
Index

One's search is greatly aided by the use of helpful clues.

An Old Saying

A

Access, 7-5, 7-6, 7-9, 7-12
 Accessory structures, defined, 9-11
 Acquisition and relocation, 1-18, 1-20, 1-21, 6-29,
 7-5, 7-17, 7-18, 12-14
 relocation, defined, 6-28
 Adjustment, Board of. See Appeals
 Alluvial fan. See Flood
 Anchoring. See Construction
 Annexation, 2-14
 Appeals, 8-6, 8-28
 Board of, 8-5–8-6
 Approximate A Zone. See Zone
 Approximate studies. See Flood Insurance Study
 Assistance, sources of
 databases, 12-4, 12-5
 elected and appointed officials, 12-3, 12-4, 12-
 8
 identify assistance needs, 12-8–12-10
 Internet, 12-15
 local, 12-3–12-4, 12-6–12-8
 outside, 12-4–12-6, 12-8–12-10
 Association of State Floodplain Managers, 7-7, 12-5

B

Barrier beaches, 7-21 Barrier islands, 1-11, 4-10, 5-
 51, 7-17
 Base flood
 defined, 3-6, 4-16, 6-9, 6-10–6-11
 depth, 4-30
 reason for 100-year standard, 4-16
 Base flood elevation (BFE)
 defined, 3-6, 4-16
 in floodway data table, 5-7–5-8
 increases beyond one foot, 6-26, 6-35–6-36
 lines on maps, 5-17, 5-24–5-25, 5-32
 not identified, 6-21–6-24

on FIRM, 4-23, 5-24–5-25, 5-32
 outside mapped SFHA, 9-6
 requirements for developing data, 4-32–4-35
 uniform within a zone, 5-25, 5-26, 5-42
 use to resolve discrepancies with maps, 5-10,
 5-42

See also Base flood

Basement, 6-12, 9-12–9-13
 defined, 6-11

Bathymetry, 4-28

Bench mark. See Elevation reference mark

Best available data, 4-31, 6-22–6-23, 9-8

Biennial report, 2-14, 12-9–12-10

Bridges symbol, 4-21, 4-22

See also Stream crossings

C

Campgrounds, 7-18

Carrying capacity. See Flood

CLOMR. See Map

Coastal

building performance standards, 6-39–6-45, 7-
 17

determining development location, 5-43

flooding and erosion, 1-11–1-12, 6-39, 6-44, 7-
 15, 7-17

floodplain map, 4-29, 5-51

high hazard area not identified, 6-21, 6-24, 6-
 37

high hazard area, 2-14, 4-28–4-29, 8-39

regulatory BFE, 5-9

zone management, 1-18

Coastal Barrier Resources System, 4-10, 4-14, 5-
 51–5-52, 9-14

map representation, 5-33, 5-53

COBRA zones, 4-10, 5-37, 5-52, 8-24

Otherwise Protected Areas, 5-51

Code of Federal Regulations (CFR)

