AWO –02 Environmental Management System

AWO Recycling Ltd
Bury Lane Farm Composting Facility

Site Address:
Bury Lane Farm
Ramsey Heights
Ramsey
Huntingdon
Cambridgeshire
PE26 2RU

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1.0 INTRODUCTION

This Environmental Management System been prepared in accordance with the Environmental Permitting Regulations and sets out the considerations and operational details that are relevant to the operation of the open-windrow composting facility at AWO Recycling Ltd (AWO), Bury Lane Farm, PE26 2RU.

The Management System includes as part of the system a Safety and Quality Control System (SQCS) which is a requirement under BSI PAS100 (2018) to which AWO are certified.

The Management System relates to the best available techniques (BAT) for the receipt, storage and treatment of organic waste to produce a variety of compost and soil improver products.

This EMS sets out the nature of the site, relevant site and infrastructure works, methods of operation and environmental control for the processing of up to 50K tonnes of organic waste per annum.

2.0 SITE DETAILS

2.1 Site Location

Bury Lane Farm
Ramsey Heights
Ramsey
Huntingdon
Cambridgeshire
PE26 2RU

National Grid Reference: TL 285 847

2.2 Description

The Composting Facility is located approximately 1.5km west of Ramsey in Cambridgeshire and 1km to the southeast of Ramsey Heights, as shown in the Site Location Plan.

2.3 Permits and Licences

Present Environmental Permit/License Number: EPR/MB3935AD.

2.4 Planning Permission

The site has planning permission for the open-windrow composting facility in line with waste management activities. The planning permission was issued by Cambridgeshire County Council, reference number H/5022/04/CW.

3.0 OPERATIONAL OVERVIEW

3.1 Waste Management Operations

The waste management operations at the site comprise the treatment of organic wastes by open-windrow composting (OWC). The details of the engineering development, method of operation and environmental pollution control are given in Sections 4, 5 and 6 of this document. The area in which composting operational activities will be carried out are shown in Figure 1.

3.2 Permitted Waste

The current Environmental Permit is for the receipt, storage and treatment of specified types of organic waste. These are listed within the current Environmental Permit: EPR/MB3935AD.

Waste shall only be accepted if it is a type and quantity specified in the permitted list of wastes, and if it conforms to the description in the documentation supplied by the producer and holder.

Any wastes that are not categorised on the Environmental Permit are considered contrary/non-conforming and dealt with appropriately. Only non-hazardous wastes are accepted on site.

Total annual quantities of accepted waste will not exceed 50,000 tonnes per annum (Pending approval of permit variation November 2020).

3.3 Hours of Operation

As specified by Planning Permission the site operational hours are presented within Table 2, including maintenance activities.

Table 1 - Site Operational Hours

Day	Waste Acceptance	Waste Treatment	Maintenance
Monday to Friday	**0730** to **1800** hours	**0800** to **1730** hours	**0730** to **1800** hours
Saturday	**0730** to **1300** hours	**0800** to **1200** hours	**0730** to **1300** hours
Sunday	**Closed**	**N/A**	**N/A**
Bank Holidays	**0730** to **1300** hours	**0800** to **1200** hours	**0730** to **1300** hours

3.4 Staffing

AWO shall ensure that sufficient personnel, who are suitably trained and competent, are present to manage and operate the on-site recycling/treatment activities safely and without causing pollution. Personnel must be fully familiar with the requirements of the Permit as is relevant to their specific duties. Personnel shall have clearly defined roles and responsibilities. The staff numbers are presented below in Table 2

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Table 2 - Site Operational Staff

Personnel	Management	Administration	Site Operatives	Other	**TOTAL**
Number	2	2	3	1	**7**

The site is operated under the ultimate control of the Company Directors. Staff numbers will be maintained at a level sufficient to operate and supervise the site effectively and throughout periods of employee sickness and holidays.

3.5 Technical Competence

The Site Manager and operatives will be appropriately trained and will be conversant with the requirements of the Environmental Permit and Management System, with particular regard to:

- Waste acceptance/rejection procedures;
- Operational controls;
- Maintenance procedures;
- Record keeping;
- Emergency action plan; and
- Notification to the Environment Agency and other regulatory authorities.
- BSI PAS100 (2018) and the Compost Quality Protocol

A copy of the Environmental Permit and Environmental Management System are kept in the site office and will be readily available for reference by site staff, other company staff, Environment Agency and other regulatory authorities.

Two Company Directors will hold a suitable qualification in order to operate the site compliantly (see Table 3 below). The suitably qualified person's actual attendance hours on site will be recorded in the Site Diary.

Table 3 - Technical Competence Qualifications

Name	**Qualification**
Thomas Bedford	WAMITAB COTC Level 4
Daniel Bedford	WAMITAB COTC Level 4

Any changes in technically competent management at the site, and/or the name of any incoming personnel, together with any evidence that such personnel has required technical competence, shall be submitted to the Environment Agency within 5 working days of change in management. No site operations shall take place unless there is sufficient, trained and competent staff on site.

3.6 Site Identification Board

In conformance with permitting regulations and the Management System, AWO shall display a clear, all-weather, easily readable Site Notice at or near the entrance to the site. The Site Sign/Notice shall contain the following information:

- Company Name
- Permit Holder's Name
- Emergency Contact Name
- Permit Holder's Telephone Number
- Statement that the site is permitted by the Environment Agency (EA)
- The Permit Number
- EA National Telephone Numbers

The Identification Board shall be inspected at least once per week. In the event of damage or defect, the board shall be repaired or replaced within three working days.

3.7 Site Security

The facility lies within a farm unit which is controlled by the family of the operator which rely generally on the farm security fencing and gates to limit vehicular access. The site is monitored constantly via a comprehensive CCTV network.

All site access points are gated and are locked outside all normal operating hours.

All visitors will be required to sign in at the Site Office on arrival and exiting the site.

3.8 Relevant Convictions

In the unlikely event of the Permit Holder or a relevant person being convicted of any relevant offence, the full details will be provided to the Environment Agency within 14 days of the conviction, as will be details of any appeals.

3.9 Change of Operator's or Holders Details

The following information shall be notified in writing within 5 working days to the agency:

- Any change to the Permit holders trading name;
- Any steps taken with a view to the Permit holder going to administration; and
- Any change in the operators trading name, address registered name or registered office address.

3.10 Maintenance of Financial Provision

The Company (AWO Recycling Ltd) will make financial provision to meet the obligations of the Permit.

3.11 Notification of Preparatory Works

Commencement of preparatory works for the construction of the site and infrastructure and its completion will be notified to the Agency in writing.

Any additional preparatory works required as a result of the issuing of a new waste Environmental Permit or site improvement would be notified to the Agency or relevant authority. The Permit holder shall give no less than 7 days prior notice of any changes to the Management System.

3.12 Commencement or Cessation of Waste Operations

In the event of any future cessation and subsequent re-commencement of the use of the site for open-windrow composting operations, the relevant authorities would be notified in writing specifying the date of any such cessation or re-commencement.

3.13 Notifications and Submissions to the Agency

Except where otherwise specified all submissions to the Agency shall be in writing. These correspondences shall include the reference number and the name of the Permit holder.

4.0 SITE ENGINEERING

4.1 Site Surfaces

The site is designed and constructed to ensure that all areas, on which waste is deposited, shredded, handled, sanitised, stabilised, and screened, are underlain by an impermeable pavement of concrete. The concrete surface will be constructed to prevent the movement of polluted liquid to uncontained areas.

4.2 Drainage and Containment System

4.2.1 Roof Water from buildings

Surface water falling on the buildings will be treated as clean and kept separate from all other areas of the site. Collected water will be used wherever possible within the site, in dust suppression, wetting up compost, and cleaning site areas. The water will also be available for fire control if required.

4.2.2 Process Areas

The external process area drains by engineered fall to a lagoon on the northern boundary of the site. See 4.2.3 below.

4.2.3 Lagoon

The lagoon is constructed of clay. The applicant has previously constructed amenity ponds directly into the underlying clay. Clay used for the construction of the lagoon was tested, and results provided to the Environment Agency, to confirm that insitu clay achieved the required containment to their satisfaction.

The capacity of the lagoon is sufficient to hold the equivalent of a 24hr M5 worst case storm event producing 40mm of rainfall. The water level within the lagoon will be monitored daily. In the unlikely event that the lagoon reaches a level that the lagoon shows signs of overflowing water will be immediately removed via a tractor mounted vacuum tanker that is stored on site specifically for this purpose. If wet weather conditions persist and excessive water levels in the lagoon remain a threat to overflowing then an external waste management company will be contracted to remove sufficient water from the lagoon until the risk has been abated.

4.2.4 Welfare Building

The foul domestic waste from the site office will be drained to a sealed cess pit. The pipework for the drains will be sealed to ensure no leakage of the foul water can occur.

All drainage systems will be regularly inspected and maintained by the site manager and recorded on the site diary, at least on a weekly basis.

The site manager will initiate regular inspection and cleaning of building gutters, gullies, drains and storage tanks at regular intervals.

4.3 Contaminant Storage

All wastes received to the site are removed from the waste reception area and transferred to the composting area to commence treatment within 10 working days of receipt. At no time is any material left out of the composting process for a longer period.

Any load containing non-permitted wastes is rejected immediately on arrival following first inspection of the load.

5.0 SITE OPERATIONS

5.1 Pre-Acceptance

Wastes will not be accepted at the installation without a clear method or defined treatment and recovery/disposal route.

5.2 Waste Acceptance

All incoming vehicles will enter via the site entrance and weigh in at the weighbridge. Documentation will be checked by the weighbridge operative, to ensure that the waste complies with the waste types permitted by the Planning Permission, Permit and CQP

Appendix B. The relevant documentation includes Carriers Certificate of Registration and Duty of Care Waste Transfer Note, which will be signed by the weigh-bridge operative to confirm the acceptance/receipt of the waste prior to the driver being allowed to proceed to the waste reception area.

