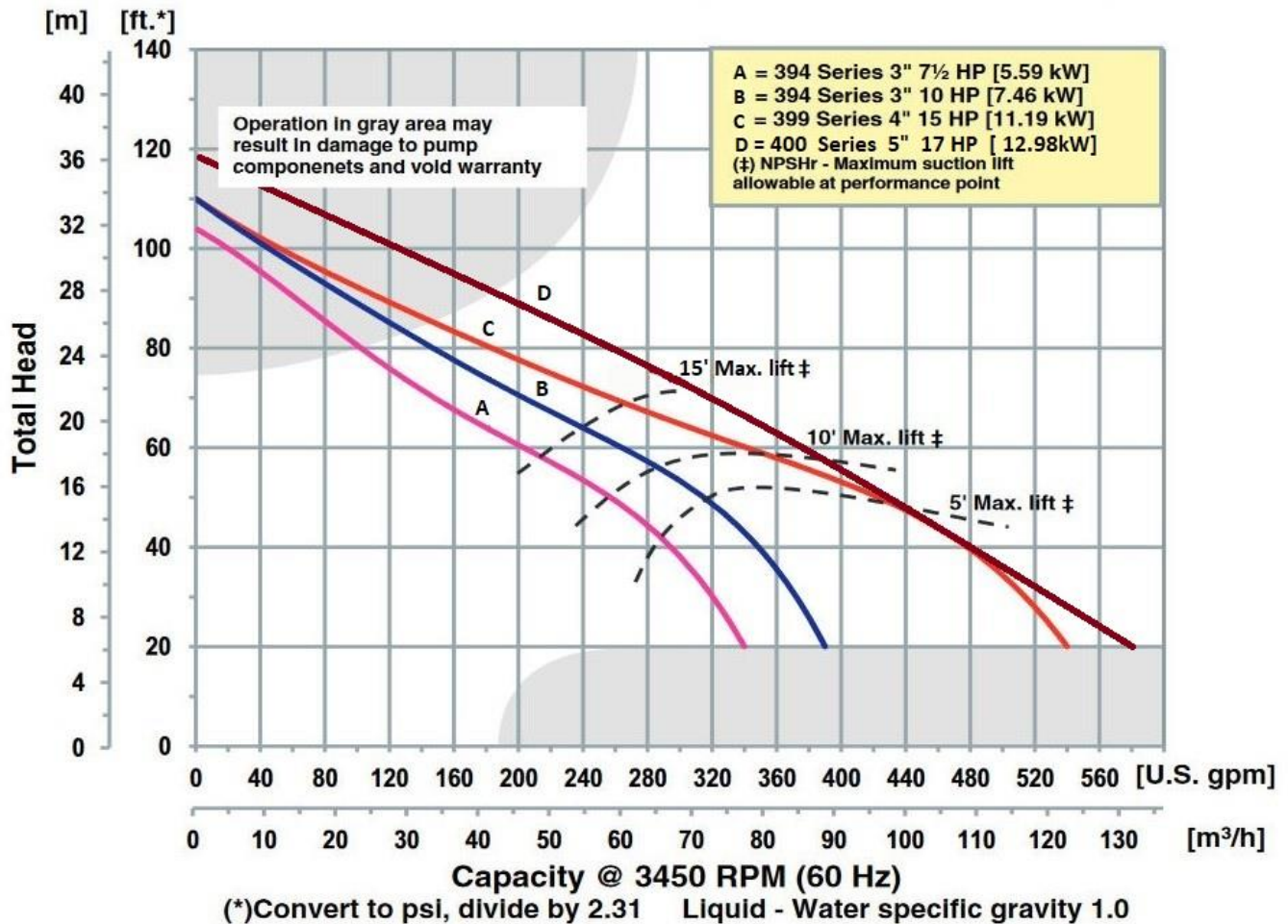




Soil Permeability by class

Soil class	Permeability in/per hour
Coarse Sand	3 1/2
Fine Sand	2
Sandy loam	1
Loam	1/2
Clay Loam	5/16
Silty Clay	3/32
Clay	1/64

Students please affix one of your self adhesive identification labels to this space. Do not obscure other parts of this page with the label. If you do not have a self adhesive identification label, please complete the following information. Write your name as it appears on your badge.

Your _____

Name: _____

Participation Number:

Two letter state abbreviation. →

State code (0301, 0302, to 0350)

Team member number (01, 02, 03, or 04)

			0	3				0
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Students please do not write or mark within this box.

Judges, after this skill sheet has been scored and double checked, write the total score for this activity in the blank below.

Skill Activity Score: _____

Judges Initials: _____

2022 National Agriculture Technology & Mechanical Systems Career Development Event Environmental and Natural Resources Systems Skill Activity

1 hp = 1.341 kW, 1 gal = 7.47 ft³, 1 acre = 43560 ft²

Round to two decimal places 0.05 round up to 0.10 and 0.04 round down to 0.00 (example: 4.219 would be rounded to 4.22, 5.644 would be rounded to 5.64)

Situation: I am a catfish producer in the southern Mississippi river delta region of the United States, and I am coming to you with an issue that I would like some advice about. I have one pond specifically that I am concerned with. This pond measures 200' X 2178' x 5' and at the current time it loses ½" of water per day in the height of the summer. When I built the ponds, I spread and packed a 6" layer of pure clay for the base of each pond. I have the main pump that is working fine and am looking at getting a PTO-driven backup pump to be used to keep my catfish ponds at level in case my main pump fails.

Using the sheet provided answer the following questions:

1. My water has been tested and at its lowest test point measures 61 feet of head. I need to be able to deliver at least 300 gallons per minute and have a 10-foot lift when the tank is nearing empty. What minimum size motor do I need in horsepower for my backup pump? _____
2. What diameter impeller is my pump going to need to have? _____
3. How much water am I losing in gallons per day? _____

4. How much water should I be losing through the soil in one day?
A. 200 gals B. 567 gals C. 4236 gals D. 2178 gals
5. I have calculated about $\frac{3}{8}$ of an inch of evaporation per day, how much excess water am I losing? _____
A. 101,822 gals B. 13,613 gals C. 128,345 gals D. 66,892 gals
6. If I want to keep my pond at or near full using my backup pump how long will it take to fill the pond back up? _____ hrs.
A. 12.5 hrs B. 1 hr C. 24 hrs D. 7.5 hrs
7. My pond has a bloom of filamentous algae, Stink Weed (Chara). According to the extension specialist I need to spread Bluestone (copper sulfate). She sent me the formula to calculate the amount:
(alkalinity/100) x 2.7 lbs. per acre-foot of water. I measured the alkalinity to be 95 ppm.

How much Bluestone do I need to spread _____ Lbs