

# GUIDEBOOK

## for Local Floodplain Ordinance Administrators



January 1999

Publication No. 142

This printing of Oklahoma's Floodplain Management 101 revises the Guidebook for Local Floodplain Ordinance Administrators and voids and supercedes all other documents, by this name, previously issued by the Oklahoma Water Resources Board.

Duane A. Smith, Executive Director

OKLAHOMA WATER RESOURCES BOARD  
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# NOTICE

This publication was prepared as an account of work sponsored by an agency of the United States Government. The views and opinions expressed herein do not necessarily reflect those of the United States Government or any agency thereof.

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DUANE A. SMITH  
EXECUTIVE DIRECTOR



FRANK KEATING  
GOVERNOR

STATE OF OKLAHOMA  
WATER RESOURCES BOARD

January 8, 1999

Dear Floodplain Administrator:

It is our privilege to provide the 1998 revision of the Guidebook for Local Floodplain Ordinance Administrators. We believe this Guidebook to be the most comprehensive edition since first published in 1990.

An additional chapter and many new articles of concern to the floodplain administrator have been added. There is new emphasis on professional development, flood mitigation and community involvement. This revision also directs you to organizations and institutions that can support you and give you even more tools to use in managing your community's floodplain and administering its floodplain ordinances.

We have attempted to address new and changing laws, policies and procedures to better equip you for the floodplain management issues and challenges of the new millennium.

If you have any questions or do not have a Guidebook, please contact the NFIP State Coordinator, Ken Morris at (405) 530-8800.

Sincerely,

Duane Smith, Executive Director



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# Introduction



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# WHY WE NEED FLOODPLAIN MANAGEMENT

Flooding is a natural phenomenon. Periodically, rain and melting snow cause rivers to rise and streams and lakes to overflow their banks onto adjacent land areas. These areas, known as floodplains, have been carved out by the floods for the specific purpose of carrying excess floodwaters. Since times of settlement, little regard has been given to the purpose and function of floodplains. Homes, businesses and even entire communities have been built in floodplain areas. The development of these floodplains has resulted in continual and, often, severe social and economic loss.

Traditionally, planning for flood control has focused on protecting existing development(s) through structural works such as dams, diversions, or levees, and providing emergency relief and recovery assistance to flood victims following a disaster. These approaches are expensive, and neither has been totally effective in reducing flood damages. Despite considerable expenditure on flood control works, annual damages due to flooding continue to rise.

It is apparent that another alternative is needed, one that gets to the root of the problem: man's insistence on using and occupying flood hazard areas. The National Flood Insurance Program (NFIP) and the Oklahoma Floodplain Management Act provide that alternative (see Appendix A-1 and B-1). Rather than attempting to physically control rivers by moving or shifting the flooding away from the people, these laws recognize and encourage the need to control development in floodplains and to protect people from harm by relocating the people and not the floodwaters. Their basic purpose is not to prohibit, but to guide development in floodplain areas in a manner consistent with nature's needs to convey floodwaters and a community's land use needs.

## PURPOSE OF THE GUIDEBOOK

This guidebook was prepared to help the people in Oklahoma communities understand the concepts of the National Flood Insurance program and the state's Floodplain Management Act. Community responsibilities associated with participation in the NFIP are also described. Primarily, this guidebook is intended for use by the local official in charge of administering a floodplain ordinance. It is presented in a way that clarifies federal and state regulations and explains the procedures communities should follow in administering their floodplain ordinance.

## HOW THE GUIDEBOOK IS ORGANIZED

### SEVEN MAJOR CHAPTERS AND SIX APPENDICES

**Chapter 1 - National Flood Insurance Program**, describes the National Flood Insurance Program (NFIP) by listing its goals and objectives, defining the terms associated with the program and explaining a community's responsibilities when participating in the NFIP. This chapter also explains the Emergency and Regular Phases of the NFIP.

**Chapter 2 - Oklahoma Floodplain Management Legislation**, explains the Oklahoma Floodplain Management Act (OFMA) of 1980 and describes how it affects Oklahoma communities. The duties of the Oklahoma Water Resources Board (OWRB) are listed as they relate to floodplain management. The Landlord and Tenant Act and the Real Estate Condition Disclosure Act are also discussed.

**Chapter 3 - Local Floodplain Regulations and NFIP Standards**, outlines NFIP regulations and development standards. Standards for all floodplain development are described.

**Chapter 4 - Floodplain Ordinance Administration**, explains how a community should administer its floodplain ordinance and keep records.

**Chapter 5 - Flood Mitigation Planning**, describes matters beyond the NFIP that a community should consider when implementing a floodplain management program, including disaster preparedness plans and structural and nonstructural flood mitigation measures.

**Chapter 6 - Enforcement**, provides procedures and alternatives on how to enforce floodplain management regulations.

**Chapter 7 - Professional Development**, provides information on the availability of professional development opportunities, both organizational and educational.

**Appendices A - F** provide examples of information for the local floodplain ordinance administrator and includes state and federal regulations, sample forms and letters that can be used for ordinance administration.

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# Chapter 1



## THE NATIONAL FLOOD INSURANCE PROGRAM

REFERENCE APPENDIX A

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# GOALS AND OBJECTIVES

The National Flood Insurance Program (NFIP) was created by Congress in 1968, offering nonstructural approaches to reduce flood damage (see Appendix A-1). The program's purpose is to make flood insurance available to property owners in flood-prone communities in return for each community agreeing to guide future floodplain development (see Figure 1-2). The NFIP requires local governments to adopt and enforce floodplain regulations before flood insurance can be obtained in their community. The local regulations must meet the minimum NFIP requirements established by the federal government.

Congress created the program to address the problem of increasing annual losses. For decades, the federal response to food disasters was limited to building flood control works and providing disaster relief to flood victims. The NFIP works on the basis of an agreement between the federal government and flood-prone communities that choose to participate in the program.

## HOW THE NFIP WORKS

### EMERGENCY PROGRAM OF THE NFIP

1. Community applies for participation in the NFIP either (a) as a result of interest in eligibility for flood insurance, or (b) as a result of receiving notification from FEMA that it contains one or more SFHAs. Application includes adopted resolutions or ordinances to minimally regulate new construction in SFHAs.

2. FEMA authorizes the sale of flood insurance in the community up to the Emergency Program limits. FEMA assesses the community's degree of flood risk and development potential.

3. If appropriate, FEMA arranges for a study of the community to determine base flood elevation and flood risk zones. Consultation with the community occurs at the start of and during the study. Communities with minimal or no flood risk are converted to the Regular Program without a study.

4. FEMA provides the studied community with Flood Insurance Rate Map delineating base flood risk zones. Community is given six months to adopt base flood elevations in its local zoning ordinances, and to meet other requirements.

5. Community adopts more stringent ordinances and FEMA converts the community to the NFIP'S Regular Program.

### REGULAR PROGRAM OF THE NFIP

1. FEMA authorizes the sale of additional flood insurance in the community up to the Regular Program limits.

2. Community implements adopted floodplain management measures.

3. FEMA arranges for periodic community assistance visits with local officials to provide technical assistance in complying with NFIP floodplain management requirements.

4. Local officials may request flood map updates as needed. FEMA evaluates requests, encourages cost-sharing, and issues revised maps as priorities dictate.

**NOTES:** The purchase of flood insurance is mandatory as condition of receipt of federal or federal-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within one year of notification are ineligible for federal or federal-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA of non-participating communities for these purposes at the lender's risk.

**NFIP:** National Flood Insurance Program

**SFHA:** Special Flood Hazard Area

**FEMA:** Federal Emergency Management Agency

## FLOOD INSURANCE COVERAGES

<b>BUILDING COVERAGE</b>	<b>EMERGENCY PROGRAM</b>	<b>REGULAR PROGRAM</b>
Single-family Dwelling	\$ 35,000	\$250,000
Other Residential	\$100,000	\$250,000
Non-residential Small Business	\$100,000	\$250,000
<b>CONTENTS COVERAGE (Per unit)</b>		
Residential	\$ 10,000	\$100,000
Non-residential including Small Business	\$100,000	\$500,000

## NFIP DEFINITIONS

**A-ZONE-** A-Zones are found on all Flood Hazard Boundary Maps (FHBMs) and Flood Insurance Rate Maps (FIRMs). An A-Zone is an area which would be flooded by the Base Flood, and is the same as a Special Flood Hazard Area (SFHA) or a 100-year floodplain. These areas may be numbered as A1 to A30, or as A99, or they may be unnumbered as A, AE, AH or AO Zones. Numbered A-Zones indicate an area's risk to flooding.

**BASE FLOOD-**The Base Flood is referred to as the 100-year flood and is a measure of flood magnitude based on probability. The Base Flood has a one percent chance of occurring or being equalled or exceeded in any given year.

**BASE FLOOD ELEVATION (BFE)-** The height of floodwater reached during the Base Flood is referred to as the Base Flood Elevation or 100-year flood elevation. The elevation of the water surface is referenced to the National Geodetic Vertical Datum (NGVD) of 1929. In other words, a Base Flood Elevation of 898 feet (NGVD) refers to a water surface elevation of 898 feet above NGVD (other datums may be used and will be specified on the maps). See Figure 1-2 for cross-sectional views of the 100-year floodplain.

**DEVELOPMENT -** For purposes of the NFIP, development means any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, filling, mining, dredging, grading, paving, excavation or drilling operations, or storage or equipment/materials.

**ENCROACHMENT -** Construction, placement of fill or similar alteration of topography in the floodplain that reduces the area available to convey floodwaters.

**EXISTING MANUFACTURED HOME PARK OR SUBDIVISION -** Means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

**EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION -** Means the preparation of additional sites by the construction of facilities for serving the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads).

**FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) -** The federal agency with overall responsibility for the administration of the NFIP.

**FLOOD BOUNDARY FLOODWAY MAP (FBFM) -** A floodplain management map issued by FEMA that depicts, based on detailed analyses, the boundaries of the 100-year and 500-year floods and the 100-year floodway (see Appendix A-2).

**FLOOD FREQUENCY -** This term refers to a flood probability of a certain magnitude being equalled or exceeded in a given year. For example, a 100-year flood has the probability of a one percent chance of reaching or exceeding a certain elevation in any given year. It must be noted that flood frequency is a probability. Thus, it is possible for a 100-year flood to occur three years in a row, or not at all for 500 years.

**FLOOD HAZARD BOUNDARY MAP (FHBM)** - An official map of a community, issued by the Administrator, where the boundaries of the flood, mudslide, i.e., mudflow and related erosion areas having special hazards have been designated as Zones A, M, and/or E.

**FLOOD INSURANCE RATE MAP (FIRM)** - An official map of a community, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community (see Appendix A-2).

**FLOOD INSURANCE STUDY (FIS)** - The FIS is the official report prepared by FEMA that is an explanation, evaluation and determination of flood hazards with corresponding water surface elevations, flood profiles and maps for floodplain regulation purposes.

**FLOOD PROFILE** - A flood profile is a graph which shows the relationship of the water surface elevation of a flood event to locations along a river or a stream. Flood profiles are explained in more detail in Appendix A-3.

**FLOOD ZONES** - Zones on the Flood Insurance Rate Map (FIRM) in which the risk premium insurance rates have been established by a Flood Insurance Study .

