

Our ref: SW/LTP/02



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Dear Mr Ford

BY EMAIL ONLY

Shortwood landfill – Planning application for the development of Leachate Treatment Tank, ancillary infrastructure and associated feed pipes connecting to foul sewer

Following a review of the leachate management procedures and associated discussions with the Environment Agency and Wessex Water, Enovert are seeking to install a leachate treatment plant, and associated structures and feed pipes within a fenced compound at the Shortwood landfill site. A planning application for this development has today submitted to South Gloucestershire Council via the Planning Portal (reference PP- 12020480).

Background

As you are aware, the site stopped taking waste in July 2021 and the capping of the site is now at an advanced stage. However, the production of leachate through the natural degradation of the biodegradable element of the waste within the landfill is expected to continue for many years.

Leachate at the Shortwood landfill site is currently managed by recirculation within the contained landfill, with excess leachate discharged to the foul sewer under a Trade Effluent Discharge consent by Wessex Water. However, due to constraints on the sewer network and having reviewed the properties and quantity of leachate being produced, it is now considered that the most effective and sustainable way to manage the leachate produced is via a dedicated leachate management plant. This would use the existing leachate pipework within the body of the landfill to draw off the leachate, it would then be pumped to a biological treatment tank prior to controlled discharge (and specified chemical and nutrient quality) to the foul sewer.

Proposed Development - Leachate Treatment Tank, infrastructure, associated feed pipes and fencing

The site context of the leachate treatment facility is provided in Plan 1 submitted as part of the planning application, which shows the location of the facility within the wider Shortwood landfill site.

Plan 2 shows the proposed layout arrangement for the leachate treatment facility, being sited within part of the site assigned for use as the Site Management Area, as detailed on approved drawing SWQ015.

Plans 3 - 4 provide elevations of the main elements of the proposed development, being the main process tank (Sequence Batch Reactor tank – SBR), 4 vertical high-density polyethylene (HDPE) storage / balancing tanks, caustic tank, water tank, control cabin and fencing. Details of which are set out below.

Main Process Tank

As detailed on Plan 3, the main process (SBR) tank located in a cutting excavated to some 2m below surrounding ground level and will be 13.63m diameter and 6m overall height; due to being within a cutting the top (roof) of the tank will be 4.2m in height above adjoining ground level. It is proposed that the tank will be finished with natural concrete side walls. The base and sidewalls of the cutting are to be lined with a geosynthetic clay liner (GCL); on the base, the GCL will be overlain with a drainage geotextile (terram) onto which will be a hardcore subbase of some 300mm and concrete tank base of 225mm thickness. Around the base of the tank will be a leak detection system incorporating monitoring points.

Storage / Balancing Tanks

4 vertical black HDPE storage/balancing tanks for pre and post treatment. The tanks will be of 3.45m diameter and 3.65m height. They are to be sited within a rectangular bunded area on a base 0.7m below ground level; the tanks will be 2.95m in height relative to adjoining ground level.

Caustic Tank

A self-bunded cylindrical caustic tank made of glass reinforced plastic (GRP), measuring 3.10m in diameter and 3.69m high and finished in black.

Water Tank

A GRP water storage tank measuring 1m x 1m x 1m high and finished in white. This water is to be used for cleaning purposes.

Control Cabin

A small control cabin and parts store measuring 6.25m x 2.44m x 2.7m high and finished in dark green. This will house control panels for the main process tank control system and any electrical components or spare parts required for the process.

Compound Fencing

It is proposed that the compound will be enclosed with a 1.8m high Taurus or similar design boundary fencing to provide security, safety and prevent unauthorised access. Within the fence will be two 1.8 m high vehicular access gates, also of Taurus or similar design fencing. These will be locked shut except when access is required. The compound fencing and gates will be maintained and retained until the treatment plant is no longer required.

Surfacing

As identified on Plan 2, the compound will be surfaced with concrete or similar. The internal surface of the bunded tanks will also be concrete and drain to a sump. From the sumps, the drainage will be fed to the main process tank and used in the process, prior to discharge to sewer in accordance with the Trade Effluent Discharge Consent standards. No foul drainage will arise at the compound.

