

Dry Wells

For Your Home

Does Your Yard Flood Frequently?

A dry well is an underground structure that dissipates runoff rainwater. A dry well is composed of a perforated pipe that directs roof runoff into a small pit lined with gravel. This pit helps filter harmful chemicals.



photo: www.canalelandscaping.com

A dry well is a perforated pipe that drains into a small pit filled with gravel. Only roof runoff should be redirected into a dry well. The following instructions are for a very simple dry well. If your yard frequently floods you may want to install more than one dry well.

Cold Climate Considerations:

The dry well must be disconnected from the downspout in the fall to prevent ice dams from forming in the gutters.

Materials:

- Gravel
- Geotextile fabric
- Universal downspout adapter or flexible down spout extension

Tools:

- Post hole digger
- Shovel
- Tape measure

Steps:

1. Find a suitable area on your property:
 - a. Do not build a dry well in permafrost.
 - b. Note the direction of runoff and low spots where water collects. These would be good locations for a dry well as long as they follow the location constraints below.
 - c. Only roof runoff should be redirected into a dry well.
 - d. Make sure that the chosen location is downhill and at least ten feet away from buildings with basements.
 - e. Location should not be on or near septic tanks or wellheads. It is not advisable to plant a garden on top of the dry well.
 - f. Before you dig, be aware of underground service lines or utilities on your property. Call 1-800-478-3121 or go on-line at www.akonecall.com to have the underground lines marked for you.
 - g. Test the infiltration rate of your soil:
 - h. Dig an eight by eight inch hole within the designated area after the ground has had enough time to thaw in the spring.
 - i. Fill the hole with water and check the depth of the water every hour for at least three hours.
 - j. If the water level in the hole goes down on average at least one inch an hour your soil will be able to drain effectively for a rain garden.
 - k. If it takes longer than eight hours for the hole to completely drain, then you will want to put a gravel layer under your rain garden.
 - l. Most locations in Fairbanks have well draining soils. If you live in the hills surrounding Fairbanks, you may have poorly draining soils.
 2. Use a post hole digger to make a narrow hole. The hole should be three to six feet deep and one to three feet wide.
 3. The dry well will last much longer if you line the hole with geotextile fabric to keep the soil separate from the gravel fill.
 4. Redirect downspouts to flow into the designated area by constructing channels, swales, or pipes.
 - To create berms along the downhill side of the dry well:
 - a. Pile up an appropriate amount of soil using left over soil from the dry well hole. Usually five inches tall is sufficient to retain water but not drown plants.
 - b. Compact the soil by walking on it and tamping it down well.
 - c. To help minimize erosion of the berms, either put a two inch layer of mulch on the berm or plant drought resistant plants for ground cover. Rock Cress (*Arabis arendsii*), Gold Creeping Jenny (*Lysimachia mummularia* 'Aurea'), and Field Pussetoes (*Antennaria neglecta* 'Greene') are some good choices.
 - To create a swale from the downspout to the dry well:
 - a. The swale can be as wide or narrow as you want it, and does not need to be very deep.
 - b. The slope of the swale should be not more than 3:1, horizontal to vertical.
 - c. Remove the sod and dig a trench with the dimensions you wish your swale to be.
 - d. Once you have finished your trench, either replace the sod or reseed the swale. You will need to water the sod or
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seeds well until they are established.

e. Attach a universal downspout adapter to the downspout and redirect it into the swale.