**Zone Symbol**

- A** Area of special flood hazard without base flood elevations determined.
- A1-A30, AE** Area of special flood hazard with base flood elevations determined.
- AH** Area of special flood hazard having flood depths of one to three feet (usually area of ponding), and with base flood elevations determined.
- AO** Area of special flood hazard having flood depths of one to three feet (usually sheet flow on sloping terrain): average depths determined. For areas of alluvial fan flooding, velocities also determined.
- A99** Area of special flood hazard to be protected from 100-year flood by federal flood protection system under construction; no base flood determined
- B,X** Areas of 500-Year flood; areas of 100-year flood with average depths of less than one foot with drainage areas less than one square mile; and areas protected by levees from 100-year flood
- C,X** Areas determined to be outside 500-year floodplain (see unshaded area, Appendix A-2)
- D** Areas in which flood hazards are undetermined

**FLOODING** - A general and temporary condition of partial or complete inundation of normally dry land areas caused by:

- (1) The overflow of waters, or
- (2) The unusual and rapid accumulation of runoff of surface waters from any source.

**FLOODPLAIN** - The area inundated by the one-percent chance flood constitutes the 100-year floodplain of a river, creek, ditch, lake or other source of flooding. This floodplain is also referred to as the Special Flood Hazard Area (SFHA). It is the area of a community where development must be regulated through a local ordinance conforming to the standards of the NFIP.

**FLOODPLAIN MANAGEMENT** - Means the operation of an overall pro-

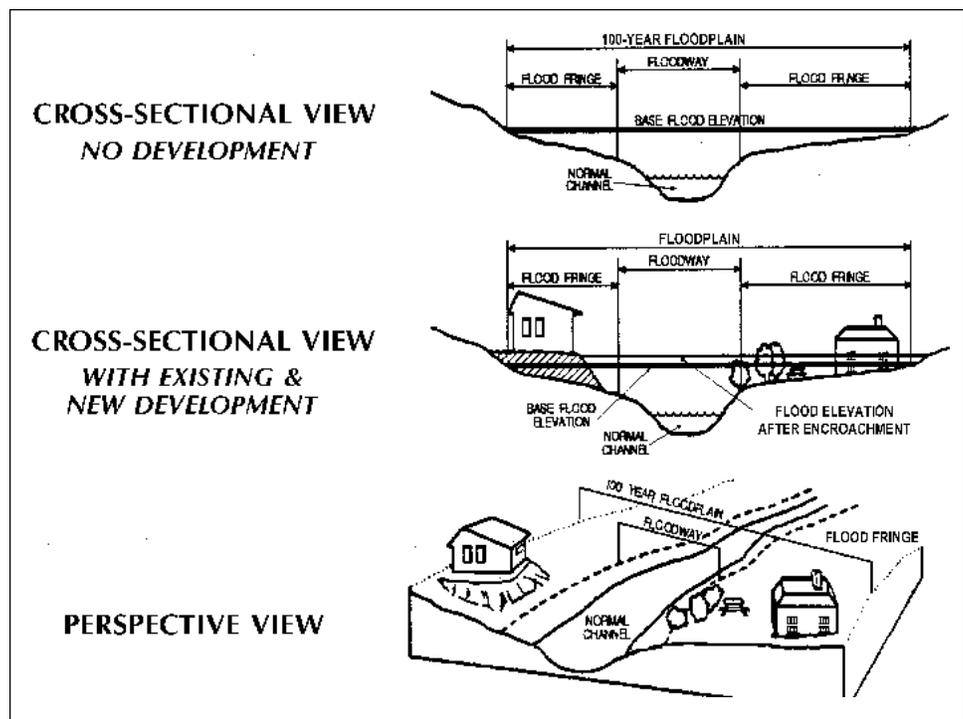


Figure 1-1 The 100-Year Floodplain

gram of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

**FLOODPLAIN MANAGEMENT REGULATIONS** - Means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

**FLOODPROOF** - Floodproofing is designing a structure in a manner that reduces or eliminates flood damage

**FLOODWAY** - The floodway is the river channel plus any adjacent floodplain areas which are needed to carry the waters of the Base Flood without substantial increases in the Flood height. NFIP regulations limit this increase to a maximum of one foot, also known as a surcharge (see Figure 1-2 and Appendix A-4)

**FLOODWAY FRINGE** - That area in the 100-year floodplain outside of the floodway is called the floodway fringe. It is the area of the floodplain that can be developed without causing a substantial increase (more than one foot) in the Base Flood Elevation.

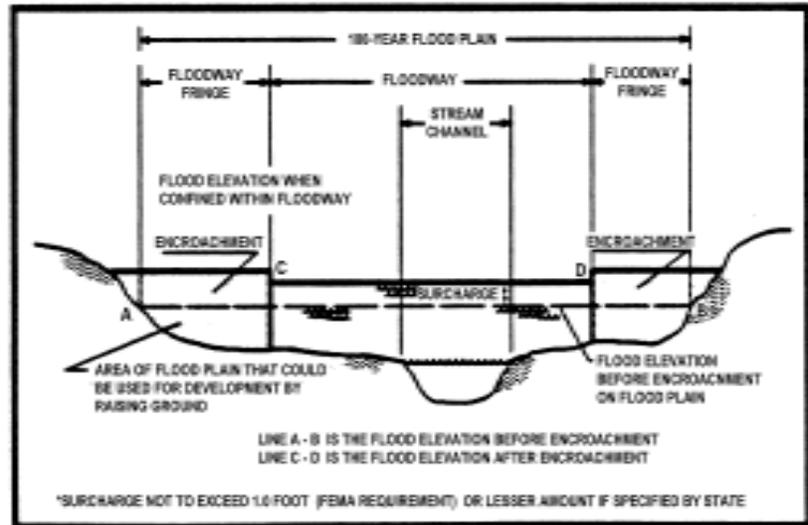


Figure 1.2 Floodway Schematic

**HISTORIC STRUCTURE** - Means any structure that is:

- (a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- (b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district.
- (c) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or
- (d) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified: By a state program approved by the Secretary of the Interior, or directly by the Secretary of the Interior.

**LOWEST ADJACENT GRADE ELEVATION** - The lowest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

**LOWEST FLOOR ELEVATION** - The elevation of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area, which is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of 60.3 of the NFIP regulations.

**MANUFACTURED HOME** - A Structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term "manufactured home" also includes park trailers, travel trailers and other similar vehicles placed on a site longer than 190 consecutive days.

**NEW CONSTRUCTION** - New construction means, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

**NEW MANUFACTURED HOME PARK OR SUBDIVISION** - Means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads.) is completed on or after the effective date of the floodplain management regulations adopted by a community.

**RECREATIONAL VEHICLE** - Means a vehicle which is (1) built on a single chassis; (2) 400 square feet or less when measured at the largest horizontal projections; (3) designed to be self-propelled or permanently towable by a light duty truck; and (4) designed primarily as temporary living quarters for recreational, camping, travel or seasonal use.

**SPECIAL FLOOD HAZARD AREA (SFHA)** - The land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. A SFHA is the same as an A-Zone.

**START OF CONSTRUCTION** - The date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings; any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; the installation of streets or walkways; excavation for a basement; footings, foundations or the erection of temporary forms; or the installation of accessory buildings on the property, such as garages or sheds not occupied as dwelling units and not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

**STRUCTURE** - For floodplain management purposes, a structure is described as a walled and roofed building or manufactured home, including an above ground gas or liquid storage tank.

**SUBSTANTIAL DAMAGE** - Any damage sustained by a structure whereby the cost of restoring the structure to its original condition would be equal or exceed 50 percent of the market value of the structure before the damage occurred.

**SUBSTANTIAL IMPROVEMENT** - Any reconstruction, rehabilitation, addition or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of repair work performed. The term does not, however, include either:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary or safety codes which have been identified by the local enforcement official and which are the minimum necessary to assure safe living conditions, or

(2) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure"

## ACRONYMS

BEF-	Base Flood Elevation	FIRM-	Flood Insurance Rate Map
CAV-	Community Assistance Visit	FIS-	Flood Insurance Study
FBFM-	Flood Boundary and Floodway Map	NFIP-	National Flood Insurance Program
FEMA-	Federal Emergency Management Agency	OFMA-	Oklahoma Floodplain Management Act
FHBM-	Flood Hazard Boundary Map	SFHA-	Special Flood Hazard Areas

# COMMUNITY RESPONSIBILITY

The responsibility communities have when participating in the National Flood Insurance Program is to regulate development in the floodplain. If floodplain development is not regulated, the availability of flood insurance will be jeopardized. Flood insurance facts are listed in Appendix A-6

To meet this responsibility, cities and counties must adopt and enforce a floodplain ordinance that meets the requirements of the NFIP. The minimum standards the local government must adopt depend on the amount of data Federal Emergency Management Agency has supplied the community- the more detailed the data, the more stringent the regulations required. Data for communities is in one of the four following categories;

- a) Study completed- no special Flood Hazard Areas identified-no map printed;
- b) Floodplain map printed (FIRM or FFBM), study not completed, Base Flood Evaluations (BFEs) not determined;
- c) FIRM printed, study completed, BFEs established, floodway not designated; or
- d) FIRM printed, study completed BFEs established, floodway established.

These data are determined for the community in the original two phases of the NFIP; the Emergency and Regular Phases.

## **THE EMERGENCY PHASE**

The Emergency Phase is the temporary phase of the NFIP and is scheduled to end by September 1991. In the phase, FEMA provides the community with a Flood Hazard Boundary Map that identifies those general areas in the community that may be flooded in the event of the Base Flood. These areas are marked as Zone A.

The community is required to ensure that new development in the Zone A areas will be protected from the Base Flood and will not increase the flood hazard to other areas.

In certain cases FEMA has not identified flood hazard areas, but the local government has indicated that flood hazards exist by participating in the NFIP. Since FEMA did not provide the community detailed flood hazard information in the Emergency Phase of the NFIP, it was the obligation of the local government to use any available information source to implement its ordinance.

In either case, the local government must adopt and enforce an ordinance that establishes a permit system for development which requires new construction to be safe from flooding if it is located in the flood-prone area.

## **THE REGULAR PHASE**

A community usually becomes eligible to participate in the Regular Phase of the NFIP when FEMA completes a detailed Flood Insurance Study. This study identifies the community's flood hazard area based on hydrologic (amount of water and frequency of flood events) and hydraulic (the floodplain's capacity to carry floodwaters) analyses. This study defines the limits of the floodplain and divides it into flood zones reflecting the risk of flooding. These zones, along with Base Flood Elevations, are indicated on a Flood Insurance Rate Map, or FIRM. (See "Flood Zones" under definitions.)

FEMA may also provide a community detailed information to designate a regulatory floodway. This information, in the past, has been displayed on the Flood Boundary Floodway Map (FBFM). The information found on this map is referenced to the Flood Insurance Study. However, due to a change to a single map system, floodways will now be shown on the new generation FIRMS. Only new studies or complete study revisions will see the one-map system. Communities which have existing FIRMs and FBFMs will keep these maps intact.

Communities participating in the Regular Phase of the NFIP must adopt and enforce an ordinance which requires new structures in flood hazard areas to have the lowest floor, including the basement, elevated to or above the Base Flood Elevation. The ordinance must also limit development in the floodway to passive uses-such as agriculture open space-which will not increase the height of the Base Flood.

## **BIENNIAL REPORTS**

Communities participating in the NFIP agree to return a Biennial Report on floodplain activities to FEMA. Every two years FEMA sends a form to the community floodplain administrators requesting information concerning any changes to the community's flood hazard area, development activities that have taken place in the floodplain, and verification of the number of floodplain residents and structures. The Biennial Report should be completed and returned within 30 days. Any information that is not accurate should be corrected on the form. FEMA is in the process of revising the Biennial Report Forms at the time of this guidebook printing.

