TALLER NO. 1b
FLUJO CRITICO

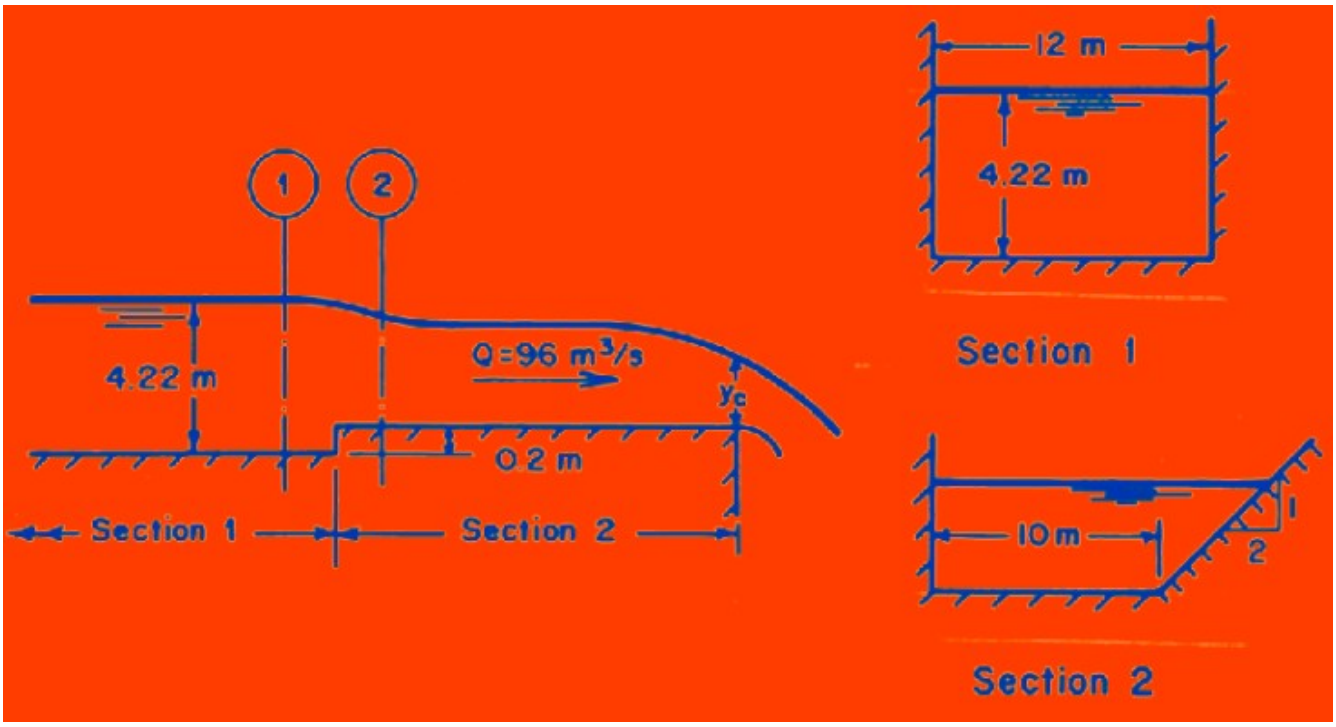
3.3. A trapezoidal channel having a bottom width of 20 m and side slopes of 2H:1V is carrying 60 m^3/s. Assuming $\alpha = 1.1$, determine the critical depth.

3.8. A 50-m wide rectangular channel is carrying a flow of 250 m^3/s at a flow depth of 5 m. To produce critical flow in this channel, determine:

i. The height of the step in the channel bottom if the width remains constant
ii. The reduction in the channel width if the channel-bottom level remains unchanged
iii. A combination of the width reduction and the bottom step.

3.9. The drainage canal shown in Fig. 3-13 has a flow of 96 m^3/s. If the flow depth at Section 1 is 4.22 m, what is the depth at Section 2? Assume there are no losses in the transition.

Determine the flow depth at the downstream end if the canal ends in a free overfall. Assume that critical depth occurs at the overfall.



3.13. An 8-ft diameter concrete-lined sewer is laid at a bottom slope of 1 ft/mile. Compute the critical depth for a discharge of 100 cfs.

3.23. The flow velocity and flow depth in a 5-m wide rectangular channel are 1.5 m/s and 4 m respectively. Design a converging transition so that the flow is critical in the transition. Assume the channel bottom to be horizontal, and losses in the transition to be negligible.