TESTING OF SEWERS AND PURPOSE OF SEWAGE TREATMENT

Testing of Sewers :

The sewers after being laid and jointed are tested for watertight joints and also for correct straight alignment as described below

1. Test for Leakage (Sewer Testing)
2. Test for Straightness of Alignment and Obstruction (**Sewer Testing**)

Types of Sewer Tests

1. Sewer Testing for Leakage (Water Test)

The **sewer testing** is ensure no leakage through the joints after giving sufficient time to these joints to set in. For this purpose sewer pipe sections are tested from manhole to manhole under a test pressure of 1.5m of water head i.e. depth of water in the manhole is maintained at about 1.5m. The lower end of the sewer is first of all plugged.

The water is then filled in the manhole at the upper end and is allowed to flow through the sewer line. The sewer line is watched by moving along the trench and the joints which leak or sweat are repaired. The leakage pipe if any will also be replaced.

2. Sewer Testing for Straightness of Alignment and Obstruction

The straightness of the sewer pipe can be tested by placing a mirror at one end of the sewer line and a lamp at the other end. If the pipe line is straight, the full circle of light will be observed. However, if the pipe line is non-straight, this would be apparent and the mirror will also indicate any obstruction in the pipe barrel.

Any obstruction present in the pipe can also be tested by inserting at the upper end of the sewer a smooth inserting at the upper end of the sewer a smooth ball of diameter 13mm less than internal diameter of the sewer pipe. In the absence of any obstruction, such as yarn or mortar projecting through the joints etc. the ball shall roll down the invert of the sewer pipe and emerge at the lower end.

Steps in Laying of Sewer Pipe / Sewage Pipes

The **laying of sewage pipe** consist of the following steps.

1. Locate the positions of the manhole on the ground along the longitudinal section of the **sewer** line. It is common practice to lay sewer line between two manholes at a time.

2. The center line pegs of the sewer are driven at a distance of every 7.5 m or 15m.

3. The center line of the sewer line should be properly maintained by providing an off-set line usually marked at a distance of 2m to 3m. The off-setline helps in locating the sewer center line when excavation is carried out to laying of sewer pipe.

4. The trench is excavated between two manholes and the bedding layer of concrete is provided for soft soil while in case of rocky or hard soil, no bedding. The sewers are laid down between two manholes.

5. After completing the **laying of sewer pipe** between two manholes. Further excavations are carried out for laying of sewer pipe between the next consecutive manholes. The process is continued form the outfall end of the sewer towards the starting end till the entire sewers is laid out.

6. The refilling of trenches is started after the sewer line is properly laid in position, aligned, jointed and test for leakage and alignment.

Sewage treatment or **Municipal wastewater treatment** is the combination of **physical** and **biological process** with chemical process occasionally applied additionally to bring the sewage to such a quality that it is not harmful to human health and environment.

Purpose of Sewage Treatment

The sewage is treated before its final disposal because of the following reasons:

1. To kill the pathogenic bacteria present in the sewage which may result in water born diseases like cholera, typhoid, dysentery etc.
2. To avoid unhygienic condition in the area because of highly fouled sewage.
3. To protect aquatic life from harmful effects of sewage directly discharged into the water body (river or sea).
4. The stagnant sewage may percolate into the soil and pollute the ground water reservoir which may lead to epidemics.
5. Treatment makes the possibility of reuse of valuable fresh water for agriculture purposes.
6. The treated sewage may be used for reclamation of land.

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