## **COMMUNITY ASSISTANCE VISIT (CAV)**

FEMA and the OWRB conduct Community Assistance Visits (CAVs) in participating communities to evaluate progress and efforts to comply with the regulations of the NFIP. The primary purpose of CAVs is to identify and help communities solve floodplain management problems.

A CAV is the foundation of FEMA's Community Compliance Program which outlines procedures for enforcement activities by FEMA under the NFIP. CAVs, performed by FEMA, Oklahoma Water Resources Board (OWRB), or other federal agencies, monitor community floodplain management efforts necessary as a condition of community participation in the NFIP. A CAV is the most comprehensive form of FEMA community contact, with a floodplain tour and inspection of floodplain development permit records being done. Biennial Report information is verified at this time and the community's floodplain management program is evaluated. Any shortcoming FEMA sees in the community's floodplain management program is identified and corrective actions are taken by the community. Enforcement action can be initiated by FEMA for community noncompliance with their own floodplain ordinance which is based upon NFIP regulations. When noncompliance is cited, FEMA expects the community to identify and take actions necessary to remedy these infractions. Penalties for noncompliance are outlined under "Enforcement" in Chapter 4. The Community Assistance Contact (CAC) is similar to a CAV except with much less detail. The CAC can be a personal visit or just a telephone call.

## **INCREASED COST OF COMPLIANCE (ICC) COVERAGE**

On June 1, 1997, the National Flood Insurance Program (NFIP) modified the Standard Flood Insurance Policy to include coverage that will help reduce the financial burden to elevate, flood proof, demolish or relocate flood damaged homes to bring them into compliance with the Community's Floodplain Management Ordinance.

Increased Cost of Compliance (ICC) coverage under the NFIP provides for the payment of a claim to help cover the cost to comply with the community floodplain management ordinance after a flood event in which a building has been declared substantially damaged or repetitively damaged. When an insured building is damaged by a flood and the community declares the building to be substantially damaged or repetitively damaged, ICC will help pay for the cost to elevate, flood proof, demolish or relocate the building up to a maximum benefit of \$15,000.

ICC coverage is in addition to the building coverage for the repair of actual physical damages from a flood under the Standard Flood Insurance Policy (SFIP). AU regular program policies with building coverage under the SFIP issued or renewed on or after June 1, 1997 will include ICC coverage, except buildings insured under the Group Flood Insurance Policy or insured under the Condominium Unit Owner Policy. Buildings located in emergency NFIP Communities are EXCLUDED from ICC coverage.

Standard Flood Insurance Policies will increase from \$4.00 to \$75.00 per policy depending on their flood risk zone and amount of coverage.

The maximum limit of \$15,000 under ICC will help property owners insured under the NFIP pay for a portion or, in some cases, all of the costs of undertaking actions to protect homes and businesses through elevation, floodproofing, demolition or relocation of an insured building. The ICC claim payment must be used toward costs of undertaking any of the above mentioned mitigation measures.

ICC claim payments will be made whether or not there is a Presidential Declaration. In order for flood damaged structures to be eligible for ICC, the structures must either be a repetitive loss structure or substantially damaged structure. In addition, the community must have a cumulative substantial damage and/or repetitive loss provision in the community's floodplain management law or ordinance already enforced against all structures community.

A "repetitive loss structure" means for ICC coverage, a structure, covered by a flood insurance policy that has incurred flood related damages on two occasions during a ten year period ending on the date of the event for which the second claim is made, in which the cost of repairing the flood damage, on the average, equals or exceeds 25% of the market value of the structure at the time of each such flood event.

A structure is considered to be "substantially damaged" when the damage of any origin is sustained by a structure whereby the cost of restoring to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

If flood insurance policyholders have questions on ICC, please refer them to your insurance company, agent or the NFIP at 1-800-427-4661. If communities have questions on ICC, please call NFIP coordinator OWRB at (405) 530-8800 or FEMA region VI at (940) 898-5399

Appendix A-7 lists the principal features of ICC coverage and Appendix A-8 shows the ICC claims process in schematic form.

## **NFIP REFORM ACT (REIGLE ACT)**

One of the major changes occurred in the Spring of 1994 with the National Flood Insurance Reform Act (NFIRA), sometimes referred to as the Reigle Act. This act strengthened the mandatory purchase requirement allowing lenders to escrow a flood insurance policy if needed and to lengthen the waiting period from 5 days to 30. It also created the FEMA flood hazard determination form.

### **MAJOR COMPONENTS OF THE ACT**

THE REIGLE COMMUNITY DEVELOPMENT AND REGULATORY IMPROVEMENT ACT, P.L. 103-325 Sec. 511

- \* signed into law by President Clinton on 9/23/94
- \* codified the Community Rating System
- \* created a Mitigation Assistance Program
- \* created mitigation insurance
- \* task force & studies
- \* 30 day waiting period increased from 5 days
- \* escrow
- \* Force placement of flood insurance
- \* increased flood insurance limits (185,000 to 250,000)

For additional information about the Act, visit the FEMA web site: [www.fema.gov/nfip/mpurfi](http://www.fema.gov/nfip/mpurfi)

# Chapter 2



## OKLAHOMA FLOODPLAIN MANAGEMENT LEGISLATION

REFERENCE - APPENDIX B

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# OKLAHOMA FLOODPLAIN MANAGEMENT ACT

The Oklahoma Floodplain Management Act (OFMA), Title 82, Sections 1601-1619, of the Oklahoma Statutes, was passed by the State Legislature in 1980 and revised in 1989. In approving the Act, the Legislature recognized the need for a united effort between local and state government to combat recurrent flood damages. The Act establishes a state and local partnership to reduce flood damages through sound floodplain management. A copy of the complete text of the Act as it appears in the Oklahoma Statutes is provided in Appendix B-1.

## PURPOSE AND POLICY

The State of Oklahoma recognized the personal hardships and economic distress caused by flood disasters, and recognized that it had become uneconomical for the private insurance industry to make flood insurance available to those in need of protection. Therefore, the Act paved the way for each community to implement wise floodplain management and thereby participate in the National Flood Insurance Program. This participation allows those citizens who need low-cost flood insurance to purchase it through the federal program.

Flood insurance through the NFIP becomes available when floodplain boards adopt floodplain regulations in compliance with certain requirements. The Act:

1. authorizes the establishment of floodplain boards;
2. provides for appointment and organization of floodplain boards;
3. authorizes floodplain boards to adopt floodplain regulations and the procedure for such adoption;
4. provides procedures for adopting floodplain board regulations;
5. directs the Oklahoma Water Resources Board to develop and publish criteria for the establishment of floodplains and floodplain regulations;
6. provides for cooperative agreements;
7. provides for redefinition of floodplains;
8. prohibits certain construction and development;
9. provides for the exemption of the use of usual farm buildings for agricultural purposes, the planting of crops or the construction of farm ponds;
10. provides for issuance of permits for construction in the floodplain (development permit);
11. provides exceptions for certain pre-existing uses of floodplains;
12. provides for variances;
13. provides for fees;
14. provides penalties for acts;
15. provides for the needs of industry or agriculture located within a floodplain;
16. provides for appeals; and

17. preserves boards and regulations already in existence.

## **COMMUNITY PARTICIPATION PROCEDURES**

OWRB meets with county/municipal officials. (If discussions with officials take place in a public meeting, then discussion should be listed as agenda item on Open Meeting Law (OML) agenda.)

### ***THEN***

Municipal governing body/Board of County Commissioners meets and adopts resolution to:

1. Create the Floodplain Board
2. Appoint members (must meet qualifications established in 82 O.S. 1981, §1605)
3. Set duties of Floodplain Board as provided in statutes (See 82 O.S. 1981, §§1601 et seq.) (OML agenda item must include all 3 points listed above.)

### ***THEN***

Floodplain Board publishes notice of public hearing in newspaper of general circulation in city/county at least 30 days prior to hearing. Notice must state time, place and purpose of hearing. Notice should also provide that copies of proposed regulations are available for inspection at certain locations. Floodplain Board shall also notify the OWRB 30 days prior to hearing and include copy of proposed regulations.

### ***THEN***

Floodplain Board holds hearing, makes resolution adopting regulations and files these regulations with OWRB within 15 days. (OML agenda item must mention both hearing and adoption of floodplain regulations.)

### ***THEN***

Municipal government body/Board of County Commissioners adopts resolution approving regulations adopted by Floodplain Board. (OML agenda item required.)

### ***THEN***

Floodplain Board completes FEMA's "package," i.e. adopts FEMA resolution, submits application, etc.

# OKLAHOMA WATER RESOURCES BOARD

The Oklahoma Water Resources Board (OWRB) is the state agency responsible for assisting local communities in Oklahoma in the implementation of the Oklahoma Floodplain Management Act. The Act assigns several duties to the OWRB:

**1. OWRB is authorized to assist in the establishment of floodplain boards.** The main thrust of the Act is to get communities wishing to participate in the NFIP to establish floodplain boards as a prerequisite. Procedural requirements for a community entering the NFIP are discussed in Appendix B-2.

**2. OWRB coordinates floodplain activities between local, state & federal entities.** As the state coordinating agency for the NFIP, the OWRB is in a position to ensure FEMA's awareness of local needs when implementing the NFIP. The OWRB is able to provide information on situations unique to the area or that are significant to local or statewide interests. The OWRB also works closely with other federal agencies involved in floodplain management, including the U.S. Army Corps of Engineers, the U.S. Department of Agriculture, Natural Resources Conservation Service and the U.S. Geological Survey, to encourage adequate participation in the planning and/or selection of flood control or hazard mitigation projects. Also, OWRB reviews local programs to ensure they are enforcing their flood damage preparation. If communities fail to enforce their ordinances, FEMA can place the community on probation or suspend the community from the NFIP. If the community is suspended, Federal insurance benefits will be lost and some types of disaster assistance will be unavailable.

**3. The OWRB develops regulations for aiding the floodplain boards in identifying and delineating the special flood hazard areas within their jurisdiction.** The OWRB is asked to increase the level of knowledge and awareness that Oklahoma citizens have concerning flooding and floodplain management. The publication of reports and brochures about floodplain management and the development of administrative guidebooks are examples of efforts by the OWRB to meet this responsibility.

**4. Members of OWRB serve on the state floodplain board.** The state floodplain board administers and enforces the rules and regulations for construction on state-owned or state-operated property within floodplains, and is composed of the members of the OWRB.

The Act recognizes that local governments do not always have the expertise or resources needed to develop and administer a floodplain management program that meets the requirements of the NFIP. The OWRB can offer the following types of assistance to local governments:

- \* Advice or recommendations in the preparation and adoption of a floodplain ordinance or regulations.
- \* Guidance in developing a system to administer the ordinance (i.e. establishment of a development permit system)
- \* Technical assistance in reviewing or interpreting the hydraulic flood hazard data supplied the community by FEMA. Extra FHBMs or FIRMs may be obtained from the FEMA Map Service Center at 1-800-358-9616. Availability of the maps is described in Appendix D-26.
- \* In some instances, the OWRB may provide technical assistance for a local administrator to determine if the proposed development complies with the flood ordinance.

\*Advice or assistance in developing other floodplain management tools (besides floodplain regulations) such as the preparation of flood hazard mitigation plans, structural works to alleviate flood problems or acquisition and relocation programs. If direct assistance for these activities cannot be provided, the OWRB can suggest other sources of help (see Appendix D-25).

\*State and federal agencies that can provide direct assistance for any of the previously mentioned activities are listed in Appendix D-24, "WHERE TO GO FOR HELP".

# **FLOODPLAIN MANAGEMENT STANDARDS**

The NFIP regulations list the standards that must be met by development projects in the floodplain. These standards are discussed fully in the chapter three, however, they are mentioned briefly here to emphasize their importance.

