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BIEW WASTEWATER TREATMENT PLANT AT SALEM DISTRICT

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ABSTRACT- The Bharathiyar Institute of Engineering for Women, Deviyakurichi, Salem District is one of the most important educational institutes in the state of Tamilnadu with a large number of people residing in its campus consisting of a number of laboratories of various departments, residential units, Academic blocks and number of hostels. The college is located in the midst of greenery fields along the Salem-Chennai National Highway (NH79) in an educationally conducive environment. The Main purpose of this study is to focus on domestic waste water characterization of entire college campus and followed by the Design of Sewage treatment plant for the campus. The present study involves the analysis of waste water characteristics like pH value, total solids, total suspended solids, hardness, acidity, alkalinity, chloride, chlorine, BOD, DO and heavy metals such as, Magnesium, Nickel, Chromium, Lead, Calcium, Aluminium, Silicon, Potassium. A sewage waste and removes the materials which pose harm for general public. Its objective is to design a wastewater treatment plant to produce an environmentally-safe fluid waste stream suitable for disposal or reuse (usually as farm fertilizer).

Index Terms: wastewater, treatment plant, domestic sewage,

I INTRODUCTION

Sewage treatment is the process of removing the suitable for discharge to the environment or for reuse. Waste water treatment system such as bio filter scan be used to treat sewage close to where it is created. Operating conditions and process carried out influence the amount and characteristics of the by products both quality and characteristics from the Domestic waste. The composition of waste water from the same domestic waste the increasing flows of rural waste. in the areas are10 hectare in the bharathiyar institute of engineering for women. And supplying the amount of quantity of water per day one lakh litres of water. Wastewater are discharge in supply of water as per day eighty thousand litres of sewage wastewater is treated. And the treated water is used for agricultural purposes and drinking water.

The removal of organic matter from wastewater can be carried out by using various primary, secondary and tertiary treatment methods. In primary treatment, physical methods such as screening, sedimentation are used for removal of coarser and settleable such as biotowers and trickling filters or suspended growth processes such as activated sludge process are used of organic matter until the point at which chemical or biological cycles, even after stabilisation of the organic matter."

II MATERIALS AND METHODS:

2.1 SAMPLE COLLECTION

All water samples were collected from the bharathiyar institute of engineering for women inside the college campus during peak hours in the month of February. During the present study of components. The samplings of the domestic waste from College hostels and Kitchen to be collected in different times of the day to have an average data of the measured parameters. The laboratory tests to be carried out to find pit the average values of pH, Turbidity, Acidity, Chloride, Residual Chlorine, Hardness, Total Solid, BOD, DO, Alkalinity.

2.2EXPERIMENT SECTION:

After getting in all the laboratory results, comparison of values with standard recommended values as per norms is done. With the available results of waste water characteristics, the Sewage treatment plant (dimensions) for the college campus is proposed with the treatment units. Waste water treatment system such as bio filter scan be used to treat sewage close to where it is created. Operating conditions and process carried out influence the amount and characteristics of the by products both quality and characteristics from the Domestic waste. The samplings of the domestic waste from College hostels and Kitchen to be collected in different times of the day to have an average data of the measured parameters.

III RESULTS AND DISCUSSIONS

Based on the characteristics, the proposed design consists separation of solids and stabilisation of pollutants. In turn stabilisation means the degradation of reactions stop. Treatment can also mean the removal of toxic (for e.g. phosphorous) which are likely to distort sustainable biological components. .

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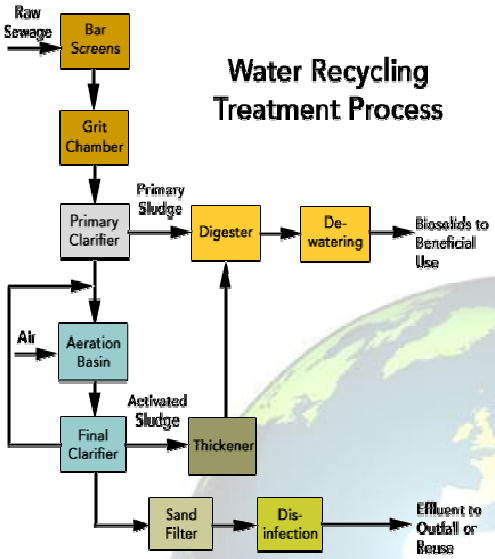

Screening:

It is the very, and consists of passing the sewage through different type such as piece of cloth, wood, cork, fire, kitchen , refuse fecal solids, etc.. present in sewage.

Grid chamber:

Grid chamber or grid channels as they are usually called, are the sedimentation basins placed usually after the fine screens and certainly, before the primary sedimentation tank.The grid chamber removes the in organic grid , such as sand, gravel, and other mineral matter that has a nominal diameter of 0.15 to 0.20mm or more Grit chambers are basin to remove the inorganic particles in sludge digestors.

Types of Grit Chambers:

Grit chambers are in ***mechanically cleaned*** grit chamber, scraper blades collect so collected is elevated to the ground level by several The grit washing mechanisms are also of several designs air to produce washing action. ***Manually cleaned*** grit chambers of cleaning is by means of shovel.

Aerated Grit Chamber:

Aeration tank provided with air diffusion tubes place down to the bottom of the tank at rates dependant upon the particle size and the bottom velocity of flow, which in turn depends on the rate of air diffusion through diffuser tubes and shape of aeration tank.

