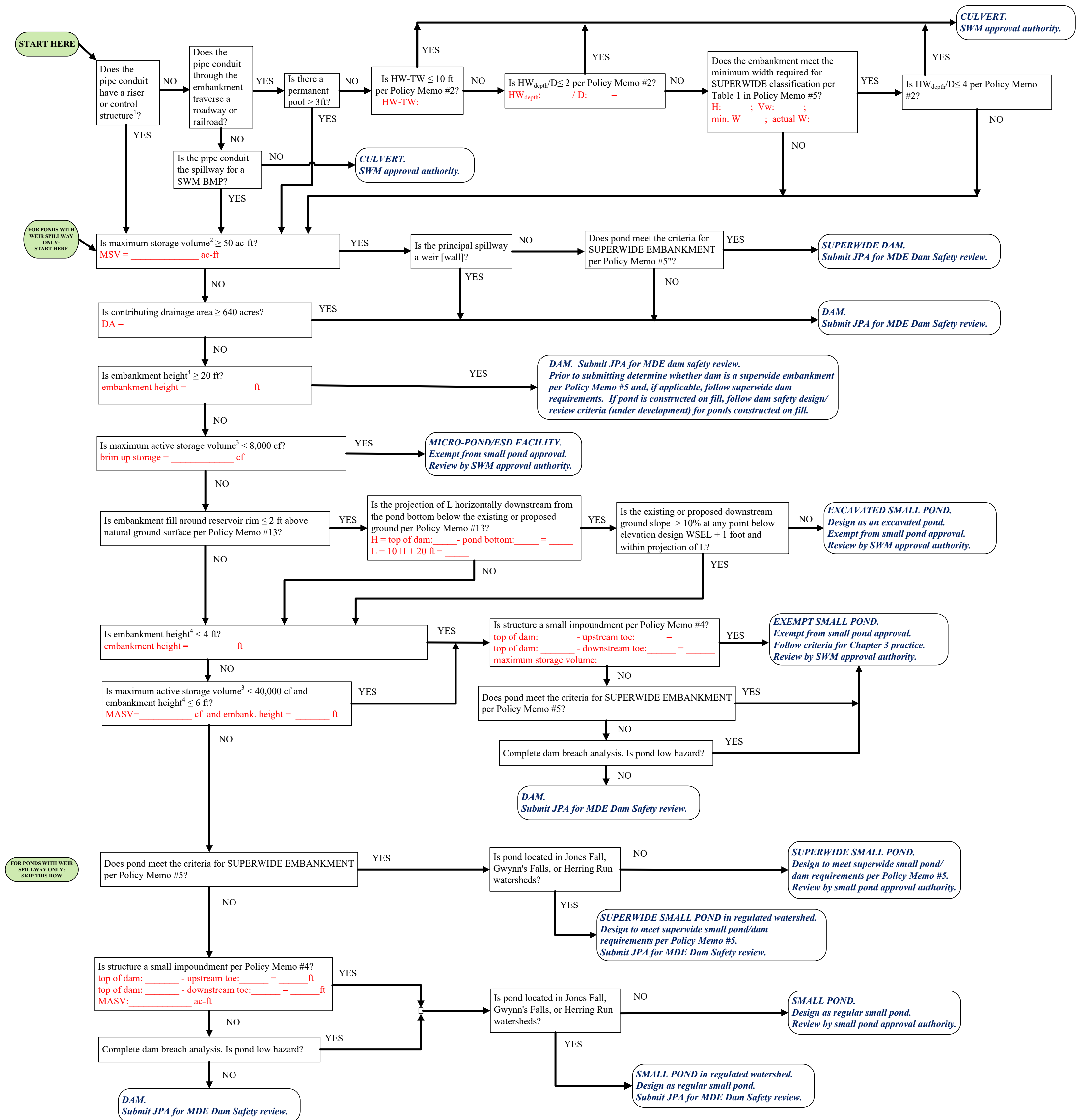




February 25, 2025  
MDE Stormwater, Dam Safety, and Flood Management Program  
Flow Chart for Determining Embankment Design Category  
and Approval Authority



## **Definitions:**

- <sup>1</sup>Control Structure: Any device that controls the flow into the pipe including, but not limited to a riser, orifice plate, weir, or gabion baskets. An open culvert is not considered a control structure provided the pipe diameter is uniform through the embankment or increases in diameter in the downstream direction when additional flow is added.
- <sup>2</sup>Maximum Storage Volume (“Brim Full” or “Brim Up”): The National Inventory of Dams defines maximum storage as the total storage space in a reservoir below the maximum attainable water surface elevation. This is the “brim full” volume. If the probable maximum flood (PMF) does not fill the storage space, then the PMF volume can be used as the maximum storage volume, and using the brim full volume would be conservatively acceptable. The upper limit of the storage volume is the top of dam/incipient point of overflow, not the invert of the emergency spillway. For media ponds, include the volume of water in the pore space (voids) of the filter media, which can be approximated using a porosity of 0.4.
- <sup>3</sup>Maximum Active Storage Volume: This is the portion of the maximum storage volume that would contribute to the breach volume. Dead storage below the elevation of the downstream toe of embankment that does not contribute to the breach volume may be excluded from the maximum storage volume for the referenced purposes. For media ponds, if the filter media is part of the embankment height, the maximum storage volume includes the volume of water in the pore space (voids) of the filter media, which can be approximated using a porosity of 0.4.
- <sup>4</sup>Embankment height has been defined by the MDE Dam Safety Division as the vertical distance between the lowest point of fill on the upstream face of the dam to the lowest point on the crest of the dam (excluding the auxiliary spillway). Oftentimes this is found at the principal spillway location but can be at other locations along the embankment. For the purposes of this definition, the lowest point of fill includes human-placed materials such as spillway conduits and cradles. Refer to MDE Dam Safety Policy Memorandum No. 22 – Determining Embankment Height for background information and diagrams.

## **Note regarding Ponds in Use III and Use IV watersheds:**

Effective June 14, 2021, small ponds located in Use III and IV watersheds no longer require a permit from the Dam Safety Division. Thermal concerns in accordance with DNR guidance must be addressed and upheld by the small pond approval authority.

## **References:**

USDA Natural Resources Conservation Service Maryland Conservation Practice Standard Pond Code 378, January 2000 or latest revision.

MDE Dam Safety Policy Memorandum No. 2 - Roadway/Railroad Embankment with Culvert Crossing, February 15, 2022 or latest revision.

MDE Dam Safety Policy Memorandum No. 4 - Hazard Classification of Small Impoundments, January 29, 2025 or latest revision.

MDE Dam Safety Policy Memorandum No. 5 - Superwide Roadway/Railroad Embankments, February 16, 2022 or latest revision.

MDE Dam Safety Policy Memorandum No. 13 - Excavated Ponds, April 24, 2023 or latest revision.

MDE Dam Safety Policy Memorandum No. 20 - Spillways Discharging to Storm Drain Networks, October 27, 2023 or latest revision.

MDE Dam Safety Policy Memorandum No. 22 – Determining Embankment Height, January 29, 2025 or latest revision.

MDE Dam Safety Policy Memorandum No. 23 – Small Ponds Not Requiring Small Pond Approval, January 29, 2025 or latest revision.