1. No use shall be permitted in the floodway that results in any increase in the Base Flood Elevation.
2. Residential structures in the flood fringe must have the lowest floor (including the basement) elevated to, or above, the Base Flood Elevation.
3. Nonresidential structures must have the lowest floor (including the basement) elevated or floodproofed to, or above, the Base Flood Elevation.
4. Other forms of development shall not exceed the BFE by more than one (1) foot in unnumbered A zones.
5. If the proposed development could change the BFE, the community must follow the map revision procedures

# **COMMUNITY RESPONSIBILITIES**

The Oklahoma Floodplain Management Act directs communities to establish floodplain boards and adopt floodplain management ordinances before applying to participate in the National Flood Insurance Program. The Act also directs communities to submit to OWRB the floodplain management ordinances for review before adoption. By reviewing the ordinances, the OWRB can determine if they comply with the intent, purposes and provisions of the state's Act (see Appendix B-1), thus allowing the communities to make any necessary changes. Once communities are participants in the NFIP, they must ensure compliance with the ordinances.

# **ENFORCEMENT**

Local communities which have never participated in or have been suspended from the NFIP are not eligible to receive any disaster assistance, financial or otherwise, from the federal government in the event of a flood disaster. Neither are individuals in nonparticipating communities eligible to receive Federal Disaster Assistance or loans for flood losses. The Oklahoma Water Resources Board works with communities to achieve a compliance that demonstrates a good faith effort before asking FEMA to step into the picture

# **STATE-OWNED OR -OPERATED PROPERTY**

As authorized by Title 82, Oklahoma Statutes 1980, Sections 1601-1619, the rules and regulations have been promulgated and adopted for any type of development on state-owned or state-operated property within floodplains. The purpose of these rules and regulations . . . is to conform with the requirements necessary to establish eligibility and maintain participation in the National Flood Insurance Program, as well as to protect the public health, safety and general welfare by restricting vulnerable floodplain improvements and uses which increase flood damage potential elsewhere." A copy of the rules and regulations is provided in Appendix B-4.

# LANDLORD AND SELLER RESPONSIBILITY

Landlords in the state have a responsibility to their tenants to disclose flood information on the rental property. This responsibility became a law in 1986 and is known as Title 41, Residential Landlord and Tenant Act, Sec. 113a (see Appendix B-7).

A seller of property in Oklahoma has the responsibility to present to the buyer, a written disclosure of known defects to the property which includes disclosure of the property's flood zone status. This law, which became effective July 1, 1995, is the Oklahoma Residential Property Condition Disclosure Act, Title 60, O.S., Section 831 et. seq. (see Appendix B-6)



# Chapter 3



## LOCAL FLOODPLAIN REGULATIONS AND NFIP STANDARDS

REFERENCE - APPENDIX C

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# INTRODUCTION

The participation of a community in the NFIP is made possible by its adoption of floodplain management regulations. These regulations must meet the revised standards of the National Flood Insurance Program. Check with FEMA or OWRB before adopting an ordinance to ensure that the most recent and effective requirements are adopted.

A community can meet this requirement by adopting appropriate changes in existing zoning, subdivision and building ordinances or by adopting a specific floodplain ordinance. Appendix C-1 contains a copy of the model ordinance effective October 1, 1989.

This chapter describes the method of adopting a specific floodplain ordinance. Communities that amend existing ordinances must be sure that all the standards detailed in the second part of this chapter are incorporated into the amendments. (Appendix C-2).

# FLOODPLAIN REGULATION

Communities that wish to make flood insurance available to their residents must regulate development in floodplains. This can be done by adopting land use regulations (ordinances) which set forth construction standards and establish a permit system that allows the community to enforce those standards.

Floodplain regulations (ordinances) are the foundation of all efforts to prevent flood damage and minimize the impact floods cause within a community. Floodplain regulations are land use controls, the results of which can be measured over the long term. Through the permitting system set forth by ordinance, community development can be compatible with the identified flood hazard.

The standards of the NFIP are the minimum floodplain management efforts required for participation in the NFIP. These standards can differ since they are based on the degree of information provided the community by FEMA. The comprehensiveness of a community's floodplain ordinance is directly related to information known about the flood hazard. NFIP regulations on which local ordinances are based are progressive, again related to FEMA's published floodplain information. Communities may strengthen their floodplain management ordinances as they determine necessary to be more restrictive than NFIP standards. A floodplain ordinance is designed to be used with a community map identifying flood-prone areas. When the mapping of the flood hazard is absent or deficient, the ordinance becomes more reliant on community judgement and local flooding conditions.

The floodplain ordinance is comprehensive in what it regulates:

- placement of structures, methods of construction, types of structures and alterations to structures (including manufactured homes)
- subdivisions (no structures in the floodway);
- installations of water and sewer utilities; fence construction;
- filling, grading, chanalization and excavating within the floodplain;
- installation and replacement of roads and bridges;
- storage of materials and equipment; and,
- any related activities which may affect the level of the 100-year flood event.

## NFIP STANDARDS

To effectively reduce potential flood damages, the NFIP has established standards for new or substantially improved construction projects and other developments in identified Special Flood Hazard Areas. Under NFIP Regulations, Part 60.3, general standards are outlined which are required or all communities participating in the NFIP. In a community with a Flood Insurance Study or where Base Flood Elevations have been established, specific standards apply along with the general standards. The more specific the flood information provided, the more stringent the standards.

### GENERAL STANDARDS

The NFIP requires that new or substantially improved construction or development in the flood hazard areas meet the following standards.

#### **ANCHORING**

Regulations require that all structures be properly anchored to prevent hydrodynamic and hydrostatic loads from moving them from their foundations during a flood. If a structure is elevated on compacted fill above the known or projected Base Flood Elevation, the anchoring requirement is satisfied. In Oklahoma, anchoring requirements are generally met for most permanent structures through common construction practices. Mobile homes, now termed "manufactured homes," are treated like conventional homes.

Manufactured homes placed within Zone A on a community's FHBM or FIRM shall be installed using methods and

practices which minimize flood damage. This means manufactured homes must have their lowest floor elevated to or above the BFE on a permanent foundation. The manufactured home must be anchored by the use of over the top or frame ties to ground anchors connecting to the permanent foundation. Manufactured homes are best protected by elevating their compacted fill pads to or above the BFE. Elevating fill pads above the BFE is the preferred method in satisfying anchoring requirements.

Specific anchoring standards and compaction standards are set forth in the building codes adopted by each community. These codes are either the UBC (Uniform Building Code) or the BOCA (Building Officials Code of America). These anchoring standards must be applied to buildings, manufactured homes, storage sheds, accessory buildings and fuel storage tanks.

## **CONSTRUCTION MATERIALS AND METHODS**

Buildings can suffer damages in many ways during a flood. For example, hydrostatic pressure can push in foundation walls; hydrodynamic pressure from waves can destroy walls; uplift can cause structure buoyancy problems; and contact with water can warp or damage walls and floors.

Because of this susceptibility, the NFIP requires new buildings in flood hazard areas be constructed with materials and by methods to resist or minimize flood damage.

The best and common method for the reduction of flood damage in Oklahoma is the elevation of a structure on compacted earthen fill. Since BFE information is not always available, the structure should have its lowest floor elevated above the historical high water mark. If that level is not known, then the building should be elevated so that sufficient drainage is provided -- at least three feet above the highest adjacent grade of the construction site.

The fill must be placed in layers and compacted to provide the necessary permeability and resistance to erosion, scouring and settling, as set forth in NFIP regulations. Where feasible, the fill should extend at least 15 feet on all sides of the building and should be no steeper than one foot vertical to 2 feet horizontal. This provides a buffer zone to reduce the effects of flooding.

Structures can also be elevated by means of columns, posts, piers or foundation walls. With proper design, buildings will have adequate support with minimum obstruction to the floodwaters. At the building site, consideration should be given to the additional hazards of water borne debris. In most situations, elevating the structure on compacted fill is one of the best and most economical methods.

Allowable construction methods differ between residential and nonresidential structures. NFIP regulations are more stringent with residential structures. Floodproofing is routinely allowed for non-residential structures and not for residential structures. If the lowest floor is constructed below the BFE, it must be certified as being floodproof by a registered professional engineer.

When a residential structure is constructed, it must be elevated so its lowest floor is above known flood levels. Basements are considered the lowest floor and are not allowed in the floodplain where they are subject to the direct and indirect effects of flooding. Prohibiting basements is a prime example of a way to reduce flood damages to residential structures.

Flood damage to a structure can be minimized if the structure is built by a method which creates the least amount of obstruction to flood flows. An example would be to align a house parallel to flood flows.

## **UTILITIES**

Utilities servicing flood-prone structures should also be floodproofed and secured to prevent damage. Control panels located above flood levels will allow for access during periods of flooding. Controls for lower floors and basements could be installed separately to allow them to be disconnected independently (see Figure 3-2)

Heating, air conditioning and ventilating equipment will be placed above the BFE. Furnaces may be placed below the BFE in a structure if the location is designed to prevent water from entering or accumulating within the components of the furnace.

NFIP regulations require that new and replacement water supply systems, sanitary sewer systems, and on-site waste disposal systems be designed to minimize or eliminate infiltration of floodwaters into the systems.

To meet this requirement, local officials must be confident that community systems are designed to preclude infiltration. For example, manhole covers should be located above the Base Flood Elevation or otherwise designed to minimize flood damage. Waste treatment facilities, including pumping stations, lagoons, and treatment plants must be floodproofed. Ring levees may have to be used to protect facilities located below the BFE. At a minimum, it is recommended that new water supply and sanitary sewers be constructed so they remain fully accessible and operational during a 25-year flood event, and that they suffer no physical damage from the 100-year flood event.

On site waste disposal and treatment systems such as septic tanks must also be designed to minimize flood damage. This requirement may be especially difficult to attain since on site facilities may be located substantially below the first floor level of the structure which they serve. Generally, any inlets to the septic tank or outlets from the tank should be equipped with automatic and/or manual check valves to prevent floodwaters from returning through the pipes. A mound system of waste disposal may have to be used to provide adequate sub surface drainage during flooding.

## **SUBDIVISIONS**

The NFIP requires new subdivisions to be designed to minimize flood damage. Specifically, the regulations address the need to protect utilities and the need to ensure adequate drainage. For example, electrical, gas, water and sewer facilities should be protected from flood damage. Electrical facilities should be located above the BFE. Gas, water and sewer systems should be designed to withstand infiltration or rupture during flooding. To provide adequate drainage, building sites should be located at least two feet above the street elevation, and streets should drain promptly without ponding unless designed to temporarily hold stormwater surges.

For large subdivisions (50 lots or 5 acres or more), it is the responsibility of the developer to produce the BFE and delineate the boundary of the floodplain on the subdivision proposal. A grading plan showing the proposed elevation of streets and building sites should be included in the proposal. Portions of the grading plan located below the BFE may be used for streets, recreation, and other uses which are least harmed by temporary flooding. All structures must be located above the BFE.

## **ENCROACHMENTS**

All development permits must be reviewed to see if the proposed action will significantly obstruct floodwaters, thereby increasing flood stages. For communities without BFE data, if development is suspected of increasing flood height additional justification is needed and the developer should detail to the community how his project will minimize adverse impacts.

