

Chapter III

MATERIAL AND METHOD

Detail of the pilot plant

The pilot plant for the study at Tak General Hospital as the oxidation ditch system is constructed with concrete with a total area of about 3,000 square metres.

1. Figure 4 shows the pilot plant , all units.
2. Figure 5 shows cage rotor and oxidation ditch.

The diameter of the rotor is 70 cm , shape of tooth rectangular plate 5x15 cm, length 1.70 metres x 2 units, interspace 5 cm and position of plate is staggered. The cage rotor is spinning at 75 rpm.

Details for the experiment

1. The procedures for determining pH value, biochemical oxygen demand, chemical oxygen demand, dissolved oxygen, suspended solid ammonia nitrogen, nitrates and phosphates by the method described in " Standard Method for Examination of Water and Waste Water" (AWPH, AWWA, WPCF, 1970).

2. pH are determined by using pH paper and pH meter.

3. Determine the waste flow at the pilot plant using pump sump manhole volume of 7.5 m^3 for measurement the waste flow per period of time.

4. Determine the flow velocity in the oxidation ditch at pilot plant used " Water Current Metre". The flow velocity varies from 6 to 16 cm of immersion depth and the speed 74 - 75 rpm.

5. Record pH, dissolved oxygen on site laboratory and another are determined at the Environmental Science Laboratory, Environmental Health division, Department of Health, Ministry of Public Health, and some of its are determined at Sanitary Engineer Laboratory.

6. Sample preservation for determining the characteristics of the sewage from the pilot plant by preservation method. Preservation method are generally limited to pH control, chemical addition, refrigeration and freezing.

Sample preservation

<u>Parametre</u>	<u>preservative</u>	<u>Max.storage time</u>
BOD	Refrigeration, 4°C	6 hrs
COD	2 ml H ₂ SO ₄ / l	7 days
NH ₄ - N	40 mg HgCl ₂ /litr 4°C	7 "
NO ₃	"	7 "
PO ₄	"	7 "
SS	non	7 "

Details flow velocity measurement

The flow velocity can be calculated by using the following formular which obtained from Water Curent Meter .

$$\begin{aligned}
 V &= 0.661 n + 0.05 && \text{metr/sec} \\
 \text{or } V &= 2.168 n + 0.164 && \text{foot/sec} \\
 \text{when } n &= \text{revolutions/sec}
 \end{aligned}$$

