



Lake Wise  
lake friendly living

Lake friendly living  
means using lakeshore  
BEST MANAGEMENT  
PRACTICES

### BMP

Turnouts: An acceptable best management practice for addressing stormwater runoff from slopes and impervious surface under the Shoreland Protection Act (Chapter 49A of Title 10, § 1441 *et seq.*).

### LAKE BENEFITS

On camp roads and driveways, the biggest concern is to get water off the road surface quickly. When surface water is not drained off the road, it leads to sediments running off into the lake. Turnouts, in conjunction with ditches, fan runoff into vegetation where it infiltrates into the surrounding soil.

### MATERIALS

A small backhoe or shovel can be used to build a turnout. Stabilization may require appropriately sized stone or rip-rap for outlet protection, non-woven geotextile fabric, erosion control matting, and seed/mulch to stabilize disturbed areas.



# Turnouts

## Controlling Stormwater Runoff

**Description:** Turnouts are extensions of ditches that redirect water into the vegetated buffers and disperse runoff before it can cause erosion.

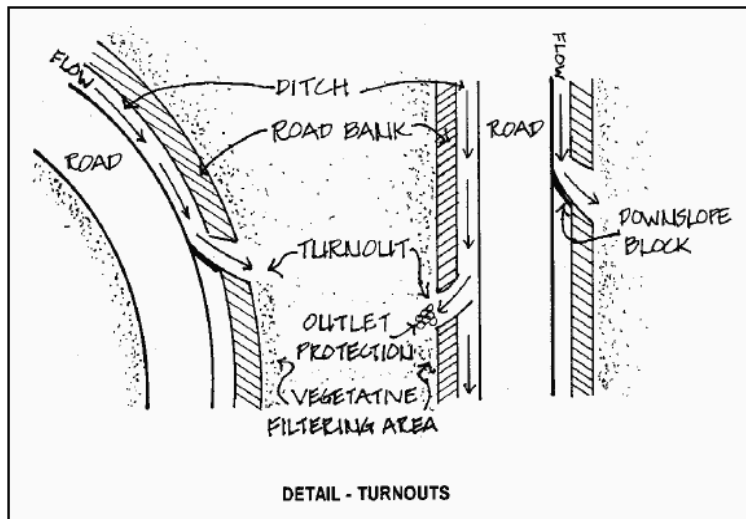
**Purpose:** Turnouts return stormwater runoff as sheet flow to natural drainage areas. Turnouts reduce the speed of runoff, allowing soil particles to settle out instead of being transported to a stream, river, or lake. Water and nutrients can then be filtered and absorbed by the surrounding vegetation.

**How to:** Turnouts are used to direct water away from the road into a vegetated buffer and can be constructed on paved or gravel camp roads and driveways with or without ditches.

- ◆ Turnouts can be the width of a backhoe bucket, a bulldozer blade, or a handheld shovel, but should be sited and sized to handle contributing drainage area.
- ◆ Turnouts should intersect the ditch at the same depth, and gently slope down and away from the road. Because it is easier to disperse smaller volumes of water at a time, turnouts should be constructed as often as possible. At a minimum turnouts should be placed every 50 feet, where possible.
- ◆ Utilize the natural contours of the land and install turnouts frequently enough to prevent large volumes of runoff from accumulating along the side of the road.
- ◆ Turnouts should be placed closer on steeper slopes. However, check with abutting property owners to ensure this water will not adversely impact their property.



Ditched turnouts channel water away from the road into vegetated buffers.



DETAIL - TURNOUTS

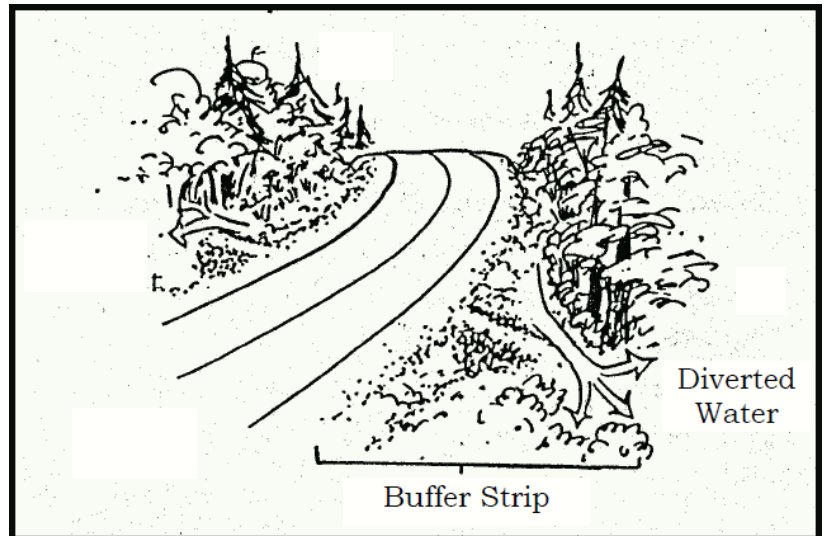
Source: Gravel Road Maintenance Manual

Source: Vermont Better Back Roads Manual


# Turnouts

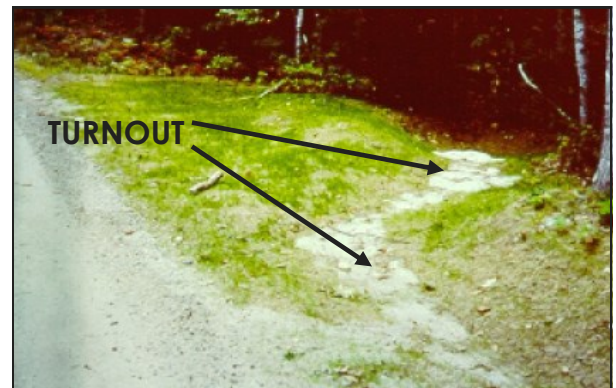
## Controlling stormwater runoff

- ◆ Turnouts should be stabilized so as to not create additional soil erosion.
- ◆ As with ditches, turnouts must be stabilized to keep from causing further erosion problems as they discharge stormwater away from the road. Turnouts with less than a 5% slope can be seeded with a conservation mix and mulched with hay or an erosion control blanket until the seed germinates. On steeper slopes, secure non-woven geotextile fabric on the soil and cover with 3"-6" stone rip-rap.
- ◆ Care needs to be taken on the outlet of the structure. It is vital that the channeled water be spread out and slowed so it does not erode the neighboring land. Turnouts should have a flared end section that is level and lined with rock to spread out the flow. This level-lip spreader or rock dam converts the concentrated, channeled flow into slower, sheet flow just before it discharges into the vegetated area. Use 4"-6" crushed, angular stone for the outlet. A rock apron can also be use to slow and filter flow.



**Note:** Most importantly, do not outlet turnouts into existing stream channels, wetlands, wetland buffers, or drainage ways.

**Maintenance:**  Because the turnout may have a secondary function as a small sediment trap, maintenance is critical to ensure excessive sedimentation from storm events does not fill the structure and render it nonfunctional. Check turnouts during and after large storm events for erosion or accumulation of debris. Any turnout will fill with sediment over time, and it is critical to remove this material for the structure to function properly. Confirm that water flows evenly into the vegetation, and does not form an erosive channel. Shift stone, as needed, to stop any channelized flow. Have a post-storm plan in place for checking for damage and determining maintenance needs.



Source: Maine DEP