

PART 6 - STANDARD DESIGN AND CALCULATION FORMS

6.6 PUMP STATION CALCULATION SHEET

Name of Municipality or Sewer District _____

Original Lot, Township and Tract _____

For: _____ By: _____

Location: _____ Date: _____

WET WELL CALCULATIONS:

(a) Pumping Station No. _____

(b) Average Daily Flow into Station incl. infiltration = _____ GPD.

(c) Peak Factor = _____

(d) Present Flow:

Peak Flow into Station = _____ GPM.

Estimated ultimate Peak Flow into Station = _____ GPM.

(e) Rated pump delivery = _____ GPM.

(f) Storage volume between high and low levels = _____ gallons

(g) Wet well diameter = _____ ft. & _____ gal./ft.

(h) Total time between successive pump starts = _____ min.

$$\frac{\text{Line (f)}}{\text{Line (e) - Line (d)}} + \frac{\text{Line (f)}}{\text{Line (d)}} = \text{Line (h)}$$

TOTAL DYNAMIC HEAD CALCULATIONS:

External Loss (Dynamic)

(a) Force main size = _____ inches

(b) Friction loss = _____ ft./100 feet of pipe

(c) Length of force main = _____ feet

- (d) Equivalent length of pipe due to bends, etc. = _____ feet
- (e) Total length of pipe (actual & equivalent) = _____ feet
- (f) Total friction loss = _____ feet

Internal Loss (Dynamic)

- (a) Pumping Station Losses = _____ feet

STATIC HEAD:

- (a) Highest Elevation of Force Main = _____ feet
- (b) Elevation of Suction = _____ feet
- (c) Static Lift = _____ feet

TOTAL DYNAMIC HEAD = _____ feet

Net Positive Suction Head Calculations: (when applicable)

- (a) Atmospheric pressure at sea level = 33.90 feet
- (b) Atmospheric pressure at site = _____ feet
- (c) Atmospheric pressure available at site = _____ feet
- (d) Total dynamic suction lift = _____ feet
- (e) Vapor pressure 74° liquid = _____ feet
- (f) Safety Factor = _____ feet
- (g) N.P.S.H. Available = _____ feet
- (h) N.P.S.H. Required by Pump = _____ feet
- (i) Excess N.P.S.H. Available = _____ feet
- (j) Priming Lift (center line of pump suction to lead pump on) = _____ feet

BUOYANCY CALCULATIONS:

- (a) Weight of soil = _____ lbs./cu. ft.
- (b) Downward force of soil on top area of station = _____ lbs.
- (c) Water Table Elevation = _____ feet
- (d) Upward buoyant force at center of buoyancy = _____ lbs.
- (e) Weight of Station exerted at center of gravity = _____ lbs.
- (f) Resultant = Line (b) + Line (e) - Line (d) = _____ lbs.

PUMPS: Rated Capacities

Make _____

Model _____

Flow Rate _____ GPM at _____ Ft. TDH