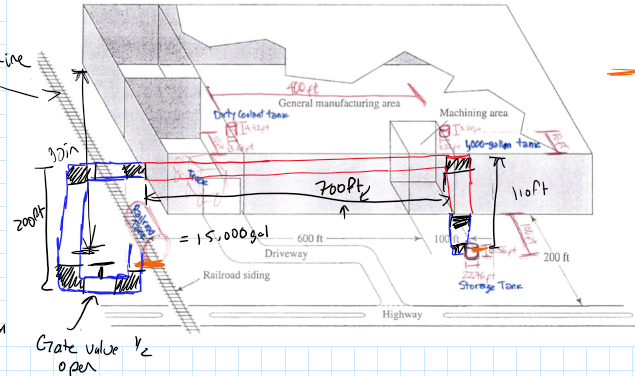
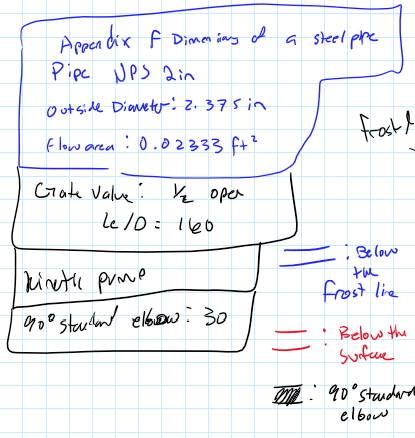


1) and 2)



3) Compute energy losses due to pipe friction and minor losses

$$h_L = f \times \frac{L}{D} \times \frac{V^2}{2g} = \text{Energy losses}$$

$$\frac{P_1}{\gamma} + \frac{V_1^2}{2g} + Z_1 = \frac{P_2}{\gamma} + \frac{V_2^2}{2g} + Z_2 + h_{L12}$$

$$h = \frac{V_2^2}{2g} + f \frac{L}{D} \frac{V^2}{2g}$$

5) I would need a kinetic pump for this project because firstly it's cheaper, also more importantly this will allow the flow of fluid be distributed more efficiently. Since it is a rotating impeller, it adds energy to the fluid.