Vehicles depositing material will proceed to the reception area, vehicles collecting compost product will proceed to the product storage area. Each vehicle will be re-weighed prior to leaving the site. Weighbridge data will be stored on computer for record and invoicing purposes. For any waste arriving on site, a record is kept of:

- Date and time of delivery of the load;
- Details and description of the vehicle delivering the waste, the driver's name, and the operator of the vehicle, registration number;
- In the case of collections of household waste by a waste collection authority, the name of the waste collection authority;
- A description of the waste including type and quantity EWC Codes

All waste delivered to the compost facility will be inspected visually at the compost reception area upon being unloaded to check that it complies with the categories of waste specified in the Environmental Permit.

5.3 Waste Rejection

In the event that it is found necessary to reject a load of waste arriving at the site, a standard rejection procedure will be implemented. The waste rejection procedure to be complied with will be:

- For loads which are rejected prior to deposit, the driver will be instructed to park the vehicle as an interim measure for closer inspection. The competent manager and weighbridge will be contacted by radio prior to the rejected materials being removed from the compost site and, if appropriate, the weighbridge ticket and billing rate amended.
- For loads which are rejected following deposit, the unsuitable materials or the whole load depending upon the degree of contamination, will be isolated. Subsequent actions will be dependent upon the reason for rejection and would be similar to those outlined above.
- In the event that the waste material should be determined to be Hazardous Waste then the relevant consignment notification form will be prepared, in conjunction with the haulier or producer and the material will be transported to an appropriate treatment or disposal site.

5.4 Waste Contamination

As part of the normal composting process it is anticipated that there will be some materials unsuitable for composting (contraries e.g. plastic bags and rubble) in the incoming loads and the majority of these contraries will be removed by the site operatives before the waste is processed.

The plastic bags and other light contrary materials removed from the compost feedstock will be bagged by hand using the appropriate PPE. Contrary materials are also removed after product screening via a manual picking station.

5.5 Waste Dispatch

All contraries will be stored in a 40yard skip which is weighed and recorded before transporting from the site to a suitably permitted facility. All wastes shall be inspected prior to dispatch to confirm their description and composition.

5.6 Waste Measurements

The quantities of all waste input and outgoing compost product will be measured by means of the waste facility's weighbridges. Electronic records will be made of the loaded and unloaded weight of each vehicle (in tonnes), together with the nature and composition of each load. These weighbridges will be subject to regular maintenance and calibration checks. The weighbridge shall have an accuracy of 0.01 tonnes.

5.7 Waste Reception and Shredding

After the vehicle has been weighed, the site Staff shall notify the driver to proceed to the waste reception area where the load shall be tipped and inspected by the compost operative who is assigned to shredding operations for that particular day. After tipping the vehicle is re-weighed before leaving the site and the net weight of the load recorded.

No waste will be accepted at the site which does not comply with the conditions of the Environmental Permit. Any non-conforming material will be quarantined and disposed of in accordance with the regulations.

The material will be pre-processed using a slow speed shredder. A wheeled loader will be used to load the waste into the hopper of the shredder. The material is shredded to reduce the particle size to less than 400mm. The shredder will be operated in accordance with the manufacturer's manual by the site operatives. Daily maintenance logs will be completed during the working day to assess any damage or general wear of the machine.

5.8 Actively managed composting process

Shredded waste is then formed into a compost windrow and the actively managed composting process begins.

The dimensions of each windrow will be approximately 5m high, 7m wide and 60m to 100m long. The typical volume of each windrow will be 1500m3, with a minimum of 1000m3, and maximum expected volume of 1750m3. Typically, there will be 10 compost windrows on site at any one time.

The BSI PAS100 QMS will be validated to a minimum composting period of 5 weeks during which time temperature and moisture content is monitored daily for the sanitisation phase and

then weekly thereafter. Compost windrows are periodically turned throughout the five weeks in order to maintain optimal conditions for the aerobic degradation of the waste.

5.9 Screening

Once the five week process has been completed compost windrows will be then screened (Graded) to produce 0-10 and 10-25mm compost grades. A by-product of the screening process is compost oversize which consists of larger pieces of woody material.

The screened compost will then be stored on site in piles before being transported to amenity horticulture businesses & local farms for use in growing media, topsoil blending and as a soil conditioner. The piles of screened compost will be typically no more than 1000m3 in volume.

The screened oversize will be stored on site in a small pile no more than 450m3 in volume ahead of reuse in new compost windrows. This coarse material is useful in providing structure and additional carbon at the beginning of the composting process.

6.0 POLLUTION CONTROL

6.1 Plant Maintenance

The site operates a strict maintenance regime and equipment used is of sufficient capacity to allow down time for routine maintenance and servicing as recommended by the manufacturer.

No plant may be operated unless full instructions and training have been given by a person competent to do so.

No plant or equipment may be worked on for maintenance purposes unless it has been removed from the site and has been isolated to prevent an accidental start, only in exceptional circumstances which prevent its removal, shall work be undertaken on any item of plant within the site.

Any newly arrived or hired in equipment is subject to particular scrutiny to ensure it meets the standards required by both the company and current legislation.

All breakdowns or incidents involving plant or equipment are entered in the site diary.

6.2 Meteorological Monitoring

Meteorological conditions are not monitored at the site. Observations on the prevailing weather conditions are recorded daily in the site diary.

The purpose of observing the meteorological conditions is to provide weather data which could be of immediate use for managing the day to day operational activities. The wind direction data is useful in scheduling operations to assure prevailing wind conditions will not impact on sensitive receptors. The rainfall data is of value in predicting the impact on the leachate holding tank capacity and the likely need for pumping off surplus leachate.

6.3 Dust & Bioaerosols

Material in active composting phases such will be controlled in terms of moisture to ensure the material does not dry to present a dust and generate a subsequent bio-aerosol issue.

As a consequence incidents of dust or particulate release are remote. The site diary is used to record any incidents of dust emissions have been noted and the reasons for it.

A long term quantitative monitoring regime for bioaerosols is in place for the protection of the operatives working on the site and the surrounding environment.

Shredding, movement of material and screening are the operational activities that have greatest potential to generate airborne particles. It is not envisaged that it will be necessary at this stage to prepare a Dust Contingency Action Plan.

Screening will take into account moisture content, wind direction and wind speed to assure the operation does not present a problem in terms of dust or odour. During screening the wind direction will be monitored to detect shifts in wind direction that may occur during the operation.

The actions which will be taken to prevent or minimise dust emission are:-

- Composting materials in the stockpiles will be kept at a suitable moisture content, using water sprays when necessary.
- The screening operations will be monitored (as per shredding) and if found necessary, water sprays will be provided on the screening equipment.
- Dust generation attributable to vehicle movements will be controlled by the maintenance and sweeping of the site access road. During dry weather action will be taken to spray the roads using a water bowser.
- The Site Manager will carry out a daily visual assessment of dust emission within the site and at the downwind site boundaries. In the event of a potential or actual dust nuisance being identified, then appropriate remedial actions will be implemented as soon as practicable, with the most effective action likely to involve additional water spraying of the source of the dust emission.
- The results of the daily inspections and any remedial work will be recorded in the Site Diary. Any complaint, which is received, will be reported to the Environment Agency.

6.4 Mud and Debris

The entire working area is surfaced by concrete or hard-standing.

Any vehicle leaving the site will be checked to ensure that they are clear of loose material and that waste is secure. Where necessary, vehicles will be cleaned before leaving site.

In the event that mud or debris is deposited onto public areas, by action or inaction, that material will be cleaned as soon as practicable and cause of mud/debris escape investigated and remediated.

6.5 Litter

Waste accepted on site has been pre-segregated at source reducing the risk of contamination from litter. Very little litter is expected within incoming waste, but where present it will be immediately removed to sealed refuse containers, prior to disposal.

Regular checks are made within and around the site for litter.

6.6 Pests

Effective management procedures will reduce the risk of attracting pest and vermin.

Site management procedures include:

- Regular cleaning of hard standing, drainage and storage areas to prevent accumulation of biodegradable material;
- Implement regular inspections and refilling of bait feeders; and
- Minimise waste storage time by maintaining volumes at a manageable level.

All site inspections for pests and vermin and any remedial actions are recorded in the Site Diary.

6.7 Scavenging Birds

The nature of the material being processed at the site does not generally have the potential to attract scavenging birds.

In the event of a problem or complaints being received as a result of scavenging birds, details will be recorded in the site diary. If necessary, bird scaring techniques will be implemented to mitigate against the problem.

6.8 Spillages

All handling of feedstock will be undertaken in the reception area.

The potential source of any leak or spillage will be fuel or oils from items of plant and machinery used in conjunction with the composting facility. In the event of any spillage or leak occurring, the following procedures will be implemented:

- The area will be cleared and any cigarettes extinguished;
- Absorbent granules or sand will be laid over the spill to soak up any liquid;
- Staff will use appropriate PPE provided if required;
- Once the liquid has been absorbed wastes are to be disposed of at a licensed facility;
- Before disposal, absorbed wastes are to be stored within a quarantined area on impermeable hardstanding; and
- The incident will be recorded, including remedial action taken, in the site diary.

Any vehicle maintenance and repairs will be undertaken on the hard standing turning area or in the workshop located near the weighbridge.

The site fuel (gas oil) tank will be bunded and maintained in line with current (Oil Storage) regulations.

