Site Drainage Plan

ENVAR COMPOSTING – WEST LONDON COMPOSTING SITE
OCTOBER 2024

1 Contents

Sampling and Monitoring Plan – Envar Composting Cambridge

1 Introduction

1.1 Scope of the plan

This plan forms a part of the on-site ISO 14001 accredited integrated management system (IMS). It is a summary of all of the sampling and monitoring which is undertaken on the site. Including all monitoring which is required for regulatory purposes and that which is undertaken for in house systems and control purposes and under which timescales that monitoring is agreed and when it should be submitted to the EA or other required regulatory body.

The updated records and scheduling are kept on the electronic compliance management system which is maintained within the Envar processes and managed by the in house SHEQ team. Records shall be made available to relevant regulators where such a requirement is requested, and those powers exist.

Revision History

Reviewer	Change Log	Date
James Cooper	New Document	25/10/2024

1.2 Site Description

The West London Composting (WLC) site is located on the outskirts of the greater London area on Newyears Green Lane just outside of Uxbridge. The site is a tipping point for collected green wastes which are collected from the Hillingdon and wider West London areas. These wastes are brought here for treatment are shredded to reduce the particle size and blend the material then they are placed into rows where microbial breakdown stabilises, sanitises and prepares the material for reuse as an organic matter-based soil improver on local farms and through supply to compost blenders and soil blenders as a peat replacement product.

The composting process is a net user of water. For every tonne of green waste material that is handles on site between 200 and 400 litres of water is lost as it evaporates to

atmosphere because of the heat generated by microbial activity. The process requires water for the effective formation of a biofilm on the particle surface and the effective breakdown of the composting waste.

Without water there are several issues the composting process will face:

- lack of microbial activity (no breakdown)

- lack of ability to dissipate heat from the composting mass leading to risk of fire etc

- dust

The composting process and the sites which process the materials into compost are designed to maximise the amount of water they can hold, contain, store and re-use within the process. The process water need not be clean so in most cases potable water is only used as a last resort. This reduces the burden on the water grid but also on the flood risk off the site.

This report goes on to detail how the site is designed to maximise water capture and storage ability, ensure the site can effectively manage in an emergency and to detail the maintenance requirements of the plant which handles water on site.

1.3 Site Setting

The location is just south of Bayhurst woods to the East of the nearby catchment boundary for the tributary to the Harefield Lake number 2. The closest tributary of main watercourse to the site is relatively short in length starting in the wooded area near “Deadman’s Grove” and possibly being fed by springs at the nearby Ashain and Scarlet springs. The nearby tributary once drained to the lake No.2 ends up in the Grand Union Canal through the Lock or the Frays River, eventually feeding the Thames before discharge to the North Sea.

The surrounding and sub surface geology is heavy London formation clay which is at significant depth, and which has been used to form the underlayer and the bunded sides of the site.

The area sites in a low point in the landscape and is bunded to reduce visual impact.

- Address:

West London Composting Limited
Newyears green lane
Uxbridge
UB9 6LX

- Grid Reference: TQ 07095 88166

- What3Words (front gate) /// hood.film.chain

1.4 Sources of Liquid Requiring Management

1.4.1 Rain/surface water

Liquids on the site come mainly from rainfall and are made up of rain surface water which has dissolved humic compounds in it. The humic compounds and slightly elevated nutrients come from the percolation of the rain through composted and composting materials. They turn the water a brown colour but generally have little odour of affect on the nature of the liquid. The rainwater is collected and requires to be stored prior to use.

1.4.2 Foul & Grey Water

Foul water and grey water from welfare cabins and offices shall be either stored in a septic tank, compliant to the standards in place at the point of purchase ready for collection and disposal at the appropriately licenced site or shall be discharged to foul sewer should a connection be possible.

1.4.3 Potable water for fire purposes

Potable water shall be stored on site only and shall not be discharged

1.4.4 Roof water

Roof water shall be directed into the surface water management system and reused in composting operations

2 Drainage System

2.1 Overview

There is no off-site drainage from this site or the supporting buildings/infrastructure

There are no soakaways or discharge to ground water from this site or the supporting buildings/infrastructure

The drainage system is made up of a sloped surface which is shaped like a bowl. All surfaces are designed to direct water towards the centre of the site. There is no underground pipework or drains. All infrastructure is above ground and forms part of the integral site surface.

2.2 External Site Area

Drains, drainage channels and pipework are not best suited to be used on commercial composting sites. The nature of our business is such that the pipes, gullies and drains get blocked with coarse organic matter within a few days if not hours. For this reason, we use the site surface layout to direct water towards its storage destination. This involves the site surface and the bunding around the site which consists of walls, kerbs and bunds.

The concrete surface features sealed construction joints after its development in a bay formation. All water is channelled to the centre west of the site for collection within the drainage systems.

Appendix A shows the construction design details of these components

Appendix B shows the Tank formation for the new tanks

Appendix C shows the tank design and detail of the new glass fused steel coated tanks

Appendix D shows the pumping and water delivery arrangement for the surface waters

Appendix E shows the overall site layout regards rainwater collection

Appendix F shows the tank construction details

Appendix G shows the parabolic screen design

Appendix H is the pump system specification

2.3 Rainwater/Surface Waters

Once the rain/surface water is captured by the site it flows towards the cast channel which collects the flow. This is the primary filter screen for contaminants and is formed of cast into the slab “Lego blocks” which are set to have a 15cm gap between them. Water flows between them into the graded channel and any large items are left behind.

The channel then falls towards a central catchment sump which has within it two screens. These screens capture a large 5cm fraction and a smaller 2cm fraction. The screens are graduated to maximise continuous flow and minimise the chance of blockage.