Treatment Process

The following provides an overview of the leachate treatment process proposed at the site.

Leachate will be extracted from the landfill into the feed balancing tanks; the balancing tanks serve to regulate the flow into the main process tank. Transfer to the main process tank is by a small pump and associated pipe work; sensors within the main process tank ensure leachate is only supplied when there is receiving capacity.

The main process tank contains micro-organisms which, in aerobic conditions (i.e. with oxygen present), digest both the ammoniacal nitrogen in the leachate and the resulting nitrate and nitrite bi-products. Whilst in the main process tank, if necessary due to the varying character of the leachate being treated, the contents may be augmented with additives to ensure consistency of the treatment process is maintained regardless of fluctuations in leachate quality; augmentation is controlled by internal sensors, meters and a small, automated pump during the operation and can be supplemented by manual addition. These additives control and regulate the pH, alkalinity and ammoniacal strength within the process tank.

The main process tank is fitted with two internal electrical submersible aerator which draw air from the atmosphere and disperses it into the tank contents – this provides the oxygen needed for the aerobic digestion process to occur. The aerators work in tandem or isolation depending on the concentration of the dissolved oxygen in the tank, maximising treatment whilst minimising energy use. The batch cycle is controlled by an automated control panel which is interfaced with a site based computerised control system.

At the end of the sequence, discharge is gravity fed via an Electronic Actuated Valve (EAV) to a discharge balancing tank. The discharge balancing tanks are fitted with an external pump which pumps the treated liquid at the appropriate rate to the foul sewer.

The whole process is known as a Sequence Batch Reactor (SBR). The treatment process itself is contained within the main process tank and managed using a fully automated monitoring and control system, which can also be accessed remotely from site. This leachate management process will be monitored by Wessex Water and also the Environment Agency as the regulatory body who will require controls and monitoring throughout the life of the facility.

Environmental Considerations

Noise and Vibration

The potential noise levels generated from an on-site leachate treatment facility was considered as part of the 2003 Environmental Statement (Chapter 12), where noise levels were assessed as being likely to be indiscernible at nearby residential properties since the majority of noise emitting infrastructure would be containerised. This is still the case for the proposed development, and therefore this assessment is still valid.

There are no potential sources of vibration from the plant. Consequently, vibration concerns do not arise.

Odour

Potential odour generation from an on-site leachate treatment facility was also assessed within the 2003 Environmental Statement, which at paragraphs 14.69 and 14.70, gave the following assessment:

“14.69 The leachate treatment plant will be located in the southeast corner of the site, on the site management area. The leachate will contain dissolved odorous substances which may be released to air, particularly if the leachate is agitated. The design of the leachate treatment plant has yet to be finalised and the method used to treat leachate will be developed given regard to Environment Agency guidance. The treatment plant will also be regulated by the Agency under the PPC permitting regime. Connection to the local sewer network may provide an alternative to on-site treatment of leachate.”

14. 70 Relative to local sensitive receptors the leachate treatment plant is remote and is not considered likely to result in significant odour nuisance”.

Enovert has developed the design for the proposed leachate treatment facility in accordance with the latest Environment Agency Guidance, and in consultation of local Environment Agency officers to ensure ongoing compliance with the sites Environmental Permit. Therefore, this odour assessment is considered to still be relevant to the current proposals.

Transport

Management and monitoring of the site and treatment process will be undertaken by Enovert staff. This will involve 4 - 5 inspection visits each week. Telemetry links will also provide for remote monitoring. Vehicular access will be required for monitoring purposes, comprising one light van.

Deliveries will consist of a monthly visit by a small tanker to deliver caustic, and there will be regular monitoring visits by Wessex Water to sample the discharge.

Inside the entrance to the compound sufficient space is provided for the temporary parking of a service vehicle, as and when required.