6.9 Odour

The nature of the material to be accepted at the site has the potential to release odour. However, procedures will be in place to control odour emissions using good site management practices. The risk of odour emissions has been reviewed in the Odour Management Plan (OMP). The main points of the OMP identify the waste material, particularly putrescible wastes as the source, the atmosphere as the pathway, and the site operatives as the main receptors, as well as delivery vehicle drivers, local residents and members of the public.

Odour emissions will be mitigated by implementing the following operational procedures:

- Minimise waste storage time by maintaining volumes at a manageable level;
- Blending of waste materials to produce a homogenous mix will manage the moisture content to help minimise odour production;
- Regular cleaning of operational areas to prevent accumulation of potentially odorous material;
- Regular turning of windrows will help minimise odour; and
- All site operatives will undertake routine monitoring and, in the event of identifying malodorous material, will implement mitigation procedures by covering or processing the material at the earliest opportunity.

Odour monitoring will occur daily at the designated monitoring points and an Odour Assessment Report will be filled in.

In the event of odorous problems or a complaint being received, details will be recorded in the Odour Complaint Report Form.

6.10 Noise and Vibration

Emissions from the activities shall be free from noise and vibration levels likely to cause pollution outside the site.

Suitable measures will be implemented and maintained throughout the operational life of the site to ensure noise emanating from the site is minimised.

All equipment used at the site will be appropriately silenced and the shredder and screening equipment will be noise attenuated. All vehicles, equipment and plant will be switched off when not in use. All vehicles, equipment and plant will be maintained with a clear intention to reduce noise and vibration levels.

Any noise monitoring carried out and remedial action taken will be recorded in the Site Diary and will be reported to the Environment Agency.

Waste processing operations will only be carried out during the designated hours as stated in Table 2.

6.11 Storage of Wastes

All storage and treatment of waste solids, liquids and sludges shall not be within the following distances:

- 10 metres of any watercourse;
- 50 metres from any spring or well, or from any borehole not used to supply water for domestic or food production purposes; and
- 250 metres from any borehole used to supply water for domestic or food production purposes.

7.0 ACCIDENT MANAGEMENT

The site has implemented a full Accident Management Plan detailing potential accident and emergency situations that could occur on site, control measures to minimise potential occurrence and procedures should accidents occur on site.

7.1 Potential Accidents

Identified potential accidents include:

- Plant or equipment failure
- Fire
- Severe Weather
- Arson/Vandalism
- Bioaerosols

8.0 MONITORING AND RECORDS

8.1 Monitoring

AWO shall undertake the monitoring as show in Table 4. AWO shall maintain records of all the monitoring required, including records of the taking and analysis of samples, instrument, measurements, calibrations, examinations, tests and surveys and any assessments or evaluations made on the basis of such data.

Table 4 - Site Monitoring Requirements

Parameter	Measurement	Purpose	Operations	Frequency
Temperature	Temperature probe.	Critical limits for composting performance.	Sanitisation, Stabilisation	Daily/Weekly

Moisture	Squeeze test.	Critical limits for composting performance.	Sanitisation, Stabilisation	Daily/Weekly
Odour	Sniff test.	Identify any release of odour from composting operations.	All composting operations.	Daily
Bioaerosols	External Service.	Ensure fugitive releases are not a risk to local sensitive receptors.	All composting operations.	As required

8.2 Site Diary

A Site Diary shall be maintained, and retained in the site office. It shall record visitors, non-routine activities and other incidents. The Site Diary should be checked periodically by the Permit Holder to ensure its correct use. The Site Diary shall be readily available for inspection. Examples of activities recorded in the site diary include:

- Names of operators and times of attendance on site.
- Names and times of technically competent managers on site.
- Names of visitors on site.
- Any accidents resulting in injury.
- Operational details of individual windrows
- Any incident of fire.
- Any incident of spillage.
- Any incidents causing pollution to the environment, harm to human health or detriment to the amenities of the locality.
- Any machinery breakdown.
- Any deposit of unsuitable waste at the site.
- Condition of site infrastructure and engineering.
- Incidence of litter, dust, pest, odour and noise problems.
- Results of various inspections for litter, odour, noise, birds, pests etc.
- Environment Agency licence inspection reports.

8.3 Waste Records

Records of all waste entering and leaving the site shall be recorded. All records will be made as soon as reasonably practicable and retained securely for a minimum of two years. Records will be clear, legible and available for viewing (on site). Records must be kept of all incoming wastes, and all outgoing compost, compost-like material and residuals.

The following records will be retained (not comprehensive):

- Waste Carriers Licences (where appropriate).
- Weighbridge Tickets/Documents – incoming wastes.
- Bioaerosols monitoring.
- Weighbridge Tickets/Documents – outgoing wastes (including residual wastes).
- Destination of outgoing wastes (including market sector).

- Destination of outgoing compost like material.
- Reject Waste Forms.
- Environment Agency Inspection Reports.
- Design, construction, inspection, maintenance and monitoring of pollution prevention methods.
- Failure records for pollution prevention methods.
- Off-site environmental effects.
- Batch Formation Data (start and finish dates, activities carried out.
- Composting Batch Conditions (Batch Record Sheet).
- Records of sampling.
- Records of corrective actions taken during composting processes.
- Type of input material, whether the load is rejected or accepted, and if rejected the reason why.
- Maturation Start and Finish date.
- Product Preparation Information.
- Duty of Care Records.
- Quarterly Waste Returns.

8.4 Reporting and Notification

Site personnel will notify the Environment Agency “without delay” following the detection of:

- Any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution.
- The breach of a limit specified in the Permit.
- Any significant adverse environmental and health effects.

Site personnel will notify the Environment Agency within 24 hours:

- Of actual or potential incidents and breaches of emissions limits.

Site personnel will notify the Environment Agency within 14 days:

- Where the Environment Agency has requested in writing that it shall be notified when AWO is to undertake monitoring and/or spot sampling.
- Of any change in the operator’s trading name, registered names or registered offices addresses.

During normal working hours site personnel will contact the Site Officer or the local Environment Agency Office by telephone. The Environment Agency National Incident Hotline number is: 0800 807 060.

8.5 Training Records

Each person, whose duties affect compost quality shall be trained, instructed and supervised commensurate with those duties, such that he/she is competent. Training records for personnel who affect site procedures, operations and quality shall be maintained.

8.6 Site Waste Returns

Quarterly returns shall be provided and stored at the site office in line with Environment Agency regulations.

8.7 Complaints

AWO shall decide and implement any necessary action in response to any complaints or concerns expressed by interested parties, including operatives, customers, clients and regulatory authorities about quality or usability of any compost of compost based products.

AWO shall record the:

- Name and contact details of the person who expressed concern or made a complaint;
- Specific subject(s) of the concern or complaint;
- Date and time communicated to the producer and name of the person to whom it was communicated;
- Nature and date(s) of any actions and checks and who carried them out;
- Nature and date of any response to the person who expressed a concern or made the complaint; and
- Name of the person who communicated the response.

ANNEX A - PERMITTED WASTES

Waste 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 01	sludges from washing and cleaning
02 01 03	plant-tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent collected separately and treated off site.
02 01 07	wastes from forestry
02 01 99	wastes not otherwise specified (spent mushroom compost and full biodegradable bedding only)
02 03	**wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	biodegradable materials unsuitable for consumption or processing (other than those containing dangerous substances)
02 03 05	sludges from on-site effluent treatment
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
02 06	**Wastes from the baking and confectionary industry**
02 06 01	Materials unsuitable for consumption or processing
02 07	**wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials (biodegradable only)
02 07 02	wastes from spirits
02 07 04	material unsuitable for consumption or processing
02 07 99	wastes not otherwise specified (malt husks, malt sprouts, yeast and yeast like residues only)

Waste Code	Description
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, wood, particle board and veneer other than those containing dangerous substances other than 03 01 04 NO VENEERS OR PRESERVATIVES
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 10	fibre rejects, fibre-, filler-, and coating-sludges from mechanical separation
04	**WASTES FROM THE LEATHER FUR AND TEXTILE INDUSTRIES**
04 02	**waste from the textile industry**
04 02 10	organic and natural products (for example grease, wax)
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste) (not containing non-biodegradable veneers or plastics)**
15 01 01	paper and cardboard packaging
15 01 03	wooden packaging
15 01 05	composite packaging
15 01 09	textile packaging
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 01	wood (untreated)
17 05	**soils (excluding excavated soils from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dewatered dredging spoil other than those mentioned in 17 05 05 (from inland waters only)

Waste Code	Description
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralization**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 05	**wastes from the aerobic treatment of solid wastes**
19 05 03	off-specification compost
19 08	**waste from waste water treatment plants**
19 08 05	sludges from treatment of urban waste water
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 07	wood other than those mentioned in 19 12 06
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 (shredded green waste, shredded wood, separated fruit etc)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPERATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste (not including waste covered by the Animal By-Products Regulations 2005)
20 01 38	wood other than those mentioned in 20 01 37
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 03	**other municipal wastes**
20 03 02	waste from markets (not including waste covered by the Animal By-Products Regulation 2005))

ANNEX B – PAS100 SOP V10

Compost and Growing media Specialist Services

BSI PAS100:2018 STANDARD OPERATING PROCEDURES

March 2020

(Issue 10)

Produced For: AWO Recycling Limited

CONTENTS

9.0 IDENTITY OF COMPOSTING PROCESS AND ITS PRODUCTS

9.1 Company, Site and Process Details

Company name, address and telephone number

A.W.O. Recycling Limited
Bury Lane Farm
Ramsey Heights
Ramsey
Huntingdon
Cambridgeshire
PE26 2RU
TEL: 07753 786200

Composting facility name, address and telephone number:

As above

Composting process that these SOPs refer to:

Open air turned windrow for plant tissue biowastes only, PR code PR421

9.2 General description of the composting process and its outputs

The sanitisation phase of this composting process is an open-air, turned windrow process for plant tissue biowastes only.

