CE 3305 – Fluid Mechanics Exam 2

Purpose

Demonstrate ability to apply fluid mechanics and **problem solving principles** covering topics such as: Conservation of mass, continunity, conservation of linear momentum, and conservation of energy (modified bernoulli).

Instructions

1. Put your name on each sheet you submit.
2. Use additional sheets as needed.
3. Begin each problem on a separate page. Ok to disassemble to keep pages in order.
4. Do not write on the back of sheets (I won't look)
5. Use the **problem solving protocol** in the class notes. The discussion section can simply be the word "discussion"
6. Label and/or underline answers, be sure to include units.

Allowed Resources

1. Your notes
2. Your textbook
3. The mighty Internet with following proviso
4. **You may not communicate with other people during the exam**

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1. The canal shown below is to be widened so that the water flow discharge can be tripled (i.e., flow discharge after widening is three times the initial flow discharge).

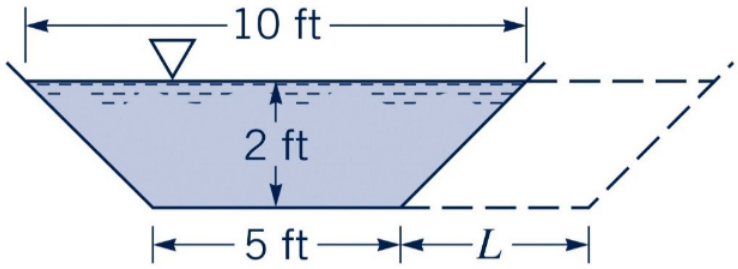

Figure 1:

Determine:

(a) The additional width, L, required if all other parameters (i.e., flow depth, bottom slope, surface material, side slope) are to remain the same

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2. The figure below is a schematic of water flowing under a sluice gate in a horizontal channel 5 feet wide.

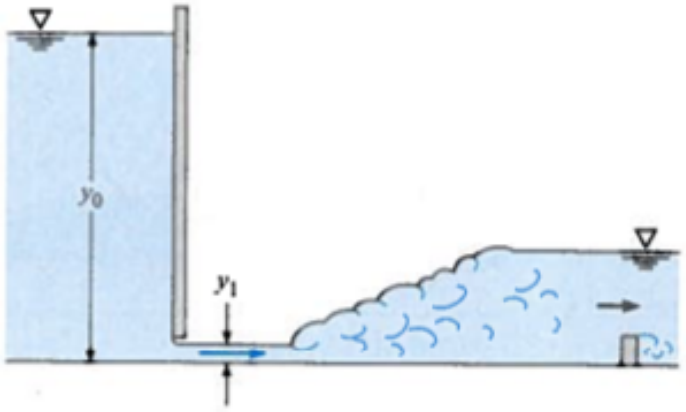

Figure 2:

Determine:

(a) Discharge through the sluice gate

(b) Power dissipated in the jump

(c) The alternate depth (depth of flow after the jump)