44 CFR 59.22, 2-10

44 CFR 59.24, 10-6

- 44 CFR 60.1(d), 7-4
- 44 CFR 60.2, 6-9
- 44 CFR 60.22, 7-5–7-6
- 44 CFR 60.3, 6-10, 6-17
- 44 CFR 60.3(a), 6-17–6-21, 6-36
- 44 CFR 60.3(b), 4-32, 6-21–6-24
- 44 CFR 60.3(c), 6-23, 6-24–6-36, 6-44, 9-10
- 44 CFR 60.3(d), 6-37–6-39
- 44 CFR 60.3(e), 6-39–6-45
- 44 CFR 60.6, 10-12–10-14
- 44 CFR 65.12, 6-37
- 44 CFR 65.3, 6-36, 9-6
- 44 CFR 65.6, 6-36
- Codes
 - building, safety, health, and sanitary, 1-20, 6-14, 6-62, 9-18
- Community
 - defined, 2-5
 - identification number, 5-19, 5-21, 5-24, 5-32, 5-36, 5-37
- Community Assistance Program (CAP), 2-6, 12-8
 - community assistance contact (CAC), 10-6, 12-9
 - community assistance visit (CAV), 10-6, 12-9
 - review of variance actions, 10-15
- Community Rating System (CRS), 7-4, 12-10–12-14
 - application process, 12-12–12-13
 - classifications, 12-11–12-12
 - goals of, 12-11
 - participation by North Carolina communities, 12-12
 - program activities, 12-13–12-14
- Compensatory storage, 7-8
- Compliance, 3-4, 8-5, 8-24–8-27, 8-33
- Comprehensive plan, 6-6, 7-6, 7-11
- Computer model
 - coastal, 4-26
 - HEC-2, 4-20
 - step-backwater, 6-38
 - substantial damage estimator, 9-5
- Construction
 - additions, 6-13, 11-5
 - anchoring, 6-19, 9-11
 - defined, 6-19
 - manufactured homes, 6-24, 6-33
 - accessory structures, 9-11
 - breakaway walls, 6-12, 6-40, 6-42
 - final inspection, 8-35
 - building design plans, 8-25–8-26
 - crawl space, 6-28, 6-32–6-33
 - drainage around structures, 6-18, 6-20, 6-25, 6-36, 7-6
 - ductwork, 6-11, 6-33
 - elevation requirements, 6-11, 6-23
 - coastal, 6-41–6-43
 - manufactured homes, 6-33–6-34
 - non-residential, 6-28–6-29
 - residential structures, 6-26–6-28
 - unnumbered A Zones, 9-8–9-10
 - enclosures below BFE, 6-11, 6-25, 6-32–6-33, 8-19, 8-20, 8-26, 9-12
 - access to, 6-33
 - final inspection, 8-35
 - reinspection, 8-36
 - uses allowed in, 6-25, 6-33, 6-42, 9-12
 - flood-resistant materials, 6-18, 6-20, 6-42
 - defined, 6-20
 - flood-resistant, 1-18
 - foundation, 6-13, 6-26, 6-27, 6-28, 6-29
 - coastal, 6-40, 6-41, 6-42
 - inspection, 8-34
 - manufactured homes, 6-19, 6-24, 6-33
 - standards, 7-10
 - free-of-obstruction, 6-12, 6-40, 6-42
 - hydrostatic openings, 6-11, 6-32, 9-24, 9-25, 9-26, 9-29
 - certification, 8-20
 - final inspection, 8-35
 - specifications, 6-32
 - lateral or vertical additions, 9-23–9-28
 - new, defined, 6-12–6-13
 - on piles or columns, 6-27–6-28, 6-41–6-42, 7-6, 7-16, 7-19
 - over water, 6-13, 6-40, 6-41
 - post-FIRM, 11-3–11-8
 - reconstruction, defined, 9-27
 - rehabilitation, defined, 9-23
 - repairs, defined, 9-27
 - retrofitting, 1-20, 6-26, 9-7, 12-14
 - standards, 6-28, 9-10
 - for accessory structures, 9-11
 - for coastal high hazard areas, 6-39–6-45
 - for coastal Zone AE, 7-10
 - for enclosures, 9-12
 - for lowest floor, 6-23, 6-26
 - for reconstruction, 9-27
 - for rehabilitation, 9-23–9-24
 - for additions, 9-23–9-28
 - Zone V, 6-11–6-12, 6-39–6-45, 8-20
 - See also Basement; Lowest floor
- Contour map. See Topographic map
- Countywide FIRMs. See Maps
- Critical facilities, 1-20, 1-21, 7-6
 - defined, 6-9
 - siting, 6-9, 7-24

types of, 7-9
 Cross section, 4-17, 5-12, 5-29, 5-33
 lettering system, 4-17
 surveys, 4-17

D

Dams, 1-10-1-11, 1-20
 construction or modification, 6-55-6-56
 requirements for permit, 6-56
 inspection, 7-17
 inundation areas, 7-15, 7-17
 maintenance plans, 7-17
 Datum, 4-18
 National Geodetic Vertical Datum (NGVD) of
 1929, 2-13, 4-18, 5-12, 5-45
 North American Vertical Datum (NAVD) of
 1988, 4-18
 Department of Housing and Urban Development, 2-
 3
 Detailed studies. See Flood Insurance Study
 Detention, 1-21, 7-13
 Development
 coastal, 1-13-1-14, 6-52
 cumulative impacts, 4-24, 7-22
 defined, 6-11, 6-52
 detailed flood study for, 4-32-4-35, 6-21- 6-
 22, 9-6
 in Zone A99, 6-25, 6-34
 in Zone AO, 6-34
 large-scale, 6-21, 9-6
 locating site on flood map, 5-41-5-43
 locating site with respect to flood profile, 5-
 14
 location of services and utilities, 6-20-6-21, 7-
 5, 7-13
 minor, 8-8
 national standard for, 1-18
 pattern, 1-3
 permit (see Development permit)
 prohibiting in floodplain, 7-10-7-11
 protected by flood control project, 6-25, 6-34
 regulation of, 1-18, 2-5-2-6, 2-13
 in areas not mapped by FEMA, 6-10
 in unnumbered A Zones, 9-8-9-10
 regulations, 1-20
 requires local permit, 6-19, 8-7-8-8, 9-7-9-8
 requiring detailed study in approximate A
 Zone, 9-10
 rights, acquisition/transfer of, 7-5, 7-11, 7-21
 site

above BFE, 9-6
 inspection, 3-4, 3-8, 8-33-8-36, 9-14-9-
 15
 plan review, 3-7, 6-19-6-20, 8-19, 8-
 24, 8-25-8-26
 use of flood maps, 5-41-5-43
 urbanization, 1-9, 1-13
 Development permit
 application process, 8-8-8-10
 review, initial, 8-15-8-23
 application, sample, 8-11-8-14
 checklist, 8-27, 8-28
 coastal shoreline construction, 6-20, 6-52- 6-
 53
 compliance (see Compliance)
 conditional use, 8-5, 8-6
 conditional issuance, 8-21
 enforcement (see Enforcement)
 file contents, 3-8
 filing system, 8-38
 log, 8-38, 9-9
 record keeping requirements, 9-8
 review, 3-3, 3-6, 3-7, 6-18, 6-19, 8-7-8-36, 10-
 4, 12-6
 sample, 8-29
 start-of-construction date, 8-27
 when required, 6-18, 6-19, 8-7-8-8
 Digital FIRMs. See Maps
 Disaster assistance, 1-18, 1-20, 2-4
 Discharge. See Flood
 Disclosure, 7-5
 Drainage, 1-9, 1-10, 7-6, 12-14
 around structures (see Construction)
 Dune. See Sand dune