For communities with BFEs, but without a designated floodway, proposed actions (when combined with other existing and anticipated development) may not increase base flood heights more than one foot anywhere in the identified floodplain. The community must safeguard existing development from possible increased flood heights. To meet this standard, local administrators must, on a case-by-case basis, ensure developers provide them with a hydraulic analysis of the project's impact on flood heights. Before the development can go forward, the analysis must indicate that the project will not significantly increase (more than one foot) the Base Flood Elevation. The one-foot limitation is required by the NFIP and the Oklahoma Floodplain Management Act. Communities can adopt a more stringent requirement. For example, the State of Minnesota restricts any development that will cause more than a one-half foot six-inch rise in the BFE.

Communities which have BFEs established and a floodway delineated should not have to worry about this "encroachment" section because the FBFM or FIRM (if printed after January 1986) shows the area of the floodplain (the flood fringe) which can be fully developed without causing more than a one-foot increase in the BFE. This has been factored in the computer program that modeled and helped designate the community floodway boundaries during the Flood Insurance Study. Communities must, however, be aware of the regulations governing encroachments into floodway described in Chapter 4.

## SPECIFIC STANDARDS

Specific standards are required by the NFIP in addition to the general standards in communities where the BFE has been established. Allowable construction methods differ between residential and nonresidential structures. NFIP regulations are more restrictive in dealing with residential than nonresidential structures.

### RESIDENTIAL STRUCTURES

For new or substantially improved homes, apartments and other residential structures, the lowest floor, including the basement, must be elevated to or above the BFE. The lowest floor concept is illustrated in Figure 3-2. In Oklahoma, the most common method of elevating structures is to build upon fill. However, under specific situations, it is possible to elevate structures by increasing the height of the foundation and making it floodproof. In all cases, the lowest floor must be above the BFE. Requests for letter of Map Amendment (LOMA) must demonstrate for structures that both the lowest floor (including basement) and the lowest finished grade adjacent to the structure have been elevated by fill to or above the BFE.

Communities may wish to make this particular standard of the NFIP stricter including 'freeboard' requirements. Freeboard means a factor of safety--usually expressed in feet--above the BFE. (For example, a community could require the lowest floor of a structure to be elevated one foot above the BFE.) Freeboard tends to compensate for the many unknown factors that may contribute to flood heights, such as wave action or debris obstructing culverts or bridges, which could cause a higher BFE than the free flowing conditions as mapped.

Recently revised NFIP regulations require new construction or substantial improvements that have fully enclosed areas below the lowest floor (i.e., as a single story house on a foundation with no basement) be designed to allow the automatic entry and exit of floodwaters. This is to equalize hydrostatic and hydrodynamic pressure exerted by floodwaters on the exterior walls. Since this practice has many disadvantages in Oklahoma, building on compacted earthen fill is a more desirable alternative.

### NONRESIDENTIAL STRUCTURES

For all nonresidential structures such as office buildings or stores, the lowest floor, including the basement, must either be elevated or floodproofed to or above the BFE. The floodproofing method used must ensure the structure is watertight and can resist water pressure in flooding situations. The community must have the assurances of a registered professional engineer that the floodproofing method is effective. Wet floodproofing (allowing water to enter and exit, but causing damage) for nonresidential structures is not recognized for reduced flood insurance premiums under the NFIP.

### MANUFACTURED HOMES

Manufactured homes are now treated like any other residence. The lowest floor must be elevated on fill or a permanent foundation so that the lowest floor is at or above the BFE. (see Figure 3-1) The only exception to this is in pre-FIRM manufactured home parks where substantial flood damage has not occurred.

Most communities in Oklahoma have adopted a Federal Emergency Management Agency model ordinance. The Model D ordinance gives communities an option of placing the manufactured

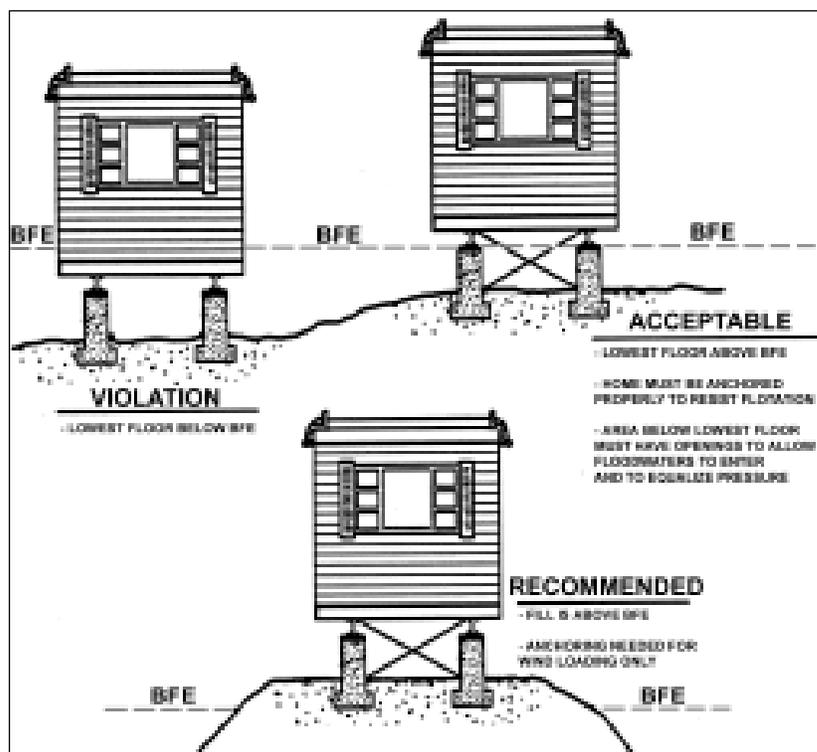


Figure 3-1. Placement of manufactured homes in the floodplain.

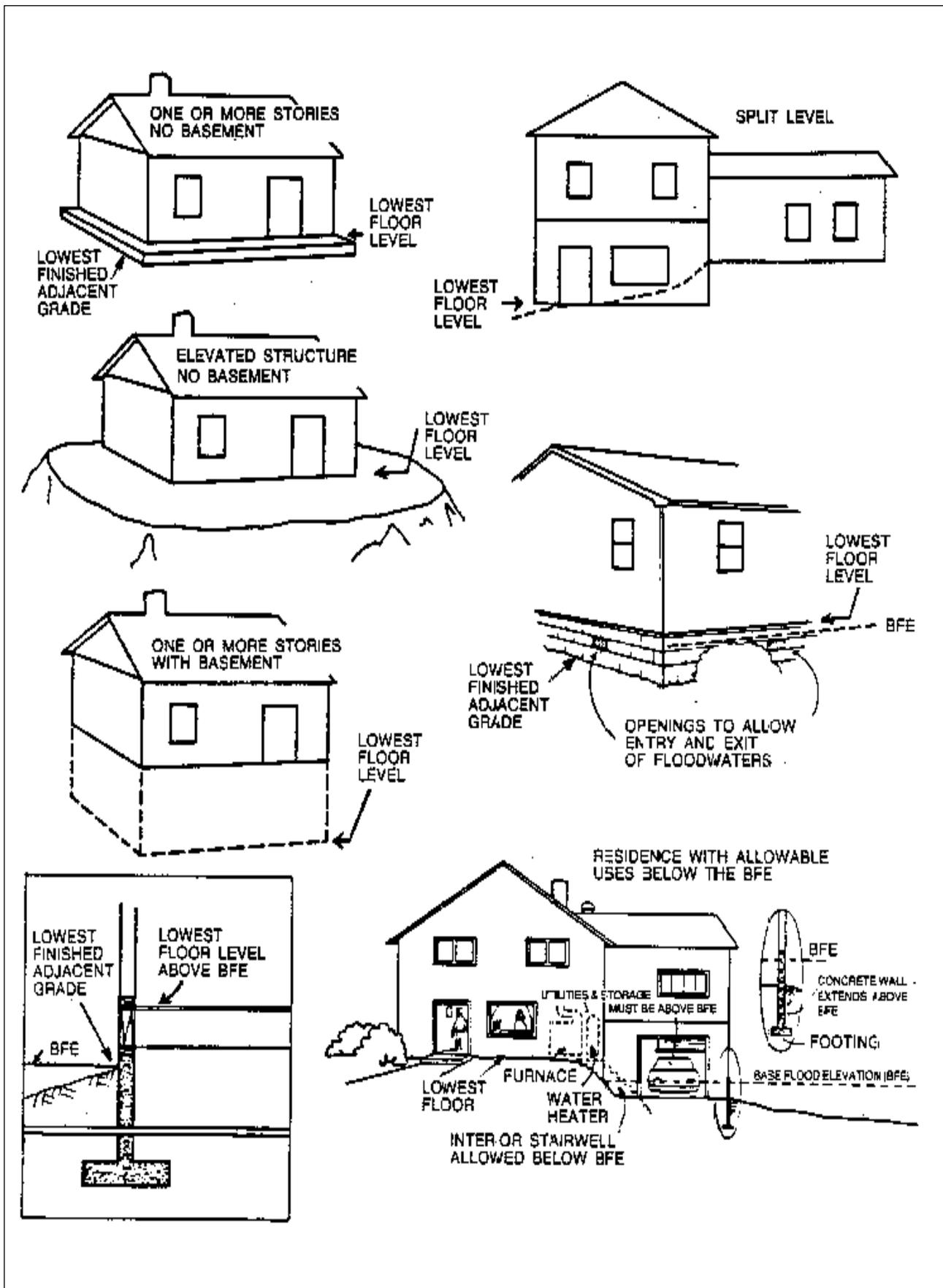


Figure 3-2. Determining the lowest floor level in residential structures.

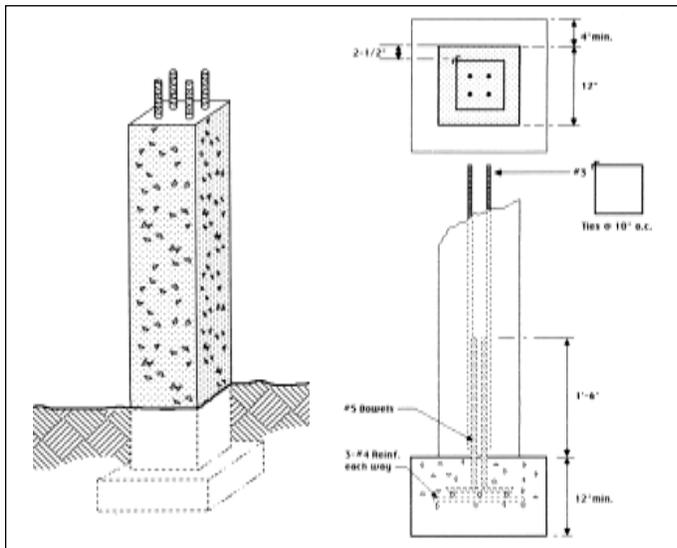


Figure 3-3. Example of cast-in-place pier foundation system.

home in the regulatory floodplain either at or above the base flood elevation or 36" above the ground. Community officials should select one or the other in this model ordinance if they select the National Flood Insurance Program minimum standards. However, it is recommended community officials adopt a more stringent standard such as elevating the manufacture home's lowest floor two feet above the BFE. By adopting a two foot free board requirement community officials take into consideration the effect future development will have on the floods water surface elevation. With more development in the floodplain where a floodway has not been determined the BFE will increase. The static level of a flood does slosh and splash and if structures are only elevated to the BFE, then splash could damage the home and contents.

**Each model ordinance requires the new placement of the manufactured homes in SFHA requires them to be placed on a permanent foundation so the structure is securely anchored to resist flotation, collapse and lateral movement.** The FEMA publication #85 entitled "Manufacture Home Installation in Flood

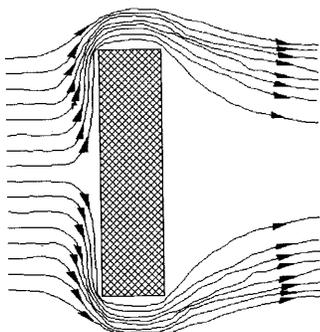


Figure 3-6. **INCORRECT** Manufactured home placed perpendicular to the flow, increasing drag force.

