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Treatment technologies assessment

To make sure that the Deephams Sewage Works Upgrade significantly improves the quality of the treated wastewater that flows into the Salmon's Brook, we need to choose the right treatment technology to meet the new standard set by the Environment Agency.

We used a structured approach to assess the large number of possible treatment technologies available and identify suitable options for the Deephams Sewage Works Upgrade. We will review these options again based on feedback from this consultation and expert advice from the contractors we will employ to build the upgrade.

Longlist of treatment options

We started by looking at the different types and combinations of treatment technologies that are currently in use at sewage works in the UK and across the world that would allow us to meet the new treated wastewater standard set for the upgrade.

We then developed example plans and possible layouts showing how some of the feasible treatment technologies would fit onto an empty example site.



We were then able to estimate the following for each technology:

- How big a site would need to be
- What it would cost to build
- How long it would take to build
- What it would cost to run

This allowed us to assess and compare the advantages and disadvantages of each treatment technology by using a number of different criteria, including:

- If it had been used to meet a similar wastewater treatment standard
- If it had been used at a sewage works of a similar scale to Deephams Sewage Works
- How long it would take to build
- How much it would cost to run

- How much energy it would use
- How many suppliers of the technology are available
- How much odour it would produce and how easy it would be to control

Shortlist of treatment options

We added the outcomes of this assessment to those from our assessment of possible sites (see the 'How we searched for suitable sites' leaflet) and used the professional judgement and experience of our project team to match suitable treatment options to each of the shortlisted sites (see the 'Shortlisted sites' leaflet).

Potential treatment options for our preferred site

The initial results of our assessment of potential treatment technologies showed that we need to look in more detail at the following three potential options for treating sewage at our preferred site:

1. Conventional activated sludge to treat all of the sewage
2. Integrated Fixed-film Activated Sludge (IFAS) to treat a third of the sewage and conventional activated sludge to treat the remaining two-thirds
3. A Membrane Bio-Reactor (MBR) to treat a third of the sewage and conventional activated sludge to treat the remaining two-thirds

Our assessment showed that these three processes can all meet the new, tighter water quality standard for treated wastewater that has been set by the Environment Agency, at a reasonable cost to our customers.

Conventional activated sludge is the most commonly used technology at large sewage works worldwide and is the process we currently use at Deephams Sewage Works.

Using IFAS or a MBR to treat a third of the sewage at the upgraded works would mean that less land would be needed for the upgrade, as the treatment tanks required for this part of the treatment process would be smaller. There is only a small amount of spare land available on our preferred the site at the moment and using treatment technologies that need less land will make it easier for us to build the upgrade at the existing Deephams Sewage Works site and leave space on the site for any further development in future.

We are always looking for new solutions and innovations and, as these technologies become available, we will assess their advantages and how we might be able to use them for the upgrade.

No decisions have been taken on the treatment options at this stage. We will use feedback from the phase 1 public consultation and from our ongoing scheme design development work, to inform our decisions on preferred treatment options for the upgrade.

For an explanation of how we treat your sewage and more information on conventional activated sludge, IFAS and MBR, please see the 'Treatment options' leaflet.

Find out more

Visit our consultation website:

www.deephamsconsultation.co.uk

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