E

Elevation
 above highest adjacent grade, 6-23, 9-10
 above lowest adjacent grade, 6-30
 base flood (see Base flood elevation)
 certification, 6-23, 8-15, 8-19, 8-25, 8-34, 8-
 35
 as tool for insurance rating, 11-8
 form, 8-16-8-17, 9-7
 guidance, 9-13-9-14
 who certifies, 9-10
 coastal high hazard areas, 6-40, 6-41-6-42
 in Zone A0, 6-25, 6-34
 lowest floor, 2-13, 6-12, 6-23, 6-25, 6-26, 8-
 26, 9-8, 9-10

- determining from building diagram, 9-14
 - inspection, 8-33, 8-34
 - lowest structural member, 6-12, 6-40-41, 6-43
 - mechanical and electrical equipment, 6-18, 9-10, 9-11, 9-23
 - no-impact certification, 2-14, 6-37, 6-38, 8-20, 8-21, 9-7
 - of non-residential structures, 6-28-6-32
 - of residential structures, 6-26-6-28
 - reference mark
 - defined, 4-18-4-19
 - on maps, 5-25, 5-26, 5-29, 5-33
 - temporary, 8-34
 - requirements
 - for accessory structures, 9-11
 - for basement floor, 9-12-9-13
 - for lowest floor, 6-11, 6-12, 6-23, 6-26, 6-28, 6-33, 9-8-9-10
 - stillwater, 4-26, 4-28, 4-29, 5-6, 5-8-5-9, 5-46-5-47
 - wave crest, 4-26, 4-28, 5-8-5-9
 - wave runup, 4-27
- Elevators, 6-29
- Emergency Management Institute. See FEMA
- Emergency response activities, 7-9
- Enclosure. See Construction
- Encroachment, 4-24, 7-7
 - in relation to freeboard, 7-7
 - inspection for, 8-34, 8-35
 - more restrictive standards, 7-7-7-8
 - regulating, 6-25, 6-34-6-35, 6-37, 6-38-6-39, 8-20, 8-26, 8-28
- Enforcement, 3-4, 3-9
 - administrative methods, 10-4-10-5
 - affect on flood insurance rates, 11-3
 - finest, 10-5
 - flood insurance as a tool of, 11-10
 - injunctions, 10-6
 - of development permit, 3-4, 3-9
 - of ordinance, 10-3-10-8, 10-10-10-16, 10-21-10-27, 12-4
- Engineering certification. See V-zone certification
- Environmental protection, 1-18, 7-20-7-25
 - Clean Water Act of 1972, 7-21, 7-24
 - Section 404, 6-20, 7-21-7-22, 8-21
 - Coastal Barrier Resources Act, 5-51
 - Endangered Species Act of 1973, 7-23
 - National Environmental Policy Act (NEPA) of 1970, 7-21
 - natural, wild, and scenic rivers, 7-25
 - preservation and restoration, 1-21, 7-20
- Extra-territorial jurisdiction (ETJ), 2-15-2-16, 4-11, 5-36-5-37
- ## F
- Federal Emergency Management Agency (FEMA), 2-3
 - Emergency Management Institute (EMI), 0-3, 12-13
 - Engineering Study Data Processing (ESDP) library, 6-38
 - Federal Insurance Administration (FIA), 2-3, 2-7, 4-3
 - Map Service Center, 4-15
 - Mitigation Directorate, 2-7, 4-15
 - ordering studies and maps, 5-3
 - on the Internet, 12-15
 - Region IV Mitigation Division, 0-4, 0-11, 2-7, 2-10, 8-7
 - regional offices, 2-8
- Fill, 6-26, 7-6, 8-8
 - elevation on, 7-18, 7-19
 - in wetlands, 7-21
 - prohibition of, 6-40, 6-44, 7-8
 - standards, 7-10, 8-35
- Final examination, 0-12, Final exercise
- Fisheries, 7-21
- Flood
 - 10-year, 4-20, 4-21, 4-30, 5-6, 5-9, 5-12, 5-15, 5-47, 6-54, 7-23
 - 50-year, 4-20, 4-21, 5-6, 5-9, 5-12, 5-47
 - 100-year (see base flood)
 - 500-year, 4-7, 4-8, 4-10, 4-20, 4-21, 4-23, 5-6, 5-9, 5-12, 5-24, 5-28, 5-33, 5-37, 5-40, 5-47, 6-9, 7-6, 7-9
 - alluvial fan, 1-7-1-8, 7-15, 7-16
 - boundaries shown on maps, 5-37
 - carrying capacity, 6-24, 7-6
 - coastal (see Coastal)
 - dam and levee failure, 1-10-1-11, 7-16, 7-17
 - data, users of, 6-10
 - discharge, 4-20, 5-6
 - elevations
 - determining, 5-14-5-15
 - from map data, 5-44-5-46
 - emergency measures, 1-20
 - emergency plans, 1-20, 7-9, 7-19
 - evacuation plan, 7-6, 7-16, 7-17, 7-18
 - flash, 1-6-1-7, 7-10, 7-15, 7-18
 - forecasting, 1-20
 - fringe, 4-23, 4-25, 5-28, 5-37, 6-26

