



Storm Surge Flow Channelization

Background: Proposed revisions to the Massachusetts Wetlands Protection Act (WPA) regulations (see [310 CMR 10.36](#)) published on December 22, 2023 include performance standards for Land Subject to Coastal Storm Flowage (LSCSF), which promote resilience by preserving and restoring natural floodplain functions. In certain flood zones, proposed LSCSF standards require additional protections, such as elevating structures on open piles.

Flow Channelization: When coastal storm flood water flows across a natural, vegetated soil surface, it is slowed and can permeate into soils. In developed areas, where there are waves and moving water in coastal storms, changes in topography such as grading, fill, solid structures, and retaining walls can lead to soil erosion around or under buildings through flow channelization.



The image above shows multiple flow channels (**blue lines**) between houses, caused by Hurricane Sandy in 2012. Structures that are not elevated, such as the house shown below, are at risk from flow channel damage.

** Adapted from: FEMA P-942. Mitigation Assessment Team Report, Hurricane Sandy in New Jersey and New York. 2013.*

Preventing Flow Channelization: To prevent flow channelization and related infrastructure damage, the draft WPA standards require structures to be elevated on open piles in the Velocity Zone and Moderate Wave Action (MoWA) Zone.

In the Minimal Wave Action Area (MiWA), it may be necessary to conduct a **flow path analysis** to ensure that proposed projects do not result in channelization and subsequent damage to adjacent buildings.

Guidance for flow path analysis is currently being developed by MassDEP.