The stabilisation phase of this composting process is an open-air, turned windrow process for plant tissue biowastes only.

There is no maturation phase for this composting process.

The compost grades for which conformance with PAS 100, the Compost Quality Protocol and any additional quality criteria subscribed in the Quality Policy is intended to be claimed are:

- 0 to 10 mm compost grade, defined as the Principal Grade.
- 10 to 25 mm Soil Conditioner , defined as the Additional Grade

This composting process is operated under a:

The Waste Management Licence/Permit: EPR/MB3935AD

10.0 INPUT MATERIALS

10.1 Types of Input Materials

The treatment process currently composts the following source-segregated biodegradable waste / material types:

Table 5 - Input Materials by EWC Coding

Waste Code	Waste description	Source of waste	Name of waste supplier organisation
02 03 04	Food material mainly oranges, vegetables	Processing companies	Turner PPL, G's Greenvale
20 02 01	Green waste	Kerbside collected and HWRC sites	AmeyCepsa, Shanks,IPL. Peterborough City Council Landscape Gardeners
19 05 03	Oversize	Source separated	Amey (CCC) and NLWA

10.2 Contracts / Agreements with Waste Suppliers

Where a contractual arrangement is made with a waste supplier, it shall include criteria for acceptance / rejection of loads delivered for composting.

With regard to plant pathogens, waste suppliers shall be instructed (within the contractual arrangements) to exclude plant materials known or suspected to contain such plant pathogens. The same criteria apply to plants containing toxins such as rhododendron, yew, ragwort and hemlock.

With regard to herbicides containing active ingredients clopyralid and picloram, agreements shall be made with suppliers of grass clippings, crop residues and other plant materials from professionally managed lawns, landscaped areas, or agricultural land that may have been treated with herbicides containing active ingredients clopyralid and picloram. Based on such agreements any input material that is known or suspected to be contaminated with such herbicides shall not be delivered to the composting site.

The company does not accept compostable liners/packaging, ABPR products, treated wood waste or digestate.

Regular feedback on the quality of feedstocks delivered to the site shall be provided to each waste supplier through monthly reports on the contamination levels.

Whenever criteria specified in table 2 and/or in a contractual arrangement are not met, this shall be clearly communicated to the waste supplier and records of the communication shall be kept.

Improved instructions, reminders of the composter's acceptance / rejection criteria, contractual arrangements (if applicable), control measures, and further clarification of any of the above shall be sent to the relevant waste supplier(s) when deemed appropriate by the composter. These shall be recorded on the 'customer communication record sheet' which is kept on site.

The staff on site shall be made aware of the acceptance / rejection criteria, any contractual arrangements and control measures.

The site shall cease accepting loads from a particular source if contamination has occurred repeatedly yet the supplier has not attempted corrective action or, in the composter's opinion, the action taken has been ineffective.

10.3 Rejection or Acceptance and Storage of Input Materials

Each load of biodegradable waste / material delivered for composting shall enter the site via the weighbridge. Details of the waste carrier, waste type, waste code, client/source, quantity (tonnes) of waste and delivery date shall be recorded on a Waste Transfer Note and a central computer.

The weighbridge operator shall then notify the driver to proceed to the composting pad where a site operative shall ensure the waste carrier takes it to the input materials storage area. Here, the waste carrier will tip the waste so as not to merge / contaminate it with any input materials already being stored.

A site operative shall spread and inspect each load deposited at the storage area. Feedstock normally contains an element of contamination that is removed via a manual picking line after screening and therefore the scoring system is not used on a daily basis. Where concerns due to a trigger changed or management review occur the scoring system as detailed below will be employed for a period of time or until it is deemed acceptable to remove the requirement. The outcome of the inspection is recorded on the Input Load Inspection Record Sheet.

Criteria for acceptance / rejection of input loads delivered are specified in Table 2 below, with corrective actions that shall be carried out if the load exceeds the specified criteria.

Table 6 - Acceptance Criteria

Hazardous Content	Acceptance Criteria (critical limit) and Load Inspection Score	Control Activity and Associated Record
Physical contaminants (e.g. plastic bags, non-compostable packaging and plastics, metals, concrete and consolidated mineral fragments (e.g. rocks and stones), etc	**Score 1 = VERY GOOD** Load delivered is very clean.	Load accepted.
	Score 2 = GOOD Load delivered has negligible physical contaminant content.	Load accepted.
	Score 3 = MEDIUM Physical contaminant content is quite high, but still below >5% plastics / packaging items unsuitable for composting evaluated by subjective assessment.	Load accepted. Plastic shall be removed as far as practically possible and placed into a 'rejects' container stored on site. The container's contents shall regularly be removed for disposal. Score and action logged into the '*Input Load Inspection Record Sheet'.*
	Score 4 = POOR Physical contaminant content is above insert percentage >5% plastics / packaging items unsuitable for composting evaluated by subjective assessment.	Load rejected or handling charge. Score and action recorded on '*Input Load Inspection Record Sheet'.*
Weeds / plant invasive species	**REJECT** Japanese Knotweed absent from all input loads accepted for composting.	Reject and send any loads that contain it to a licensed landfill. Actions recorded on '*Input Load Inspection Record Sheet'.*
Plants containing toxins (rhododendron, yew, ragwort, hemlock)	Load delivered has negligible content. < 5 % rhododendron, yew, ragwort, hemlock	Load accepted. Plants containing toxins shall be removed as far as practically possible and placed into a 'rejects' container stored on site. The container's contents shall regularly be removed for disposal. Score and action logged into the '*Input Load Inspection Record Sheet'.*
Treated wood, packaging or any biodegradble bags, sewage sludge, digestate	Absent from inputs	Load rejected or handling charge. Score and action recorded on '*Input Load Inspection Record Sheet'.*

The acceptance criteria specified in table 2 shall be specified in the contractual arrangements or clearly communicated to each relevant input material supplier.

Before removal from the composting site, each load or part-load due rejection shall be kept separate from loads awaiting inspection or those accepted for composting.

Each accepted load shall be assessed to identify the processing requirements and any potential problems.

Any input materials stored for incorporation to future batches (e.g. woody material kept for mixing into loads delivered in Spring, which tend to contain high proportions of soft, sappy, putrescible plant tissues) shall carry a batch code marker. A batch record sheet shall be created and maintained for such stockpiled material so that it is traceable when mixed with recently delivered input materials that form new composting batches.

The maximum storage duration for input materials prior to shredding shall not exceed 4 weeks.

Waste accepted and stored for composting shall not be stockpiled in a quantity that exceeds 250 tonnes before shredding.

10.4 Traceability of Input Materials

A record system shall be maintained connecting sources of wastes with delivery dates and weights. This is achieved via the use of a weighbridge system, the duty of care information collected for every load that arrives and/or the ‘Input Load Inspection Record Sheet’.

Composting batches are created one at a time. Batch formation ‘start’ and ‘finish’ dates are recorded in the ‘Batch Formation and Monitoring Record Sheet’. All waste loads that arrive at the weighbridge between these two dates therefore have gone into that batch, and thus can be traced back to source.

Each batch shall be given a unique number /code when being formed, clearly identifiable by a post with a marked board, or similar. This stays with the batch during the composting process.

When batch formation is completed, batch monitoring begins and its monitoring start date is recorded on the corresponding ’Batch Formation and Monitoring Record Sheet’.

For each composting batch, the minimum composting process duration stated in these SOPs shall be calculated from the date the monitoring of that batch commences.

11.0 PREPARATION OF INPUT MATERIALS

11.1 Shredding

Any large objects, for example tree trunks and root stocks, over 40cm in diameter shall be manually reduced in size before shredding or rejected.

11.2 Mixing

Not applicable.

11.3 Wetting Prior to Batch Formation

Not applicable.

11.4 Records

The unique number of any other batches mixed with a batch when being formed (including oversize) shall be recorded on the 'Batch Formation and Monitoring Record Sheet'.

11.5 Composting Process Additives

Not applicable.

12.0 COMPOSTING ACTIVITIES

12.1 Batch Size and Monitoring

The dimensions of each windrow shall be approximately 4m high, 6m wide and up to 30m long.

The typical batch size is: 350m3, with minimum expected size: 100 m3, and maximum expected size when combined: 450m3.

The compost is sanitised in the open windrow system. This would incorporate a minimum of 1 turn and 7 days during the first 2 weeks 55 - 80ºC. Temperature and moisture should be recorded every day during this period.

Gaps of suitable width to enable turning / monitoring / litter picking shall be left between the windrows.

Each formed batch is identified by a marker that displays its batch code, in a way and location in the batch that is easily visible to operatives moving materials on site.

In the event that batches are combined during the composting process, the 'on-going' batch code(s) shall be recorded on each of the corresponding batch record sheets and the record for one of these batches shall be used as the on-going record.

If any sanitised batch is combined with a batch that is only part way through the sanitisation phase, the sanitisation phase for those combined batches shall be restarted.

If any batch becomes separated from its batch code marker, the site manager shall be notified and efforts shall be made to re-identify and re-assign the batch with its correct batch code. If attempts to identify the batch fail, then it shall be recomposted with its own newly assigned batch code or dispatched, as PAS 100 non-compliant material for disposal or use according to waste regulatory controls.

12.1.1 Monitoring System and Equipment

The composting monitoring system, including the monitoring equipment, is as follows:

- 1.5 metre length temperature probe

The monitoring system (including equipment) shall be maintained in a functional state by the site manager.

Calibration checks on the temperature monitoring system / equipment are carried out once per 12 months by an independent calibration service.

