



الامتحان من صفتين

- Any missing required data can be reasonably assumed
- Neat sketches and systematic calculations are vitally considerable.

Problem No. (1) [20 marks]

Design the **stem** (vertical slab) of the R.C. Cantilever wall shown in Fig. (1)

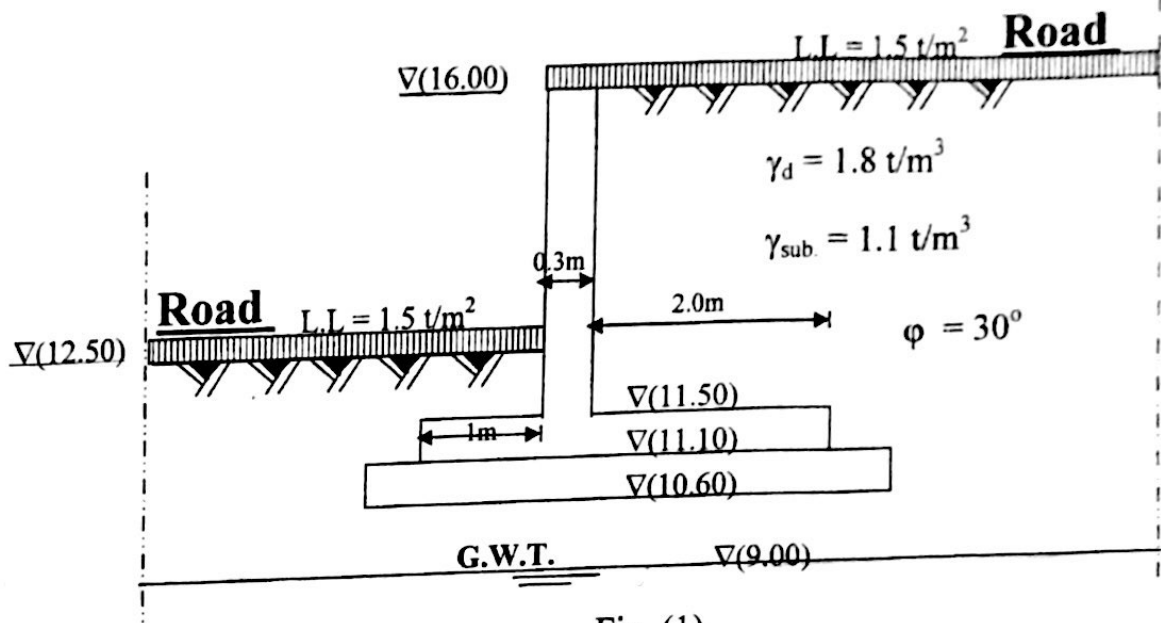


Fig. (1)

Problem No. (2) [70 marks]

A **Box aqueduct** of dimensions **2.1m * 1.4m** is required to construct at the intersection of two waterways according to the following data:

Item	Waterway (1)	Waterway (2)
Discharge	4.0 m ³ /sec.	9 m ³ /sec.
Bed width	4m	9m
Bed level	(6.00)	(3.00)
Water level	(7.50)	(5.00)
Berm level	(8.00)	(7.50)
Bank level	(9.00)	(9.00)
Bank width	6m	8m
Side slopes	3:2 and 2:1	1:1 and 3:2

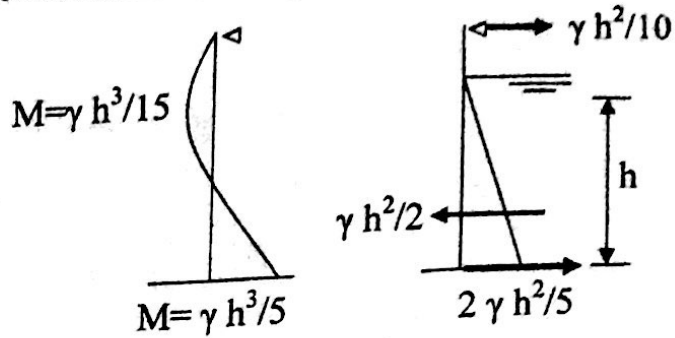
ياقى الأسئلة فى الخلف

Problem No. (2) [Continued]

The bridge part is used as a foot-path, bridge part is supported on piers, it is required to:

- a) design the bridge part of the aqueduct and its supports. [55marks]
- b) Draw to reasonable scale sec elevation of the aqueduct [15 marks]

Bearing capacity of soil = 1.5 kg/cm^2



Problem No. (3) [25 marks]

Explain, with neat sketches, the steps of calculation the pile load (intermediate support) of a rolled steel joist bridge having R.C. floor, 20 t lorry is considered.

Problem No. (4) [40 marks]

A tail escape is required to be constructed at the end of a canal to escape the excess of water into a drain, Fig.(2). A R.C. Pipe having a slope 1.5% is used, where the pipe diameter (internal) is 0.9m, and 0.5m drop in bed level is used, continuous foundation is used for pipe. It is required to design structurally the R.C. pipe, 70t tractor is considered, the case of operation is considered.

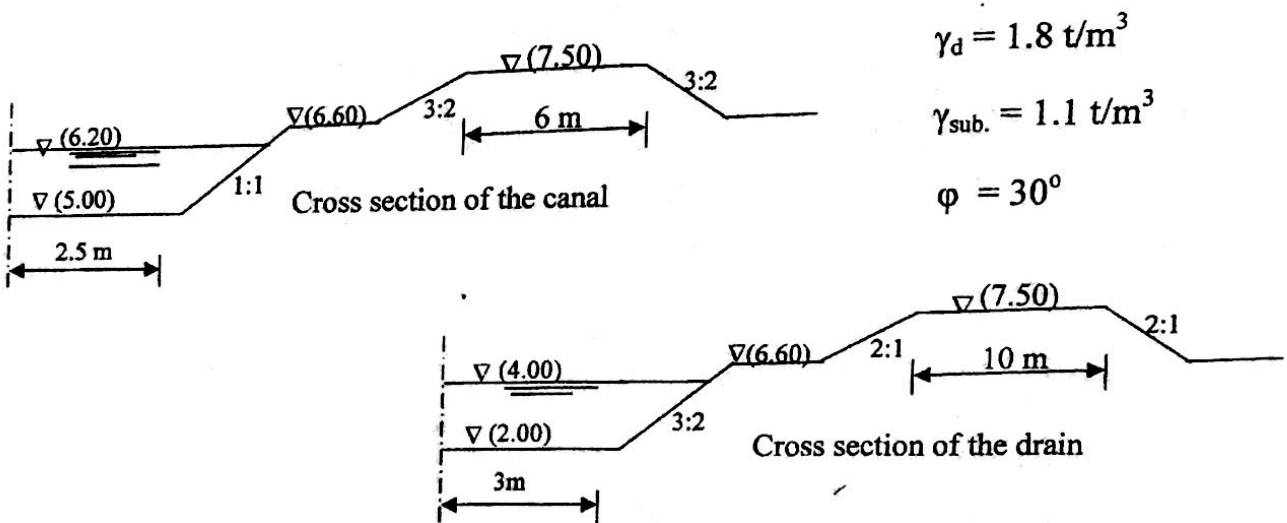


Fig.(2)

GOOD LUCK