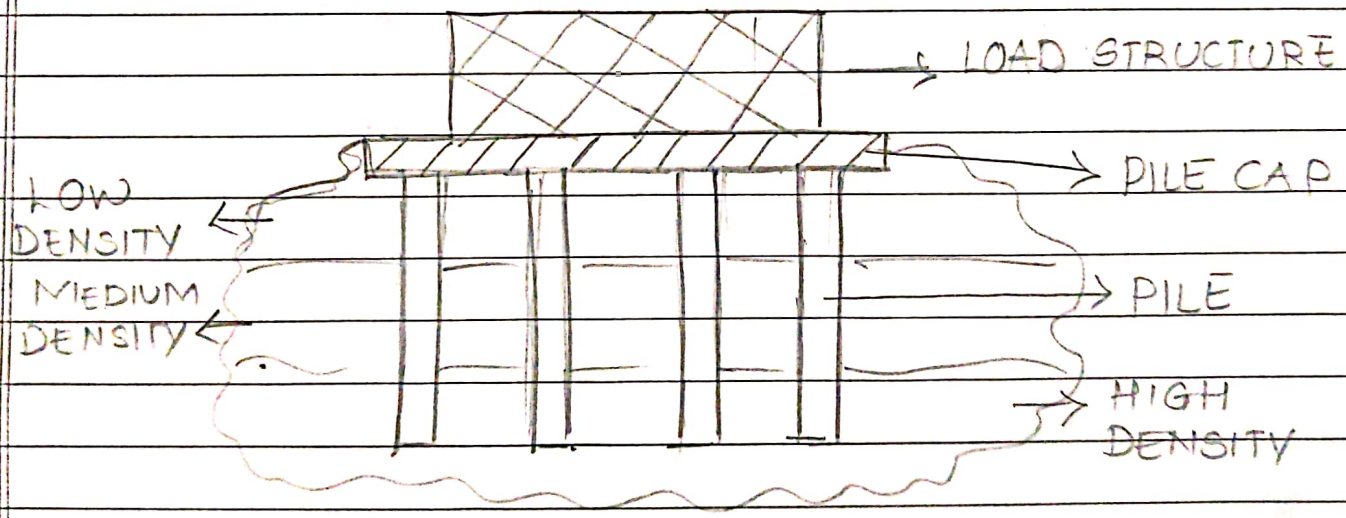
PILE FOUNDATION

* WHAT IS PILE FOUNDATION?

PILE FOUNDATION A KIND OF DEEP FOUNDATION IS ACTUALLY A SLENDER COLUMN OR LONG CYLINDER MADE OF MATERIALS SUCH AS CONCRETE OR STEEL WHICH ARE USED TO SUPPORT THE STRUCTURE AND TRANSFER THE LOAD AT DESIRED DEPTH EITHER BY END BEARING OR SKIN FRICTION.



* WHERE IT IS USED?

→ WHERE THE SOIL IS COMPRESSIBLE
→ WHERE THE SOIL IS WATER LOGGED
→ THE TOP SOIL HAS POOR BEARING CAPACITY
→ THE SUBSOIL WATER LEVEL IS HIGH
→ WHERE THE AREA OF THE SITE IS LESS.

TYPES OF PILE FOUNDATION

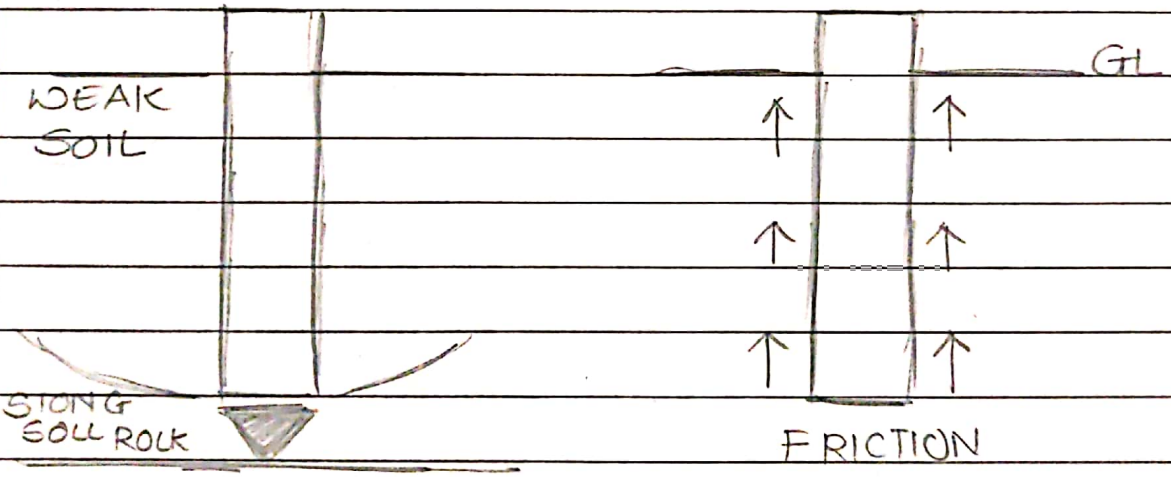
1) LOAD BEARING PILE :-

IT BEAR THE LOAD COMING FROM THE STRUCTURE THE ARE DIVIDED INTO :-

(1) BEARING PILES
(2) FRICTION PILES.