FIGURE 4

FLOW DIAGRAM OF TAK HOSPITAL WASTE TREATMENT PLANT

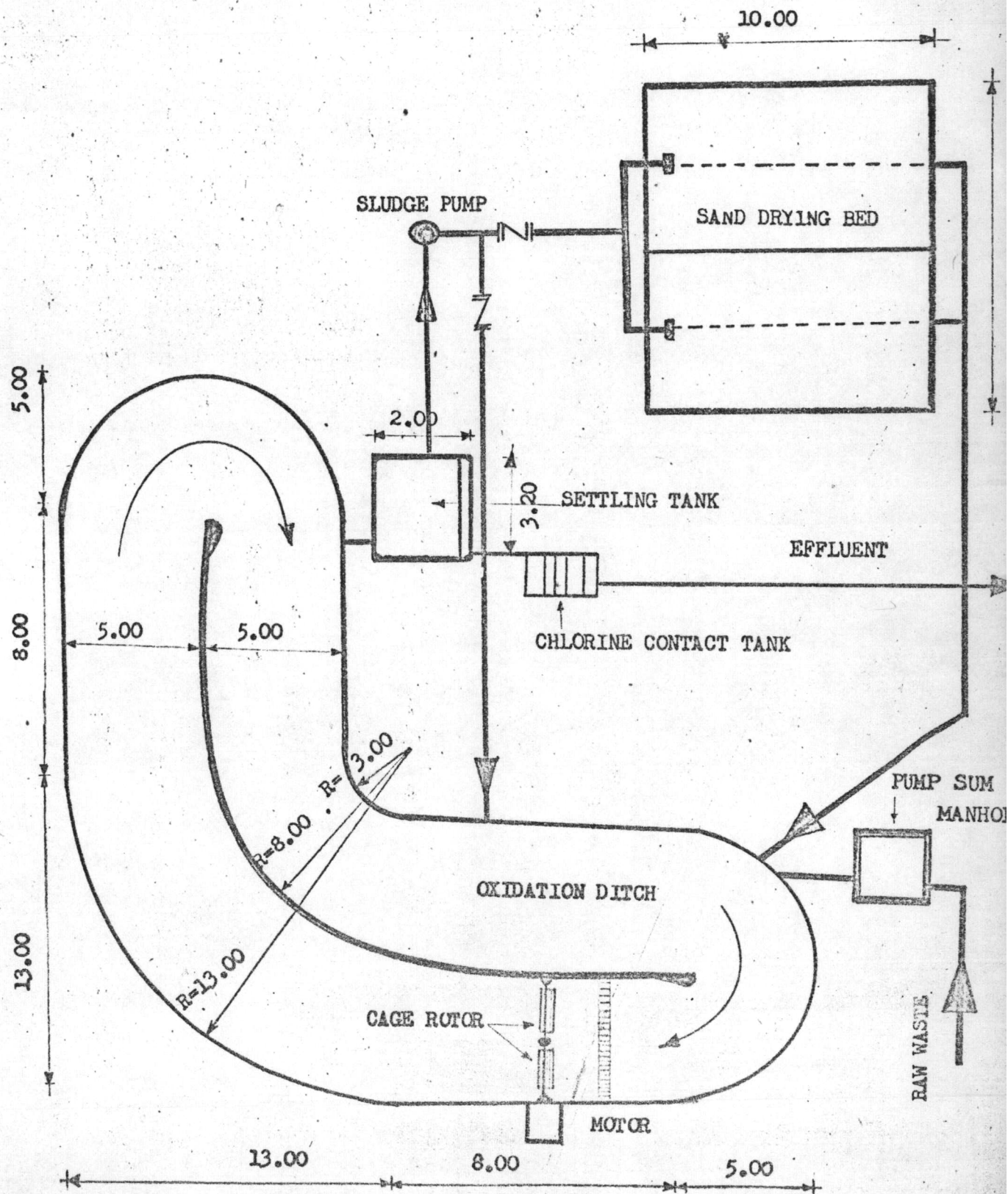
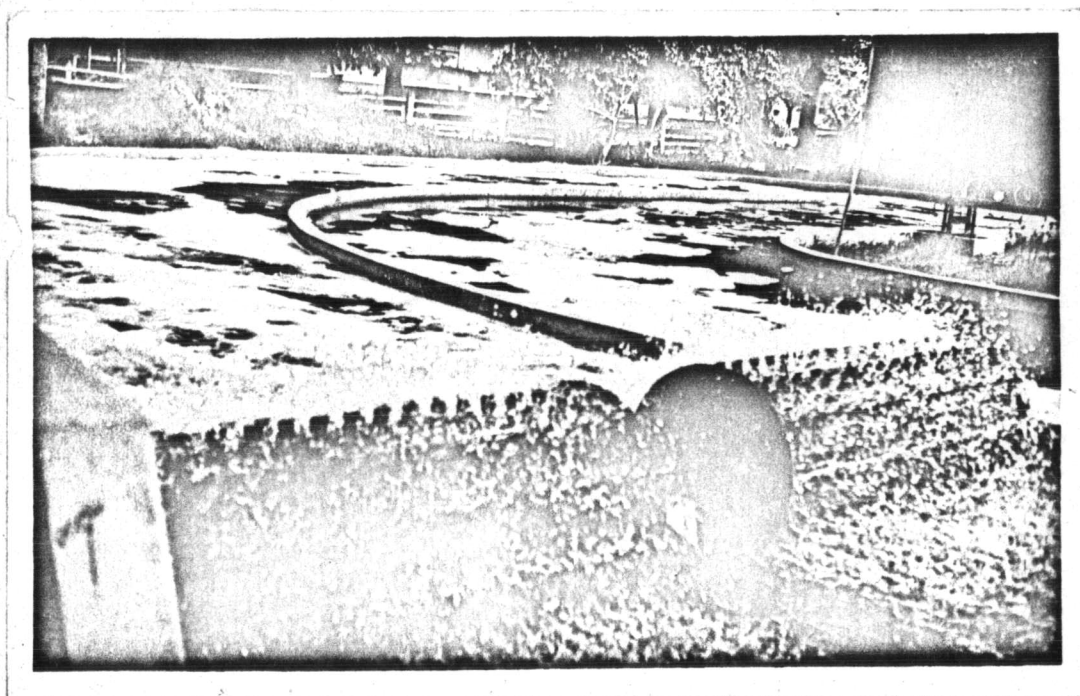


FIGURE 5

SHOWS THE OXIDATION DITCH WITH ROTATING CAGE ROTOR AT TAK HOSPITAL