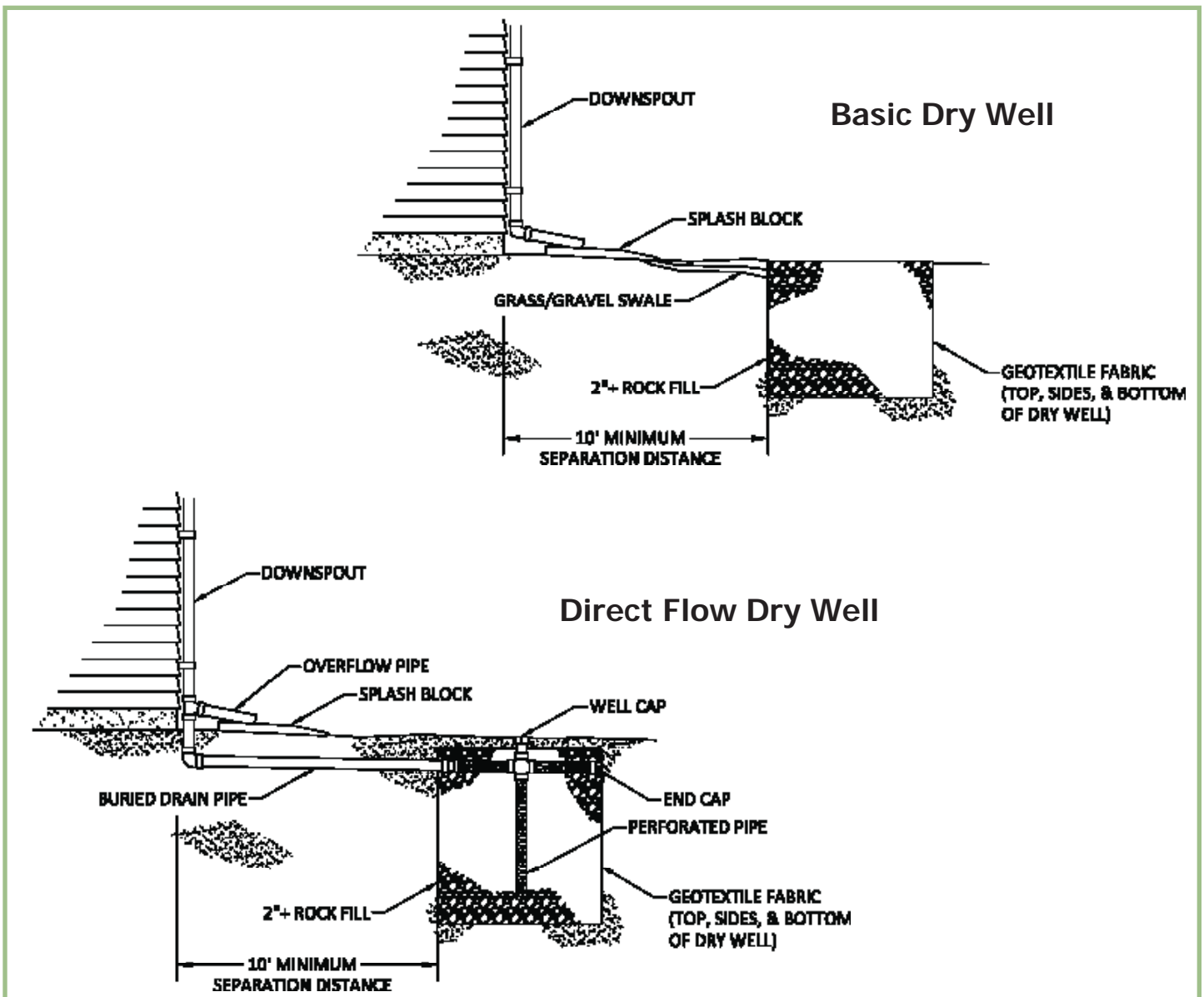
5. Fill the dry well hole with gravel or place a perforated PVC pipe in the hole then fill with gravel.
6. Line the top of the well with more geotextile fabric to keep the soil separate from the gravel fill. This will keep the top soil and grass in place. It is not advisable to plant a garden on top of the dry well.

Variations:

Direct flow dry well: You can attach a PVC pipe to your downspout and bury it in a shallow trench that leads to the dry well. If you use this option you need to make sure that you can disconnect the PVC pipe from your downspout in the fall to prevent ice dams from forming in your gutters. This type is demonstrated (in the diagram below) (in diagram A) (in the direct flow dry well diagram).

Prefabricated dry well: There are multiple dry well kits available for home installation. If you purchase a kit, follow the manufacturer's directions when installing it.

Intermediate sump box dry well: Instead of directly connecting your downspout to the PVC pipe, you can have the downspout directed to a sump box. This box will collect the water and it will pass through a wire screen to keep debris out before it flows through the PVC pipe that is attached to the bottom of the box. Consult the Middletown Township source below for more information on this type.



Maintenance:

- Disconnecting the downspout from the PVC pipe in the fall and reconnecting it in the spring.

Cost Estimate:

- \$10 to \$20 per well

Time Estimate:

- This project should take one to two days to complete.

Pros:

- Reduces water runoff
- Increases groundwater infiltration
- Requires limited space
- Minimal maintenance required
- Homeowner can install without assistance

Cons:

- Can't process large volumes of water
- Surface freezing reduces the water retention potential
- The perforated pipe can become blocked by ice or soil

For more information about the Green Infrastructure Project please visit: www.cchrc.org/green-infrastructure

Sources:

Pennsylvania Stormwater Management Manual, French Drains
www.bfenvironmental.com/pdfs/Frenchdrains.pdf
Poribesh, Drywell for Stormwater Drainage
www.poribesh.org/Documents/drywell.pdf
Tree People, Install a Drywell
www.treepeople.org/install-drywell



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