

Materials List for:

Wastewater Irrigation Impacts on Soil Hydraulic Conductivity: Coupled Field Sampling and Laboratory Determination of Saturated Hydraulic Conductivity

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Materials

Name	Company	Catalog Number	Comments
Sampling equipment:			
Soil Sampler Drill Rig	Giddings Machine Co. Inc	#25-TS / Model HDGSRTS	* NOTE: This model is comparable to the model we utilized but which is no longer produced
Kelly Bar	Giddings Machine Co. Inc	#KB-208 8 Ft. Kelly Bar	
Soil Sample Collection Tube	Giddings Machine Co. Inc	#ZC-180 4-3/4" X 7-1/4"	
Soil Collection Tube Bit	Giddings Machine Co. Inc	#ZC-190 4-3/4" Standard Relief	
Plastic Liner for Soil Sample	Giddings Machine Co. Inc	#ZC-208 3-5/8" x 6"	Enough for the number of samples being collected
Black end caps a for bottom of sample liners	Giddings Machine Co. Inc		To retain samples in liners
Red end caps a for top of sample liners	Giddings Machine Co. Inc		To retain samples in liners
Cooler Chest			Store & maintain samples upright in sample liners during transport from field to lab
Protective gear:			
Hardhats, goggles, and gloves			other items as needed for personal protection
Saw			
Drill and bits			
PVC Cement			
6 to 8, 19 mm x 184 mm x 2,438 mm boards			
2 – barbed fittings; 13 mm HB x MGHT			to connect plastic tubing to supply gutter and to drainage gutter
6 – barbed fitting			to connect plastic tubing to outer PVC cylinder to allow for water drainage
3,000 mm long, 19 mm OD / 13 mm ID plastic tubing			
6 – 85 mm diameter circular mesh pieces			Can be cut from (e.g.) a 600 mm long, 6 mm x 18 gauge wire mesh (e.g. galvanized steel gutter guard)
Schedule 40 PVC pipe – 96 mm ID / 114 mm OD			
Schedule 40 PVC pipe – 73 mm ID / 89 mm OD			

Schedule 40 PVC pipe – 63 mm ID / 73 mm OD, OR 6 - 73 mm plastic shower drains			
Schedule 40 PVC pipe – 25 mm ID			
6, 6 mm thick x 155 mm square sheets of PVC			Can purchase 2 – 6 mm x 300 mm (appx) sheets for about \$20 each from: https://www.interstateplastics.com/Pvc-Gray-Sheet-PVCGE~SH.php?vid=2018021222911-7p
6 – 140 mm by 19 mm plastic funnels			To direct water flowing from soil sample into collection beaker
Adhesive caulk			
1 – length of 150 mm x 1,200 mm wire mesh cloth			4 Mesh works well
2 – 120 mm x 1,219 mm plastic gutter with end caps			
4 – gutter hangers			
1 - additional gutter end cap			To be cut as described in procedures to create a constant head in the supply gutter
1 – large plastic tub			Appx 65 L in volume, for example, to serve as water source for the hydraulic conductivity procedure
1 – large plastic tub			To serve for wetting up soil samples
1 – Submersible pump			e.g. Beckett M400 AUL or M400 AS
Plastic tubing			Various sized drainage tubes, water supply tube, and drain from drainage gutter
Container of Cheese Cloth			To place at bottom of soil sample help retain soil in plastic sample container during hydraulic conductivity and wetting up
Rubber bands			Large enough to fit around plastic sample liners tightly
Scale which measures to at least 0.1 g			
Beaker or other container to collect water from each sample			
Sodium Chloride			For creating a water quality similar to that which is typically applied to the soil
Calcium Chloride			For creating a water quality similar to that which is typically applied to the soil