Routine checks on the temperature monitoring system / equipment are carried out by the site manager once per month, following the procedures below:

Temperature probes are checked monthly by comparing temperature values of both temperature probes against one another both at ambient temperature and temperature as monitored within a compost windrow. Temperature probes are considered to be working adequately if temperatures correspond to within $\pm 1^0$C.

When the calibration service provider or the composter's designated person finds that any part of the temperature monitoring system has caused inaccurate temperature data, immediate corrective action shall be taken and recorded on the 'Temperature Monitoring System Calibration Record Sheet'. After taking corrective action, the affected part of the system shall be re-checked, evaluated and recorded straight afterwards.

Data obtained during each calibration check on the temperature monitoring system shall be recorded on the 'Temperature Monitoring System Calibration Record Sheet' or such records shall be obtained from the independent calibration service provider together with his/her written method statement of how the calibration checks were carried out. Record details shall also be kept of any repairs or adjustments undertaken and the outcome, or replacement of an item / component / part of the system shall also be recorded on the 'Temperature Monitoring System Calibration Record Sheet'.

12.1.2 Temperature Monitoring and Records

Temperature during the sanitisation phase is monitored as follows:

The hand held temperature probe is inserted into the windrow, at a minimum of 1 metre below the windrow surface. The temperature detected by the sensor when inserted in the windrow shall be allowed to stabilise before a final reading is recorded.

All temperature monitoring results for the sanitisation phase shall be recorded in the Batch Formation and Monitoring Record Sheet.

Temperature during the stabilisation phase is monitored as follows:

The hand held temperature probes are inserted into the windrow, at a minimum of 1 metre below the windrow surface. The temperature detected by the sensor when inserted in the windrow shall be allowed to stabilise before a final reading is recorded.

All temperature monitoring results for the sanitisation phase shall be recorded in the Batch Formation and Monitoring Record Sheet.

12.1.3 Moisture Monitoring and Records

The moisture content of samples of composting materials from each batch shall be assessed by 'squeeze test' (grasping and clenching the sample in a gloved hand for approximately ten seconds, then opening and assessing moisture content using table 3 below), with scores

verified regularly by comparison with quantitative results (% mass/mass) obtained using a drying in an oven and calculating the change of mass having weighed sample mass before and after 'drying and cooling of the sample' (see BS EN 13040 and guidance from the REA).

Table 7 - Moisture Assessment Index

Index Number	Sample Moisture Behaviour	Interpretation
1	Water seeps out	Too wet
2	More than one droplet appears	Too wet
3	One droplet appears	OK
4	Compost particles remain packed together and no droplets appear	OK
5	Compost particles fall away from each other	Too dry

The source(s) of any water sprayed onto input materials, batches being formed or formed batches shall be recorded on the 'Batch Formation and Monitoring Record Sheet'.

The source(s) of any water sprayed onto input materials, batches being formed or formed batches shall be from the local lagoon.

The following shall be recorded on the 'Batch Formation and Monitoring Record Sheet':

- evaluations of moisture content and date carried out;
- date and approximate amount of any water added; and
- source of any water added if different to the above.

12.1.4 Weather Monitoring and Records

- Not applicable.

12.1.5 Monitoring Records and Corrective Actions

Monitoring records for each batch shall be checked every working day.

Corrective actions shall be carried out if temperatures monitored move outside of the critical limits specified in Table 4a when the batch is progressing through the sanitisation phase, and Table 4b when the batch is progressing through the stabilisation phase.

Corrective action to raise the batch temperature may include:

- additional or more frequent batch turning/mixing;
- increased batch size;
- water addition if composting conditions have become too dry;
- addition of relatively dry input materials if composting conditions have become too moist; and/or

- alteration of the shape of the batch (cross section profile) to modify moisture addition to / loss from the composting material.

Any corrective action taken to bring temperatures or moisture conditions within the critical limits shall be recorded on the 'Batch Formation and Monitoring Record Sheet'.

12.2 Sanitisation and Stabilisation

For each batch, the sanitisation phase shall normally occur during the first 2 weeks.

Sanitisation shall be marked as complete by inserting the completion date on the Batch Appraisal Record Sheet, only when the minimum time has been completed and batch temperatures, moisture and turning have been kept within the critical limits for the sanitisation phase (see tables 4a and b below).

For each batch, the stabilisation phase shall normally occur during the next 6 weeks before being screened. **The total minimum actively managed composting period will be 8 weeks with a minimum of 2 turns, and moisture/temperature measurements within the critical limits stated above.**

Stabilisation shall be marked as complete by inserting the completion date on the Batch Appraisal Record Sheet when this minimum time has been completed and batch temperatures, moisture and turning have been kept within the critical limits for the stabilisation phase (see tables 4a and b below).

12.2.1 Process Validation

The process validation phase shall be carried out when first evaluating conformity with PAS 100 and any additional compost quality criteria subscribed to in the quality policy. Process validation shall also be carried out when decided necessary as a result of regular or change-triggered management reviews (refer to the quality policy for information).

The minimum of three batches assessed for process validation shall be:

- composted for the minimum times (as per section 4.2. above and in addition to any minimum maturation applicable to the compost grade stated in section 5),
- appraised against the critical limits specified in table 4 and 5, and
- graded and sampled promptly when such composting has been completed.

Each sample of compost grade under assessment shall be representative of the batch from which it is taken and be sent for testing at an REAL Approved Laboratory within 1 week after the batch has completed its minimum composting period.

Monitoring locations and frequencies of monitoring composting conditions within each batch shall be carried out as stated in table 6 when the batch is undergoing sanitisation and then as stated in table 7 when the batch is undergoing stabilisation (see SOPs section 4.4.2).

The responsible person shall ensure the critical control points and critical limits of the composting process (see tables 4 and 5 in section 4.2.2 and details below on screening and maturation for different grades) have been verified to consistently result in compost of the quality subscribed to in the quality policy. This, together with verification that compost test results meet the quality criteria subscribed to in the quality policy, shall constitute process validation. The duration and outcome of process validation shall be recorded (see the Process Validation Record Sheet).

12.2.2 After Validation

After process validation, the critical control points and critical limits of composting during the actively managed composting phase (sanitisation and stabilisation phases) shall remain as those validated specified in tables 4 and 5.

The site manager shall ensure that the critical control points and critical limits of the composting process continue to be effective for process management. If for any reason they are suspected or known to have become ineffective, a phase of Hazard Analysis and Critical Control Points evaluation and process validation shall be returned to (refer to the Quality Policy for details on compost quality that must be achieved).

During and after validation each batch shall be sanitised and stabilised by the end of the actively managed composting phase, with composting process conditions and management complying with the critical limits stated in tables 4 and 5.

Table 8 - Validated Sanitisation Critical Limits

Parameter	**Sanitisation Phase Critical Limits (Open-windrow system)**
Temperature	55 - 80ºC
Moisture content	50 - 65 % m/m / Grip test 3-4
Minimum duration	7 not necessarily consecutive days when temperatures and moisture are within the above ranges (over 2 weeks)
Minimum number of turns	1 turn during the sanitisation phase.

Table 9 - Validated Stabilisation Critical Limits

Parameter	**Stabilisation phase critical limits (Open-windrow system)**
Temperature	45 - 80ºC
Moisture content	50 - 65 % m/m / Grip test 3-4
Minimum duration	6 weeks where temperature and moisture are within the above ranges
Minimum number of turns	1 turn during the stabilisation phase.

The typical batch size is: 350m3, with minimum expected size: 100m3, and maximum expected size when combined: 450m3.

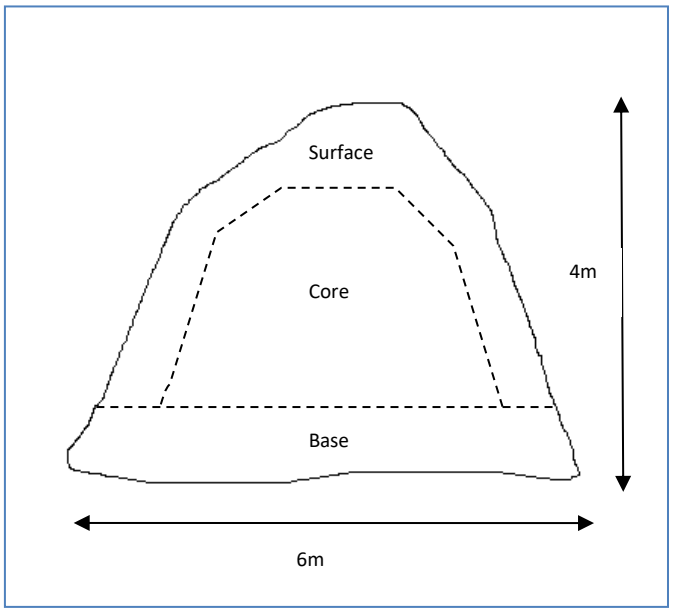

Figure 1 - Typical Batch Size and Zones

Table 10 - Sanitisation Monitoring Locations and Frequencies

Parameter & batch zone	Process System	Monitoring point locations	Monitoring frequency
Temperature Core zone	Open-windrow	3 points per batch at 1m below windrow surface.	Daily
Moisture content	Open-windrow	3 points per batch at a minimum of 0.5m below windrow surface.	Daily

Table 11 - Stabilisation Monitoring Locations and Frequencies

Parameter & batch zone	Monitoring point locations	Monitoring frequency
Temperature Core zone	3 points per batch at 1m below windrow surface.	Weekly
Moisture content	3 points per batch at 0.5m below windrow surface.	Weekly

13.0 MATURATION

Not applicable.

14.0 READINESS FOR PRODUCT PREPARATION

Each shall be deemed ready for product preparation (see section 8) when evaluated as having completed the actively managed composting phase (see section 4.2), i.e.:

- complied with sanitisation criteria (see section 4.2); and
- complied with stabilisation criteria (see section 4.2).

