

**Water Pressure Computations**

**From Hydrant Flow Test at Fox Run:**

Pressure = 80 psi  
 Flow Rate = 650 gpm  
 Hydrant Elev. at Ground 368.5 ; at Nozzle (Ground + 2.5 ft.) = 371.0

**Lot with Highest First Floor Elevation is Lot 5**

First Floor Elev. = 365  
 Second Floor Fixture = 381 (10 ft. + 6 ft.)

**Headlosses to Lot 5**

*Friction Headloss*

Length of Pipe from Hydrant to Lot 5 = 1,150 lf  
 Equivalent Pipe Lengths for Fittings:

<u>No. Fitting</u>	<u>Length</u>
5 T's @ 15 ft. each	75 ft
4 45° bend @ 10 ft. each	40 ft
2 90° bend @ 20 ft. each	40 ft
4 Gate Valve @ 220 ft. each	880 ft
	1,035 ft
SAY	2,000 ft

Total Pipe Length = 1150 + 2000 = 3,150

For 8" DIP at 650 gpm headloss per linear foot = 12 ft. per 1,000 ft.

Headloss = 12 ft. X 3.15 = 37.80

Headloss through master meter = 20 psi

*Velocity Headloss*

For flow = 650 gpm and 8" diameter pipe

$$H_v = V^2/2g, \text{ where } V = Q/A$$

$$V = [650 \text{ gpm} \times (1 \text{ cf} / 7.48 \text{ gal}) \times (1 \text{ min} / 60 \text{ sec})] / [\pi \times (4/12)^2]$$

$$V = 4.15 \text{ cfs}$$

$$H_v = 4.15^2 / (2 \times 32.2) = 0.27 \text{ ft (negligible)}$$

Friction & Velocity Total: 16 ft. + 37.80 ft. = 53.80 ft  
 In psi = (53.80 X 62.4) / 144 = 23.31 psi

Add in Master Meter Loss of 20 psi for Total = 43.31 psi

**Pressure as Second Story Fixture on Lot 5**

P = 80 psi - 43.31 psi = **36.69** This exceeds the Ten State Standard Min. of 35 psi