Once the water is collected in the central sump it is then pumped through a high bypass pump which can pump the material to a head which is enough to pump over the height of the tanks. The high bypass allows for solids of up to 60mm to be pumped through the system which minimises risk of blockage.

The outfall of the pipework is over a parabolic screen. The parabolic screen sits above the main site and out of the drainage area so as debris is not recirculated and is easily cleared. An accessway allows access to the parabolic screen should it be required.

The screen has mesh which is sized at 0.2mm. this mesh filters by gravity the remaining solids from the water. Gravity then moves the water into the tank, through the roof via gravity where it is stored.

2.4 Tank System

The tanks on site and to be built are glass fused epoxy steel tanks built for the purpose of holding these materials they are extensively used in the field of waste recycling and anaerobic digestion. Botlted tanks which are build from the ground up and mastic sealed they are sturdy and able to contain a large amount of water. They are rooved to provide structure and minimise any potential for odorous emissions.

The tanks are linked via an 8” stainless steel (DN200) flanged and sealed connection point at the top of the tank all four of the tanks are connected and drain by gravity from tank one to tank 4. IS as tank one is full it overflows to tank 2 then tank 3 followed by tank 4.

Water is removed from the tank by a double valve at the base of the tank. The double valves are installed as a failsafe (in series) so as there is an available backup in the case of valves becoming stuck, broken or leaking by.

2.5 Roof Drainage

There are very minimal cabins and canteens on site, and they are premade modular buildings with flat rooves. The water which lands on the rooves of the buildings will simply be channelled towards the floor where it shall be incorporated into the site wide drainage system and become part of the rain storage system as described in 2.3.

3 Secondary Containment Systems

The site is designed to comply with the requirements of UK BAT, the Environment Agencies “Appropriate Measures” guidance and is designed by a competent engineer following the guidance in CIRIA 736. This risk assessment methodology informs the design of the site and ensures that it can maintain integrity under a reasonable wort case scenario of loss of primary containment.

3.1 Clay Bunds

The clay bunds, kerbing as shown in the relevant appendices, and the sealed construction joints form a sealed secondary containment area in the centre of the site. The maintenance of these bunds for the lifetime of the site is important in managing the risk.

3.2 Diesel and Fuel Tanks

All diesel tanks shall feature secondary containment as per the Control of Pollution (Oil Storage) (England) Regulations 2001

- These regulations specifically address oil storage and apply to above-ground oil storage facilities with a capacity over 200 Liters for domestic use and 3500 Liters for commercial/industrial use.
- They require that oil storage containers are within secondary containment (e.g., bunds or drip trays) capable of holding 110% of the largest container's volume or 25% of the total storage volume, whichever is greater.
- The regulations also mandate maintenance, inspections, and specific requirements for the design of containment systems to prevent leaks and minimize risks.

There are no stores of fuel oil for the purposes of heating as all cabins are supplied by electricity. There is one fifteen thousand litre storage tank which follows the regulations and in fact shall benefit from tertiary containment also as the whole site forms the third bund.

4 System Management

4.1 Monitoring

Regular inspections shall be undertaken of all the plant which handles water including the surface and the actual site itself IE the concrete, the sealing joints the pumps, screens and tanks.

These shall be undertaken at a varying frequency and requirement depending on the level of risk. Inspections may be internal or external and be visual or using instrumentation as and when necessary.

- Daily the site supervisor shall conduct a visual check of the drainage infrastructure which shall be recorded in the site diary
- A weekly supervisors inspection check list shall consider further the requirements of the drainage system and check for functionality as well as clearing all screens
- A monthly managers check calls for a more in depth look at the systems including the opening and closing of valves and a check and clean of the parabolic screen
- Managers shall check the surface integrity of the site surface monthly and report, for repair, any areas of damage or where the seals are damaged or coming loose.
- Annual inspections of tanks by a competent engineer shall be undertaken and reported under the PUWER inspection scheme
- 10 yearly or as required in any subsequent report an engineer shall use specialist equipment to assess all steel tanks for coating thickness and structural integrity.

4.2 Routine Maintenance

The system shall require routine maintenance and periodic repair. The system is simple in its design and therefore these tanks may be undertaken periodically and in response to the checks as required. The below table shows which tasks shall be undertaken and when as part of the routine maintenance regime:

Component	Maintenance Required	Detail	Period
Main catch channel	Clean	The main channel should be cleaned out mechanically or by hand to prevent debris build up and potential blockage/overtopping	Weekly
Debris Screens	Removal and clean	The debris screens should be removed during dry weather and completely cleaned out	Weekly
Sump	Drain down and clean	The sump screens should be removed during dry weather and completely cleaned out	Monthly
Pump	Check	Check clear at the same time as the sump clean	Monthly
Parabolic Screen	Clean	Remove debris and check for damage	Weekly
Tanks 1-4	Entrance, inspection and removal of sediment	Full tank entry and inspection removing built up sludge or debris	10 yearly or as per manufacturer's instructions
Valves on Tanks	Open & close	Fully open and fully close valves to ensure they are not sticking and operate the way they should	Weekly
Generators	service	Every 500 hours or as per the manufacturer's instructions	500 hours or as per manufacturer's instructions

4.3 Management Review

Any information relating to the drainage systems which has been raised as an opportunity for improvement (OFI) or near miss (NM) shall be discussed and reviewed as part of management review. Any further actions required shall be implemented and this report changes. Should this report require an update the new version shall be disseminated and stored within the site management systems.

Regulators, planning officials and other interested parties may be granted a copy upon request of the current in-service plan.

Any changes to the drainage and storage layout or methods shall trigger a review of the plan

Records or maintenance, inspections and checks shall be maintained for the lifetime of the site or as per regulatory required timescales.