If maturation is applicable to the grade/product type and carried out before product preparation (e.g. screening), the relevant batches or part-batches shall first complete their maturation phase and comply with any critical limits set (see section 5).

15.0 DEALING WITH NON-CONFORMING BATCHES

Any batch that does not completely undergo all applicable critical control points and/or fails to comply with any of the critical limits set in these Standard Operating Procedures shall:

- undergo corrective action then be evaluated for conformance to the relevant critical control point and critical limit criteria;
- undergo re-composting then be evaluated for conformance to the relevant critical control point and critical limit criteria;
- be dispatched from the site for use, processing elsewhere or disposal, with notification of PAS 100 non-conformance to the recipient as well as the nature of the non-conformity.
- in the event of a batch failing the Certification Body will be informed.

The corrective actions taken and the destiny of each non-conforming batch shall be recorded in the relevant record according to the type of non-conformity and the process step the non-conformity relates to.

15.1 Sampled and Tested Batch Fails

Any sampled and tested batch that does not conform to the Quality Policy's Table 1 quality criteria applicable to the compost grade shall:

- undergo corrective action then be sampled and tested in terms of the parameter(s) relevant for evaluating efficacy of the corrective action;
- undergo re-composting with or without addition of further input material as appropriate, then be sampled and tested in terms of the parameter(s) relevant for evaluating the efficacy of the corrective action; or

- be dispatched for use, processing elsewhere or disposal, and the recipient and regulator notified of the nature of its non-conformity with PAS 100.

The actions taken and the destiny of each such batch shall be recorded in the relevant SQCS document(s).

16.0 PRODUCT PREPARATION AND STORAGE

16.1 Screening

Screening of the compost shall be carried out with a CRS trommel and result in the following compost particle size grade:

- 0-10mm Soil improver
- 10 – 25 mm Soil Conditioner

The date(s) on which each batch is screened and its batch code shall be recorded on the 'Batch Screening, Maturation and Sampling Record Sheet'.

Oversize material coming off the screen shall only be re-composted if visual assessment confirms that physical contaminants will not adversely affect the composting process or prevent effective control of compost quality (as stated in the quality policy). Addition of oversize material to a batch of composting material shall only be carried out when it is being formed (see SOPs section 3.4), and this shall be recorded on the 'Batch Screening, Maturation and Sampling Record Sheet' for the new batch.

All oversize material passes through the decontamination line for mechanical/hand removal of contaminants as part of the screening process.

The screened compost shall be inspected by a site operative, in particular for physical contaminants. Any batch or part-batch suspected to fail any of the quality criteria subscribed to in the Quality Policy (i.e. PAS 100 and any other specification agreed in writing with the compost customer) shall be evaluated by the person responsible for compliance with PAS 100. If it is decided that the batch or part-batch does not comply with the requirements, it shall be subject to one of the options listed in section 7. Actions taken and batch code(s) shall be recorded, as specified in section 7.

16.2 Blending

Not applicable.

16.3 Bagging

Not applicable.

16.4 Product Storage and Batch Identification

Products are stored within the composting area on a sealed surface and contamination is prevented by regular inspection.

Each product batch shall be identifiable in its storage location by a marker that displays its unique product batch code.

Each product batch shall contain compost from no greater than 5 batches and may be stored for a maximum of 6 months before dispatch to the customer.

The product batches shall be stored such that access can be gained to each one and that the position of each is known.

If compost that complies with PAS 100 is included in any blended product(s) being stored (see 8.3), each batch shall be carry a marker that identifies the compost batch(es) within it.

17.0 COMPOST SAMPLING, TESTING AND EVALUATION

17.1 Compost Sampling and Testing

Compost shall be sampled and tested:

- when the batch has completed the composting process (including any maturation applicable to the grade/product type);
- after any product preparation (e.g. screening); and
- before any blending of the compost with other wastes, materials, composts, products or additives.

Samples shall be taken as per the British Standards Institution's BS EN 12579 and should be taken within 1 week after the minimum, total composting duration (sanitisation, stabilisation and, if applicable maturation) has been completed by the batch. Product preparation such as screening should be carried out within the 1 week after the batch due for sampling has completed its minimum, total composting duration.

The minimum frequencies for testing compost batch samples are stated in PAS 100 (section 13, table 2) together with the obligatory test parameters (section 14). The minimum frequency of sampling and testing applies to each individual compost grade for which PAS 100 compliance is claimed, or is intended to be claimed.

Any individual who carries out compost batch sampling shall first be appropriately trained. For each representative batch sample obtained, a 'Compost Sampling and Analysis Request Record Sheet', or equivalent record, shall be completed. A copy of each completed record sheet shall be filed as per the quality policy and the original completed record shall be sent to the laboratory with the sample.

17.2 Minimum Compost Quality and Sampled Batch Evaluation

Results for each of the tested compost batch samples shall be evaluated against the quality criteria subscribed to in the Quality Policy's Table 1, for the corresponding compost grade.

Any sampled and tested compost batch(es) or part-batch(es) that have failed to comply with any of the quality criteria subscribed to in the Quality Policy's Table 1 for the corresponding compost grade, shall be subject to one of the following options (as appropriate to whether the batch has been quarantined – see the 'Quarantine policy for sampled and tested compost batches' in section 10.2.2 of this SOPs):

- undergo corrective action then be sampled and tested in terms of the parameter(s) relevant for evaluating efficacy of the SQCS change or the corrective action;
- undergo re-composting with or without addition of further input material as appropriate, then be sampled and tested in terms of the parameter(s) relevant for evaluating efficacy of the corrective action; or

- be dispatched for use, processing elsewhere or disposal, and the recipient and regulator notified of the nature of its non-conformity with PAS 100. Such notification shall be recorded on the Test Failure Notification Form.

The action taken shall be recorded on the appropriate SQCS record sheet(s).

After validation, if a tested compost sample fails to meet the quality criteria subscribed to in the Quality Policy's Table 1 for the corresponding compost grade, the following actions shall be carried out and recorded on the 'Failed Batch Investigation Record Sheet', without undue delay:

- investigation of why the failure happened;
- decision whether the SQCS needs to be changed and if 'yes', the nature of the change;
- the nature of the corrective action undertaken if the SQCS is not changed;
- sampling and testing of extra batch(es) produced according to the changed SQCS or corrective action taken;
- checking the efficacy of the change to the SQCS or corrective action taken by evaluating the laboratory test results of the extra batch(es);
- determining the outcome of the investigation; and
- recording the investigation period (in addition to the above).
- The Certification Body will be notified of any batch failure.

18.0 PRODUCT LABELLING, DISTRIBUTION AND RECORDS

18.1 Product Labelling

Any graded compost batch(es) or part-batch shall only be distributed with claim of compliance with PAS 100 and the Compost Quality Protocol:

- if the compost grade is independently certified to PAS 100 and the Compost Quality Protocol;
- if the compost is from one or more batches or a part-batches that have been produced according to all applicable critical control points and their critical limits set in these Standard Operating Procedures; and
- all other requirements in PAS 100, the Compost Quality Protocol and REALCompost Certification Scheme Rules have been complied with.

N.B: Before validation, no graded compost batch(es) or part-batch shall be distributed with claim of compliance with PAS 100 and the Compost Quality Protocol.

Similarly, the above requirements apply to compost in any product carrying claim that the compost ingredient complies with PAS 100 and the Compost Quality Protocol.

Information supplied to the customer shall include the obligatory information required by PAS 100 and the Compost Quality Protocol, including declaration of conformance with PAS 100 and the Compost Quality Protocol.

18.2 Product Dispatch

18.2.1 General

Prior to dispatch, each load shall be checked to ensure information supplied to the recipient and kept on record by the compost is correct.

Compost from this composting process is supplied for use in the following markets:

- 0 - 10 mm grade amateur horticulture, soft landscape
- 10 – 25mm agriculture and soil grown horticulture

18.2.2 Quarantine Policy for Sampled and Tested Batches

Any compost batch(es) or part-batch sampled for lab quality analysis, shall be quarantined on site until results from the laboratory are received and evaluated. However, if space limitations make it impossible to do this at any time, such batches or part-batches shall only be dispatched for use as non-PAS material (e.g. landfill cover) or for disposal. If it has failed, appropriate action as stated in section 7.2 of the SOPs shall be taken.

18.2.3 Compost Use in Agriculture and Soil-Grown Horticulture

Compost that is supplied for use in agriculture and soil-grown horticulture shall be dispatched, stored and used according to the Compost Quality Protocol's 2012 Appendex F

18.2.4 Vehicle Cleanliness

The cleanliness of the parts of mobile plant that will be in contact with the compost, or product that contains it, shall be inspected by a site operative. Before product is loaded up, the transportation vehicle shall also be inspected for cleanliness, especially the surfaces that will be in contact with the product.

If unsuitable for contact with loose or packaged product, the mobile plant and/or transportation vehicle shall be cleaned or not used. If a vehicle is judged to be unclean, a record shall be made of vehicle identification details, the date and actions/outcome in the site diary.