- delineation, 4-24
- ice jam, 1-8, 1-9, 7-7, 7-15, 7-19
- loss reduction, 0-3, 1-17, 1-18, 7-3, 7-5, 9-8
- moveable bed stream, 1-8
- mudflood and mudflow, 1-10, 7-15, 7-19
- overbank, 1-6
- ponding, 1-6, 4-30, 5-13, 5-52
- profile, 4-6, 4-20, 4-21, 5-12, 5-29, 5-33
 - reading and using, 5-12–5-15, 5-17
 - use of, 5-45–5-46
- reading and using risk areas shown on maps, 5-37
- riverine, 1-5–1-8
- shallow, defined, 4-30
- sheet flow, 1-6, 4-30
- storage capacity, 6-26, 7-8
- surface water runoff, 1-9
- types of, 1-5–1-12
- urban drainage, 1-10
- warning, 1-18, 1-20, 7-5, 7-16, 7-17, 7-18, 7-19, 12-14
 - water, definition of prolonged contact, 6-20
- Flood Control Acts of 1928 and 1936, 1-18
- Flood Hazard Boundary Maps (FHBM). See Maps
- Flood Hazard Factors, 5-8
 - relation to flood insurance zone, 5-8
- Flood insurance
 - as alternative to disaster assistance, 1-18, 1-20, 2-4
 - basis for premiums, 2-4, 6-9–6-10, 7-7, 11-3–11-8
 - coverage
 - amounts available, 11-4
 - first layer, 11-3
 - for basements, 9-13
 - second layer, 11-4
 - discounts, 7-4, 12-10–12-12
 - effect of map revisions on rates, 9-40–9-41
 - increased cost of compliance coverage, 9-33–9-34
 - mandatory purchase, 2-7, 7-5, 9-7
 - no new coverage, 11-10
 - pre-FIRM subsidy
 - premium surcharge, 10-7, 11-3
 - rating
 - accessory buildings, 9-11
 - actuarial, 11-4
 - below vs. above grade, 9-14
 - building under construction, 6-13
 - enclosures, 6-42, 9-12
 - exceptions, 11-5
 - floodproofing, 6-29–6-30, 9-28, 11-8
 - for variances, 10-12, 11-9
 - historic buildings, 11-5
 - in unnumbered A Zone, 9-10, 11-8
 - lateral additions, 11-5
 - manufactured homes, 11-5
 - new construction, 6-12–6-13, 7-5, 11-4
 - pre-FIRM vs. new construction, 8-27
 - pre-FIRM vs. post-FIRM construction, 11-3–11-8
 - submit-to-rate policy, 11-9
 - substantial improvements, 11-4, 11-5
 - statistics, 2-5, 2-17
 - support for floodplain management, 11-3–11-10
 - who may purchase it, 2-4, 2-6
 - Write-Your-Own Program, 2-7
 - zones, 5-40
 - Flood Insurance Rate Map (FIRM). See Maps
 - Flood Insurance Study (FIS)
 - approximate, 4-4, 4-5, 4-31–4-35
 - estimating BFE, 9-5, 9-8, 9-10
 - coastal, 4-26–4-29, 5-6, 5-8–5-9, 5-51–5-52
 - contents of report, 4-6, 5-5–5-6
 - detailed, 4-4, 4-16–4-30
 - cost, 4-31
 - existing data studies, 4-31
 - lakes and reservoirs, 5-46, 5-47, 5-51, 5-52
 - relating data to maps, 5-17
 - reports and maps, 4-4–4-15, 5-5–5-53, 8-24
 - purpose of, 4-3, 5-4
 - obtaining, 5-3
 - understanding report data, 5-6–5-9
 - restudy, 9-38
 - riverine, 4-16–4-26
 - shallow flooding, 4-30, 5-51–5-52
 - Flooding, 1-4
 - See also Flood
 - Floodplain
 - boundary lines, 4-22, 5-17
 - data, uses of, 5-4, 6-10
 - defined, 1-4, 1-12–1-13
 - development, impact of, 1-13–1-14
 - natural resources and functions of, 1-14–1-17, 1-18, 1-19, 1-20, 1-21, 7-1, 7-3, 7-8, 7-11, 7-20
 - new data, 2-15, 9-38
 - statistics, 1-3, 2-17
 - Floodplain development. See development
 - Floodplain management
 - administrator (see Local administrator)
 - defined, 1-1, 1-3–1-4, 1-19, 1-21
 - evolution of, 1-17–1-19
 - Executive Order 11988, 2-4, 7-9, 7-21
 - FEMA forms, expiration, 9-7

