

Guide to Floodplain Management Requirements in North Carolina

Statewide Requirements:

- North Carolina General Statute 143-215.51-.61 requires communities to include a provision in their flood hazard prevention ordinances that prohibits siting of landfills, hazardous waste management facilities, salvage yards, and chemical storage facilities in the SFHA.
- Chemical and fuel storage tanks must be elevated above the BFE or designed to be watertight and capable of resisting hydrostatic and hydrodynamic loads in accordance with NFPA Pamphlet No. 58.
- Facilities belonging to agencies of the Federal Government are subject to Executive Order 11988, which requires rigorous alternative site evaluations before funding, leasing, or building any facility in the SFHA. The guidelines for implementing Executive Order 11988 set the 500-year flood as the standard for protecting "critical actions." North Carolina Executive Order 123 contains similar requirements for State-owned facilities.
- A water treatment plant or wastewater treatment facility may be located in an SFHA only if the structure or tank is either elevated above the BFE or designed to be watertight. (North Carolina Session Law 2000-150).
- A permit from Department of Environment and Natural Resources (DENR) is required for construction, repair, modification, or removal of a high hazard dam, defined as one whose failure could cause loss of life or severe property damage, or one that is 15 feet or higher and impounds 10 acres or more.
- Construction of water supply wells is under the jurisdiction of the Groundwater Section of the DENR Division of Water Quality (DWQ). Title 15A North Carolina Administrative Code (NCAC) 2C .0010 contains standards for well construction, including a prohibition against locating a well "in an area generally subject to flooding...[including] those with concave slope, alluvial or colluvial soils, gullies, depressions, and drainage ways" (i.e., floodways).
- Communities must ensure that mining permits are obtained from the DENR, Division of Land Resources (DLR) for land disturbing activities associated with mining and that an erosion and sediment control plan is submitted to the field office Land Quality Regional Supervisor of the local government with an approved program at least 30 days prior to initiation of projects that disturb more than one acre of land.
- The placement of recreational vehicles shall not be authorized in flood hazard areas subject to high velocity wave action and in floodways. (North Carolina State Building Code G601.1)
- Septic tanks, lift stations, wastewater treatment plants, sand filters, and other pretreatment systems shall not be located in areas subject to frequent flooding (areas inundated at a ten-year or less frequency) unless designed and installed to be watertight and to remain operable during a ten-year storm. Mechanical or electrical components of treatment systems shall be above the 100-year flood level or otherwise protected against a 100-year flood. (Title 15A NCAC 18A .1950 (i))

For Additional Guidance

To view and download flood maps, Flood Insurance Studies, GIS shapefiles, elevation data and learn about the North Carolina Floodplain Mapping Program go to www.NCfloodmaps.com.

To order flood maps, call FEMA's Flood Map Service Center – (877) 336-2627 or order online at www.msc.fema.gov.

To order FEMA publications call (800) 480-2520 or view them online at www.fema.gov/library.

Find out about floodplain management conferences and training workshops at www.ncafpm.org.

NFIP Floodplain Management Information can be found on FEMA's webpage: www.fema.gov/plan/prevent/floodplain/index.shtm.

The NFIP's Community Rating System Resource Center is online at www.fema.gov/business/nfip/crs.

Still have questions?

Contact the North Carolina Floodplain Management Program at (919)715-5711; or the FEMA Map Information Exchange at (877)336-2627



The State of North Carolina faces extreme hazard and consequences from flooding. The State provides resources to assist local officials in reducing the consequences of flooding. However, the responsibility for managing floodplain development is held at the local level. Floodplain development is broadly defined to include any man-made change to land, including grading, filling, dredging, extraction, storage, subdivision of land, and the construction or improvement of structures. This pamphlet provides guidance for community officials in managing floodplain development within their jurisdictions.