ANNEX C – PAS100 HACCP V10

HAZARD ANALYSIS AND CRITICAL CONTROL POINT

March 2021

(Issue 10)

Produced For: AWO Recycling Limited

Document Reference	AWOHPv11
Prepared By	Ben Dyson
Approved By	Thomas Bedford

CONTENTS

19.0 SITE LOCATION

19.1 Site Address

A.W.O. Recycling Limited
Bury Land Farm
Ramsey Heights
Ramsey
Huntingdon
Cambridgeshire
PE26 2RU

Telephone: 07753 786200

20.0 THE TEAM RESPONSIBLE FOR COMPLIANCE WITH BSI PAS100:2018, THE COMPOST PROTOCOL AND REAL'S CERTIFICATION SCHEME RULES V9

Name	**Job Title**	**Role**	**Training (see site Training Records)**
Thomas Bedford	Director	Responsibility for Company compliance with BSI PAS 100.	WAMITAB BSI PAS100 training
Daniel Bedford	Director	Responsibility for Company compliance with BSI PAS 100.	WAMITAB BSI PAS100 training
Katy Carter	Accounts Receivable	Site Compliance	BSI PAS100 training
Daniel Charman	Site Operative	Site operations	BSI PAS100 training
Kevin Fountain	Site Operative	Site operations	BSI PAS100 training

21.0 INTRODUCTION

This document forms the HACCP plan for the AWO Recycling Ltd Composting Facility.

The scope of the 'PAS 100' HACCP plan is to ensure that the compost produced from this composting process is safe to use and fit for its intended purposes. This HACCP shows compliance with the BSI PAS100 Specification and the rules of the Compost Certification Scheme. It is a systematic assessment of human-, animal- and plant-health hazards and quality hazards associated with intended uses of the compost material.

22.0 HACCP FOR PAS100:2018

22.1 Compost Products

Feedstock Type	Product Type	BSI PAS100 Grade	Particle Size	Intended End Market
Source segregated organic waste. See SOP.	Agricultural Soil Improver	Principal Grade	0-10mm	Landscaping and soil borne horticulture
Source segregated organic waste. See SOP.	Agricultural Soil Improver	Principal Grade	10-25mm	Agriculture

22.2 HACCP analysis

For each hazard that has potential effect on compost product quality or the grades detailed in section 3.1; the process has been worked through step by step to identify:

- whether there is a step that controls the hazard;
- whether there is a Critical Control Point (CCP) for that hazard;
- the operating limits (Critical Limits) for the CCP that will control the risk of the hazard;
- how the CCP can be monitored;
- what can be recorded to show that it has been operated effectively;
- corrective actions for if something is found to have gone wrong; and
- measures for verifying that the CCP is operating effectively.

All personnel whose activities affect the composting process or hazards and other items covered in Table 1 (See section 2.0) are appropriately trained. Accordingly, Table 1 does not include such training, either as a control measure or corrective action.

This HACCP assessment is reviewed as part of the annual management review (see the quality policy and SOP document). This is to ensure it stays up to date with customers' needs, processing technologies, input materials, and any new hazards that emerge.

23.0 HACCP PRINCIPLES

HACCP is a system which identifies specific hazards and specifies measures for their control. The system consists of seven principles or stages, as follows (and as detailed in PAS100 Specification for composted materials).

PRINCIPLE 1 – Conduct a hazard analysis

Conduct a hazard analysis by preparing a flow diagram of the steps in the process, identifying the hazards and control measures that are already in place.

PRINCIPLE 2 – Determine the Critical Control Points (CCPs)

Determine which of the existing control measures are critical or where additional measures are required, and thus define the Critical Control Points (CCPs) for the process using a CCP Decision Tree.

PRINCIPLE 3 – Establish Critical Limit(s)

Establish Critical Limits (CLs), which must be met to ensure that each CCP is under control.

PRINCIPLE 4 – Establish a system to monitor control of the CCP

Establish a system to monitor control of the CCP by schedules testing or observations.

PRINCIPLE 5 – Establish corrective actions

Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.

PRINCIPLE 6 – Establish procedures

Establish procedures for verification to confirm that the HACCP system is working effectively.

PRINCIPLE 7 – Establish documentation

Establish documentation concerning all procedures and records appropriate to these principles and their application.

5.1 Process Steps

Step 1: Waste Reception
Step 2: Batch Formation
Step 3: Sanitisation
Step 4: Stabilisation
Step 5: Screening
Step 6: Screening
Step 7: Sampling/Batch quarantine (One batch sampled every 2500T of production)
Step 8: Batch sign off and Product dispatch

5.2 Identification of Hazards

Following a team assessment of the composting process and the resulting compost products intended use, the main categories of hazard have been identified as follows:

Table 1. Identified Safety and Quality Hazards

Hazard type	**Description**
Physical	Physical contaminants present in the compost such as glass, metal, plastic, sharps, stones. These could cause: • Injury to staff/end users when handling product • damage to processing equipment • harm to animals/wildlife and the environment where the compost has been spread • objectionable compost appearance
Chemical	Potentially toxic elements (heavy metals), pesticides and herbicides, toxic compounds present in some plant species (yew, ragwort, rhododendron etc). These could cause: • Potential harm to human/animal health through contamination of crops grown in compost. • Environmental pollution where compost is used. • Damage to plants/crops through phytotoxic elements in compost.
Biological	Bacteria and pathogens that are potentially harmful to human and animal health pathogens (*e.coli, salmonella*); weed seeds and propagules. These could cause: • Risk to human/animal health if crops grown in the compost are eaten raw. • Spread of weeds and invasive plant species.

	• Spread of harmful bioaerosols whilst compost is being handled/spread.

23.3 Reference Material

The following published material has been used to inform this HACCP:

- Compost quality and safety for agriculture, WRAP summary report, January 2017.
- Further safety and quality references cited in the production of BSI PAS100 (2018).

24.0 TABLE 1: HACCP ANALYSIS

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Waste Reception	***Physical;*** 1. plastic, 2. glass, 3. metal, 4. concrete and consolidated mineral fragments (e.g. rocks and stones), and 5. other non-biodegradable items.	Waste acceptance criteria is in place and vigorously enforced. Unsuitable material is subject to a load rejection policy. Input load only progresses to batch formation if most of any physical contaminants (litter/contrary material) are removed prior to composting. Compost screening.	CP1. Waste acceptance and reception.	Litter/contrary material on the surface of each load accepted does not exceed the percentage limit stated in the SOPs (see guidance in SOPs). All composted material screened as per SOPs.	Checks that site personnel visually inspect every input load delivered. Contracts / agreements with 'green waste suppliers resources and quality. Checks that site personnel inspect every load delivered. Screen mesh has suitably sized apertures. Customer complaints policy in place to monitor the presence of PC's in compost products.	If CL is exceeded, reject load. If within CL, accept load and remove sufficient physical contaminants to ensure that screened compost (all particle size grades) complies with PAS limits and contains no hypodermic needles. Use screen mesh with smaller apertures and/or change screen speed (update SOPs accordingly). Compost known or suspected not to comply dealt with as per SOPs. Contaminated compost received by customer dealt with according to customer complaints procedure.	Record of whether load is accepted or rejected, and if latter, reasons for rejection. Records of communications with 'green waste' suppliers. Records of product preparation. Records of any complaints from compost users or those in the compost supply chain. Record corrective action on batch appraisal sheet. Compost dispatch notes and Contracts of Supply in place.	Compost test results do not exceed physical contaminant (plastic, glass, metal, other consolidates) upper limits in BSI PAS 100:2018. No hypodermic needles reported present. No customer complaints regarding compost quality.

Process step	**Hazards (Safety and Quality)**	**Control measures**	**CCP or CP No.**	**Critical limit**	**Monitoring procedures**	**Corrective action**	**Record**	**Verification / *Comment***
Waste Reception	***Physical Continued*** 6. sharps	Input load only accepted if most of any physical contaminants (litter/contrary material) are removed prior to composting. Removal of any hypodermic needles found present.	CP1. Waste acceptance and reception.	Litter/contrary material on the surface of each load accepted does not exceed the percentage limit stated in the SOPs (see guidance in SOPs). No hypodermic needles.	Checks that site personnel visually inspect every input load delivered. Contracts / agreements with 'green waste suppliers re sources and quality. Customer complaints policy in place to monitor the presence of PC's in compost products.	If CL is exceeded, reject load. If within CL, accept load and remove sufficient physical contaminants to ensure that screened compost (all particle size grades) complies with PAS limits and contains no hypodermic needles. Compost known or suspected not to comply dealt with as per SOPs.	Record of whether load is accepted or rejected, and if latter, reasons for rejection. Record of communications with 'green waste' suppliers. Records of any complaints from compost users or those in the compost supply chain. Contaminated compost received by customer dealt with according to customer complaints procedure.	Compost analysis shows absence, or negligible incidence, of sharps. No hypodermic needles reported present. No customer complaints regarding compost quality.

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Waste Reception	***Chemical;*** 7. wood treated with preservatives, 8. plant materials treated in the same growing season with composting-resistant herbicides, pesticides or insecticides, 9. plant materials from 'heavy traffic' highways. 10. Plants containing toxins (Rhododendron, Yew, ragwort and hemlock)	Re 7: Visual inspection, rejection of load, or acceptance of load followed by removal of treated wood. Re 8: Acceptably low risk (diversity of sources and dilution with cleaner inputs); control measures unnecessary. Re 9: Acceptably low risk due to dilution with cleaner inputs; control measures unnecessary. Re:10 :Visual inspection, rejection of load, or acceptance of load followed by removal of toxic plants	CP1. Waste acceptance and reception.	Re 7: Absent. Re 8: Not present in significant quantity. Re 9: Not present in significant quantity. Re 10: Not present in significant quantity. See SOPS for guidance	Re 7 to 10 Checks that site personnel inspect every input load delivered. Customer complaints policy in place to monitor any complaints arising from the toxicity of compost products.	Re 7: Compost from windrows known or suspected not to comply dealt with as per one of options in SOPs. Re 7, 8 , 9 and 10 : remind staff and suppliers of the policy, contract arrangements and control measures; cease accepting loads from a particular source if contamination is known to have occurred repeatedly and supplier has not attempted corrective action or action has been ineffective.	Green waste supply agreements, contracts, communications with suppliers, and any other documents providing instructions or feedback on these topics. Record corrective action on batch appraisal sheet. Compost deemed to contain toxic material received by customer dealt with according to customer complaints procedure.	Re 7 and 9: Compost analysis shows compliance with PTE (heavy metals) in BSI PAS 100:2018. Re 8:9 and 10 Plant response to compost when tested at laboratory shows no abnormalities and germination and growth performance exceeds minimum in BSI PAS 100:2018. No customer complaints regarding compost quality.

