NUNNYKIRK HALL
ENCLOSURE 4

FOUL DRAINAGE PLAN

Nunnykirk Hall
Nunnykirk
Morpeth
NE61 4PB

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Clenviro - Matrix CLF 6

The Clenviro MATRIX CLF6 System is a high-performance wastewater treatment system, designed for treating wastewater from up to 40 people. The system features a unique combination of aerobic and anaerobic treatment technologies. It also includes a settling tank, an anaerobic digester, and a biological filter, ensuring effective and efficient treatment.

The MATRIX sewage treatment system is designed to achieve the minimum required effluent quality standard of 20mg/litre (BOD) : 30mg/litre (SS) : 20mg/litre Ammoniacal.

The certified performance of the MATRIX system is that it produces an average final effluent quality of 11mg/litre (BOD) : 16mg/litre (SS) and 7mg/litre Ammoniacal. This relates to an average efficiency ratio of 96.2%.

The Matrix treatment system is a three stage biological process contained within a single tank structure, based on the principles of a submerged bed reactor and designed in accordance with the requirements of BS6297.

OPERATING SEQUENCE

The MATRIX Sewage treatment plant is specifically designed to treat domestic sewage and other biodegradable waste in a simple and compact system comprising three basic stages, namely:

Primary settlement
Biological Filtration
Final settlement

The MATRIX system utilizes microorganisms growing on the surface of the filter media to breakdown the sewage.

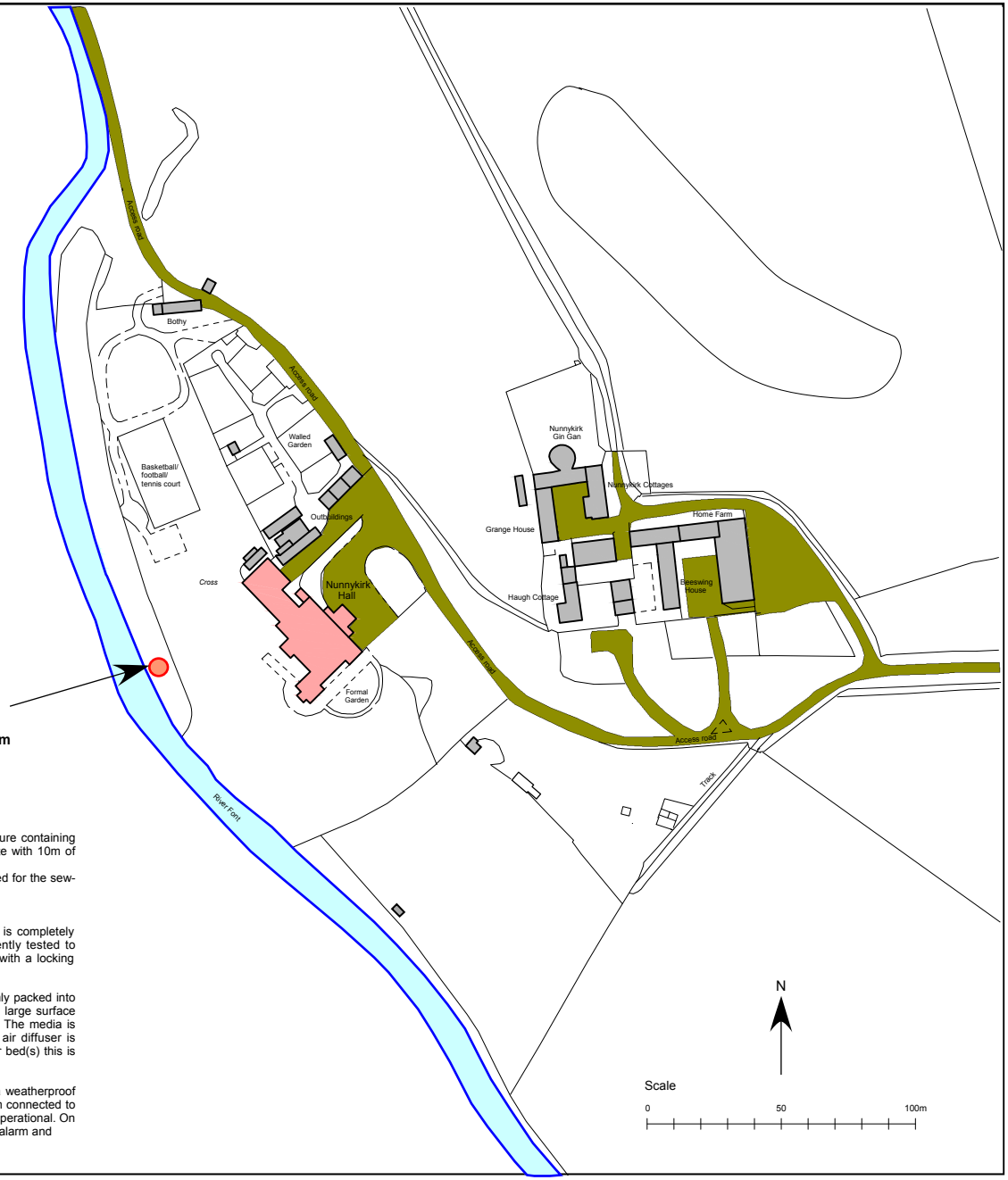
Raw sewage flowing to the CLF unit is received in the primary settlement zone. Here, gross solids (primary sludge) settle to the bottom of the tank, where they remain until the tank is desludged as described in the Maintenance Schedule, section 6 of this manual. The settled sewage displaced from the primary zone then flows into the submerged filter zone, passing under a scum baffle.

