

## Sound Reach Procedure

### Modeling and Mapping Non-Accredited Levees

#### LEVEE ANALYSIS AND MAPPING PROCEDURES OVERVIEW

The Federal Emergency Management Agency's (FEMA) responsibilities include educating and helping a community understand their flood risk. One of the ways FEMA does this is by creating maps to help communities understand its flood risk and define this as high, moderate, or low risk of flooding. When FEMA conducts a flood mapping project and a non-accredited levee system is involved, there are specific considerations to take into account.

FEMA created a set of procedures for non-accredited levees to more accurately analyze and depict the flood hazard in an area impacted by a levee system. These procedures, known as the "levee analysis and mapping procedures," offer five different ways to analyze a levee reach (or section of levee). By applying one of these procedures, the community can more accurately understand their risk and take steps to reduce that risk. The Code of Federal Regulations (CFR) Section 65.10, also known as "65.10," is the guidance followed and will be referenced throughout this document.

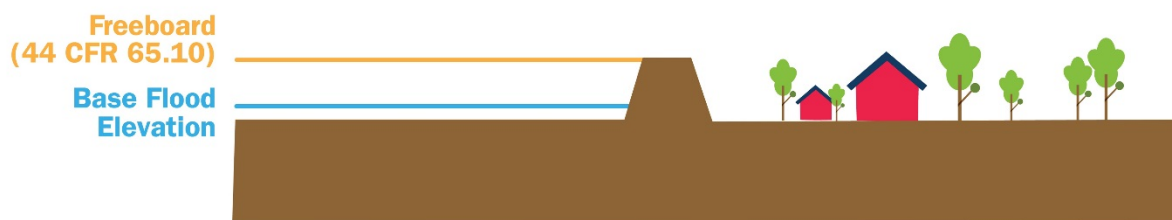
#### PROCEDURE OVERVIEW

One such procedure, **Sound Reach**, is used when a reach meets all the requirements set by 65.10, but the full levee system is not accredited. By using this procedure, a community can show that a certain portion of their levee provides a level of risk reduction from the base (1-percent-annual-chance) flood, even though the rest of the levee may not. The **Sound Reach** procedure can be applied to one or more reaches in a levee system and mapped on a Flood Insurance Rate Map (FIRM).

*In the simplest terms, the Sound Reach procedure is used when part of the levee meets all of FEMA's requirements, but the full levee system does not.*

**Sound Reach** is a levee reach designed, constructed, and maintained to withstand and reduce the flood hazard posed by a 1-percent-annual-chance flood event.

**1-percent-annual-chance flood** is often referred to as a "100-year flood," which means that there is a 1 in 100, or 1-percent chance of a flood at that level occurring in any given year. This is the flood level shown on FEMA's flood hazard maps.



*This image shows that the levee reach meets all the requirements set out by 65.10, including the "freeboard" requirement, meaning it is high enough.*

## RESULTING ZONE DESIGNATION

The resulting designation from the **Sound Reach** procedure, Zone D, signifies that there are possible but undetermined flood hazards. Zone D is depicted on a FIRM, but it does not carry a federal flood insurance requirement, although some federally-backed lenders may require flood insurance. These zone designations determined in each reach may be impacted by flooding from adjacent or other reaches, and also localized interior drainage flooding.

Property owners should understand that Zone D indicates an undetermined risk, which could still be significant. Flood insurance is strongly recommended, and communities and residents should take proactive steps to mitigate risk. There are several options to help keep insurance costs low:

- **Newly Mapped Procedure:** This cost-saving rating option helps reduce the financial impact of a map change for properties newly mapped as high-hazard. This option applies if the structure is in the Zone D, but is being newly mapped into a Zone A or V. It does not apply if the building is in the Zone X and is being mapped into a Zone D.
- **Grandfathering:** This rating option may provide a lower cost by locking in the current flood zone or Base Flood Elevation for future rating when the policy renews in the future. The easiest way to take advantage of grandfathering is to buy a policy before the new flood maps take effect.
- **Community Rating System (CRS) credits:** This program recognizes communities for their additional efforts beyond the minimum standards to reduce flood damage to insurable property. Under the CRS, communities that choose to participate may reduce the flood insurance premium rates for property owners in the community by taking these additional actions.

To purchase flood insurance, individuals need to contact their insurance agent. Property owners with questions about flood insurance can call the National Flood Insurance Program, toll free, at 1-888-FLOOD29 (356-6329) or visit [floodsmart.gov](http://floodsmart.gov). See the [Zone D for Levees Fact Sheet](#) for more information.

## OTHER CONSIDERATIONS

Because the levee reaches being analyzed must meet all other requirements of 65.10, the **Sound Reach** procedure requires more data than some other procedures. The financial commitment from the community and/or levee owner will depend on multiple factors, including the size of the levee and the availability of existing data.

An “interior drainage” analysis must be conducted for all levee systems. Interior drainage represents all water runoff, seepage (water going under the levee), and water collection on the landward side of the levee system. The analysis must identify and demonstrate the potential runoff paths from the impacted drainage area. Any areas of residual risk and interior drainage flooding that fall within these areas are

### Sound Reach Procedure Documentation

Levee documentation submitted to FEMA should include, but may not be limited to:

- Elevation information for the top of the levee, showing that the BFE and Freeboard meet the requirements laid out in 65.10.
- Operations and Maintenance Plan information.
- Structural design requirements.
- Inspection Reports.

FEMA will review levee documentation received (or currently on file) and perform a completeness check.

mapped as a Special Flood Hazard Area (SFHA), regardless of whether the levee system is accredited or not. This is a critical analysis because it shows that risk can still exist, even if the levee meets certain 65.10 requirements.

And remember, a larger flood event can overtop a levee at any time. There is more a community can do to reduce their risk, especially when it comes to floodplain management, building codes, and zoning. See the [Levee Risk and Mitigation Fact Sheet](#) for more information.

***For more information on other procedures for analyzing and mapping hazards associated with non-accredited levees, visit: <https://www.fema.gov/media-library/assets/documents/33587>.***

***The Code of Federal Regulations can be accessed at: <https://www.govinfo.gov/help/cfr>***