2) NON LOADING BEARING PILES :-

THE PILES ARE USED TO FUNCTION AS SEPARATING MEMBERS BELOW GROUND LEVEL AND THEY ARE GENERALLY NOT DESIGNED TO TAKE VERTICAL LOAD



END BEARING PILE

FRICTION PILE.

* CLASSIFICATION OF PILES.

→ BASED ON FUNCTIONS
→ BASED ON MATERIAL
→ BASED ON METHOD OF INSTALLATION

* ADVANTAGES

→ THEY CAN BE PRECAST TO SPECIFICATIONS.

→ THEY CAN BE PREMADE WHICH REDUCES THE AMOUNT OF TIME AND LABOURS AT THE SITE.

→ THEY CAN VERY EFFICIENT AT PLACES WITH A FOUNDATION SIZE LIMIT.

→ THEY ARE A GREAT OPTION WHILE WORKING OVER WATER FOR EG- BRIDGES., DOCKS, PORTS ETC.

→ THEY ARE ESSENTIAL IN THE CONSTRUCTION OF HIGH RISE BUILDING.

* DISADVANTAGES

→ THE WHOLE PROCESS REQUIRES HEAVY EQUIPMENTS AND SKILLED LABOURS.

→ ADEQUATE PRE-PLANNING IS REQUIRED AND THERE IS NO MARGIN FOR ERROR.

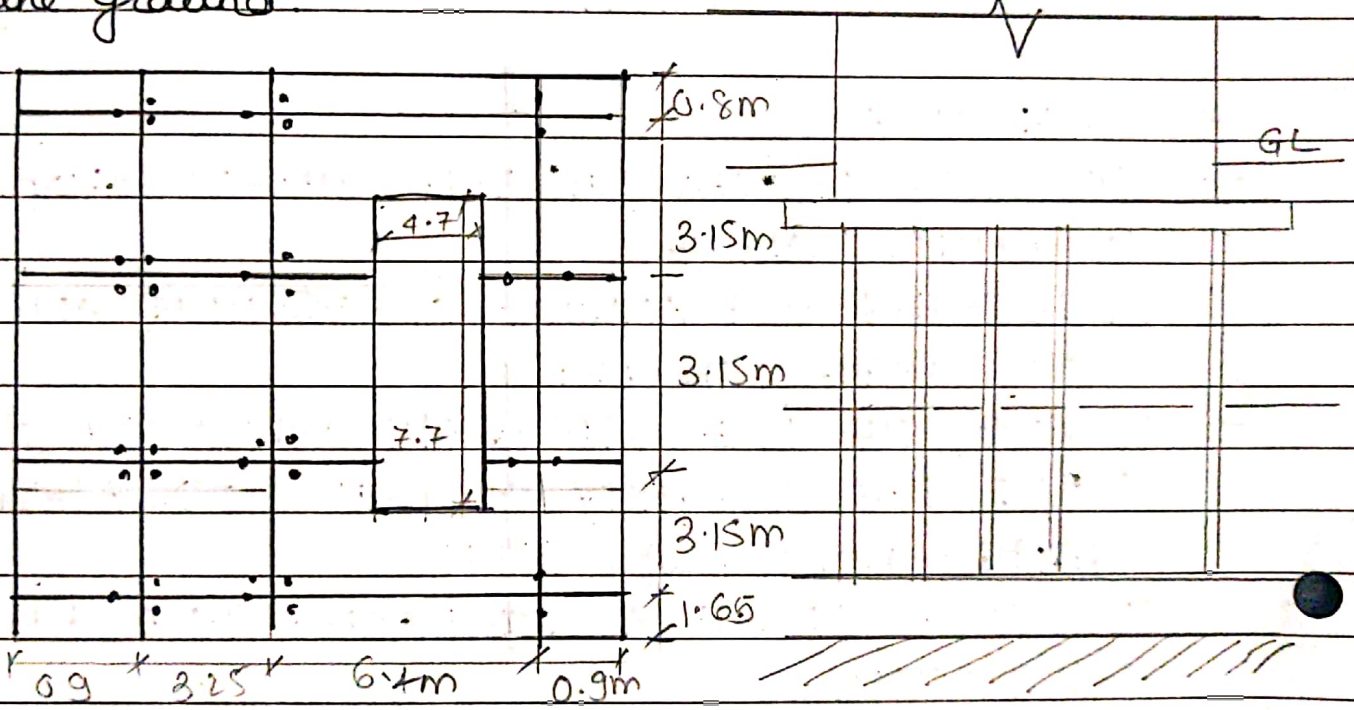
→ DRIVING THE PILES GENERATE VIBRATION THAT CAN AFFACT THE INTEGRITY OF THE FOUNDATION OF NEIGHBOVERING STRUCTURES

→ IT IS AN EXPENSIVE AS COMPARED TO A REGULAR FOUNDATION.

CASE STUDY

* CUSTOMS OFFICE TOWER AT KANDLA PORT BHUT KUTCH

→ 6 Storeyed customs office tower to coast
→ 32 short cast in place Concrete pile
→ It is 18 m long
→ The part of kandla is lmas on Natural ground Comprising recent unconsolidated deposits of interbedded clays, silts and sands.
→ The watertable is about 1.2-3.0m below the ground.



Column and pile plan at GL . Section of pile foundation.

→ Column = 0.45 × 0.45m
→ Column = 0.25 × 0.25m
→ Concrete pile dia = 0.4m
→ Flat foundation = 11.45m × 11.9m × 0.5m
→ No. of Columns = 12
→ No of Rafts = 92
→ length of pile = 18m