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Waste Reception	***Biological;*** 11. weed propagules (e.g. weed seeds and other plant parts that regrow) in compost (those species that may survive good practice composting).	Visual inspection of each input material load for Japanese Knotweed. Reject and send any loads that contain it to a licensed landfill.	CP1. Waste acceptance and reception CCP1. Sanitisation and stabilisation	Japanese Knotweed and identifiable toxix plant species absent from all input loads accepted for composting.	Contracts / agreements with green waste suppliers resources and quality. Checks that site personnel inspect every input load delivered. Visual checks of compost quality. Customer complaints policy in place to monitor any complaints arising from the toxicity of compost products.	If accepted load was subsequently found to have contained Japanese knotweed, composting batches containing it are disposed in a licensed landfill. Improve thoroughness of load inspection checks. If Japanese knotweed found in a compost batch, the entire batch is disposed in a licensed landfill.	Contract and records of communications with 'green waste' suppliers. Record of load rejection. Records of any complaints from compost users or those in the compost supply chain. Record corrective action on batch appraisal sheet.	Compost analysis shows compliance with plant propagule (weed parts) limit in BSI PAS 100:2018. No Japanese Knotweed in compost, visible from on-site checks or reported by laboratory. No customer complaints regarding compost quality.
	Guidance: Under Schedule 9 Part II of the Wildlife & Countryside Act (1981) it is an offence to plant, or otherwise cause to grow, Japanese knotweed in the wild. It does not qualify for exemption of Section 34 of the Environmental Protection Act 1990, but is considered as controlled waste.							

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Sanitisation and Stabilisation	***Biological;*** 12. plant pathogens in compost (those species that may survive good practice composting). *Guidance: Research indicates that BSI PAS 100:2018 recommended composting conditions for the sanitisation phase eradicates most plant pathogens (with the possible exception of Tobacco Mosaic Virus).*	Suppliers asked to exclude plant materials known or suspected to contain such plant pathogens, where possible. Waste reception and inspection procedures.	CCP1. Sanitisation and stabilisation	Resistant plant pathogens absent. Compost users and those in compost supply chain warned.	Checks that plant input material suppliers appropriately instructed, and compost users and those in the supply chain warned if necessary.	Resend instructions and warnings, clarify if necessary. Remind staff and suppliers of the policy, contract arrangements and control measures. Cease accepting loads from a particular source if contamination is known to have occurred repeatedly, (especially with Tobacco Mosaic Virus) and supplier has not attempted corrective action or action has been ineffective.	Records of any complaints from compost users or those in the compost supply chain. Records of any other corrective actions carried out. Record corrective action on batch appraisal sheet.	Plant response test to compost carried out as per BSI PAS 100:2018, shows absence of plant disease – suitable verification for plant species with same disease susceptibilities as tomato plants. No incidences of plant disease as a result of compost use, reported by end users.

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Sanitisation and Stabilisation	***Biological;*** 13. plant pathogens and weed propagules in compost (those species *unlikely* to survive good practice composting).	Composting conditions and duration sufficient to kill or reduce plant pathogens to within acceptable levels.	CCP1. Sanitisation and stabilisation	Sanitisation phase: temperature and moisture levels and turning frequency as per SOPs. Stabilisation phase: minimum duration of composting and number of turns as stated in SOPs.	Monitoring of composting conditions (temperature, turns and moisture) as specified in SOPs. Results of monitoring equipment calibration (see SOPs).	For batches which are near to completion of composting: if records show deficiencies or compost is suspected not to comply with PAS limits (see verification) it will be dealt with as per SOPs. For batches starting / in-progress, adjustment - according to operator experience - of C:N and porosity of shredded mix, windrow size, windrow shape, water added, frequency of turning etc (as per SOPs).	Composting windrow record sheet and evaluation sheet. Records of maintenance and calibration of monitoring equipment. Records of any complaints from compost users or those in the compost supply chain. Record corrective action on batch appraisal sheet	Compost analysis shows: compliance with plant propagule (weed parts) limit in BSI PAS 100:2018; absence of disease in plant response test in BSI PAS 100:2018. No customer complaints regarding compost quality.

Process step	**Hazards (Safety and Quality)**	**Control measures**	**CCP or CP No.**	**Critical limit**	**Monitoring procedures**	**Corrective action**	**Record**	**Verification / *Comment***
Sanitisation and Stabilisation	***Biological;*** 14. human and animal pathogens in compost (those species unlikely to survive good practice composting).	Same as for 13.	CCP1. Sanitisation and stabilisation	Same as for 13.	Same as for 13.	Same as for 13.	Same as for 13.	Compost analysis as specified in BSI PAS 100:2018: Maximum of 1000 CFU g^{-1} *E. coli*; *Salmonella* spp absent in 25 g. No customer complaints regarding compost quality.

Process step	**Hazards (Safety and Quality)**	**Control measures**	**CCP or CP No.**	**Critical limit**	**Monitoring procedures**	**Corrective action**	**Record**	**Verification / *Comment***
Sanitisation and Stabilisation	***Biological;*** 15. pathogens in liquor (leachate plus rainwater run-off) applied to windrows after sanitisation phase.	Composting on impermeable surface engineered to ensure liquor is captured. Liquor only added to batches during batch formation phase.	CCP1. Sanitisation and stabilisation	Liquor is not added to windrow after phase described in SOPs.	When liquor is added to windrow.	Windrow to repeat sanitisation phase or dealt with as per another option in SOPs.	Composting windrow record sheet and evaluation sheet. Record corrective action on batch appraisal sheet.	Compost analysis for 'indicator species' as specified in BSI PAS 100:2018: Maximum of 1000 CFU g^{-1} for *E. coli*; and absence of *Salmonella* spp. in 25 g of product. No customer complaints regarding compost quality.

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical Limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Sanitisation and Stabilisation	***Biological;*** 16. it containing volatile organic acids, 17. microbial activity at a rate sufficiently high to create adverse conditions for plant roots.	Ensure aerobic composting for at least the sanitisation and stabilisation durations stated in SOPs.	CCP1. Sanitisation and stabilisation	Compost has been stabilised and matured (if appropriate) for the minimum duration specified in the SOPs.	Temperature of stabilising batch. Subjective assessment of compost smell, by experienced operative. Earthy compost smell when stabilised and matured (if applicable), absence of acrid malodours.	Review batch formation and shredding/mixing procedures. Aerate batch and extend sanitisation phase for batch. If CL not met or above corrective action not taken, batch dealt with as per SOPs. Management review of need to change SOPs for any compost grade.	Records of: duration each batch was sanitised, stabilised and matured (if applicable) for; monitoring assessments; destiny of non-conforming batches; and any complaints from customers or those in the compost supply chain. Record corrective action on batch appraisal sheet.	Compost complies with quality requirements in BSI PAS 100:2018 - plant response tests - stability test (CO_2 evolution) - plus any more stringent stability result agreed with the customer for 'mature' compost grade(s). Refer to Quality Policy. No customer complaints regarding compost quality.

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical Limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Sanitisation and Stabilisation	***Biological;*** 18. Hazards 15, 16 and 17 occurring due to insufficient moisture in windrow and biological decomposition process stalling.	Add water as per SOPs.	CCP1. Sanitisation and stabilisation	As per SOPs.	Windrow monitoring as described in SOPs. Composting mass temperatures show trend of decline.	Turn windrow or Incorporate water into windrow using method stipulated in the SOPs.	Composting windrow record sheet and evaluation sheet. Records of any complaints received from customers or those in the compost supply chain.	Compost complies with quality requirements in BSI PAS 100:2018 - plant response tests. - stability test (CO_2 evolution).

Process step	Hazards (Safety and Quality)	Control measures	CCP or CP No.	Critical Limit	Monitoring procedures	Corrective action	Record	Verification / *Comment*
Batch Sign-off ahead of dispatch.	***Physical, Chemical and Biological*** 19. inconsistent compost quality.	Each batch record is signed off as BSI PAS100:2018 compliant ahead of dispatch.	CP2. Batch has achieved all critical limits as described in SQCS, or as per any additional criteria the compost customer requires.	Batch has achieved all critical limits as described in SQCS, or as per any additional criteria the compost customer requires.	Comparison of compost test results with quality criteria.	SQCS documents describe process for dealing with either failed or none conforming compost batches.	Each Batch is signed off as BSI PAS100:2018 compliant on compost batch record sheet.	All batch records signed off as compliant with BSI PAS100:2018 and any additional criteria prescribed by customers. Compost sample test results history shows acceptable quality consistency. No persistent customer complaints about inconsistent compost quality.

THIS MANAGEMENT SYSTEM DOCUMENT IS A WORKING DOCUMENT WHICH MUST BE UPDATED IN COMPLIANCE WITH PERMITTING REGULATIONS. THIS DOCUMENT WILL BE UPDATED AT LEAST ONCE EVERY FOUR YEARS (OR AS SOON AS PRACTICABLE AFTER AN ACCIDENT). THIS DOCUMENT REMAINS THE RESPONSIBILITY OF THE SITE OPERATOR/PERMIT HOLDER.

AMENDMENTS TO MANAGEMENT SYSTEM

The Permit Holder will give the Environment Agency prior notice in writing of any proposed changes.