- goals, 1-19
 - identify assistance needs, 12-8–12-10
 - land application of waste in, 6-57
 - monetary benefits, 6-9
 - ordinance, 2-4, 5-41, 6-5–6-7, 8-3
 - enforcement of (see Enforcement)
 - purpose of, 2-13, 6-5
 - planning considerations, 7-5–7-6
 - purpose of standards, 6-9
 - regulations challenged, 10-25
 - standards and requirements
 - minimum, NFIP, 6-7–6-45, 7-4
 - more restrictive, 6-7, 7-3–7-13, 12-14
 - North Carolina, 6-49–6-63
 - strategies and tools, 1-19–1-21
 - support by elected and appointed officials, 1-17, 12-3–12-4, 12-6, 12-8
 - underground storage tanks in, 6-56
 - ways to improve local support, 1-17, 12-6–12-7, 12-10–12-11
 - wells in, 6-56–6-57
- Floodproofing, 1-20, 6-23, 6-28–6-30, 7-5, 7-19, 8-26
- certification, 2-14, 6-25, 6-29–6-32, 8-15, 8-19, 8-20, 8-35, 8-38
 - as tool for insurance rating, 11-8
 - form, 8-18, 9-7
 - dry, defined, 6-29
 - inspection, 8-33, 8-35
 - non-residential, alternative to elevation, 6-23
 - wet, 6-28
- Floodway, 4-6–4-8, 5-51, 8-24
- analysis, 4-23–4-27, 6-37, 6-38, 6-39
 - basis for, 4-24
 - boundary at development sites, 5-42–5-43
 - data table, 5-6–5-8, 5-17
 - defined, 4-23
 - delineation 4-24, 4-25, 8-22
 - map revision, 9-39
 - more restrictive standards, 4-24–4-25, 7-7–7-8, 7-10
 - no-impact certification (see Elevation)
 - not identified, 6-21, 6-34–6-35
 - offsetting impact of further development, 6-35–6-36, 7-8, 9-5
 - one-foot rise, 4-24
 - increases beyond one foot, 6-35–6-36, 6-38–6-39
 - regulatory, 6-37–6-38, 7-4
 - represented on maps, 5-28, 5-30, 5-31, 5-32, 5-34, 5-35, 5-38–5-39
 - statistics, 6-9
- Freeboard, 7-4, 7-6, 7-7, 7-9, 7-18, 7-19, 11-5
- Fuel tanks, 6-13
- See also Propane tanks
- ## G
- Geographic Information Systems (GIS), 4-8, 4-12, 4-13, 4-14
- Greenways, 1-15
- Groundwater, 1-14, 1-16, 7-23
- ## H
- Hazardous substances and waste facilities, 7-6, 7-9, 7-24
- Historic
- properties, 6-51, 11-5
 - resources
 - Certificate of Appropriateness, 6-52
 - definition of, 6-51
 - preservation of, 6-51–6-52
 - National Register of Historic Places, 6-51, 10-14
 - structures and sites, 1-16, 6-14, 9-19, 9-30–9-32
 - inventory of, 10-14, 12-5
- Hurricanes
- Bertha, O-3
 - Fran, O-3, O-4
 - Hugo, O-3
- Hydraulic
- analysis
 - coastal, 4-27
 - riverine, 4-20
 - efficiency, 1-10
- Hydraulics, 4-20
- Hydrologic cycle, 1-4
- Hydrology
- coastal, 4-26
 - riverine, 4-19
- ## I
- Ice jam. See Flood
- Increased cost of compliance, 9-33–9-34
- Infiltration, 1-20, 6-18, 6-21
- Inspection. See Development, site
- Insurance Services Office (ISO), 4-13, 12-11, 12-12, 12-13
- Internet, 4-13, 4-15, 4-31

FEMA Homepage, 12-15

L

Lakes and reservoirs. See Flood Insurance Study

Lake levels, 7-15, 7-18

Land disturbing activity

need for state mining permit, 6-55

need for state erosion and sediment control plan, 6-55

Legal

counsel, 8-6

issues, 10-21–10-27

eminent domain, 10-22

inverse condemnation, 10-23

liability, 10-24

reasonable care standard, 10-27

state enabling legislation, 10-21

taking, 10-22, 10-23–10-27

Lender responsibility, 2-7, 7-5, 9-7

Levees, inadequate, 1-10, 7-15, 7-16

inundation zone, 7-16

Local administrator, 2-13–2-14, 5-17, 5-18, 5-41

clearinghouse function, 8-21

administrative issues, 9-4–9-40

role in CAV, 12-9

role in making determinations, 5-41–5-43

role in permit review, 8-7–8-36

roles and responsibilities, 3-3–3-9, 8-4, 8-5

Lowest floor

defined, 6-12

determining from building diagrams, 9-14

M

Mangroves, 6-40, 6-44

Manufactured homes, 6-13, 6-40, 6-62, 6-63, 7-6

anchoring and elevation of, 6-24, 6-25, 6-33–6-34, 8-34

anchoring inspection, 8-35

evacuation plan in parks, 7-6

foundation inspection, 8-34

in existing parks, 6-26

in floodway, 7-8

in Zone V, 6-44

park, 6-22, 6-26, 6-40, 6-44

pre-FIRM, 6-34, 11-5

substantial damage, 9-18

Mapping

flood hazard areas, 2-17

Maps

administrative, 3-8

amendment, 9-39

as basis for regulation, 6-10

changes

procedure for requesting, 9-39, 9-40

Conditional Letter of Map Revision

(CLOMR), 6-20, 6-24, 6-35, 6-37, 6-38, 8-21, 9-39

Letter of Map Amendment (LOMA), 9-6, 9-7, 9-37, 9-39, 9-40

Letter of Map Revision (LOMR), 6-38, 9-6, 9-7, 9-37, 9-38, 9-39

reasons for, 9-37–9-38

process for, 9-37–9-40

contour, 4-22

dates, 5-21, 5-24, 5-32

display, 12-7

Flood Boundary and Floodway Map (FBFM), 4-6, 4-8–4-9, 5-18, 5-28–5-31, 5-43, 6-37, 8-24

defined, 4-8

Flood Hazard Boundary Map (FHBM), 4-4–4-5, 4-31, 5-18, 5-21–5-23

Flood Insurance Rate Map (FIRM)