Landscape

The nearest sensitive receptors are the residential properties to the south (300m) and southeast (360m) of the site, however the location of the proposed leachate treatment facility will be well screened by the existing and established woodland that lies in between. Views from residential properties to the north and northwest of the site from Emersons Green and The Rosary would be screened by the landform of the landfill.

Being located within a visually screened location the development will not be an intrusive or conspicuous feature within the wider landscape, nor will it adversely impact upon the wider landscape character.

Access to and maintenance of the facility will normally take place during daylight hours, therefore the facility will not need to be permanently lit at night. In the event night-time lighting is required this will be achieved using portable site lighting that will be directed specifically onto the work area. The lights would be low intensity, inward and downward orientated and fitted with light shields, to prevent light spillage and glare.

In view of its location, design and minimal lighting requirements, views of the proposed development from potentially sensitive locations are absent and it is considered that the compound will be an inconspicuous feature within the wider landscape.

Ecology

There are no designated sites of ecological value either on the application site or within close proximity.

The application site comprises a small area of cleared and disturbed ground that has been used as an ancillary site compound, used for the temporary storage of site plant. It has periodically been cleared of vegetation and is regularly crossed by vehicles and plant. Immediately outside the site are vehicle circulation haul roads.

Upon the decommissioning of the facility the compound will be cleared of plant and associated infrastructure and will be fully restored in accordance with the approved restoration scheme.

Flood Risk

The application site is within Flood Zone 1 and therefore not considered to be at risk from flooding from rivers or sea and falls outside the extent of an extreme flood. The likelihood of flooding each year from rivers or the sea is 0.1% (1 in 1000) or less.

Site Drainage

No foul drainage will arise from the facility. The compound will be surfaced in concrete (or similar impermeable surface) and drain to a sump. The internal surface of the bunded tanks will also be of concrete and drain to a sump. From these sumps, the drainage will be fed to the main process tank and used in the process. Using this surface drainage in the process will ensure it meets the standards required by the Discharge Consent prior to its discharge to the foul sewer.

Protection of Ground and Surface Water

The drainage system for the development has been designed to ensure that ground and surface waters are protected through:

- The leachate, at each stage through the process, will be contained within tanks.
- The pre and post treatment storage/balancing tanks are within a bund with the capacity to hold 110% of the tank contents, ensuring that, even in the event of total failure of a tank, the contents will be retained within the bund and will not escape into the wider environment. Any rainwater (or leakage) accumulating within the bund is collected and fed into the main process tank to ensure that when it is discharged it meets the requirements for discharge to the foul sewer.
- The main process tank is of concrete construction built to Construction Quality Assurance standards approved by the Environment Agency. The content of the tank is of low polluting potential therefore it is unnecessary to provide bunding to the process tank given the low risk associated with a tank of this construction. Although bunding is not proposed, the base and sidewalls of the excavation - within which the tank will sit – will comprise a geo-synthetic clay liner onto the underlying clay. Above this the base will include a terram drainage geotextile and 300mm sub-base onto which is a 225mm concrete plinth that forms the base of the tank. Around the circumference of the tank is a leak detection system. Through this design, should any leakage occur it will be detected through monitoring and contained by the sealed base and sidewalls pending remedial works.
- The caustic additive will be stored within a purpose designed self-bunded (i.e. twin skinned) GRP tank to prevent any escape of the contents.

The measures used above would ensure that if a leak occurred it would be identified, contained, and managed through the process without causing pollution of the ground and surface water environment. The potential for leaks to occur would be minimised through routine scheduled maintenance, including regular checks of tanks, bunds, pipe work, seals and couplings and their repair and / or replacement.

The compound will not be used for the storage of mobile plant and vehicles, consequently the risk of diesel, oil or other fuel leaks or spillage would be minimised.

The handling of caustic is undertaken in accordance with COSHH procedures under health and safety procedures contained within the company's Integrated Management System and a spillage control kit will be retained at the site for use in the event of a spillage.

