Considerations for Building a Protected Sharps Pit Using a Plastic Barrel as a Pit Liner

1. Identify the appropriate location.
   - Locate pit away from ground water sources.
   - Locate pit away from low areas that frequently flood.
   - If water table is high and/or flooding at the facility is common, consider using an above-ground barrel/funnel approach to reduce risk of ground shifting.
   - If ground is rocky, consider using an above-ground barrel/funnel approach to reduce risk of rocks denting the barrel and compromising its integrity or strength.

2. Identify a builder and purchase the necessary materials.
   - Identify a local construction company with experience building in the area of the facility.
   - Determine the appropriate size barrel for your facility's need. A 55-gallon barrel is estimated to hold 150,000 needles. You may choose to use a smaller-sized barrel based on local availability and syringe-use volumes.
   - Purchase plastic barrels of medium- to high-grade quality. Thick walls will help prevent collapse. Examples of barrels readily available in markets include those used for water or shipment of chemicals.
   - Ensure there are not dents in the barrel before burial. Dents may result in collapse of the pit.
   - If the barrel has a lid, make sure it is strong enough to support several people. If it is not, remove the lid and do not use it in the pit construction.
   - Drill or cut a hole in the lid corresponding to the size of the pipe that will be used for emptying needles into the pit.
   - Other supplies are listed in the drawing on the next page.

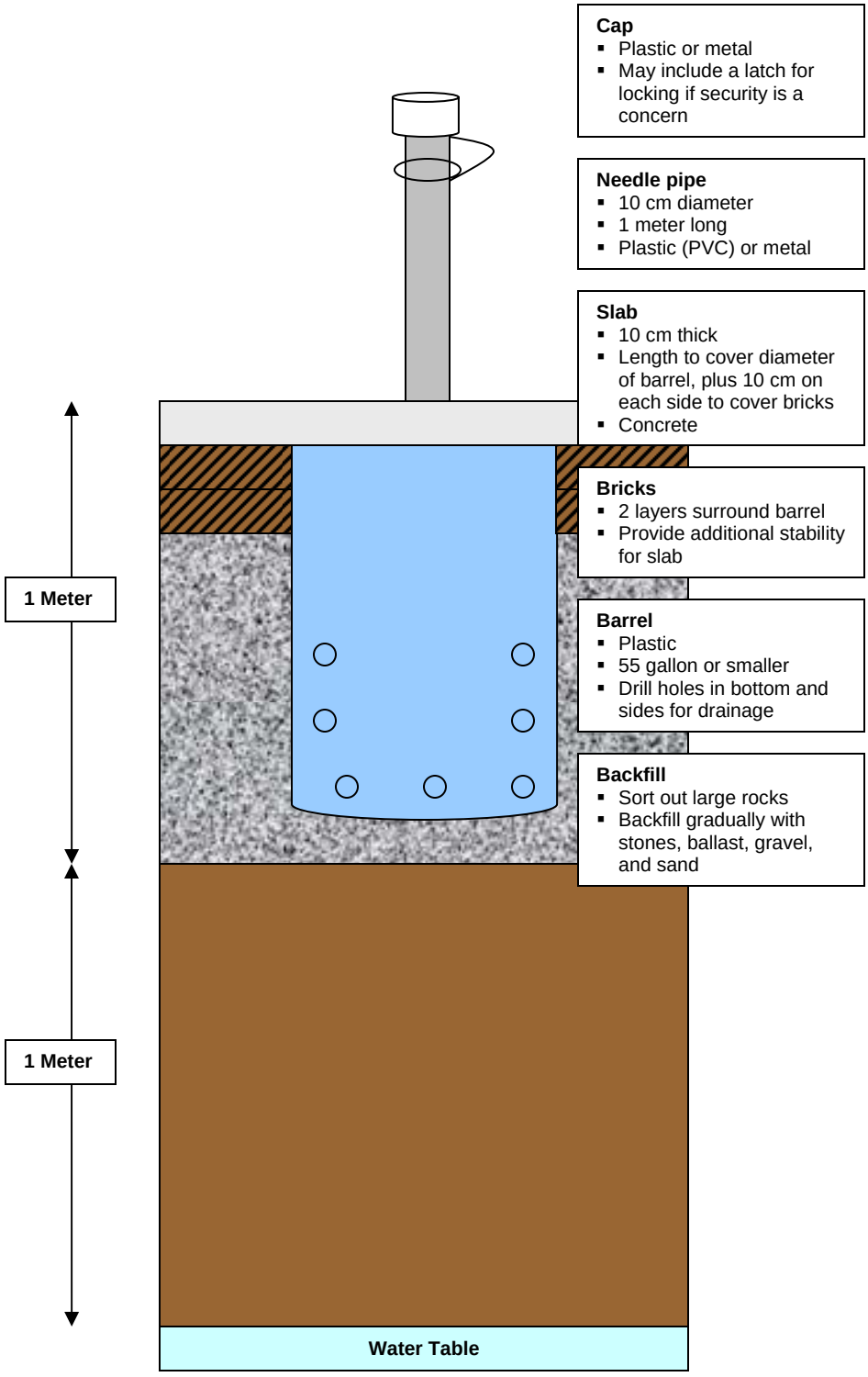
3. Include drainage holes.
   - Puncture the bottom and sides of the barrel several times to allow for drainage.
   - Drainage holes will prevent the barrel from floating up if the water table or flooding becomes a concern.
   - Holes should be no larger than 2 cm in diameter.

4. Construct a sturdy, ground-level cover.
   - Install two layers of bricks around the top of barrel for added stability for the concrete slab cover as shown in the drawing.
   - A cast concrete slab at least 10 cm thick is preferred. This will support the weight of people standing above the barrel when using it and will help hold down the barrel during flooding.
   - Make sure the dirt and gravel over the barrel has been compacted before casting the concrete. This will prevent settling later.
   - Cast the needle tube into the cover as shown in the drawing.

5. Follow guidelines for backfilling around the barrel.
   - Sort out large rocks before backfilling to avoid denting and possibly collapsing the barrel.
   - Backfill gradually with fine gravel and sand packed closest to the barrel.

6. Build a fence around the infectious waste disposal area.
   - The infectious waste disposal area should be fenced and protected to prevent unauthorized access.

7. Keep the cap on the needle tube when not in use.
   - A lid will prevent water from entering the pit.


Cap
Plastic or metal
May include a latch for locking if security is a concern
Needle pipe
10 cm diameter
1 meter long
Plastic (PVC) or metal
Slab
10 cm thick
Length to cover diameter of barrel, plus 10 cm on each side to cover bricks
Concrete
Bricks
2 layers surround barrel
Provide additional stability for slab
Barrel
Plastic
55 gallon or smaller
Drill holes in bottom and sides for drainage
Backfill
Sort out large rocks
Backfill gradually with stones, ballast, gravel, and sand
1 Meter
1 Meter
Water Table