Flow diagram of proposed design

.Primary treatment:

It consists solely in the separating the floating materials(like dead animals tree branches, papers, pieces of rags, woods etc..) and also heavy settleable in organic solids. It also help treatment reduce the BOD of the wastewater, by about 15 to 30%. paper, rags, cloths , etc.. Grid chamber or Detritus tanks for removing grid and sand; and skimming tanks for removing oils and greases. Primary treatment consists in removing by sedimentation in settling basins.The liquid effluent suspended organic materials, and has a high BOD (about 60% of the original).Sometimes, the preliminary as well as primary treatments are classified together, under primary treatment .tanks (in primary treatment), are often stabilised by anaerobic residue is used for landfills or soil conditioners

Activated sludge process:

This process provides an excellent method of treating either raw sewage or more generally settled which is, thus normally utilised in this process, is mixed with 20 to 30% of own volume of highly active aerobic micro-organisms

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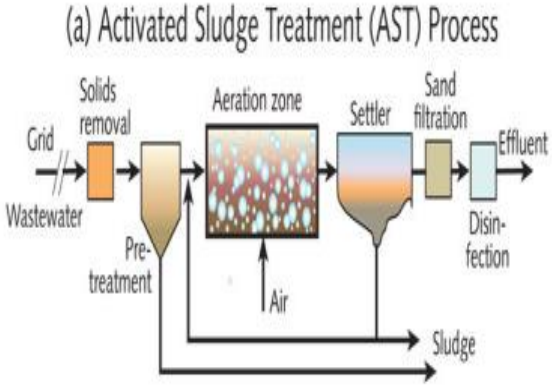

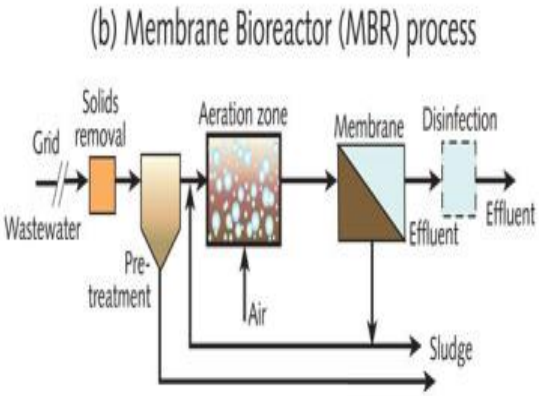

Secondary treatment:

The primary sedimentation decomposition of organic matter, which can be carried out units, bacteria will decompose the fine organic matter, to produce clearer effluents. the aerobic bacteria of known as aerobic biological units; and may consists of: (i)Filters (intermittent sand filters as well as trickling filters); (ii)Aeration tank the sludge which is settled in secondary sedimentation (iii) Oxidation ponds and aerated lagoons .Since all these aerobic are easily classified as secondary units.

The treatment by anaerobic consists of Anaerobic lagoons imhoff tanks, etc. Out of these units, only anaerobic lagoons , make us of primary settled sewage and hence only can be classified under secondary biological units. The effluent of the secondary (5 to 10% of the original) , and may even contain several milligrams tanks, will be disposed of by stabilising them under anaerobic process in a Sludge digestion tank.

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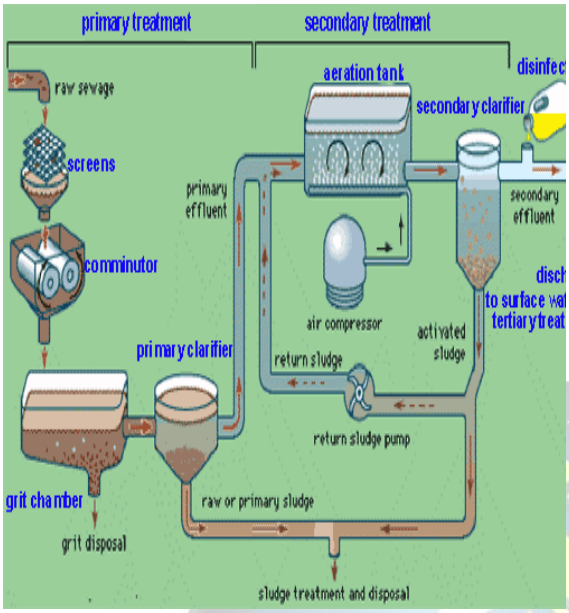

Disinfection

The disinfection in the treatment of waste water is to reduce the number of the environment usage of drinking, bathing, irrigation, of the water treated (e.g., pH, etc.), the type of disinfection and other environmental variables. Generally, effective disinfection, into the water cycle by means of the nearest body the water can be transferred to reserves for everyday human uses.

Chlorination remains the most common form of waste water disinfection in and long-term history of effectiveness. One disadvantage is chlorinated-organic compounds that may be harmful to the environment. Residual chlorine may also be capable of chlorinating organic material in the natural aquatic environment. Further, treated effluent must also be chemically dechlorinated, adding to the complexity and cost of treatment.

CONCLUSION:

The samplings of the domestic waste from College hostels and Kitchen to be collected measured parameters. The laboratory tests to be carried out to find pit the average values of pH, Turbidity, Acidity, Chloride, Residual Chlorine, Hardness, Total Solid, BOD, DO, Alkalinity. After getting all the laboratory results, was comparison of values with standard recommended values as per norms the Sewage treatment plant (dimensions) for the college campus is proposed with the treatment units.

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