

# REVIEW OF PRIVATELY OWNED LIFT STATIONS

This form must be completed and submitted to ECUA for use in reviewing all lift stations intended to remain privately owned, other than single family residential. Privately owned lift stations must meet all applicable FDEP requirements. Duplex pumps are required for most establishments.

Establishments may use a simplex pump if and only if the establishment meets all of the following criteria:

1. Establishment for which the total estimated wastewater production is 500 GPD or less.
2. Establishment does not provide food service or preparation for the general public.
3. Establishment contains less than 100 seats for public assembly.
4. Establishment does not house medical facilities
5. Use of a simplex pump will not pose a significant public health or environmental hazard.
6. ECUA engineer agrees that establishment conforms to the five criteria listed above

Please provide the following information:

I. Flow Calculations

Average Daily Flow:

Peak Hour Flow:

Basis for Daily/Peak Flow Criteria (e.g. number of employees/customers, fixture count, etc.)

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Force Main Size: \_\_\_\_\_

Minimum Flow needed to meet Minimum Velocity of 2.5 FPS= \_\_\_\_\_ GPM

Design/Controlling Flow: \_\_\_\_\_ GPM

II. Total Dynamic Head Calculations

Does the proposed force main connect to another force main?      Yes      No

If yes, provide Manifold Pressure \_\_\_\_\_

(Indicate Source of Manifold Pressure Information and provide any calculations used to determine manifold pressure)

For System Curve provide 3 points

| <u>Flow</u> | <u>Static</u> | <u>+Hf</u> | <u>Manifold Pressure</u> | <u>Total</u> |
|-------------|---------------|------------|--------------------------|--------------|
|             |               |            |                          |              |
|             |               |            |                          |              |
|             |               |            |                          |              |

**Provide a graph showing the performance curve for the selected pump with the system curve plotted over it.**

Identify operating point (Intersection of pump curve and system curve):

\_\_\_\_\_ gpm @ \_\_\_\_\_ ft.

Velocity at operating point: \_\_\_\_\_ fps.

Is Operating Point > Design Point? \_\_\_\_\_

III. Wet Well Calculations

a. Cycle Volume Calculation

Calculate required cycle volume by the following equation:

$$V = \frac{TP}{4}$$

V – Volume in the wet well between pumps off and the first pump on

P – Pump Rate, gpm (operating point)

T – Cycle Time, Cycle time (T) should not be less than 10 minutes.

Cycle volume = \_\_\_\_\_

b. Required Height between pump on and pumps off in wet well

Wet well diameter \_\_\_\_\_ feet

Gallons per vertical foot of wet well \_\_\_\_\_ gallons

Cycle Depth required =  $\frac{\text{Cycle Volume Required (gallons)}}{\text{Gallon per vertical foot}}$  = \_\_\_\_\_

IV. Emergency Storage Calculations

A minimum of 30 minutes storage volume between high level alarm and influent invert is required at average daily flow.

Required Emergency Volume = (Average Daily Flow) (30 minutes) = \_\_\_\_\_

Emergency Depth required =  $\frac{\text{Emergency Volume}}{\text{Gallons per vertical foot}}$  = \_\_\_\_\_

V. Buoyancy Calculations

Provide soil boring to substantiate ground water depth shown in calculations. Or assume ground is saturated and provide calculations to show that the total weight is greater than the buoyancy force.

VI. Are the following items provided?

|   |     |    |
|---|-----|----|
| Emergency Pump-Out  | Yes | No |
| Emergency Generator Receptacle  | Yes | No |
| High Water Alarm (Audio & Visual w/battery backup)  | Yes | No |
| Site Security<br>(Minimum requirement of locking control panel, wet well, and valve box)<br>Describe how security will be provided: | Yes | No |

|   |     |    |
|---|-----|----|
| Lightning Arrestor and Surge Protection | Yes | No |
| Wet Well Ventilation                    | Yes | No |
| Run Time Meter                          | Yes | No |
| Phase Protection for 3-Phase            | Yes | No |

Provide explanations if any of the above items are not provided.

