
ENVIRONMENTAL Fact Sheet



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SP-1

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Erosion Control for Construction in the Protected Shoreland Buffer Zone

EROSION IS A SERIOUS PROBLEM

Erosion is the process by which soil is carried by water or wind. When water carries soil into a waterbody, it not only fills in the waterbody but contributes nutrients that algae and aquatic weeds need to grow. When vegetation is removed or ground is disturbed, erosion accelerates, overloading the waterbody with nutrients and sediment. This can often contribute to excessive algae and aquatic weed growth, reducing the clarity and quality of the water.

Erosion at construction sites is a leading cause of water quality problems in New Hampshire waterbodies. Soils become vulnerable to erosion when construction activity removes or disturbs vegetative cover. These vegetative covers shield soil surface from the impact of rain, reduce the velocity of runoff, maintain the soil's capacity to absorb water, and hold soil particles in place. By limiting and phasing vegetation removal during construction, soil erosion can be significantly reduced.

The New Hampshire Comprehensive Shoreland Protection Act (CSPA) was passed to protect New Hampshire's lakes, ponds, rivers, and estuaries. The CSPA requires that any excavation or earth moving in protected shoreland must have appropriate erosion and sedimentation controls in accordance with the Alteration of Terrain Program (RSA 485-A:17 and Env-Ws 415). This fact sheet explains some methods to limit erosion during construction within the protected shoreland.

Problems caused by sediment include:

- **Lower Property Values:** Property values may decline when a lake, pond or stream fills with sediment. Shallow areas encourage weed growth and create boating hazards.
- **Poor Fishing:** Muddy water drives away fish like chain pickerel that rely on sight to feed. As it settles, sediment smothers gravel beds where fish like smallmouth bass find food and lay their eggs.
- **Nuisance Growth of Weeds and Algae:** Sediment carries nutrients that feed algae and aquatic weeds.
- **Loss of Tourism:** Shallow, mucky lakes, ponds and streams are not attractive to tourists or local residents.
- **Local Tax Impacts:** Cleaning up sediment in streets, sewers and ditches adds extra costs to local government budgets.

PREVENTING EROSION IS EASY

- Erosion control is important to protect the quality of New Hampshire's public waters. The materials needed are easy to find and are relatively inexpensive: hay bales or silt fence, stakes, mulch, gravel, and grass seed.
- Putting these materials to use is a straight forward process. Only a few controls are needed on most sites.
- **Silt Fence or Hay Bales:** These are used to trap sediment on the down slope side of the lot. Proper installation is the key to success.
- **Hay/Straw Mulch:** This is used to cover disturbed soil and prevent erosion, promotes seed growth.
- **Temporary Diversions:** These structures route clean water from up slope areas around the site.
- **Soil Pile Location:** Locate erodible materials away from any roads or waterways.
- **Gravel Drive:** Use gravel to limit the tracking of mud onto streets. Use of geotextiles under gravel stops pumping of gravel into underlying sediment and saves on maintenance.
- **Cleanup:** Reclaim sediments that are carried off site by vehicles or storms.
- **Downspout Extenders:** These prevent erosion from roof runoff and safe outlets to prevent scour. Vegetation, stone basins, and level spreaders are useful in outlet protection.
- **Vegetation:** Preserving existing trees and vegetation where possible to prevent erosion.
- **Revegetation:** Replant and seed sites as soon as possible with natural or native species. Do not underestimate the success of frost seeding and mulch as an alternative to leaving a slope bare until spring planting season.

HAY BALE OR SILT FENCE

- Put up before any other work is done.
- Install on down slope side(s) of site with ends extended up side slopes a short distance.
- Place parallel to the contour of the land to allow water to pond behind the fence.
- Entrench 4 inches deep (see back page). Stake (2 stakes per hay bale or 1 stake every 3 feet for silt fence).
- Leave no gaps between hay bales or sections of silt fence.
- Inspect and repair once a week and after every ½ inch rain. Remove sediment if deposits reach half the fence height.
- Maintain until lawn is established or soil is stable.

HAY/STRAW MULCH

- Place sufficient amount on disturbed soils as soon as possible so that surface of soil is not visible.
- On small areas hold mulch by wetting, stakes, or string.
- Required for seeding outside normal seeding season.

TEMPORARY DIVERSION OF RUNOFF

- Install diversion upslope of disturbed areas where runoff is coming onto property from upslope areas.
- Should be 1 to 2 feet deep with 1 foot bottom width and 3:1 side slope.
- Do not use to intercept intermittent or perennial streams or dam wetland areas.
- Stabilize with erosion control matting prior to use.

