

HOW2

BLE for Local Zoning & Permitting

A Checklist to Aid Local Officials

Base Level Engineering (BLE) gives local floodplain managers, planners, and engineers a powerful tool to help evaluate projects proposed in floodprone areas. BLE creates efficient project design and review phases by providing publicly available, in-depth risk information and enabling site-specific Base Flood Elevation (BFE) determinations. BLE also provides a basis for development regulations in areas where FEMA has not yet mapped a Special Flood Hazard Area (SFHA) on the Flood Insurance Rate Map (FIRM), and in communities or tribal entities without an effective FIRM or that don't yet participate in the National Flood Insurance Program (NFIP). This document serves as a guide to the use of BLE in the project review process.



Participating NFIP communities are required to review all project applications to ensure that any proposed development is reasonably safe from flooding. Permits are necessary for everything from an interior remodel to a bridge replacement. The local permitting process reviews proposed projects with consideration of the benefits, challenges, and alternatives that could prevent a project from increasing the threat or severity of flooding on neighboring properties. All projects should be reviewed against the minimum NFIP requirements (Title 44, Code of Federal Regulations, Section 60.3) and assure all higher standards adopted by communities are considered.

How does BLE support local development reviews? BLE information can help identify flood prone areas that may not be reflected on a community's FIRM, demonstrate the variability in flood risk that exists throughout the floodplain, and provide a means for determining estimated BFEs for a variety of project types.

Resources

The Estimated Base Flood Elevation (estBFE) Viewer is available at <https://webapps.usgs.gov/infrm/estBFE/>. A full library of BLE materials is available at: www.fema.gov/media-collection/base-level-engineering-ble-tools-and-resources, including:

- BLE, Social Media & Flood Risk Awareness
- Informed Land Development
- HOW2 BLE Use Matrix
- HOW2 Find a BFE Outside of BLE Floodplain
- BFE Interpolate Tool
- BLE as Best Available Information
- BLE for Letters of Map Amendment

Other Community Planning and Land Use

- Managing Floodplain Development: <https://go.usa.gov/xsGpN>
- Permit for Floodplain Development: <https://go.usa.gov/xsGpE>
- No Adverse Impact Tool Kit (ASFPM): www.floods.org/resource-center/association-of-state-floodplain-managers-nai-no-adverse-impact-floodplain-management/
- National Flood Hazard (NFHL) Viewer: <https://msc.fema.gov/nfhl>
- Local Mitigation Planning Handbook: <https://go.usa.gov/xsGd4>
- Tribal Mitigation Planning Handbook: <https://go.usa.gov/xsGdb>



Development is defined as any man-made change to improved or unimproved real estate. This includes, but is not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation and drilling operations. Development also includes the storage of equipment or materials in the floodplain.



Floodplain Development Permit Checklist

When a new development is considered in the vicinity of flood prone areas, this checklist may be used to establish/refine a local development review process. The checklist below connects to available tools and datasets that are provided by FEMA's Flood Insurance Rate Maps (FIRMs) and Base Level Engineering (BLE) data.

- Review the project location to determine the applicable flood risk zone.**
 - Use FEMA's National Flood Hazard Layer (<https://msc.fema.gov/nfhl>) to determine if the proposed project is in the vicinity of a designated Special Flood Hazard Area (Zone A/AE/AO/A99/V/VE) on the community's effective FIRMs.
 - Is the project located within a regulatory floodway?
 - If FIRMs do not show floodplains in the project vicinity, review data available on the Estimated BFE Viewer (<https://webapps.usgs.gov/infrm/estBFE/>) for additional coverage.

- Consider if the project can be modified to avoid flood prone areas and reduce downstream impacts.**
 - Request a narrative to assure that location of project cannot be positioned differently to minimize project's effect to floodplain areas.
 - Consult the **Flood Depth Grids** from a BLE assessment to determine if the project, or portions of the project, can be relocated to a less hazardous location (e.g., an area with shallower flood depths).
 - Use the **Estimated Flood Extents** to identify areas on the subject property that may be reasonably safe from flooding and that may be suitable for the proposed development.

- Determine if bridges or other hydraulic structures will be constructed or modified as part of the project.**
 - If the proposed project includes new, replacement, or modified structures, review local and state code requirements to determine design/sizing based on local or State criteria.
 - When BLE is available, provide the applicant with BLE models that show existing conditions or pre-project conditions of the project area.
 - Ensure that the applicant provides a post-project or proposed conditions model to help determine the impacts of the proposed new or modified hydraulic structure.

- Determine if buildings will be constructed or improved as a part of the project.**
 - Ensure that the lowest floor of each new building, as well as any external facilities and equipment (HVAC, electrical), is elevated to the community's flood protection elevation. The NFIP minimum requirement indicates that these should be located at or above the identified BFE.
 - In detailed study areas (Zone AE/AO/AH/A99/AR/VE), use the FIRM and flood profiles in the Flood Insurance Study report to identify the BFE.
 - In approximate study areas (Zone A/V), use the estBFE Viewer to identify an estimated Base Flood Elevation in the project location. Consult **BLE is Best Available Information** and **BLE Use Matrix** available at <https://go.usa.gov/xsGVe> to assist in your use of BLE data.
 - In areas with no effective SFHA, use the estBFE Viewer to determine an estimated BFE from BLE datasets.

- Determine if other permits are required**
 - Federal, state, and other local permits (e.g., USACE 404 permits) should be obtained and provided by the applicant before approving a proposed project and issuing a permit for floodplain development.
 - Where CLOMRs have been deemed necessary, also assure all Endangered Species Act requirements are met.



According to NFIP Regulations, projects that cause a rise of more than 0.0 feet in the regulatory floodway and 1.0 foot in the regulatory floodplain must first obtain a Conditional Letter of Map Revision (CLOMR) before obtaining a development permit from the community.