

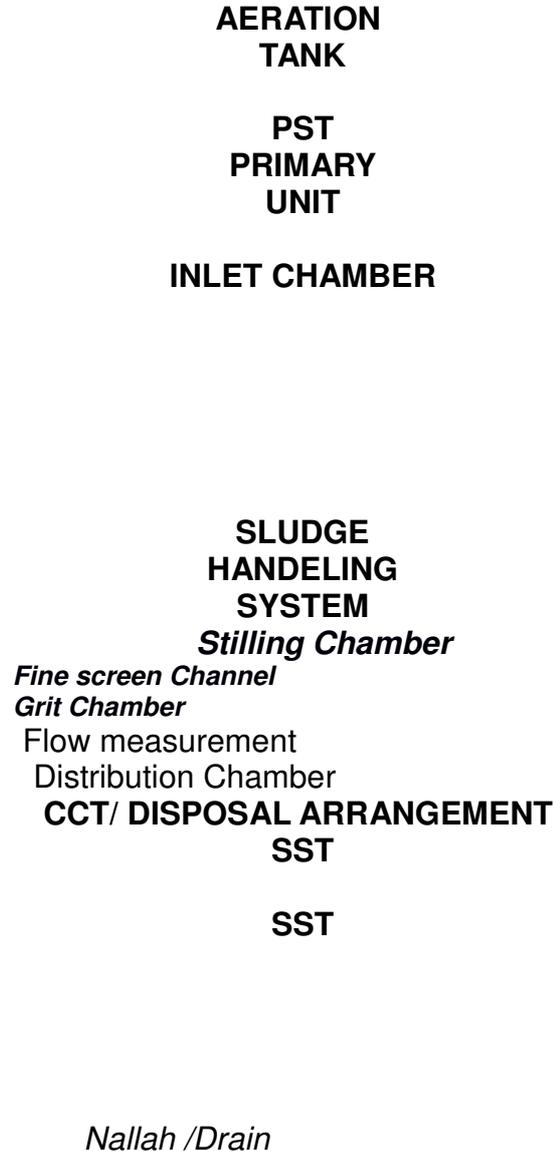


**HNB ENGINEERS PVT. LTD.**

Engineers & Turnkey Contractors

## **BRIEF ABOUT CONVENTIONAL ACTIVATED SLUDGE PROCESS**

### **2.1 Process Diagram:**



### **2.2 Primary Treatment**

#### **Raw Sewage Pumping Station:**

As per the capacity of the plant, the Raw Sewage Pumping Station is designed to handle average, peak and lean flows. The Screened sewage is then allowed to flow to the Raw

Sewage Collection Sump. The detention time stipulated as per the tender is adopted for the hydraulic design of wet well. The 3 nos. of pumps of equal to avg. flow capacity operating on VFD with all accessories will be provided to pump the screened raw sewage for further treatment.

The common rising main is provided to carry the sewage from raw sewage sump to Primary units of STP.

### **Primary Units:**

The first unit of Primary treatment is the Inlet Chamber, in which the discharge from Common rising main through Raw Sewage Pumps is received. The inlet chamber is mainly used to control the velocity of raw influent and also for its smooth distribution of flow to the fine screen channel. The flow is divided in to two streams. The screen channel will be equipped with mechanically operated medium and fine screen as required and designed for peak flow velocity. Necessary motorized sluice gate shall be provided at upstream/downstream of the channel to isolate the screen when it is under maintenance. Further the screenings is conveyed to the disposal through a belt conveyor and further it is to be disposed of by suitable arrangement.

The screened influent then flows to the Grit chambers where the heavy inorganic matter is separated. The vortex/cyclonic type grit separator is designed Grit Chamber is designed to remove inorganic matter of specific gravity more than 2.5 and size more than 0.15 mm. The settled grit is removed from the chamber by grit pump/ mechanism to the side channel. Grit is displaced by grit screw from the channel and taken to bottom through chute. While doing this grit is washed with the help of grit wash pumps to separate organic matter attached to grit if any.

After grit chamber flow is measured and taken to distribution chamber to distribute the flow to the Primary settling Tank.. The supernatant from PST will flow to ASP basin for biological treatment. . At this stage physical treatment of influent known as Primary Treatment is completed.

### **2.3 Secondary Treatment**

The Conventional Activated Sludge Process commonly known as ASP is very old and proven system operates in a principle of treating heavily polluted material i.e. settleable pollutants anaerobically and soluble pollutants aerobically. In this method major reduction in oxygen requirement is achieved, however very limited control over nitrification, denitrification process as well on biological phosphorous removal. Up till now there is no automation to this system is adopted as such huge quantity of electricity is wasted being not controlled. Another disadvantage of this method is requirement of large area for constructing variety of units like

- a) Primary Clarifier
- b) Aeration Tank
- c) Secondary Clarifier
- d) Primary Sludge Sump

- e) Secondary Sludge Sump
- f) Thickener
- g) Thickened Sludge Sump
- h) Primary Digester
- i) Secondary Digester
- j) Sludge dewatering system

Due to variety of units large number of equipments are also essential in this system makes it difficult for operator to handle and most of the ASP plants are found unattended only due to non availability of knowledgeable / qualified operating staff. No PLC are up till now provided for this system.