VII. Flood

What is the 100-year flood elevation at the lift station site? \_\_\_\_\_

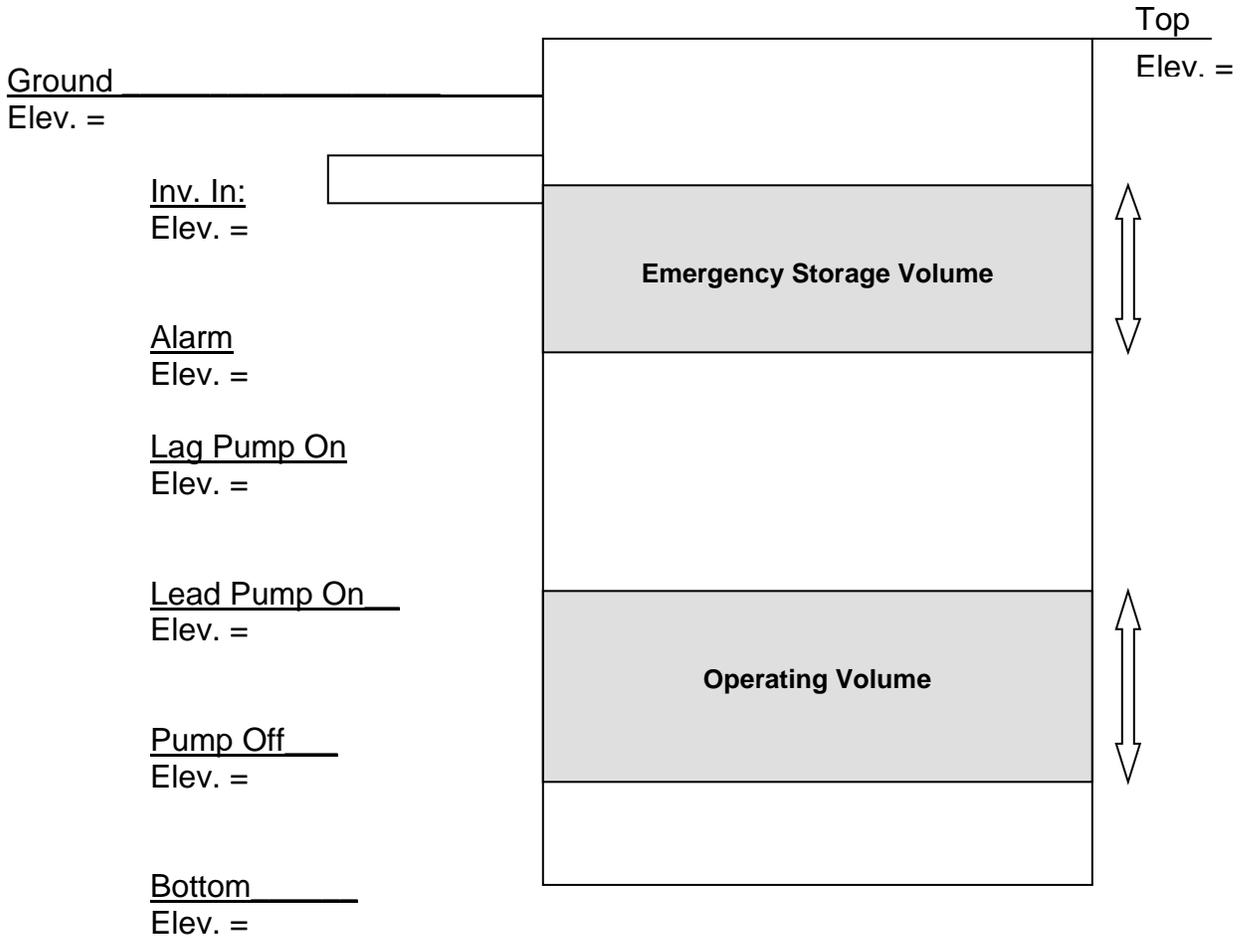
What is elevation of the bottom of the electrical controls/panel s? \_\_\_\_\_

What is the 25-year flood (storm) elevation at the lift station site? \_\_\_\_\_

What is the top of the wet well elevation? \_\_\_\_\_

Is station designed to remain fully operational and accessible during a 25-year storm?

Diameter of Wet well \_\_\_\_\_



Provide elevations for each of the points above.

Note: Elevation for Lag Pump On and Alarm may be the same.