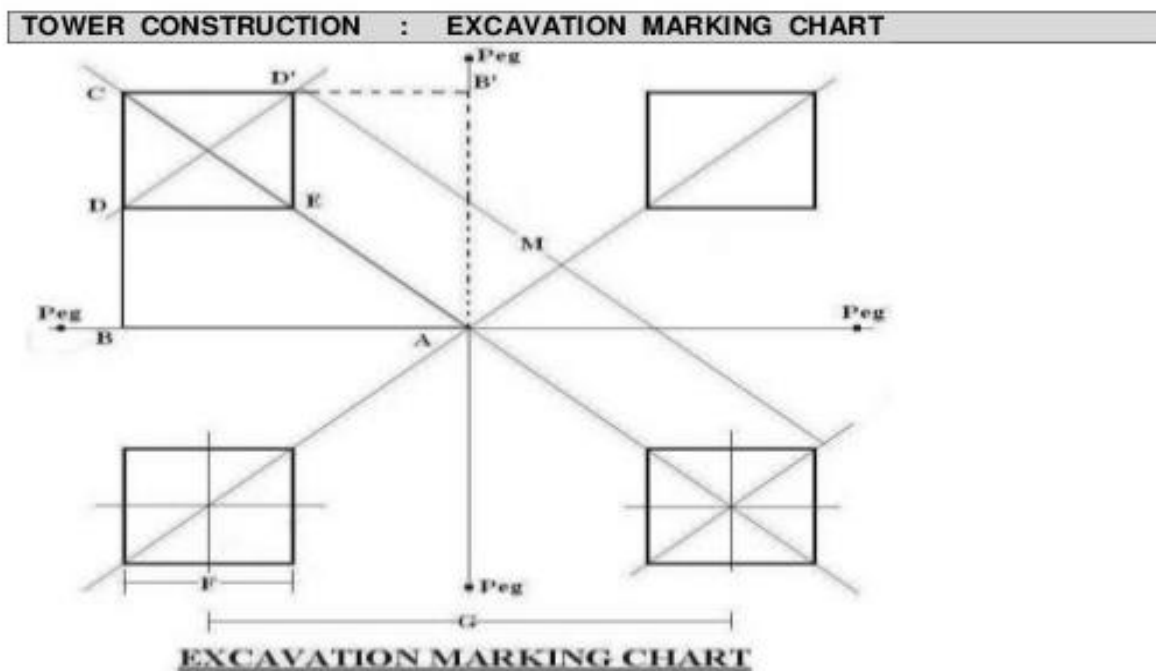


BASIC COMPONENTS OF A TRANSMISSION LINE

TOWER FOUNDATION:

Foundation of a transmission tower is the basic structure to support the tower in its position. It plays an important role in safety and satisfactory performance of the structure as it transmits mechanical loads of the **electrical transmission system** to earth. The foundations in various types of soils have to be designed to suit the soil conditions of particular type. In addition to foundations of normal towers, there are situations where considering techno-economical aspect for special towers required or river crossing which may be located either on the bank of the river or in the mind stream or both, pile foundation may be provided. The various activities involved in the foundation work are illustrated below:-

- **Excavation**



- The excavation pit marking drawing indicates the distance of centres, sides and corners of the pits with reference to the centre point of the tower
- From the dimensions shown in the drawing, the triangle ABC is first marked with the help of a measuring tape. The distance CD, equal to F (width of the pit) is marked on the ground. The triangle AB'C is then marked by shifting the point B and without changing the points A and C. The distance CD', equal to F, is then marked. The sides DE and D'E, both equal to F, are then marked. The procedure is repeated for marking the other three pits.
- The dimension G shown in the drawing is the centre to centre distance between stubs of the tower at their lowest point. The dimension M is the diagonal distance between the ends of the stubs of the tower. The excavation pit marking drawing is prepared on the basis of these dimensions.

TOWER FOUNDATION : PYRAMID CHIMNEY TYPE

Transmission Tower Foundation

Excavation



Transmission Tower Foundation

Raft Concrete



Transmission Tower Foundation

Stub Footing concrete



Stub Concrete



Transmission Tower Foundation

Stub setting & Template Assembly



Transmission Tower Erection

Method of Tower Erection

There are four main methods of erection of steel transmission towers which are described below:

- 1) Build-up method or Piecemeal method.
- 2) Section method.
- 3) Ground assembly method.
- 4) Helicopter method.

