

Massachusetts
**Highly Erodible Soils
and
Potentially Highly Erodible Soils**

Introduction

Natural processes continually create new soil from the raw underlying parent material or from bedrock. For most soils in the state, these processes offset about 3 tons per acre of erosion each year. Erosion slower than the rate of replacement is considered “tolerable.” Each soil is assigned a tolerance value based mainly on the thickness of the soil above bedrock or unaltered parent material.

Natural Resources Conservation Service soil scientists and soil conservationists determine if a soil or map unit is highly erodible or potentially highly erodible due to sheet and rill erosion. This is done by using the Universal Soil Loss equation (USLE). The USLE related the effects of rainfall, soil characteristics, and length and steepness of slope to the soil’s tolerable erosion rate by water.

Definition of Highly Erodible Soil

A highly erodible soil/map unit is a soil with a maximum potential for erosion that equals or exceeds eight times the tolerable erosion rate. This can be represented by the formula – $RKLS/T \geq 8$. The formula does not consider crop management or conservation practices, which influence the actual erosion rate.

Criteria for Highly Erodible Soil Map Units

The procedure used to determine whether a given soil map unit qualifies as highly erodible land or potentially highly erodible land follows:

Step 1: For each soil map unit in the county soil legend, calculate the minimum LS value required for $RKLS/T \geq 8$ by solving for LS; i.e., $LS = 8T/RK$.

Step 2: Refer to Appendix A for an example of how the erodibility of a map unit is determined and the criteria for placing map units in potentially highly erodible lists and highly erodible lists.