ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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Tree Growth On and Adjacent to Dams

One of the most frequently required repairs that the NHDES Dam Bureau requests dam owners to complete is the removal of trees and woody growth that is on or near their dams. This is because the majority of the active dams in the state are either completely or partially earthen embankment type structures. This is not to say that only earthen dams are susceptible to the detrimental effects that trees and woody growth can cause. The stability of all dams, regardless of construction, can be threatened by the presence of these types of vegetation. Some of the potential problems that trees and other woody growth can lead to are listed and described below.

Uprooting or Overturning
Probably the most potentially dangerous aspect of tree growth on dams is their sudden uprooting. This can result in the displacement of a relatively large amount of embankment material, thereby lowering the dam crest, reducing the effective width of the dam, or facilitating seepage. Uprooting trees can also cause structural damage to concrete, stone, steel, or timber structures simply by the act of overturning or by falling onto them.

Root Spreading and Infiltration
Although root systems vary from tree to tree, their effects are considered a detriment to the integrity of the dam. Mostly these effects are related to the uprooting of trees as described above, however, another potential danger associated with roots is their providing seepage paths through the dam. This type of seepage occurs slowly as the roots reach into the impoundment and open paths for seepage, which can, in time, penetrate deeper into the dam embankment. If the seepage eventually finds an exit and attains a velocity, which is fast enough to carry away embankment material, an uncontrollable piping situation may develop. It is also possible that the tree roots will find their way into cracks and joints of stone and concrete and cause additional cracking or displacement.

Hindering Visual Inspection – Trees and Wood Vegetation
In some cases, the concentration of trees and woody vegetation on an embankment is so dense that a visual evaluation of the dam cannot be performed. This can lead to deficiencies going unnoticed, which in turn can affect the integrity and stability of the dam.

Providing Excessive Shade – Trees and woody vegetation
Trees and woody vegetation growing on or near dams can act as obstructions that prevent sufficient

sunlight from reaching the embankment. This can hinder or eliminate the potential for establishing a desirable grassy vegetation. The absence of stabilizing growth makes the earthen embankment sections of a dam susceptible to erosion damage.

The present NHDES policy regarding trees and other woody vegetation is to restrict them from all sections of the dam structure, from within 15 feet of both abutments, and from within 15 feet of the downstream toe. If adhered to, this policy will in most cases protect a dam from detrimental effects that these types of vegetation can cause.

For more information, relative to the design, construction, maintenance and operation of dams, please contact the NHDES Dam Bureau at (603) 271-3406 or email damsafety@des.nh.gov. General information is available at NHDES Dam Bureau Webpage. You may also visit our office at 29 Hazen Drive, Concord, NH.

This fact sheet is accurate as of December 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.