Hazard Areas" provides several different types of techniques for the placement of a manufactured home on a permanent foundation. Chapter III of this manual explains elevation and anchoring techniques. Wind forces need to be considered in the anchoring. In non-hurricane areas the lateral design load is 15 pounds per square foot and the net uplift design load is nine psf. It is important to consider these loads when justifying the need for having the pier or beam anchored sufficiently below ground. At a minimum the bottom of the footing must be at least 30 inches below grade or to the frost line, whichever is greater. Other factors that may affect this design depth includes the nature of the soil and the wind load and the specific state regulations. A soils engineer may need to be consulted.

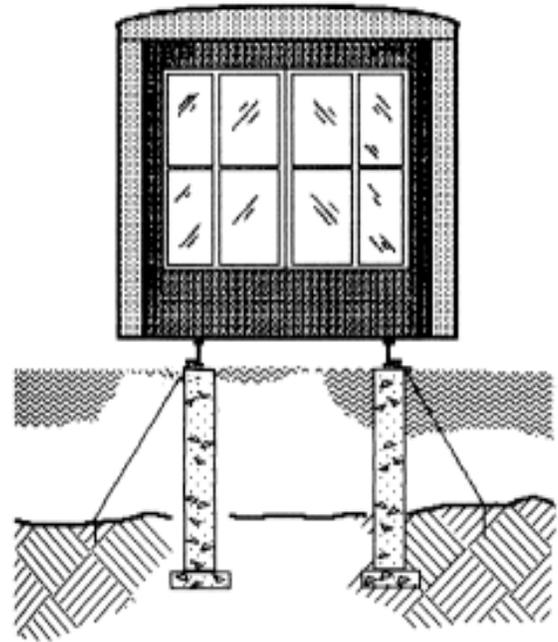


Figure 3-4. Example of cast-in-place pier foundation system.

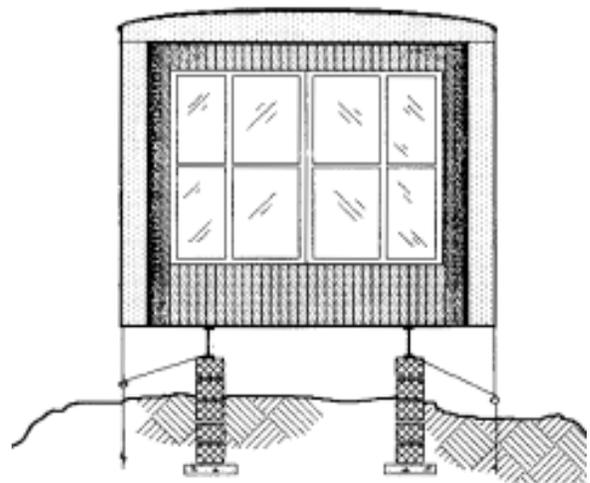


Figure 3-5. Example of concrete masonry pier foundation system.

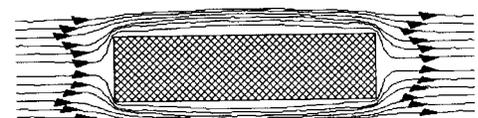


Figure 3-7. **CORRECT** Manufactured home placed parallel to the flow, reducing drag force.

Each manufactured home siting situation will be unique and needs to be evaluated as such. In general, spacing of supporting members should not exceed 10 feet and additional intermediate supports may be required. If a manufactured home is placed parallel to the flow, as shown in Figure 3-7, the drag forces are reduced due to the smaller area being exposed to flow, thereby reducing the tendency for the manufactured home to overturn (greater drag forces indicated in Figure 3-6). Also, when skirting is installed around the bottom of a manufactured home, construction standards for an enclosure should be followed. In all but a few cases built-up piers should be a minimum of 12 inches by 12 inches and reinforced with a minimum of four No. 5 steel bars. Built up piers should be laid with type M or S mortar. Hollow concrete masonry units should be filled with concrete or high strength mortar after reinforcement (see Figure 3-5). This is explained in FEMA Manual #85, page 22. This manual can be ordered from the FEMA publication center by telephoning 1-800-480-2520.

## ENCLOSURES

An enclosure is an area below the lowest floor. Enclosures can only be used for storage, parking and building access. An enclosure is required to have a minimum of two openings having a total net area of not less than one square inch for every square foot of the enclosed space. Also, the bottom of these openings shall be no higher than one foot above grade. The openings can have screens or other coverings placed over them provided they allow for the entrance and exit of flood waters. The Model D ordinance found in Appendix C-1 explains the enclosure standards in more detailed.

## FUEL STORAGE TANKS

Fuel storage tanks are now considered to be a structure (see Appendix C-1), so elevating and anchoring requirements similar to those used for manufactured homes are required. In Oklahoma, especially in rural areas, typical fuel for a residential structure and manufacture home is propane. Propane is typically supplied from a fuel storage tank. Placement of these tanks in SFHAs require a floodplain development permit and they should comply with anchoring and elevation requirements. Underground fuel storage tanks such as gasoline need to be floodproofed and anchored accordingly. FEMA publication #85 contains illustrations of how these can be anchored. A professional engineer may need to be consulted and certificate obtained ensuring such requirements have been met. When in doubt about the placement of these items contact the NFIP State Coordinator's office located at the Oklahoma Water Resources Board at (405) 530-8800.

## STORM CELLAR

In Oklahoma, local floodplain administrators no doubt will have to deal with the construction of these in the SFHA. The construction of a storm cellar does not qualify for a variance. However, if constructed properly, there should be no problems. Storm cellars constructed in a SFHA should be required to be anchored sufficiently so that flood waters do not buoy up the structure. They should also be constructed so that the entrance is constructed so it is at a minimum of one foot above the BFE, as well as any ventilation ducts. If the storm cellar is equipped with electricity it should be floodproofed, as well as any attendant utilities such as sanitary sewer or plumbed for drinking water. When the permit is issued a floodproofing certificate should be required.

## RECREATIONAL VEHICLES

The placement of recreational vehicles in a SFHA could give the local floodplain official a very bad headache. Recreational vehicles are required to be road ready in every way. That means they should be licensed, should be 400 square feet or less, be self propelled or towed by a light duty truck and not used as a permanent dwelling. "RVs" are required to be on site in the SFHA for fewer than 180 consecutive days. What this means to the local FPA is the placement of

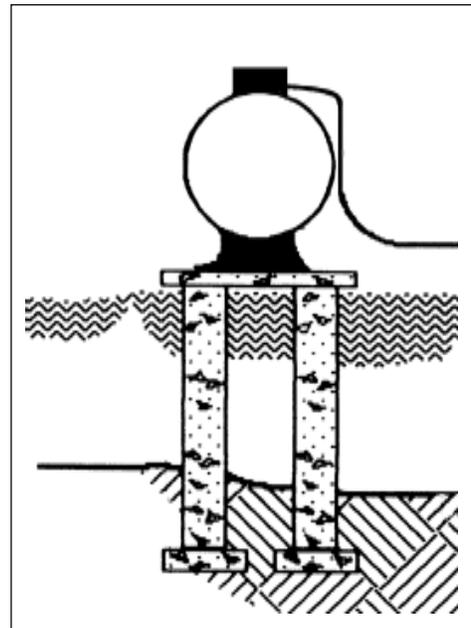


Figure 3-8. Example of properly elevated and anchored fuel storage tank. This also applies to heating, air conditioning and ventilating equipment.

an RV in the SFHA does need a floodplain permit. Why would an RV need a permit? For one thing, how does the FPA know that the structure meets the definition of RV? Also, how is the FPA going to track the 180 day time limit, if a time frame is not recorded and tracked? It just makes sense. Also, this procedure can help the emergency manager and FPA when and if the RV park needs to be evacuated due to a flash flood warning. If the RVs are not road ready when an emergency does develop, who is going to have egg on their face.

## FLOODWAYS

Communities which have a designated floodway (on a FBFM or a post-1986 FIRM) have additional floodplain management responsibilities. The floodway is the conveyance area within the floodplain in which most development is not allowed. Consequently, NFIP regulations prohibit encroachments, including fill, new construction or other development in the floodways, unless it can be shown that the development would result in no increase in flood heights. Floodways are a compromise of community desires to develop the floodplain. Limited development may be permitted in the flood fringe based upon hydrologic and hydraulic data and computer modeling to determine the amount of encroachment allowed below the lowest floor (i.e., as a single story house on a foundation with no basement) be designed to allow the automatic entry and exit of floodwaters. This is to equalize hydrostatic and hydrodynamic pressures exerted by flood waters on the exterior walls. Since this practice has many disadvantages in Oklahoma, building on compacted earthen fill is a more desirable alternative.

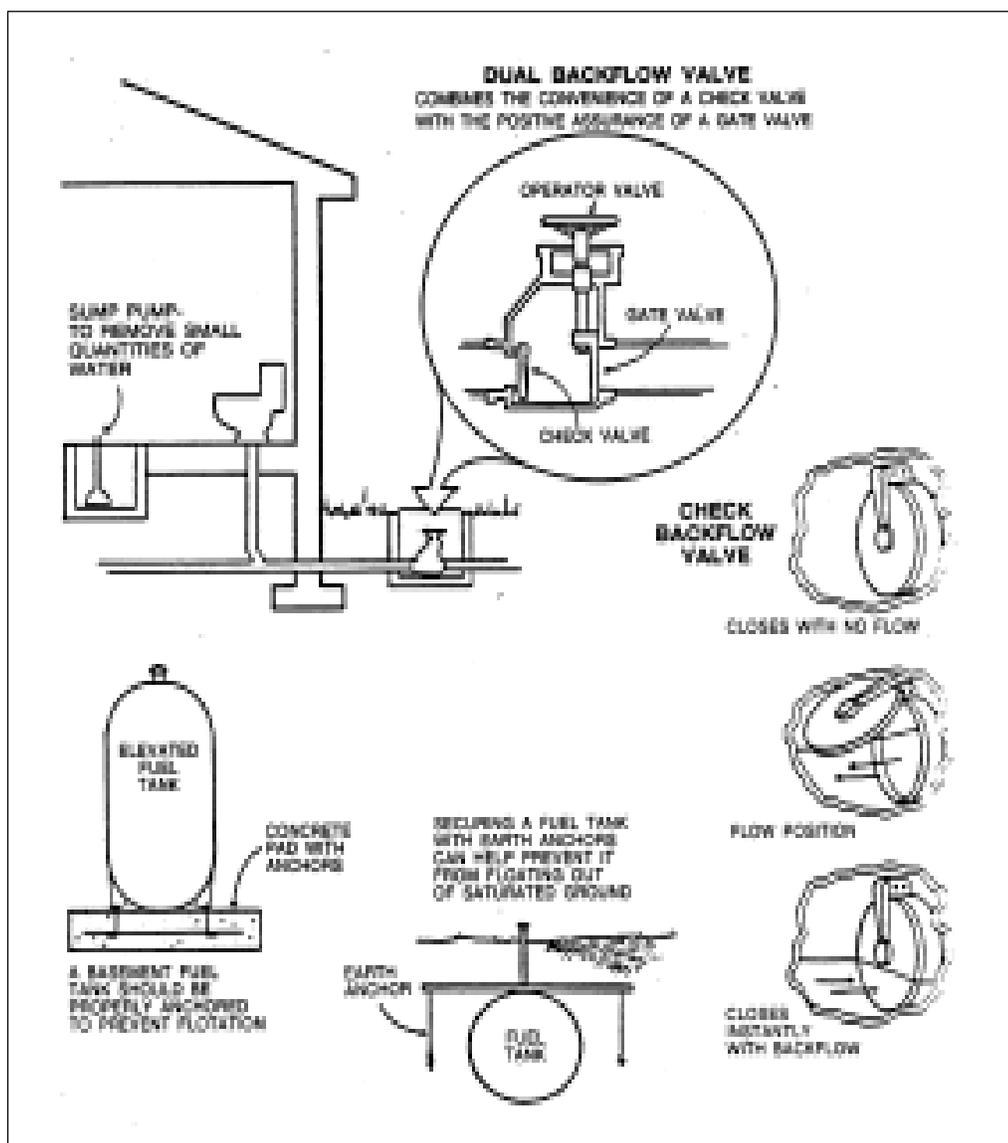


Figure 3-9. Floodproofing utilities in flood-prone areas.

