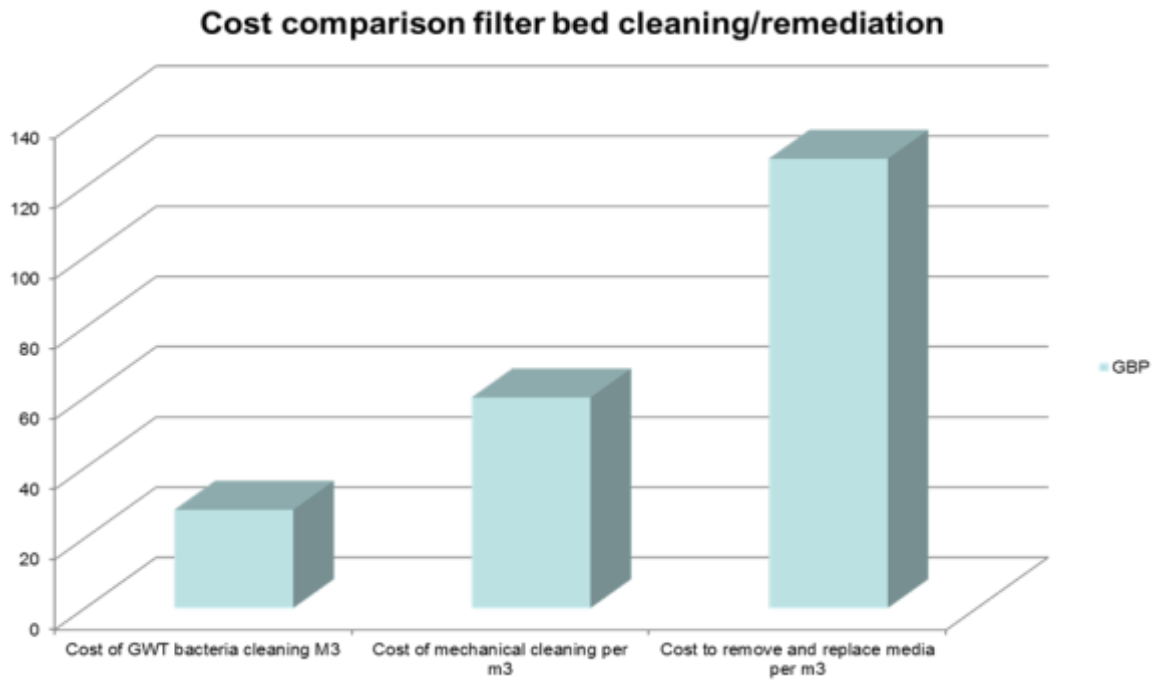
Filter bed cleaning programme

Greener Waste has developed an intensive, manual bacteria programme to clean filter beds with a great deal of success. Utility companies are now starting to use the programme as a natural, green solution to blocked and over loaded filters.

The process involves hand spreading a patented mixture of bacteria onto the surface of the beds and flushing it through with final effluent over a dedicated project period. The flushing and addition of bacteria allows the consumption of excess organic solids and opens up the gaps between the media to enable efficient passing of oxygen through the bed.

This process helps to improve treatment by supporting the naturally occurring bacteria and ensures that the bed is at treatment capacity throughout the process (no lag time between completion of the clean and the bed performing fully). The flushing procedure takes place during the day and the filter can be put back online overnight to ensure they continue contributing to treatment on site.

Currently the common method of cleaning media is mechanical and involves digging out the media to clean it on site or replacing it with new media. However this method is costly; requires considerable site disruption and the need to take the filters off line for long periods of time. The cost analysis of the various options is shown below:



Mechanical cleaning is likely to cause structural damage to the filters making also replacing the drainage tiles and occasionally walls or other structural components necessary. Greener Waste

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Technology offers a way of treating the filter bed media in situ, without effecting the site compliance.

The below case study from a utility which demonstrates how the Greener Waste Technology intensive cleaning option can help:

The above picture shows the surface of the filter beds at the site. This particular site has a substantial weed problem. We were asked to intensively clean one of the beds to remove the accumulated organic content and remove the weed and surface plants to allow cleaning to take place. The following pictures show the various stages of the process including weed removal, spreading of bacteria and flushing:

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Start of weeding process

Weeding of the beds

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First half cleared and dosed

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3 quarters of bed cleared and dosed

Bacteria being flushed by distribution

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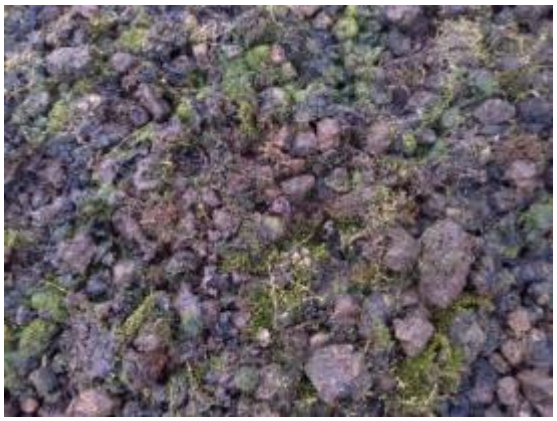
Manual flushing



Un-cleaned media weed removed

Cleaned media after intensive process

The above pictures show the various stages of the process including the removal of the weed and the bacteria dosing. You can see from the comparative pictures above how different the media looks after the cleaning is complete, our aim is to reduce the sludge and create a thin bio film which allows the bed to work at its optimum and creates the right environment for the naturally occurring bacteria in the bed.