Countywide, 4-8, 4-11, 5-36–5-39

defined, 4-7, 4-23

Digital (DFIRM), 4-8, 4-11–4-15, 5-18

Digital Line Graph (DFIRM-DLG), 4-12–4-13

Q3 flood data, 4-14–4-15

map index, 5-19–5-20

new format, 4-9–4-10, 5-18, 5-32–5-35, 5-43, 6-37

old format, 5-18, 5-24–5-27

types of, 4-8

users of, 4-10, 5-24, 8-24

zones, 5-40

Floodway Map (See Flood Boundary and Floodway Map)

function of, 6-9–6-10

general features, 5-19–5-37

index 5-19–5-21

key, 4-23

See also Maps, title block and key/legend

Limited Map Maintenance Program (LMMP), 9-38

locating development sites, 5-41–5-43

maintaining supply, 3-8

ordering, 5-3

panel numbers, 5-21

process for creating flood maps, 4-22

reading and using, 5-18–5-53

- repository, 2-14, 8-5
 - revisions, 2-15, 5-20, 5-21, 5-24, 5-32, 5-36, 6-36, 9-7, 9-37-9-39
 - special features, 5-51-5-53
 - statistics, 6-9
 - title block and key/legend, 5-22, 5-26, 5-30, 5-34, 5-38
 - topographic, 4-22
 - which to use, 5-18
 - Z-fold, 4-4, 4-8
 - Market value
 - determining, 9-5-9-6, 9-19-9-20
 - sources of data, 9-5-9-6, 9-19-9-20
 - Mean high tide, 6-40, 6-41
 - Mean sea level, 4-18
 - Mobile home park. See Manufactured homes, park
 - Moratorium, 7-11
 - Mudflood and mudflow. See Flooding
 - Multi-objective management, 1-17
- N**
- National Flood Insurance Program (NFIP), O-3, 2-3-2-7
 - application for participation, 2-10-2-12, 9-7
 - biennial report, 2-14, 12-5, 12-9-12-10
 - Bureau and Statistical Agent regional offices, 2-9
 - community responsibilities, 2-10-2-16
 - community role, 2-5-2-6
 - creation of, 1-18, 2-3
 - current status, 2-16-2-17
 - data requirements, 6-9-6-10
 - Emergency Phase, 4-4
 - engineering document requirements, 8-26
 - federal role, 2-5, 2-7
 - flood insurance statistics, 2-5, 2-17
 - function of maps, 6-9-6-10
 - in North Carolina, 2-5, 2-17
 - minimum standards, 4-24, 6-7, 7-4
 - See also Floodplain management
 - National Flood Insurance Act of 1968, 2-3, 4-3
 - Section 1316 provisions, 11-10
 - National Flood Insurance Reform Act of 1994, 2-2, 9-33
 - nonparticipation, effects of, 2-16
 - overview, 2-3-2-9
 - Regular Phase, 4-4
 - self-supporting, 2-17, 4-5
 - state coordinating agency, 2-6
 - state role, 2-6
 - statistics, 2-5, 2-17
 - National Historic Preservation Act, 6-51
 - National Weather Service (NWS), 1-6
 - Natural Hazards Center, database, 12-5
 - Natural and cultural resource areas, 6-52
 - databases, 12-5
 - No-impact certification. See Elevation
 - Nonstructural flood protection, 1-18
 - North Carolina
 - application for participation in NFIP, 2-10-2-12
 - Area of Environmental Concern (AEC), defined, 6-52
 - Association of Floodplain Managers, O-4, 12-5
 - building code, 6-19, 6-33, 6-62-6-63, 7-10, 9-15
 - standards for floodplain structures, 6-62
 - Coastal Area Management Act (CAMA) of 1974, 3-7, 6-20, 6-23, 6-52, 7-12, 9-11, 9-18-9-19
 - counties covered by, 6-53
 - coastal computer model, 4-26
 - Department of Agriculture and Consumer Services, Standards Division, 6-49-6-51
 - Department of Cultural Resources, Division of Archives and History, 6-51-6-52
 - Department of Environment and Natural Resources, 6-52-6-62
 - Department of Insurance, 6-62-6-63
 - Division of Emergency Management (DEM), O-4, O-11, 2-6, 2-7, 2-10, 3-5, 6-7, 6-23, 6-34, 6-42, 6-44, 8-7, 8-8, 8-21, 9-5, 9-11, 9-13, 9-15, 12-3, 12-4
 - extra-territorial jurisdiction, 2-5, 2-15-2-16, 5-36-5-37
 - shown on flood maps, 5-39
 - flash flood disaster, 1-7
 - floodplain management standards and requirements, 6-49-6-63
 - freeboard, 7-7
 - Geodetic Survey, 4-19
 - greenways, 1-15
 - guidance on accessory structures, 9-11
 - guidance on elevation certification, 9-13
 - guidance on inspection of floodplain development, 9-15
 - home study course
 - objective, O-4
 - survey form, Final Exercise-17
 - ice jam flooding, 1-8