# **MORE STRINGENT STANDARDS**

Communities can and have adopted more stringent floodplain ordinance requirements than the basic minimum NFIP standards. Some communities have joined the Community Rating System. Some communities simply do not allow any development in the regulatory floodway. Many communities, even in Oklahoma, have adopted freeboard requirements. For example, the City of Chickasha requires the lowest floor of residential structures to be six inches above the BFE. Rogers County requires residential structures to be two feet above the BFE.

## **COMMUNITY RATING SYSTEM**

For communities that are in the NFIP and would like to pursue an expanded program, the Community Rating System is one to consider. The CRS provides incentive to communities to go beyond the minimum NFIP program requirements. Appendix A-9 contains a summary of the CRS and CRS communities in Oklahoma at this printing.

For more information on the CRS please contact this office or the Oklahoma Insurance Service Organization representative for Oklahoma at 1913 Cristal Lake Rd., Alexander, Arkansas 72002, phone (501)-821-5913

# Chapter 4



## FLOODPLAIN ORDINANCE ADMINISTRATION

REFERENCE - APPENDIX D

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# INTRODUCTION

So far, this guidebook has provided information on the National Flood Insurance Program and the Oklahoma Floodplain Management Act, included floodplain information provided by FEMA, and detailed the regulatory standards communities must meet to maintain participation in the program. But how do the floodplain management aspects of the NFIP actually work? What steps must a community take to ensure development in the floodplain is not flood-prone?

Chapter 4 describes the development permit system essential to communities to guide and manage floodplain development and discusses the permit record keeping system, the local administrator, enforcement and variances.

# DEVELOPMENT PERMIT SYSTEM

The regulations of the NFIP, Section 60.3, outlining floodplain management criteria for flood-prone areas, state that the community shall "require permits for all proposed construction and other developments including the placement of manufactured homes" within Special Flood Hazard Areas. In other words, no construction or development is allowed in a flood-prone or an identified flood hazard area without a permit from the community. The community may issue a permit after ensuring the proposed development meets the standards of the NFIP as outlined in Chapter 3.

The concept of "development" goes beyond the traditional "building" permit. Whereas the building permit is concerned with buildings, the development permit's broad scope includes buildings and alterations to landscape (such as excavation or the use of fill) that would affect drainage patterns or the flood-carrying capacity of the watercourse.

## WHEN A PERMIT IS REQUIRED

A permit is required when building or enlarging a structure; placing a manufactured home, mining, dredging, filling, grading, drilling, excavating, landscaping, building, storing supplies and/or equipment, or repairing roads and bridges within flood hazard areas. In other words, any development, structural or nonstructural, that may affect flooding characteristics or flood damages is required to be permitted.

Specifically, all structural projects (buildings, manufactured homes, storage facilities, dams, dikes, etc.) need a permit. Removal, as well as placement activities, need a permit depending on their type, magnitude and location. For example, a street paving project at grade may not alter flood flows or increase flood heights -- but will require a permit. In addition, a fence may affect flooding and would also require a permit. The storage of large, round hay bales (bridge plugs) should be away from the main water channels.

## THE PERMIT APPLICATION

Anyone wishing to develop in the floodplain must obtain a permit application from the floodplain administrator, fill it out, and submit it for approval before beginning any development activities. Instructions and a development permit application form are provided in Appendices D-1. Communities may, however, adapt their existing permit systems to meet the NFIP requirements. Regardless of the form used, the following information must be supplied on a permit application for floodplain development:

- \* A complete description of the proposed activity. Enough information must be included so the floodplain administrator can determine whether or not the proposed activity will be safe from flooding and whether it will increase flood hazards elsewhere. At a minimum, there should be plans drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities or any other landscape alterations.

- \* The National Geodetic Vertical Datum (NGVD) elevation of the lowest floor (including the basement) of all proposed structures.

- \* The NGVD elevation to which any proposed nonresidential structures will be floodproofed.

- \* Certification by a registered professional engineer or architect that any floodproofing method to be used meets the NFIP floodproofing criteria.

- \* Base Flood Elevation data for subdivision plats where it has been determined.

- \* A description of the extent to which any watercourse (stream, river or drainage ditch) will be altered or relocated.

An example permit which can be issued by the community is shown in Appendix D-16. This sample building permit could be adopted by the county as a floodplain development permit. This permit is recommended by the local floodplain administrator and issued by the floodplain board.

Building and/or construction on state-owned or -operated lands must be permitted by the OWRB (see Appendix D-3). This permit is a requirement of the Oklahoma Floodplain Management Act.

# REVIEWING THE PERMIT APPLICATION

Reviewing a permit application is the most important responsibility of the floodplain administrator. A permit review checklist is provided in Appendix D-4. Floodplain administrators may use the checklist to help them determine if the proposed project meets the criteria of the floodplain ordinance. Several factors that apply to all situations must be taken into consideration when reviewing permit applications. In addition, depending on the type or location of a project, special considerations must be included in the review procedure. The items a local administrator must consider for all special cases (numbered one through five) and for particular instances (listed under special considerations) are outlined below.

## 1. LOCATE THE DEVELOPMENT

The initial item the floodplain administrator must determine is whether or not the proposed development is in the Special Flood Hazard Area. If this is not obvious, the administrator should obtain the distance in the field between the proposed development site and one or more identifiable points (centerline of a street, a bridge, river channel, etc.). Then, using the map scale, convert the distance from the identifiable point on the map to where the site is located.

For example, Figure 4-1, if the floodplain administrator knows that the proposed structure is 200 feet north of where the railroad intersects Lake Avenue and 25 feet east of Second Street, he can then see that it will be located in the Special Flood Hazard Area and must meet the requirements of the floodplain ordinance.

## 2. DETERMINE IF THE APPLICATION IS COMPLETE

A floodplain administrator cannot properly review an application if it is not complete. Consequently, make sure the application has an adequate description of the proposed development, including the elevation of structures, certification of floodproofing methods and BFE data for subdivision plats. If you do not have enough data to determine if the development will be safe from flooding, ask the applicant for more information.

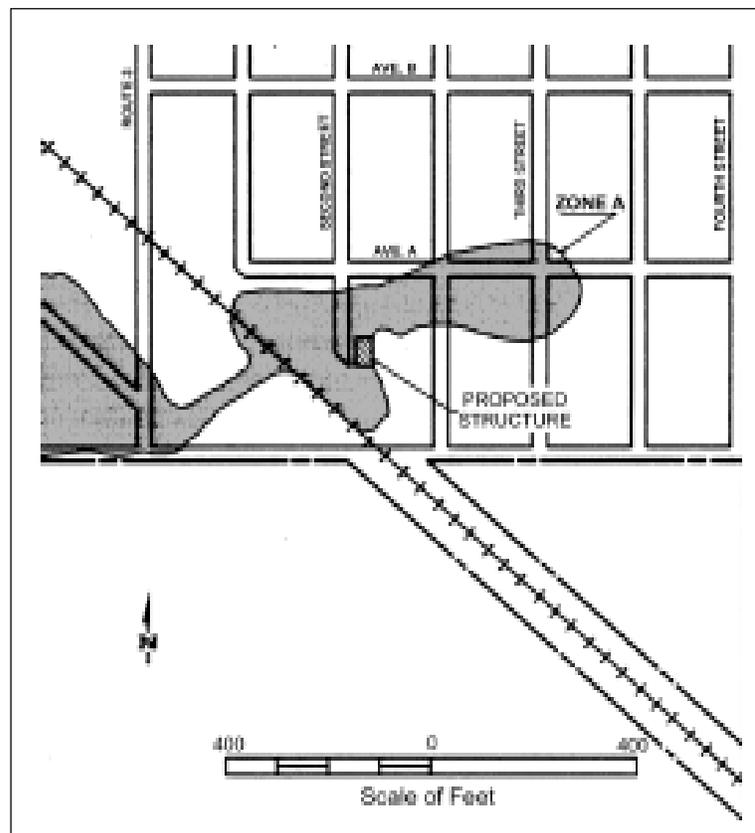


Figure 4-1 Flooding example with un-numbered A zone.

### 3. ADDITIONAL PERMITS

The floodplain administrator must require that additional state, local or federal permits for the proposed project be acquired, if applicable. Besides the floodplain development permit, these permits may include:

\* Oklahoma State Department of Health - The OSDH issues permits for controlled industrial and solid waste disposal sites; public water supply facilities, including source development; treatment and distribution systems (water supply); and sewage collection and treatment, including land disposal systems.

\* Oklahoma Water Resources Board - The OWRB issues permits for drilling water wells (domestic wells excluded), constructing dams, operating wastewater lagoons, and discharging industrial wastewater.

\* Oklahoma Corporation Commission - The OCC issues permits for oil and gas drilling activities.

\* U.S. Army Corps of Engineers - A Section 404 permit is needed to discharge dredged or fill materials into rivers and adjacent wetlands. A Section 10 (River and Harbor Act of 1989) permit is required for any project that may affect the course, location or condition of the navigable capacity of a water body. (Section 10 relates only to the Red, Arkansas, Verdigris, Illinois and Canadian Rivers.)

In summary, when an individual proposes any type of development in a Special Flood Hazard Area (SFHA) a variety of permits may be required. As an example, a sewage lagoon is proposed to be built in an SFHA by Community A. Community A would then need to obtain a permit from the State Health Department, satisfy the requirements of the Federal Emergency Management Agency, and the COE.

For any development in the floodplain, an individual should check with local, state and federal officials for any permits that may be required.

#### PERMITS REQUIRED FOR ALL TYPES OF PROPOSED DEVELOPMENT IN A DESIGNATED FLOODPLAIN

<u>Type of Government</u>	<u>Type of Permit</u>
<ol style="list-style-type: none"> <li>1. <b>Local</b> (town, city or county)</li> <li>2. <b>State</b> (Corporation Commission, Water Resources Board, Dept. Health, Dept. of Mines, Tourism &amp; Recreation, Grand River Dam Auth., Dept of Wildlife Cons., Dept of Transportation)</li> <li>3. <b>Federal</b> (Corps of Engineers, EPA, Bureau of Indian Affairs, Department of Interior, Federal Emergency Management Agency)</li> </ol>	<p style="text-align: center;">Floodplain development, dam, wastewater lagoon, oil and gas drilling, water well drilling, house construction, 404 dredge and fill, watercourse alteration</p>

### 4. DETERMINE THE BASE FLOOD ELEVATION (BFE)

In order to review a permit application, the floodplain administrator must know what the flood hazard or (BFE) is at the development site. If the floodplain administrator has a Flood Insurance Study with accompanying FIRM or FBFM, BFE datum for the development site is readily available. If FEMA has not supplied the community with detailed technical data on the flood hazard, NFIP regulations state that the floodplain administrator should use the best available information to determine flood heights to ensure the new development is reasonably safe from flooding. But where is this information available. There can be several sources: reports from other federal or state agencies, such as Flood Hazard Analyses from the Natural Resource Conservation Service, floodplain information and other reports from the U.S. Army Corps of Engineers and U.S. Geological Survey (USGS), or studies done by the OWRB. If there are no technical data available, the floodplain administrator must use his judgment and be guided by existing flood maps and historical flood accounts described by newspaper articles and photographs, or by high water marks on buildings, telephone poles, bridges or other structures. Also, see Appendix E-16, Procedure for Estimating BFE's. This procedure is also explained in the FEMA Publication 265, *Floodplain Development in Approximate Zone A Areas*.

