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EDUCATIONAL FEDERATION
Varale Campus

Dr. D. Y. Patil College of Engineering and Innovation

Varale, Talegaon, Pune 410507

Sewage Treatment Plant (STP)

STP Capacity - 50 KLD

Dr. D. Y. PATIL
COLLEGE OF ENGINEERING AND
INNOVATION

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Need of Sewage Treatment Plant …

Water is the basic necessity of life used for many purposes. So, recycling water is necessary. Considering this in our mind, we have established a Sewage treatment plant in our institute with the assistance of ASMI ECO EQUIPMENTS. The treated water is utilized properly for watering the plants throughout the campus and also for irrigation purposes!

General Details of Sewage Treatment Plant

- STP Capacity **- 50 KLD.**
- Designed by **- ASMI ECO EQUIPMENTS.**
- Primary Filtration Unit **– Bar Screen Chamber.**
- Secondary Filtration Units **- Equalization Tank.**
- Tertiary Filtration Units - **Moving Bed Biofilm Reactor & Settling Tank.**

Working Principle of Sewage Treatment Plant …

1. The Sewage water from entire institute is received through the underground pipe lines.
2. It is passed through Bar Screen Chamber, Equalization Tank, Moving Bed Biofilm Reactor, Settling / Sedimentation Tank, Intermittent Tank, Treated Water Tank Storage.
3. In the **Bar Screen Chamber** floating material like rags, paper, plastics, and metals are removed to prevent damage and clogging of downstream equipment, piping, and appurtenances.
4. The **Equalization Tank** collects the incoming raw sewage that comes Bar Screen Chamber at widely fluctuating rates, and pass it on to the rest of the STP at a steady (average) flow rate.
5. In **Moving Bed Biofilm Reactor**, a biological process in which microorganisms or nematodes are used to decompose all the organic waste present inside the water. These cellular organisms consume waste & excrete a simple substance that can be easily filtered out in further stages.
6. The **Settling / Sedimentation Tank** allows suspended particles to settle out of water or wastewater as it flows slowly through the tank, thereby providing some degree of purification. A layer of accumulated solids, called sludge, forms at the bottom of the tank and is periodically removed.
7. The **Intermittent Tank** also called as quiescent tank are responsible to store water for a certain period and keep it in complete rest.

8. The water supply system uses the water reserve from the **Treated Water Tank Storage** to irrigate and water the lawns, plants, and trees on the Institute Campus. This is the last stage of the process.