manufactured home code, 6-19, 6-24, 6-33–6-34, 6-44, 6-62, 6-63
 maps, 2-17, 4-5, 4-22
 model ordinance, 6-7, 6-8, 6-34, 6-44, 9-8, 9-11
 natural, wild or scenic rivers, 7-25
 Neuse River basin
 riparian areas, 6-59–6-60
 temporary rule for natural areas, 6-59
 NFIP participation, 2-5
 NFIP statistics, 2-17, 12-12
 on-site sewage systems, 7-23–7-24
 Q3 flood data, 4-15
 recent natural disasters, O-3
 regulations for manufactured/mobile homes, 6-62–6-63
 responsibilities of local administrator, 3-3–3-9
 setbacks, 6-23, 7-12, 9-11, 9-19
 state-specific information designation, O-10
 V-zone certification, 6-42–6-43
 zoning, 6-19
 Occupancy permit, 8-35, 8-39
 Open space preservation, 1-20, 1-21, 7-5, 7-11, 12-14
 Ordinance
 administration, 8-5–8-7
 requirements for revision, 2-13
 See also Floodplain management, ordinance
 Overbank flooding. See Flood

P

Permits
 floodplain (see Development)
 other local, state, federal, 6-20, 6-24, 8-20–8-21
 Planning committee, 8-6
 Pollution
 Non-point source, 1-15, 7-12, 7-24
 Point source, 7-24
 Ponding, 1-6, 4-30, 5-13, 5-52
 Probation. See Sanctions
 Propane tanks, anchoring of, 6-49–6-51
 Public
 fraud, victimization, and safety, 10-12
 information, 8-7
 involvement, 8-6–8-7
 notice, 8-5, 8-7
 to adjoining municipalities, 6-22, 6-23, 8-21
 services and facilities, 7-5, 7-9, 7-13

Q

Q3 flood data. See Maps, digital FIRM

R

Rare and endangered species, 7-21, 7-23, 12-5
 Record keeping, 2-13–2-14, 3-5, 3-8, 6-23, 6-41, 8-38–8-39, 10-13, 11-9, 12-9
 Recreational vehicles, 6-26
 defined, 6-36
 in Zone V, 6-40, 6-44–6-45
 siting, 6-36
 Reinstatement, conditions, 10-8
 Relocation. See Acquisition and relocation
 Retrofitting. See Construction
 Roughness factor, 4-17
 Runoff, 4-19, 7-18
 See also Drainage and Flood, discharge
 Rural areas, 4-31, 7-11, 7-24

S

Sanctions, 2-16, 10-3, 10-6–10-8
 Conditions for reinstatement, 10-8
 Probation, 10-7
 Suspension, 10-7–10-8, 11-3
 Sand dunes, 1-11, 1-21, 5-52, 6-40, 6-44, 7-17, 7-21
 Setbacks, 6-23, 7-6, 7-11–7-12, 7-17, 7-18, 7-19, 7-23
 in V zones, 7-6
 inspection, 8-33
 See also North Carolina
 Sewage system, 6-18, 6-21, 7-13
 backflow valve, 6-21, 6-30
 sanitary, 6-18, 6-21
 septic/on-site, 6-18, 6-21, 7-12, 7-18, 7-23–7-24
 floodplain standards for, 6-54
 permits, 6-54
 Sheet flow. See Flood
 Shoreline protection, 1-21, 6-52
 Significant damage, definition, 6-20
 Soil erosion and sedimentation, 7-24
 See also Coastal, flooding and erosion
 Solid waste landfill, 7-12, 7-23

