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DATE: February 13, 2026

MEMORANDUM

To: All Regional Engineers and Staff

From: Dam Safety Raleigh Central Office

Subject: Guidelines for Dam Breach Plans

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On August 9, 2022 a guidance document was issued providing guidelines for designing plans for a dam breach that are suitable for approval by the North Carolina Dam Safety Program. The purpose of this memorandum is to revise this guidance to reflect an up-to-date consensus on what approvable dam breach plans should entail. The new revised guidance is provided below:

**General note: Spillway Design Flood (SDF) is defined in 15A NCAC 02K .0205 "SPILLWAY DESIGN".**

1. A dam breach should consist of either:
    a. A sufficiently sized and excavated breach channel through the embankment with a lined/armored channel throughout, or,
    b. A sufficiently sized pipe/culvert through the embankment.

2. The excavated breach channel or pipe/culvert should be sufficiently sized to convey the pre-decommissioned dam's SDF without re-impounding the reservoir for extended periods of time; temporary re-impoundment of water may be acceptable following certain storm events. Per the agreement of the Division of Energy, Mineral and Land Resources, the engineer may demonstrate that a storm event smaller than the SDF is warranted.

3. The invert of the excavated breach channel or pipe/culvert should be located at the lowest elevation of the upstream slope of the dam so that water is not re-impounded behind the remaining embankment structure. Minimal basal storage of water due to localized bathymetry may be acceptable given that the remaining embankment structure itself does not permanently impound water.

4. The excavated breach channel's side slopes should be designed to be stable under long term static conditions. 3H:1V (or flatter) slopes are recommended. Per the

agreement of the Division, the engineer may demonstrate that steeper slopes, benched slopes, or other slope configurations are warranted.

5. The excavated breach channel should be lined/armored up to the 50-year peak flow level, with the lining/armoring able to withstand the velocities of the 50-year flow. The duration of the 50-year storm should be 24-hours. The slopes above the lined/armored channel may be grass-lined. Per the agreement of the Division, the engineer may demonstrate that lining/armoring the channel to a smaller peak flow level and/or storm duration is warranted.

6. If using rip-rap for lining/armoring the excavated breach channel, ensure filter layers and/or cushion layers/proper bedding are placed underneath the rip-rap, such as gravel and geotextile.

7. Include a Water Control plan for draining the impoundment and keeping it drained during construction activities to preclude off-site sedimentation within the application to breach the dam. Water control activities which involve diversion and discharge of reservoir waters to discharge points not covered by an existing NPDES permit, or which utilize procedures that are not approved by an existing NPDES permit, must contact the Division of Water Resources to determine if additional approval is required prior to implementation.

8. The applicant shall confirm with the appropriate Local or State authority whether an approved erosion and sedimentation control plan needs to be submitted prior to initiating land-disturbing activity.

9. Applications to breach a dam must be prepared by a registered Professional Engineer licensed to practice in the State of North Carolina and must be submitted to the Division for review and approval prior to proceeding with construction activities. If the dam does not currently have an assigned hazard classification, one should be established prior to application submittal.