Restoration

When the requirement for the leachate treatment facility comes to an end, which will be determined through agreement with the Environment Agency under the sites Environmental Permit – the plant, compound and associated fencing will be removed, the ground re-instated to marry in with adjoining levels using clean soil and the area restored in the next available planting season with a damp grassland seed mix in accordance with the approved Restoration Masterplan for the site, drawing 8.1a dated 11.05.10.

Policy Considerations

The National Planning Policy for Waste identifies the importance of the planning system in ensuring that the disposal of waste is undertaken without harming the environment, that the proximity principle is satisfied, that where possible use is made of previously developed land, that significant adverse impacts of a development do not arise.

The proposed development meets these considerations; it serves to protect the environment from otherwise potentially harmful emissions of leachate, is located at the source of the material being processed consistent with the proximity principle, uses previously developed land and would not give rise to harmful effects on the environment and amenity.

The application site is located within the wider Shortwood landfill site, which lies within the Green Belt. An integral element of a landfill site is the management of leachate, and with this the provision of appropriate infrastructure.

In relation to Green Belt, Section 13 of the National Planning Policy Framework (NPPF) addresses Green Belt policy at the national level, stating that:

'the fundamental aim of green belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of green belt are their openness and their permanence'. (para 137)

Safeguarding the openness, permanence and purposes of Green Belt land also underpins Green Belt policy at the local level, as set out within the South Gloucestershire Local Plan, which at Policy CS5 (part 6c) requires that proposals for development within the green belt will need to comply with the provisions in the NPPF or relevant local policies within the Core Strategy.

In considering the conformity of the proposal with policy guidance on Green Belt, consideration is given both to whether very special circumstances exist; and then an assessment as to whether such circumstances clearly outweigh the potential harm caused by the inappropriateness of the development and any other harm.

From a locational viewpoint the proposal:

- Is at the source of the waste to be treated, namely the leachate generated at the landfill.
- Is directly related to the landfill operations on the wider site, forming an integral part of the existing leachate management system at the Shortwood landfill site.
- Will provide the necessary pre-treatment of the leachate prior to its discharge to the foul sewer.

- Treating the leachate on site avoids the necessity to tanker it off site for treatment elsewhere, avoiding unnecessary vehicle movements.
- Is consistent with the thinking at the time of the original planning application and Environmental Statement, which assessed a leachate treatment compound within this location on the site.
- The compound would occupy a discrete location within an already developed part of the wider site.
- And is a temporary activity with the land to be cleared and restored in accordance with the restoration scheme for the site, consistent with maintaining the long-term openness of the Green Belt.

The proposed development would not cause harm to any of the purposes for which Green Belt is designated nor to the positive role encouraged for the Green Belt. Furthermore, the proposed development would not harm the fundamental aims of the Green Belt, in that it will not cause urban sprawl nor have any permanent impact on the openness of the Green Belt.

In assessing other potential harm to the Green Belt, the detail set out within this letter considers a range of environmental and amenity aspects of the proposal, including visual and landscape. It confirms there will be no identifiable harm arising from the development and that the compound will be restored to open use when the development is no longer required.

Consequently, potential for harm is considered to be clearly outweighed by other considerations and very special circumstances exist to permit this proposal from a Green Belt viewpoint.

Conclusion

This proposal is for a small process plant and compound to treat the leachate produced at the Shortwood landfill site. It will be processed in a manner that is consistent with legislative requirements and improved environmental standards, with the efficient use of resources and with the use of Best Available Technology. The facility, which will be located within the boundary of the existing landfill site, is well screened visually, uses the existing access, avoiding the need for road transport of the leachate.

Treatment of the leachate is an integral and essential environmental element of a modern landfill operation. The facility is now needed to treat the leachate produced by the landfill to ensure it meets the enhanced quality standards required by Wessex Water for it to be discharged to sewer.

If you would like to discuss any aspect of the above application, please do not hesitate to contact me on 01785 251555.

I look forward to hearing from you in due course.

Yours sincerely,

A handwritten signature in black ink, appearing to read "S Holland", with a stylized flourish at the end.

Sarah Holland
Planning Manager