Flowchart of Sewage Treatment Plant Working …

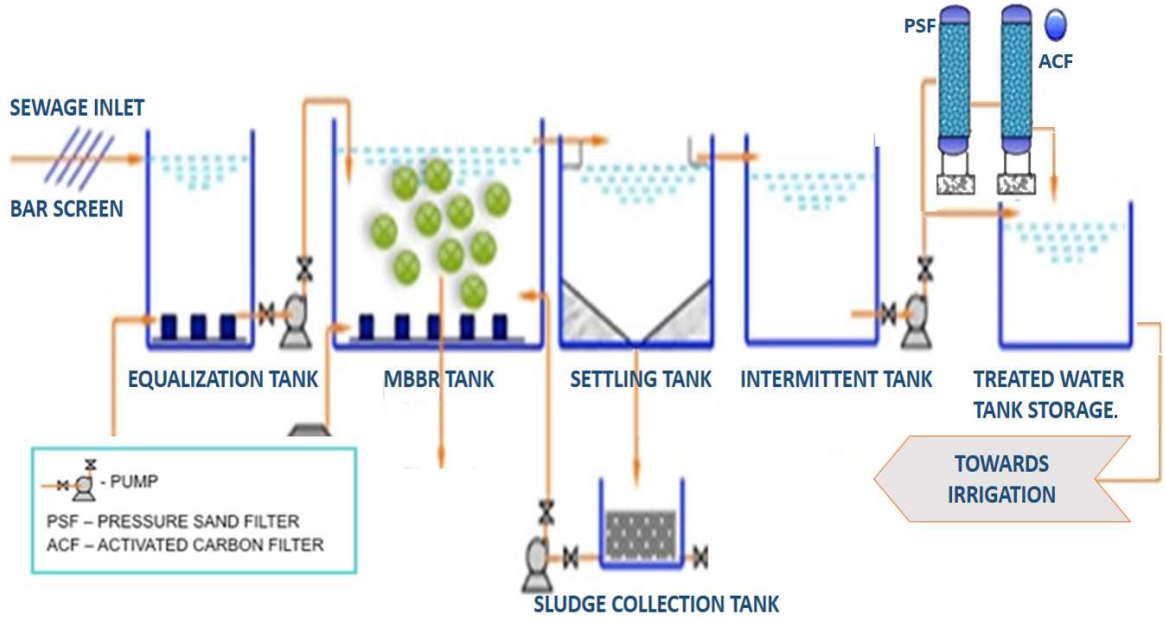

Fig. 1 - STP Flowchart

Fig. 2 – Pumping Station of STP

Fig. 3 – PSF & ACF of STP

Outcomes of Sewage Treatment Plant:

1. Water Recycled & Reused :**50000 Litres** per day.
2. Irrigation Coverage Area :**4046.86 sq. m** irrigated daily.
3. Approximate Cost Saving : ≈ **2750 /-** per day basis.

Layout of Sewage Treatment Plant …

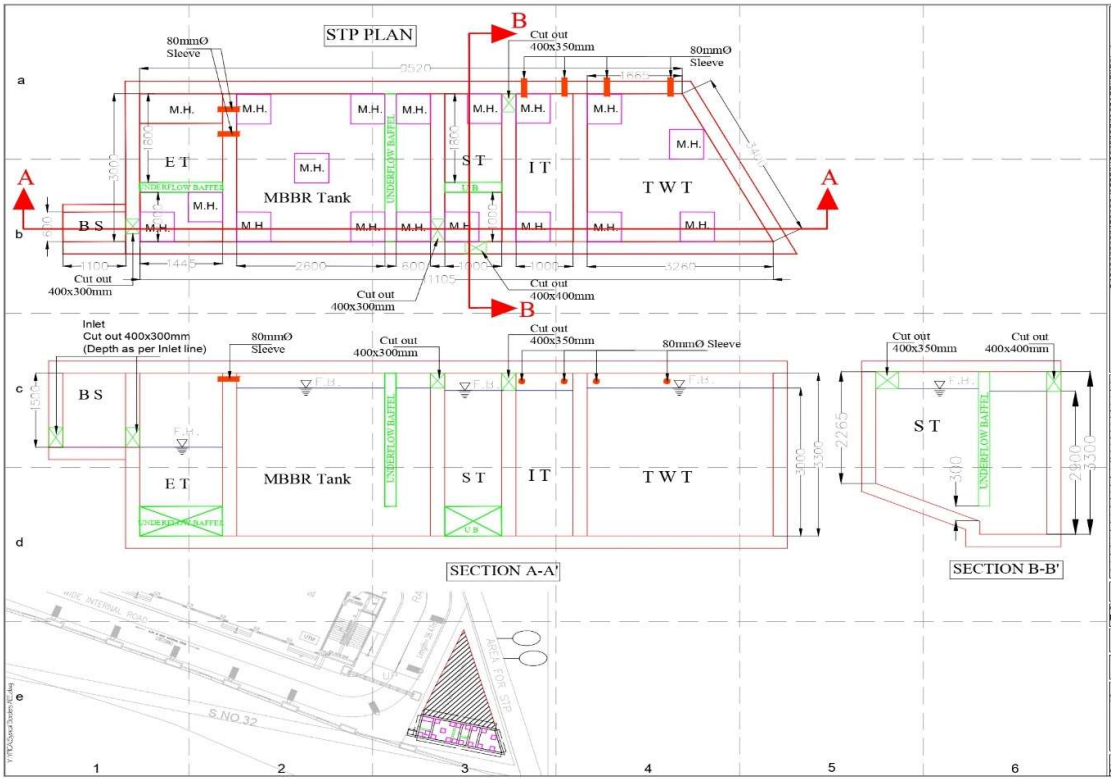

Fig. 4 – STP Layout

Fig. 5 – STP Plant, Dr. D. Y. Patil College of Engineering & Innovation, Pune