If there are no issues with load at the front end of the system, the beds will remain in optimum condition and Greener Waste Technology are happy to provide a warrantee if the rest of the process works efficiently.

There were concerns on this project that the site compliance would be in jeopardy as soon as we started to remove the thick weed blanket, however the log book shows that we kept the site in consent throughout the clean and stabilised ammonia results even with a bed offline during the day.

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During the flushing process we returned the liquors to the head of the works so the bacteria carried over helped to support the other filters whilst cleaning took place.

The following results show how compliance was not affected during the clean, the date highlighted in red is the date we started the intensive filter bed cleaning:

Date	BOD	Ammonia
31/07/2012	1	1.3
01/08/2012	1	0.6
02/08/2012	1	0.7
03/08/2012	1	1.4
06/08/2012	1	0.9
07/08/2012	1	0.7
08/08/2012	1	0.5
09/08/2012	1	0.4
10/08/2012	1	0.8
11/08/2012	1	0.4
13/08/2012	**1**	**0.7**
14/08/2012	1	0.7
16/08/2012	1	0.4
17/08/2012	1	0.5
18/08/2012	1	0.7
20/08/2012	1	0.3
21/08/2012	1	0.1
22/08/2012	1	0.8
23/08/2012	1	0.2
24/08/2012	1	0.2
25/08/2012	1	0.3
27/08/2012	1	0
28/08/2012	1	0
29/08/2012	1	0
30/08/2012	1	0

The results on site actually improved slightly as we cleaned the bed and the below results show the difference between the bed we cleaned and those yet to be cleaned. This data is from the period of 3rd Sept to the 1st of Oct 2012 and the bed clean was completed on the 31st of August, this data demonstrates performance after the clean had taken place:

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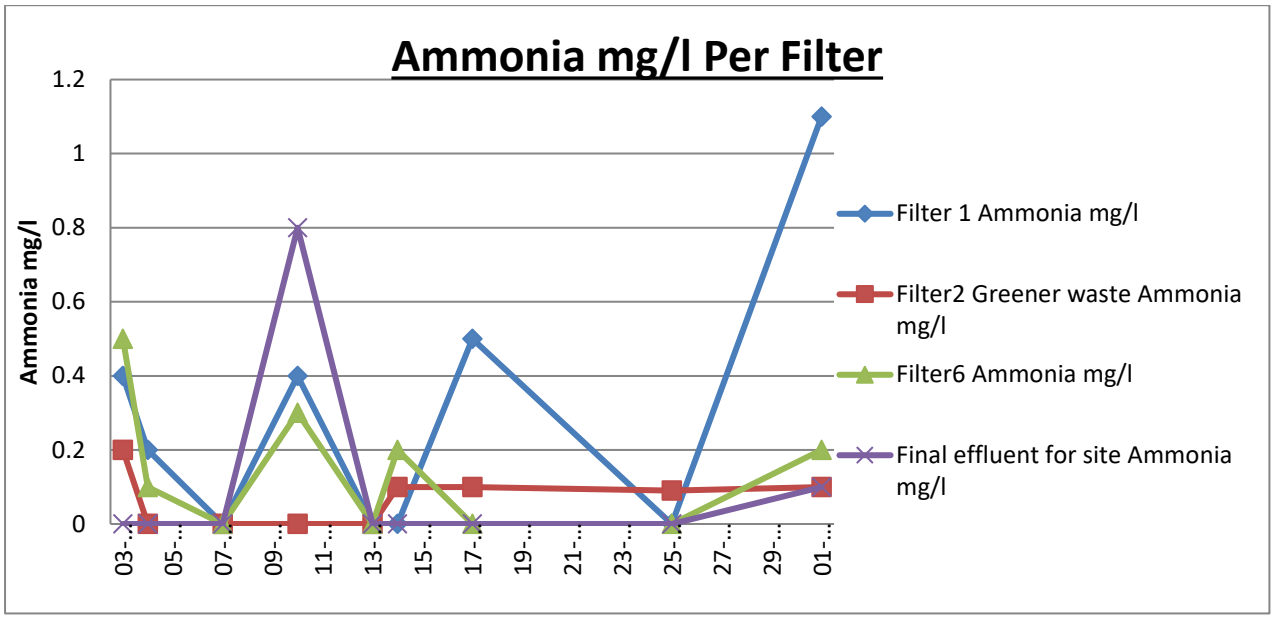

These results are provided by the utility, the site was not a bad performer in terms of nitrification but with the bed clean we were able to stabilise peaks in performance and create more level results which in turn created a more stable and predictive treatment system.

It is also worth noting that previous attempts to lift the weed from the surface of these filter beds had caused severe issues with site compliance so it can be assumed that under normal circumstances the removal of such large volumes of weed can cause consent issues. The above intensive cleaning trial shows how, with our bacteria treatment, consent issues are avoided.

The below picture is how the site looked in the months following the filter bed cleaning trial.

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