directed to the enclosed reception area where the material is tipped in the contained reception area. Following inspection and acceptance, the loader retrieves the materials from the floor and feeds them to a mixing unit which prepares the material for processing. The material is dropped into a temporary storage area from which the wheel loader can collect it and load the Anaerobic Digestion (AD) tunnels.

Anaerobic Digestion

Each AD tunnel consists of a sealed concrete structure equipped with a special door provided with a pressurised rubber seal. As soon as the material is fed to the AD tunnels and the door is closed. The tunnels are equipped with a sprinkling system which inoculates the material with anaerobic liquid contained in the fermentation tanks in order to activate the anaerobic process. When AD conditions are reached, the headspace is extracted from the tunnels to storage and is fed into the CHP unit. At the end of the process, the headspace is purged with fresh air and the tunnel can be opened. The material is retrieved from the AD tunnels with the wheel loader and transferred to the next stage.

Mixing

The material exiting the AD section is mixed with some fresh material. This is performed in a dedicated mixing unit. The materials are fed to the machine in suitable proportions and then collected into a concrete bunker. From this bunker, the wheel loader transfers the material mixture to the composting/drying tunnels.

Composting and Drying

The composting process takes place into the sealed concrete aerobic tunnels which are virtually divided in two sets. The material is initially fed to the first set of tunnels for Phase I intensive composting. This phase, also called high-rate phase or Active Composting Phase or Intensive Phase, is characterised by a rapid decomposition of the organic matter. The intense metabolic activity provides a high rate temperature increase in the material. Phase I of the composting can take up to two weeks. After Phase I, the material is unloaded from the tunnels and fed to the second series of tunnels for Phase II, maturation. The duration of Phase II is up to three weeks.

Each tunnel has its own centrifugal fan which blows a mixture of fresh air and process air through the air plenum via the spigot pipes to the composting material. Pressurised air flows through the material mixture from the spigots ensuring intensive contact between the air and the mixture. In this way, the composting process can be controlled

properly and aerobic conditions can be maintained in the complete batch of material being processed.

The mixture of fresh air and process air is set using the computer controlled, pneumatically actuated, valves. The quantity of air supplied is determined by the phase of the composting process. The control of the tunnel fan is mainly based on the compost temperature and oxygen levels. Each composting tunnel has its own aeration system and is connected to two central air ductworks: the central fresh air supply ductwork and the central process air discharge ductwork for the warm and humid air released during the composting process.

Negative pressure will be maintained in the tunnel at all times and air extracted from the tunnels will be treated in the scrubber/humidifier/biofilter system. Tunnels are also equipped with a sprinkling system which is used to balance the material moisture as required. At the end of this composting stage, the material is removed and transferred to the next processing stage.

Compost refining and Hygienisation

Following maturation, the material is fed by the wheel loader to the buffering and dosing hopper feeding the refining line. The hopper feeds the material onto a conveyor belt which transfers it to a star screen.

The screen produces two fractions of different sizes:

- < 12 mm
- > 12mm

The under-screened fraction is transferred by belt conveyors to a destoner to separate the organic fraction from heavy inert materials like stones and glass. The inert materials are conveyed to a storage concrete bunker whereas the compost is fed to the hygienisation station. The latter consists of two special containers equipped with an heating system designed to increase the material temperature above the required 70°C for at least 1 hour. As soon as one container is full, the system switches the material flow to the other container and in the meantime the heating system starts to heat the full container. The air is heated in a heat exchanger using heat energy supplied by the CHP unit. Once the pasteurisation process is complete, the material is removed to the "clean area" where the material undergoes quality control checks prior to removal from the facility.

The residual > 12 mm fraction is further processed through ballistic separators and screens to separate out the different residual fractions. These fractions will be further processed/recycled off-site. A specific dust extraction and filtration system will be employed for the screening equipment to minimise dust within the building in this area. All air from this area will be further treated in the humidifier/biofilter system prior to discharge.

Process Wastewater Management

There will be no process water emissions from the facility. Any process wastewater generated will be collected and contained in a fully enclosed wastewater management system comprising of piping, sumps, filtration units and storage tanks. Any wastewater collected will be treated through a series of static and mechanical separation system to remove any solids and the water will be reused in the process.

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Attachment H.4 Waste Arisings

Please refer to Figure 3.6 and 3.7 of the EIS.

The facility can compost up to 50,000 tonnes per annum, it is anticipated that there will be a 50% mass loss due to water evaporation. The final composition, quality and quantity of separated products and compost will depend of the quality and quantity of incoming waste streams. Primary materials produced will be Grade 1 compost for re-use, stabilised bio-waste for re-use and residual oversize materials including plastics and inerts for example glass and stones and other residuals remaining after the process. It is expected that the majority of these will be suitable for further recycling off-site. Any materials not suitable for recycling will be disposed at landfill.

The residual waste produced from the composting/biogas process will be classified under the European Waste Catalogue list codes:

19 05 wastes from aerobic treatment of solid wastes

- 19 05 01 non-composted fraction of municipal and similar wastes
- 19 05 02 non-composted fraction of animal and vegetable waste
- 19 05 03 off-specification compost
- 19 05 99 wastes not otherwise specified

19 06 wastes from anaerobic treatment of waste

- 19 06 03 liquor from anaerobic treatment of municipal waste
- 19 06 04 digestate from anaerobic treatment of municipal waste
- 19 06 05 liquor from anaerobic treatment of animal and vegetable waste
- 19 06 06 digestate from anaerobic treatment of animal and vegetable waste
- 19 06 99 wastes not otherwise specified

19 12 wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified

- 19 12 02 ferrous metal
- 19 12 03 non-ferrous metal
- 19 12 04 plastic and rubber
- 19 12 05 glass
- 19 12 09 minerals (for example sand, stones)