




Water in Yard Drainage System

List of Tools Needed, Shopping List, and Installation Instructions

 Low Capacity

 **6-8 Hours**
Total Man Hours

 **\$80-\$95**
Material Costs

 9 Tools Needed

TOOLS NEEDED



Saw



Level



Measuring Tape



Pick



PVC Glue



Shovel



Plastic or Tarp



Trenching Machine
(Optional)



Clear Waterproof
Silicone

SHOPPING LIST

Quantity needed of each part will vary based on several factors specific to your project including system length, rainfall intensity, and number of problem areas. Pipe and fittings are offered in two sizes: 3" and 4". Size availability will vary based on region and store.

Ensure that component sizes are consistent throughout your drainage system.

Refer to drainage calculators on NDSPRO.com for pipe & system sizing.

NDS Part Number	Description
321 or 421	3" or 4" Pop-up Emitter with Elbow
3P02 or 4P02	3" or 4" Sewer and Drain Elbow
Generic	3" or 4" SDR35 Drain Pipe
16 or 13	3" or 4" round Grate

INSTALLATION INSTRUCTIONS



Note Before You Dig

Prior to installation, have your local utility companies locate and mark the location of existing utilities. Layout your drainage system and mark the location of trenches and individual parts to be installed with marking paint before digging. Carefully remove grass or plants that are located where the trench will be dug so they can be replanted after installation. Trenches should be dug such that they slope a minimum of 1% away from your house. Place all excavated dirt on a tarp so that it can be used later to backfill.

To speed up installation, a trenching machine can be used to dig all trenches, especially in areas with particularly hard soil. NDS drainage products have been designed to be installed in any soil type. Due to the variety of pipe types and sizes, double check that all pipe connection points are the correct size. Please follow all installation directions included with the individual parts of your drainage system. To create watertight connections between products, apply a bead of waterproof silicone to both parts and connect.

This system requires that the elevation of the Pop-Up Emitter be lower than the elevation of the area drain or the system will not drain.

Step 1:

Lay out system, dig trenches and holes

Dig trench for drain pipe. Dry fit (no glue) the entire drainage system from the atrium grate to the pop-up emitter. Measure and cut all pipe to necessary lengths. After completing each step, glue parts together add if a water tight connection is required.



Step 2:

Install area drain and drain pipe

Connect the grate to an elbow and then to drain pipe. Run length of drain pipe to where the stormwater will be discharged through a Pop Up Emitter.



Step 3:

Install Pop-Up Emitter

Connect pipe to an elbow with a weep hole. The elbow should be installed with the weep hole on the horizontal side of the elbow. Slide the Pop-up Emitter onto the elbow. An additional length of pipe can be used between the elbow and Pop-Up Emitter to bring the Pop-up emitter to the surface. The Pop-Up Emitter fits on the "bell" or "hub" end of the pipe or a pipe coupler.



TIP: To avoid damaging your Pop-Up Emitter with your lawnmower, raise the cutting level of the blades or avoid passing the mower over the Pop-Up Emitter.



Step 4:

Backfill and Replant

Backfill and replace any grass or plants that were removed.