CRAG FIELD TRIP TO WARKWORTH WATER TREATMENT PLANT

WATER INTAKE

Factors Affecting Water Quality

Water quality can be affected by various factors, including seasonal and weather variations. Changes in temperature, precipitation, and runoff can influence the amount and types of contaminants in the water.

Barriers and Eel Screens for Debris and Fish

Barriers and eel screens are used to prevent debris and fish from entering the water treatment process, thereby improving the efficiency and effectiveness of the treatment process.

Turbidity (clarity) at water intake is around 5.

CLARIFICATION TANKS

Water is added to clarification tanks where chemicals such as aluminium sulphate, lime, and poly-electrolytes are added to remove impurities from the water.

Coagulants

Coagulants are chemicals that are added to water to promote the formation of flocs, which are clusters of impurities that can be easily removed through the sedimentation process.

pH Adjusters

pH adjusters (lime) are added to water to achieve the optimal pH range for coagulation and sedimentation to occur effectively.

Turbidity output is 0.5

SEDIMENT REMOVAL AND SLUDGE MANAGEMENT

Sediment Removal

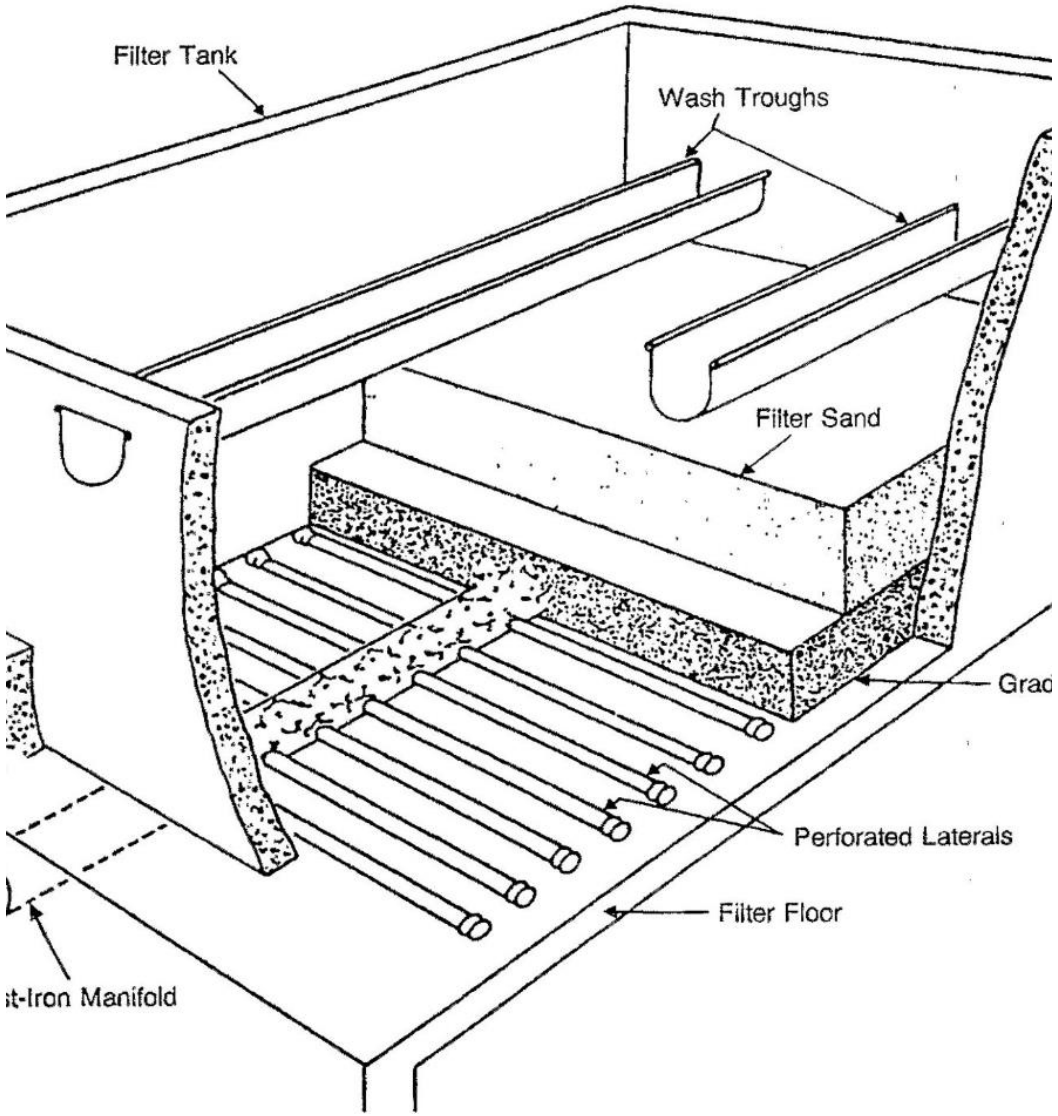
Sediment is removed from the water during the clarification process to improve water quality. This process removes harmful pollutants, suspended particles, and other contaminants from the water.

Sludge Management

Sludge is a byproduct of water treatment and must be managed properly to ensure that it is properly disposed of. This process involves treating the sludge to remove harmful pollutants and pathogens before it can be safely disposed of.

Algae Control: Tent Covering of Clarification

TanksCovering the clarification tanks with a tent can prevent sunlight from reaching the water and control the growth of algae.



RAPID GRAVITY FILTER TANKS

Rapid gravity filter tanks are used to remove impurities from water that were not removed during the clarification process. These tanks use gravity to filter water through a bed of sand or other granular material.

Regular backwashing, annual maintenance and 5 years media replacement.

Testing is automated and automated text triggered if anything is out of agreed specification. Testing is 24/7

Turbidity is reduced to 0.1

GRANULAR ACTIVATED CARBON (GAC) AREA

GAC area added in the 2000s further enhanced the filtration process to ensure that water is safe and clean for consumption.

This area focuses on the removal of pesticides

CHLORINATION TO REMOVE VIRUSES AND BACTERIA

Chlorination is the final step in the water treatment process where chlorine is added to the water to remove viruses and bacteria, making it safe for consumption

SLUDGE TREATMENT PLANT VISIT

Sludge Treatment Process

The sludge treatment plant is responsible for treating sludge produced during the water treatment process. The process includes dewatering, stabilization, and disposal of the sludge.

Polymer addition is a common technique used to treat sludge in wastewater treatment plants. This process creates a sludge cake, which can be used for various purposes.

Suffolk University is conducting research on sludge utilization to find new ways to use the sludge that is produced during the water treatment process.

This research aims to contribute to waste reduction and find more sustainable ways to manage sludge.