



What horsepower must be supplied to the water to pump 3.0cfs at  $68^{\circ}\text{F}$  from the lower to the upper reservoir? Assume that the head loss in the pipes is given by  $h_L = 0.015(L/D)(V^2/2g)$ , where  $L$  is the length of the pipe in feet and  $D$  is the pipe diameter in feet. Sketch the HGL and EGL.