The National Flood Insurance Program

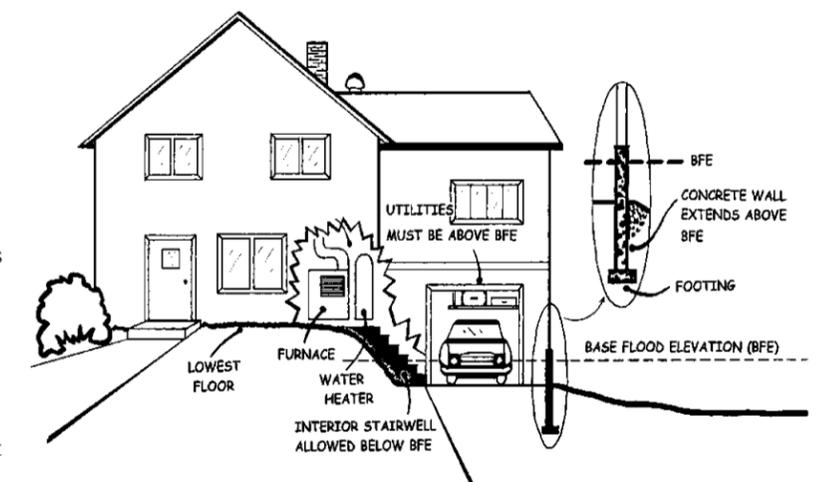
Floodplain management regulations derive primarily from the National Flood Insurance Program (NFIP), which is administered by the Federal Emergency Management Agency (FEMA). To participate in the NFIP, communities must adopt, implement, and enforce a Flood Damage Prevention Ordinance (FDPO) that meets or exceeds the minimum NFIP standards. Requirements are based on the level of flood hazard data and mapping that FEMA and the State of North Carolina Floodplain Management Program have provided to a community. Specifically, a community's minimum regulations are based on whether Special Flood Hazard Areas (SFHAs), Base Flood Elevations (BFEs), a regulatory floodway, and/or coastal high hazards have been designated in the community's Flood Insurance Study (FIS) and on the Flood Insurance Rate Map (FIRM).

When are Local Permits and Approval Needed?

Participating communities must review all proposed development and substantial improvements* within the SFHAs of the community, require permits for floodplain development, and retain copies of those permits to assist in verifying community and building compliance with the regulations. Although not all inclusive, the following activities in SFHAs require local permits and approvals:

- Construction of new buildings, including placement of temporary/accessory structures
- Additions and/or improvement* to existing buildings
- Renovation of existing building interiors
- Repair of substantially damaged* buildings
- Placement of manufactured (mobile) homes
- Subdivision of land
- Construction of roads, bridges, and culverts
- Placement of fill, grading, excavation, mining, and dredging

*If the cost of improvements or the cost to repair the damage exceeds 50% of the pre-improvement or pre-damage market value of the building, it must be brought up to current floodplain management standards.



General NFIP Requirements

- Construction materials and methods used must minimize future flood damage in accordance with 44 CFR 60.3(a)(3).
- New construction or substantial improvements shall be designed and adequately anchored to prevent flotation, collapse, or lateral movement of the structure in accordance with 44 CFR 60.3(a)(3).
- Communities are required to obtain, review and reasonably utilize any BFE or floodway data available from a Federal, State, other source in accordance with 44 CFR 60.3(b)(4).
- All subdivision proposals and other proposed developments greater than 50 lots or 5 acres, whichever is the lesser, must include within such proposals BFE data in accordance with 44 CFR 60.3(b)(3).
- Communities are required to notify adjacent communities and the State Coordinator prior to altering or relocating a watercourse as directed under 44 CFR 60.3(b)(6).
- In Zone A, assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained in accordance with 44 CFR 60.3(b)(7).

Guide to Floodplain Management Requirements in North Carolina Communities

Requirements in SFHA Zones with BFEs or Flood Depths Established

- All new construction and substantial improvements of residential buildings must have the lowest floor elevated to or above the BFE – 44 CFR 60.3(c) and 44 CFR 60.6(b) or (c). **The North Carolina State Building Code applies this requirement even to communities that do not participate in the NFIP.**
- For all new construction and substantial improvements, “fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.” (this is typically accomplished through flood vents) 44 CFR 60.3(c)(5).
- Nonresidential buildings must either be elevated to the BFE or floodproofed to the BFE so that their walls are substantially impermeable to the passage of floodwaters. 44 CFR 60.3(c)(3).
- Manufactured homes must be elevated on a permanent foundation such that the lowest floor is elevated to or above the BFE and be secured to an adequately anchored foundation system to resist flotation collapse and lateral movement. 44 CFR 60.3(c)(12)(i).

Zones AE
1% annual chance flooding with BFEs established

Zone AH
1% annual chance shallow flooding where average depths are between 1 and 3 feet with BFEs determined

Zone AO
1% annual chance shallow flooding with average depths between 1 and 3 feet with an average depth determined

- All new construction and substantial improvements of residential buildings in Zone AO must have the lowest floor elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM (at least two feet if no depth number is specified). 44 CFR 60.3(c)(7). Nonresidential buildings must either be elevated or floodproofed as high as the depth number specified on the FIRM (at least 2 feet if no depth is specified). 44 CFR 60.3(c)(8).