Flow circulation in the submerged filter zone is generated by the hydraulic effect of the outlet air diffuser. This causes settled sewage entering the filter zone at high level to be drawn down through the media, aerating the sewage in the process. The flow circulation ensures that the influent sewage receives several passes through the filter bed at low flow.

In the filter zone, as the sewage passes over the filter media it is purified by micro-organisms growing on the surface of the media. Growth of these micro-organisms results in an excess which is shed as solid particles known as humus solids. Humus solids settling at the bottom of the filter zones are recirculated with the flow of incoming sewage and are deposited on the top of the primary settlement zone.

Sewage displaced from the submerged filter zone flows via a DIP pipe into the humus settlement zone. Liquid displaced from the humus zone has now been fully treated and is known as final effluent. It is suitable for discharge to a watercourse or soakaway as defined in the consent to discharge issued by the Environment Agency.

Humus solids from the final settlement tank are recirculated to the primary tank via the recirculation pipework. This helps reduce the sludge build up in the humus tank and prevents stagnation during very low inflow.



MATRIX SYSTEM

The MATRIX system comprises the CLF treatment unit itself and an enclosure containing an air blower unit with a mains power connection point and comes complete with 10m of airline and a failure alarm, as standard.
CLF Unit This comprises a single tank containing all the components required for the sewage treatment
process.

The CLF tank is manufactured in Elite Fabrication Grade Polypropylene. It is completely impervious to water and sewage and has been designed and independently tested to ensure a robust construction and a long service life. The tank is provided with a locking manhole cover providing access to all parts of the unit.

The submerged filter beds comprise of plastic pieces of filter media, randomly packed into the tank. The media is made from UV stable polypropylene and provides a large surface area on which the bacteria, required for the purification process, can grow. The media is supported on an open mesh panel fixed above the base of the tank. An air diffuser is installed into the submerged filter bed(s) and is located underneath the filter bed(s) this is connected to the external air supply (blower) by uPVC pipework.

The blower is mounted along with its associated electrical controls inside a weatherproof enclosure. The electrical controls comprise an isolator and a loss of air alarm connected to an external beacon which will provide a visual warning that the blower is not operational. On models with a pumped discharge fitted there is also a high level/pump failure alarm and beacon.

This is an A4 sized map and should be printed full size at A4 with no page scaling set.