PRESSURE PLATE SAMPLE PREPARATION PROCEDURE

For Fine grained and Subgrade Soils

Samples are compacted at optimum water content and max density

1. PREPARING THE SAMPLES

A. Obtain **Maximum Dry Density** and **Optimum Moisture Content** from test report
B. Determine amount of soil and water needed for 4 soil samples (see spreadsheet)
C. Mix soil and water in large mixing bowl
D. Place soil in sealed plastic container with a damp paper towel
E. Let the soil sit for 24 hours

2. WEIGHING THE SOIL AND SAMPLE RINGS

A. Obtain 3 rubber bands and cut out 3 pieces of cheesecloth using cardboard template
B. Obtain 3, 1 inch metal rings
C. Record the individual weight of each ring with a piece of cheesecloth and a rubber band
D. Weigh out the amount of wet soil needed for 1 sample (see spreadsheet)

3. PACKING THE RINGS (see Figure 1)

A. Cover the base with a piece of plastic wrap
B. Place 1, 1 inch ring on top of the base
C. Place another 1 inch ring on top of the bottom ring
D. Place the 5.18 inch PVC tube on top of the base
E. Put 1/3 of the soil in the bottom ring.
F. Pack the soil down and score the top with a knife or spatula
G. Repeat the procedure 2 more times with the remaining soil
H. Place a piece of filter paper on top of the soil
I. Put 3, 1.41 inch plugs inside the PVC tube (make sure to put plug marked with black line and star on top)
J. Compress the soil sample in soil press (see Figure 2) until the mark on the top plug lines up with the top of the PVC tube
K. Remove the sample from the tube and attach a piece of cheesecloth to the bottom of the sample with a rubber band
L. Repeat the process 2 more times