Requirements in V Zones (Coastal High Hazard Areas)

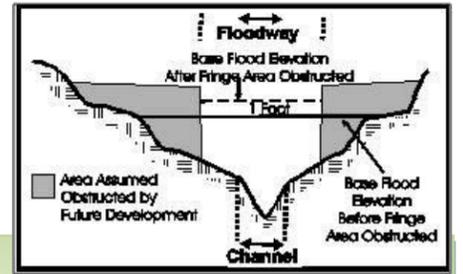
- For new construction and substantial improvements (both residential and commercial). The building must:
 - Be elevated on pile, post, pier, or column foundations;
 - Be adequately anchored to the foundation;
 - Have the bottom of the lowest horizontal structural member at or above the BFE; and
 - Be designed and constructed using methods certified by a design professional, with a foundation anchored to resist the combined effects of wind, water/wave action. 44 CFR 60.3(e)(4).
- All new construction and substantial improvements must “have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood latticework, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.” 44 CFR 60.3(e)(5).
- All new construction and substantial improvements must be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering during conditions of flooding. 44 CFR 60.3(a)(3)
- Buildings on fill, solid walls, or crawlspaces and floodproofing are prohibited in all V zones because these techniques present obstructions to wave action. 44 CFR 60.3(e)(6)
- New manufactured homes are prohibited in all V Zones in North Carolina.

Zones VE
1% annual chance flooding with additional hazards due to storm-induced velocity wave action; BFEs established



Requirements in the Regulatory Floodway/Non Encroachment Area (NEA)

Encroachments are prohibited, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood level within the community during the occurrence of the base flood discharge. 44 CFR 60.3(d)(3).



Floodway

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to pass the base flood discharge without increasing flood depths

Non-Encroachment Area (NEA)

The portion of a floodplain where construction, placement of fill, or similar alteration of topography may be prohibited by a community due to the effects such development would have on the conveyance of discharge. The width of the NEA can be found in the Limited Detailed Flood Hazard Data Table in the Flood Insurance Study Report.

Additional Floodplain Management Requirements

North Carolina and additional federal requirements are more stringent in the following cases:

Areas of Environmental Concern/Coastal Areas

Permits are required for development, including dredging and filling coastal wetlands or waters, and construction of marinas, piers, bulkheads, oceanfront structures, and roads. In addition to obtaining a permit, a prospective developer must comply with setback requirements (based on erosion rates) established by the Coastal Resources Commission; (NC Coastal Area Management Act of 1974 and NC Dredge and Fill Act of 1969.) In Congressionally-mandated Coastal Barrier Resource System (CBRS) Areas and Otherwise Protected Areas (OPAs) shown on the FIRM, flood insurance and other types of federal funding are not available for new or substantially improved structures built after the date the areas were identified.

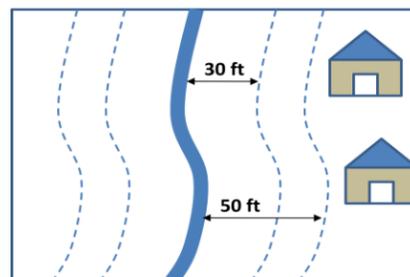
Wetlands

Activities that impact more than 1/3 acre of wetland, 150 linear feet of a stream, or any area of a lake, pond, or other water body will typically require authorization from the U.S. Army Corps of Engineers (USACE) who regulate wetlands at the Federal level, and the Division of Water Quality (DWQ) who administer wetland standards at the state level. – Title 15A North Carolina Administrative Code (NCAC) 2B .0231 and the 401 Water Quality Certification Process – 15A NCAC 2H .0500.

Permits are typically required for the following:

- Filling wetlands or waters;
- Excavation of wetlands and waters;
- Stream channelization or relocation;
- Draining or flooding wetlands; and
- Clearing and grubbing wetlands.

Impacts to wetlands exceeding 1 acre or to permanent streams exceeding 150 feet in length require compensatory mitigation in the form of new wetland creation at an approved site or payment into the State Wetland Restoration Program.



Neuse River and Tar-Pamlico River Basins

The Riparian Buffer Protection Rules protect existing natural areas along waterways in these basins. The buffers are intended to remove pollutants from runoff that flow into streams, lakes, ponds, and estuaries. The first 30 feet of vegetation (zone 1) must remain undisturbed. An additional 20-foot zone (zone 2) is to be vegetated, although certain uses are allowed in this zone. The complete rules for the Tar-Pamlico River Basin are found in Title 15A NCAC 2B .0259 and for the Neuse River basin in 15A NCAC 2B .0233.