Transmission Tower Erection

Build Up Method of Tower Erection

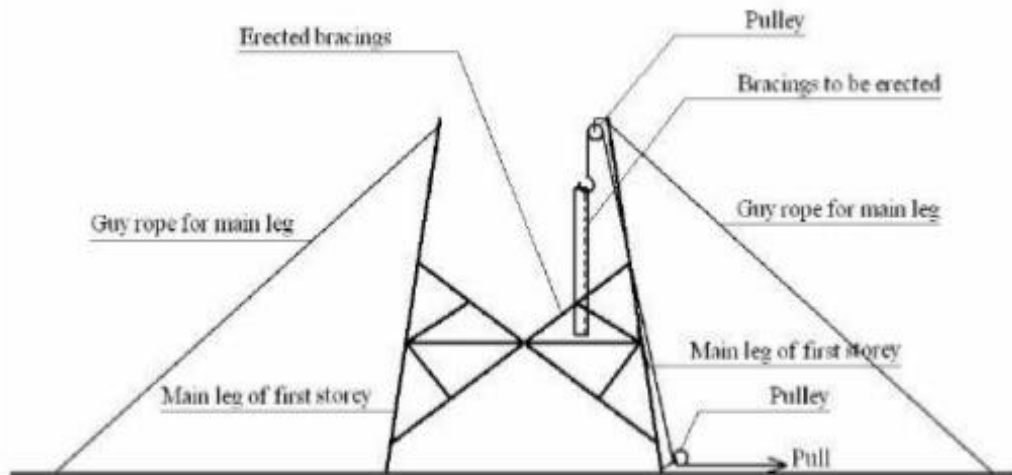
This method is most commonly used in India for the erection of 66kV, 132kV, 220kV and 400kV transmission line towers.

- ❖ This method consists of erecting the towers, member by member. The tower members are kept on ground serially according to erection sequence to avoid search or time loss.
- ❖ The erection progresses from the bottom upwards. The four main corner leg members of the first section of the tower are first erected and bolted with the stub.

Transmission Tower Erection

Build Up Method of Tower Erection

Tower Erection: Build up Method: Erection of Tower Body
(First Storey)



Transmission Tower Erection

Tower Erection in progress



Transmission Tower Erection



Transmission Tower Erection

Cross Arms Erected



TOWER STRINGING:

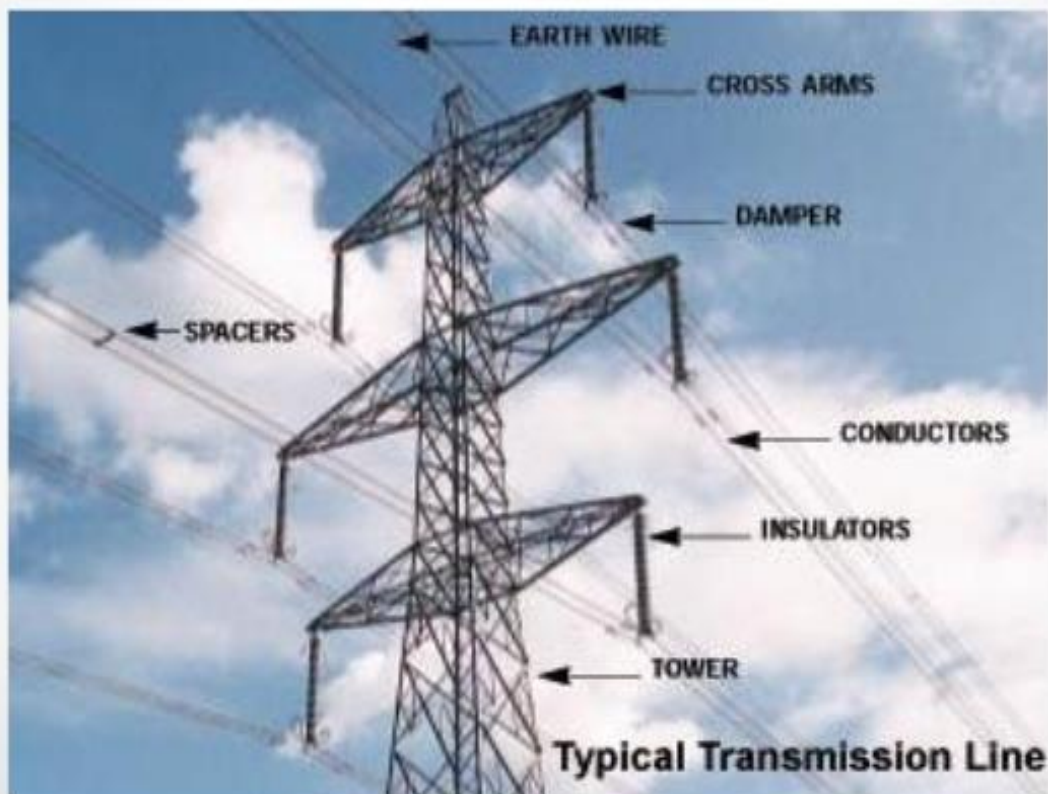
Stringing of Transmission line a process of joining and fixing of the electrical conductor wires from tower to tower and various other assemblies for transmission of electricity.

Transmission of Power **Stringing**

- ❖ Stringing overhead conductors in transmission is a very specialized type of construction requiring years of experience, as well as equipment and tools that have been designed, tried, and proven to do the work.

Transmission Line

Component of Transmission Line



Transmission of Power

Steps of Stringing

- ❖ Proper Guying
- ❖ Insulator Hoisting.
- ❖ Paying out of pilot wire & Conductor.
- ❖ Rough sagging of conductor.
- ❖ Final sagging of conductor.
- ❖ Clipping & Spacering.
- ❖ Finishing activities.
- ❖ Jumpering.
- ❖ Final Checking.

Conductor Payout through Suspension Towers



Conductor Payout for each Phase



Conductor Rough Sag in progress



Conductor Stringing Completed



Transmission Line Work Completion

