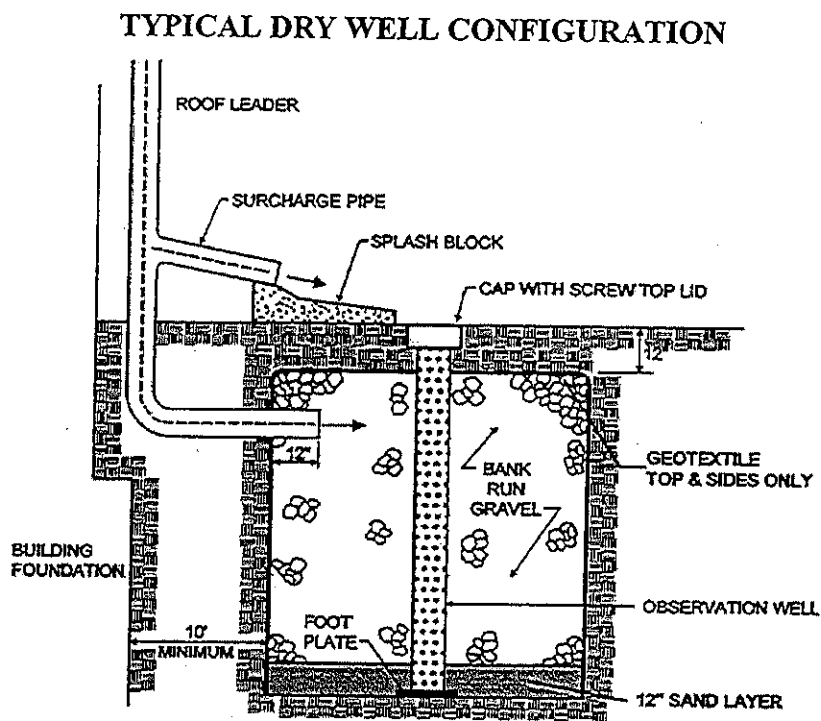


## Dry Wells

Dry wells are effective methods of infiltrating runoff from roof leaders. These facilities should be located a minimum of 10 feet from the building foundation to avoid seepage problems. A dry well can be either a structural prefabricated chamber or an excavated pit filled with aggregate. Construction of a dry well should be performed after all other areas of the site are stabilized, to avoid clogging. During construction, compaction of the subgrade soil should be avoided and construction should be performed with only light machinery. Depth of dry wells in excess of 3 ½ feet should be avoided. Gravel fill should be an average 1.5 – 3.0 inches in diameter. Dry wells should be inspected at least four times annually as well as after large storm events.

FIGURE I-1



Source: Maryland Stormwater Design Manual, 2000

### Example Sizing:

STEP 1 – Determine Total Impervious Surfaces

House Roof Area: 12 ft. x 48 ft. = 576 sq. ft.

STEP 2 – Determine Require Infiltration Volume using Equation

$$\frac{0.46 \text{ in.} \times 576 \text{ sq. ft.}}{12} = 22.1 \text{ cu. ft.}$$

$$\frac{22.1 \text{ cu. ft.}}{0.4*} = 55.3 \text{ cu. ft. (* assume 40% void ratio in gravel bed)}$$

STEP 3 – Sizing of Select Infiltration Method

Volume of facility = Depth x Width x Length

Set D = 3.5 ft.; Set W = L for a square chamber

$$55.3 \text{ cu. ft.} = 3.5 \text{ ft.} \times L \times L; L = 4.0 \text{ ft.}$$

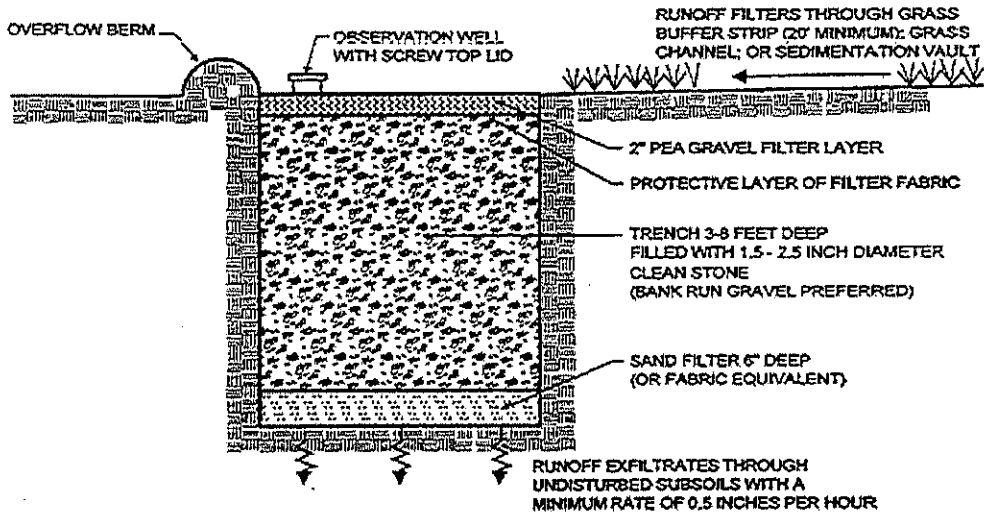
Final Facility Dimensions: 3.5 ft. (D) x 4.0 ft. (W) x 4.0 ft. (L)

### **Infiltration Trenches**

An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix. Infiltration trenches perform well for removal of fine sediment and associated pollutants. Pretreatment using buffer strips, swales, or detention basins is important for limiting amounts of coarse sediment entering the trench which can clog and render the trench ineffective.

FIGURE I-2

TYPICAL INFILTRATION TRENCH CONFIGURATION



Source: Maryland Stormwater Design Manual, 2000

Example Sizing:

STEP 1 – Determine Total Impervious Surfaces

Driveway	12 ft. x 50 ft.	=	600 sq. ft.
Parking Pad	12 ft. x 12 ft.	=	144 sq. ft.
Walkway	6 ft. x 20 ft.	=	120 sq. ft.
			-----
			864 sq. ft.

STEP 2 – Determine Required Infiltration Volume using Equation

$$\frac{0.46 \text{ in.} \times 864 \text{ sq. ft.}}{12} = 33.1 \text{ cu. ft.}$$

$$\frac{33.1 \text{ cu. ft.}}{0.4} = 82.8 \text{ cu. ft.} \text{ (* assume 40\% void ratio in gravel bed)}$$

STEP 3 – Sizing of Select Infiltration Method

Volume of facility = Depth x Width x Length

Set D = 3 ft.; Determine Required Surface Area of Trench

$$82.8 \text{ cu. ft.} / 3 \text{ ft.} = 27.6 \text{ sq. ft.}$$

The width of the trench should be greater than 2 times its depth (2 x D); therefore in this example a trench width of 6 feet is selected;

Determine trench length:  $L = 27.6 \text{ sq. ft.} / 6 \text{ ft} = 4.6 \text{ ft.}$

Final Trench Dimensions: 3 ft. (D) x 6 ft. (W) x 4.6 ft. (L)

FIGURE I-3

SAMPLE SITE SKETCH PLAN