- Special Flood Hazard Area (SFHA)
 defined, 3-6
 identified, 6-21, 6-24
 mapping, 4-4, 4-7, 4-8, 4-22
 not identified, 6-17-6-21
 sites in proximity to, 6-10, 9-6
- State Historic Preservation Office (SHPO), 6-51
- Stillwater elevation. See Elevation
- Storage of materials and equipment, 6-11, 6-33, 8-8, 9-11
- Storm surge, 1-11, 4-26, 6-39, 6-41
- Stormwater
 federal permits, 6-61
 management, 1-10, 7-13, 7-24, 12-14
 alternatives, 6-60-6-62
 retention and detention, 7-13
 runoff, 1-15, 1-18, 1-21, 7-13, 9-38
 state programs, 6-61
 See also Drainage; Runoff
- Structural flood control, 1-17-1-18
- Stream crossings
 reading flood profiles at, 5-13-5-14
 representation, 5-12-5-13
- Stream distance, determining, 5-43-5-44
- Structure
 accessory, 6-28, 9-11
 defined, 6-13
 elevated building, defined, 6-11
 historic (see Historic)
 non-residential, elevation and floodproofing, 6-28-6-32
 pre-FIRM
 defined, 9-29
 mandatory floodplain management
 criteria, 11-4
 residential, elevation 6-26-6-28
 post-FIRM, defined, 9-30
 See also Construction
- Subdivision
 data requirements, 6-21, 6-22
 evacuation plan, 7-6
 floodway delineation, 7-6
 planning, 4-33, 7-11
 regulations, 1-20, 4-32-4-35, 7-23
 review plat, 6-18, 6-20
- Subsidence, 7-6
- Substantial damage/improvement, 6-26, 9-5, 11-4-11-8
 calculating cost of, 9-20-9-22
 cumulative improvements, 8-39
 defined, 6-13-6-14, 9-18
 estimator, 9-5, 9-19
 exemption
 for code violations, 9-32-9-33
 for historic structures, 9-30, 9-32
 regulations, 9-18-9-34
 ways to substantially improve structures, 9-23-9-29
- Support, sources of. See Assistance
- Suspension. See Sanctions
- ## T
- Tax adjustments, 1-20, 1-21, 7-21
- Topographic map, 4-22, 5-17
- Transect, 4-27, 4-28, 4-29, 5-6, 5-15
 data, 5-9, 5-15
- ## U
- United States
 Army Corps of Engineers (USACE), 6-20, 6-22, 7-21, 8-21
 Department of Agriculture (USDA)
 Natural Resources Conservation Service (NRCS), 8-21
 Environmental Protection Agency (EPA), 7-21, 8-21
 Geological Survey (USGS), 4-4, 4-22, 5-10
- ## V
- V Zone. See Zone V
- Variance, 2-14, 6-28, 7-5, 8-6, 8-27, 10-10-10-16, 12-9, 12-10
 criteria, 44 CFR Section 60.6, 10-12-10-14
 defined, 10-10
 exceptional hardship, 10-13, 10-14
 for accessory structures, 9-11
 for historic structures, 10-14
 functionally dependent use, 10-13
 guidance, 10-14-10-15
 increased flood insurance rates, 10-12, 11-9-11-10
 minimum necessary, 10-13, 10-14, 10-15
 procedures, 3-4
 record keeping, 10-13, 10-15
 recording, 10-15
 small lot, 10-13
 unnecessary hardship criteria, 10-10-10-12
- Velocity

wave action, 4-28
 zone (see Zone V)

Videotapes, 0-10

- Best Build I on Coastal Construction, 6-39
- Best Build II on Riverine Construction, 6-17
- Community Rating System, 12-10
- Federal and State Floodplain Management Requirements, 6-7
- Flooded Again: It's Time to Fight Back, Final Exercise
- How to Use NFIP Flood Information, 5-12
- Welcome to the Course, 0-10
- Regulating Floodplain Development: What Local Officials Should Know, 2-4

Violations, 12-9

Vulnerable facilities, types of, 7-9

V-zone certification, 2-14, 6-40-6-43, 7-10, 8-20 form, 6-43

W

Water

- quality, 1-15, 1-16, 7-12, 7-18, 7-22
- supply watersheds, 6-52, 6-61
- systems, 6-18, 6-21, 7-18

Watercourse alteration, 2-15, 6-22, 6-23-6-24, 7-6, 8-21, 8-38

Watershed management, 1-18

Wave

- action, 4-26, 5-51, 6-39, 7-10
- crest elevation. See Elevation
- envelope, 4-26
- runup, 4-27, 4-30, 5-52
- setup, 4-26

Wells, 7-18

Wetlands, 7-20-7-21

- activities regulated, 6-57, 6-59
- no net loss policy, 7-23
- permit for activities, 6-57
- protection, 7-22-7-23
- regulation
 - challenged, 10-25
 - state standards, 6-57-6-59
 - State Wetland Restoration Program, 6-59
- restoration, 7-20

Wild and scenic rivers, 7-21

Wildlife sanctuary, 1-16, 7-22, 7-23

Write-Your-Own Program. See Flood insurance

Z

Zone

- A, 4-4, 4-5, 5-40
 - approximate, 4-31, 5-21, 5-25, 5-29, 5-33
 - best available data, 6-22-6-23
 - unnumbered, 4-5, 4-31
- A#, 4-29, 5-40, 5-48
- A1-A30, 4-8, 4-10, 5-40, 6-25-6-26
- A99, 5-40, 6-25, 6-34
- AE, 4-10, 4-29, 5-40, 5-48, 6-25-6-26
 - coastal, 7-10
- AH, 4-30, 5-40, 5-48, 6-25-6-26
 - coastal, 7-10
- AO, 4-30, 5-40, 5-48, 6-25
- AR, 5-40
- B, 4-8, 4-10, 5-40
- break lines on maps, 5-25, 5-32-5-33
- C, 4-8, 4-10, 5-40
- D, 5-40
 - relation to flood hazard factor, 5-8
- V#, 5-40
- V, 5-40, 6-40, 8-19
- V1-V30, 4-10, 6-40
- VE, 4-10, 5-40, 6-40
 - defined, 6-39
- X, 4-8, 4-10, 5-40

Zoning, 1-20, 1-21, 6-19, 7-11, 7-23, 8-5, 10-25