- Install diversions that divert runoff into vegetated areas.

SOIL PILES

- Locate away from steep slopes, any downslope street, driveway, stream, lake, wetland, ditch, or drainage way.
- Temporary mulch seed such as annual rye, oats, or winter (cereal rye) is recommended for topsoil piles.
- Slash piles are not allowed within 50 feet of the reference line of any waterbody.

GRAVEL DRIVE

- Install a single access drive using 2 to 3 inch aggregate.
- Lay gravel 6 inches deep and 7 feet wide from the foundation to the street (or 50 feet if less).
- Use to prevent tracking dirt onto the road by all vehicles.
- Maintain throughout construction.

SEDIMENT CLEANUP

By the end of each work day or after a storm, sweep or scrape up soil tracked onto the road or use a gravel buffer strip between construction site and paved road.

DOWNSPOUT EXTENDERS

- Ground gutters (lined outlets on the ground under the dripeaves) work well also.
- Highly recommended for sites with steep slopes.
- The key to either system is an adequately protected outlet.
- Install as soon as gutters and downspouts are completed.
- Route water to a vegetated area.
- Maintain until lawn is established or soil is stable.

REVEGETATION

- Seed, sod or mulch bare soil as soon as possible.
- Replant with native or naturalized species.
- If using light mulch (prone to wind movement), use a tackifier or krimp by tracking with a bulldozer to keep mulch in place.
- Erosion control blankets, although more costly, are extremely effective and can be purchased already impregnated with seed.

SEEDING AND MULCHING

- Spread 6 inches of topsoil.
- Fertilizer cannot be used within 25 feet of public waters. Plant a buffer that does not require fertilizers.
- Twenty-five feet beyond the reference line, low phosphate, slow release nitrogen fertilizer or limestone, may be used on lawns or areas with grass.

TIMING IS CRUCIAL

- Fertilization should not be done until vegetation has germinated. If site is fertilized in winter and planted in spring, all value of fertilizer will have leached by the time of planting.
- Seed with an appropriate mix for the site (see table).
- Rake lightly to cover seed with 1/4" of soil. Roll lightly.
- Mulch with hay or straw (70-90 lb. or one bale per 1000 sq. ft.). Tack mulch if prone to wind erosion.
- Anchor mulch by punching 2 inches into the soil with a dull, weighted disk or by using netting or other measures on steep slopes.
- Water gently every day or two to keep soil moist. Less watering is needed once grass is 2 inches tall. (This is when fertilizer should be applied.)

SODDING

- Spread 6 inches of topsoil and lightly water the soil.
- Lay sod. Tamp or roll lightly.
- On slopes, lay sod starting at the bottom and work toward the top. Peg each piece down in several places.
- Initial watering should wet soil 6 inches deep (or until water stands 1 inch deep in a straight-sided container). Then water lightly every day or two for 2 weeks.
- If construction is completed after September 15, seeding or sodding may be delayed. Applying mulch or temporary seed (such as rye or winter rye) is recommended if weather permits. Hay bales or silt fences must be maintained until final seeding or sodding is completed in the spring (by June 1) or until all soils are stable.

PRESERVING EXISTING VEGETATION

- Wherever possible, preserve existing trees, shrubs, and other vegetation.
- To prevent root damage, do not grade, place soil piles, or park vehicles near trees marked for preservation.
- Use top diameter of canopy as guideline to root width.
- Under the Shoreland Protection Act, stumps cannot be removed within 50 feet of the reference line.
- Place plastic mesh or snow fence barriers around trees to protect the trees and the area directly below their branches-using canopy diameter as the guideline for distance from the trunk needing protection.

Seed	Seeding Rates (Lbs./1000sq.ft.)	Seeding Rates (Lbs/Ac.)	Recommended Seeding Dates
Winter Rye	2.6	112(2.0bu)	8/15-10/1 (FALL)
Oats	2	80(2.5bu)	4/1-7/1 8/15-9/15
Annual Ryegrass	1	40(1.0bu)	4/1-6/1
Perennial Ryegrass	0.7	30(1.5bu)	4/1-6/1 8/15-9/15

For more information, contact NHDES Wetlands Bureau, Shoreland Protection Program (603) 271-2147, or go to www.des.nh.gov and search "Shoreland Protection."