Outlook

Fw: Tree Removal from Earthen Embankment Dams

From Scott Langford <scott.langford@tyronega.gov>
Date Fri 9/13/2024 1:21 PM
To Phillip Trocquet <phillip.trocquet@tyronega.gov>
Cc Brandon Perkins <brandon.perkins@tyronega.gov>

See below about Shamrock Park dam.

From: Tyler Coats <tcoats@schnabel-eng.com>
Sent: Thursday, September 12, 2024 10:04 AM
To: Scott Langford <scott.langford@tyronega.gov>
Cc: Michael Gee <mgee@schnabel-eng.com>
Subject: Tree Removal from Earthen Embankment Dams

Scott,

Based on our phone conversation last week, I am providing an opinion to you regarding the removal of trees from earthen embankment dams. In general, Schnabel recommends the removal of trees and their root systems from earthen embankment dams. This recommendation is based, in part, on guidance from the Georgia Safe Dams Program, the Association of State Dam Safety Officials and FEMA. References from these groups are linked below:

- Georgia Safe Dams: https://epd.georgia.gov/safe-dams-program-frequently-asked-questions-faq
- ASDSO: https://damsafety.org/dam-owners/trees-and-brush
- FEMA: https://www.fema.gov/sites/default/files/2020-08/fema-534.pdf

In summary, the main reasons that trees and brush should not be permitted on earthen embankment dams are:

- Root systems can provide preferential seepage paths for water through the dam that can contribute to the migration of soils (internal erosion) of the dam
  - Rotting/decaying root systems leave behind voids which can encourage seepage or result in the potential for collapse of soils
- Trees that fall over can leave large holes in the embankment surface that weaken the embankment and lead to further erosion
- Trees and inappropriate vegetation obscure/obstruct the ability of observers to visually inspect the condition of earthen dams, and can mask the activities of burrowing animals, uncontrolled seepage, or concerning changes in embankment geometry (depressions, sloughs, or slides)
- Trees adjacent to concrete structures or pipes, such as spillways, can eventually cause damage or obstruct flow

The Georgia Safe Dams Program website includes this response to the frequently asked question, “What types of trees and vegetation are not allowed to grow on my dam?”:

- A healthy cover of grass is desirable as erosion protection. The growth of deep-rooted vegetation, such as large shrubs and trees, is undesirable as it may decrease the integrity of the dam. If the trees and shrubs are less than 8” in diameter, the trees and shrubs must be removed from the dam, any holes must be filled in and compacted, and the area must be seeded. If the trees and shrubs are greater than 8” in diameter, then an engineer must be hired to determine the best way to safely remove the inappropriate vegetation and repair the dam. Appropriate vegetation such as grass should be regularly mowed to allow for easy identification of problems with the dam.

With regard to the extent of tree removal, Schnabel typically recommends that trees be removed a minimum of twenty (20) feet from all portion of the earthen embankment dam footprint, to include the abutment contacts and toes of the dam. Depending on the orientation of dams, trees in the immediate vicinity of dams can inhibit sunlight, which can have a detrimental effect on establishing and maintaining a healthy cover of grass on the surface of the dam.

I hope this information is useful to you. If you would like to discuss any details of this opinion, please let me know.

Tyler

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