Figure 1
Compaction Setup for Small Brass Rings
PREPARING PRESSURE PLATE SAMPLES

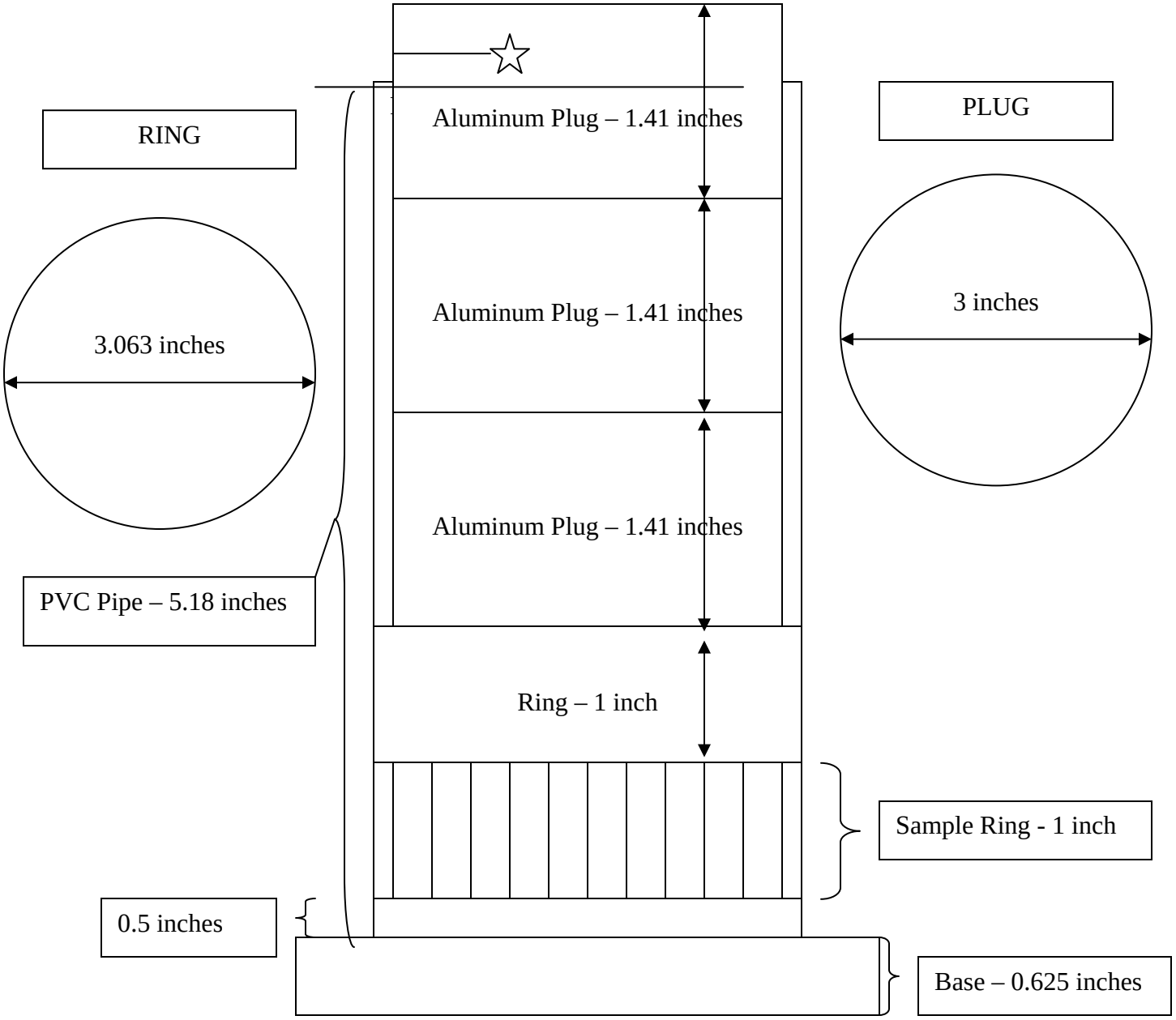

Figure 2: Soil Press

4. SATURATING THE SAMPLES

A. Place all samples, cheesecloth side down, on a pressure plate rated to the pressure you plan to test
B. Place 3, 1 inch rings on the bottom of a large, rectangular tub
C. Put the pressure plate with the samples on top of the rings
D. Fill the tub with **deionized water** until the water is approximately ½ way up the side of the rings
E. Place rectangular pieces of PVC on top of the rings
F. Set containers partially filled with water on top of the pieces of PVC (this step helps to prevent the samples from swelling)
G. Let the samples saturate approximately 4 days or until the top of the soil glistens

5. USING THE PRESSURE PLATES

A. After the samples have saturated, weigh and record the weight of each one (see data recording sheet)
B. Place the plate containing the samples into the pressure chamber
C. Attach the outlet hose to the plate
D. Place the top on the chamber, making sure to tighten each screw well
E. Put the drainage hose into a graduated cylinder and cover the cylinder with a piece of parafilm
F. Set the chamber to desired pressure

6. MEASURING MOISTURE LOSS

G. Record the amount of moisture in the graduated cylinder daily (see data recording sheet)
H. When there is no change in the amount of moisture flowing into the graduated cylinder, remove the plate from the chamber

(WHEN REMOVING A PLATE FROM THE CHAMBER, ALWAYS RELEASE THE PRESSURE BEFORE REMOVING THE TOP)

I. Record the weight of each of the samples
J. Repeat for other pressures

7. DRYING THE SAMPLES

A. After all the pressures have been measured, remove the samples from the plate
B. Obtain 1 drying can for each of the samples
C. Record the weight of each empty drying can (see data recording sheet)
D. Remove the soil from the rings (put only 1 sample in a can)
E. Dry each soil sample at 105° for 24 hours in the lab oven
F. Record the weight of the dry soil and can for each sample (see data recording sheet)

8. DEVELOPING MOISTURE CURVES

A. Enter data into pressure plate calculation spreadsheet
B. Obtain gravimetric and volumetric moisture for each soil
C. Enter data into **Soil Vision** and generate moisture curves for samples