Once the floodplain administrator has the flood hazard data available, by reviewing the description of the proposed project in relation to the flood hazard, he can determine measures necessary to make it safe from flooding. For example, if a FIRM or FBFM shows a BFE of 930 ft NGVD, the proposed structure must have its lowest floor built to an elevation of at least 930 ft NGVD. The floodplain administrator would then recommend that the floodplain board issue a development permit for the development on the condition it is elevated to or above the BFE. In the case of a nonresidential structure in an unstudied community where the lowest floor is proposed below known flood heights, floodproofing measures must be identified in order for the development to proceed. These measures must be certified to or above the estimated BFE by a registered architect or professional engineer.

## **5. OTHER CONSIDERATIONS**

The floodplain administrator must make sure the proposed activity meets the standards of the NFIP listed in the previous chapter. The standards address anchoring requirements, construction materials and methods, utilities, subdivisions, encroachments, elevation of the lowest floor, and floodways. In reviewing an application, the key to remember is that the proposed activity itself must be safe from flooding and it must not increase the flood hazard or otherwise negatively impact nearby existing development.

# **SPECIAL CONSIDERATIONS ON PERMIT REVIEW**

## **FLOODWAYS**

If a community has a regulatory floodway delineated on an FBFM or a FIRM and the floodplain administrator determines that the proposed development is located in the floodway, then a permit may not be issued unless the applicant can demonstrate, through detailed technical analysis, that the proposed development will not increase flood heights. Usually, floodway developments are limited to passive open space uses, such as recreation or agriculture. Examples of allowable floodway uses are described in Figure 4-2. Appendix A-4 describes a floodway in detail.

Structures existing in a floodway prior to the floodway identification and designation are “grandfathered in” and can remain as long as they serve a useful purpose. Any substantial improvement (50 percent of the market value or more) to such structures, however, must be in compliance with the floodplain ordinance.

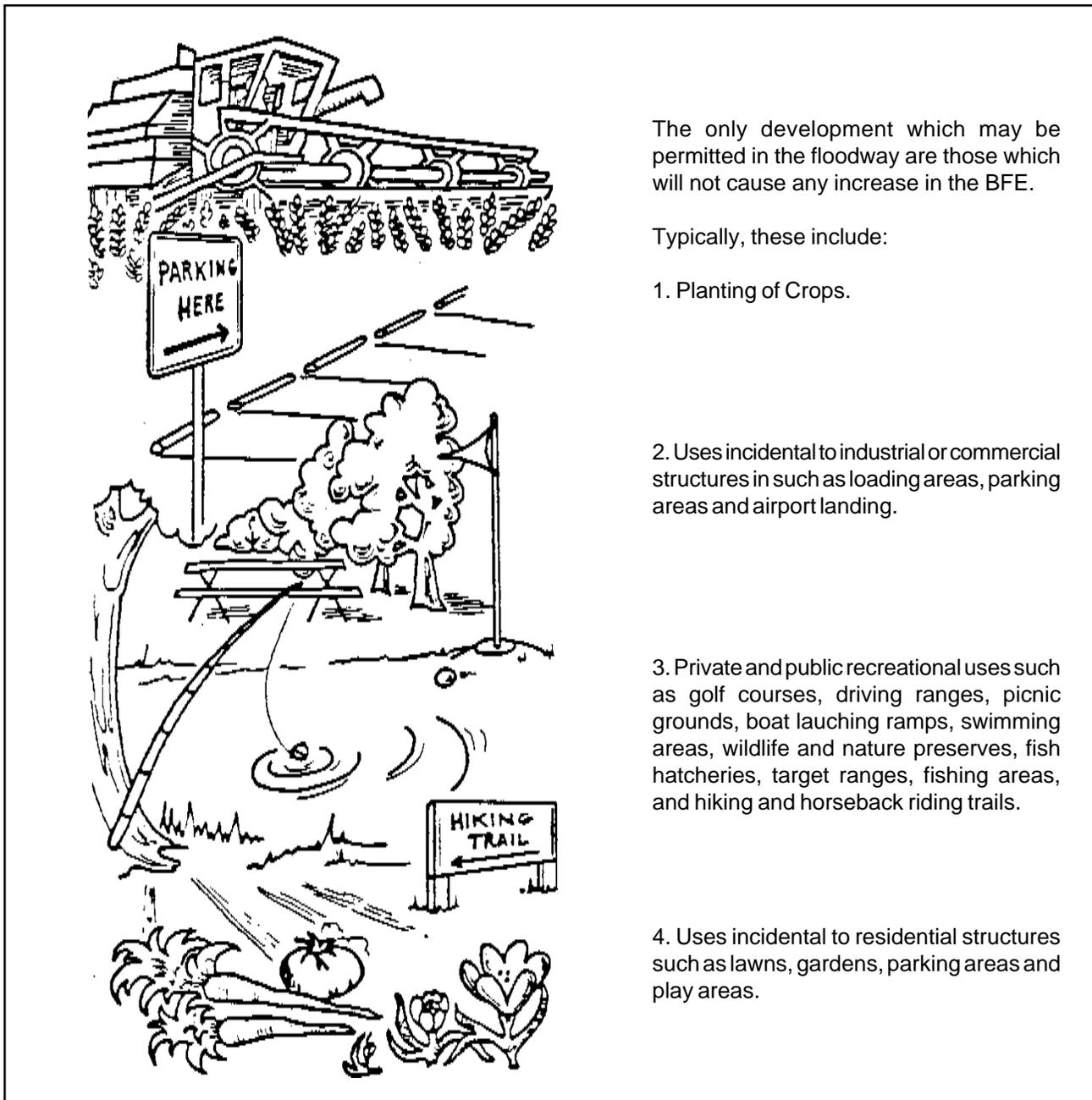
When reviewing applications for development in the floodway, the floodplain administrator’s first assumption must be that it will cause some rise in the BFE. The developer is required to prove that the proposed development, along with similar future development assumed by the equal degree of encroachment rule, will not cause any increase in BFEs. The developer provides this proof by hiring a registered professional engineer to analyze the development plans and ascertain if the BFEs will be affected. The developer should use an engineering firm experienced in analyzing and modeling hydrologic and hydraulic data.

Unless the analysis establishes that no rise in the Base Flood would result, the permit must be denied. Deviation from the no-rise analysis is in violation of the NFIP regulations. The community must retain on file certifications which establish that development in the floodway will not increase the BFE. A copy of the engineer’s supporting documentation must be kept with that particular permit record. Any development allowed in the floodway must satisfy the remaining program regulations. For example, structures must be protected to the BFE. Information required of proposed floodway development is listed in Appendix D-5. An example of permissible floodway development would be a second story addition on a house where the external dimensions of the original house are not altered and the addition’s cost is less than 50 percent of pre-construction market value. A floodway development checklist to be used by the local floodplain administrator is located in Appendix D-6.

Also, Appendix D-13, Variance Guide, explains in detail what type of development constitutes a legal variance. A legal variance is dependent on the physical site characteristics of the development property.

## **ENCROACHMENTS**

NFIP regulations permit development in the floodplain within an acceptable limit. This limit allows encroachment in the floodplain until there is a maximum one-foot rise in the BFE at any point of the area studied. If a community has



The only development which may be permitted in the floodway are those which will not cause any increase in the BFE.

Typically, these include:

1. Planting of Crops.
2. Uses incidental to industrial or commercial structures in such as loading areas, parking areas and airport landing.
3. Private and public recreational uses such as golf courses, driving ranges, picnic grounds, boat launching ramps, swimming areas, wildlife and nature preserves, fish hatcheries, target ranges, fishing areas, and hiking and horseback riding trails.
4. Uses incidental to residential structures such as lawns, gardens, parking areas and play areas.

Figure 4-2 Allowable Floodway Uses

not been supplied an FBFM or FIRM which outlines a floodway, the community must review each permit application individually for its compliance with this encroachment standard.

In order to do so, the floodplain administrator must require the permit applicant to provide an engineering analysis of the proposed project's impact (along with all existing and any reasonably anticipated development) on flood heights. The analysis must certify that the cumulative effects of the project's impacts are within the acceptable limit. If it does not, the permit must be denied.

The floodplain administrator must maintain certifying documentation of the project's impact on file. By doing so, the administrator will begin a cumulative collection of hydraulic data for the community's flood-prone area that can be used to review future permit applications.

The floodplain administrator should also be concerned with how the depth and velocity of floodwaters will affect proposed development. It is recommended that flood velocities not exceed two or three feet per second in residential areas. Another standard frequently used is that the safety index achieved by multiplying the depth of water by the velocity (feet x feet/second) not exceed a factor of seven. In nonresidential areas, higher velocities may be acceptable.

## WATERCOURSE ALTERATIONS

When a floodplain administrator reviews a development permit that includes a watercourse alteration (for example realignment or diversion of a stream, ditch or river), he must be satisfied that the flow carrying capacity of the watercourse will not be diminished (see Figure 4-3). To do this, the permit applicant must supply a thorough description (a set of plans and calculations) of the proposed alteration and its effect on flows.

Generally, an applicant should provide the administrator a topographic map of the area in question, a comparison of the existing and proposed channel capacities, a description of the proposed alteration, land use of adjacent properties, identification of the project's features and an assessment of the changes it will cause.

If the administrator does not have the technical background to review such descriptions, he must rely on the community's engineering staff or seek outside professional assistance.

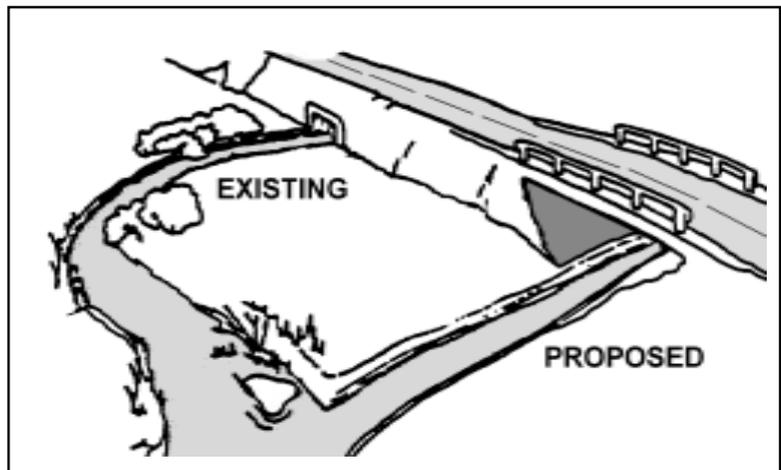


Figure 4-3 Watercourse alteration through a roadbed.

Local floodplain regulations require the floodplain administrator to notify adjacent affected communities and the OWRB of any proposed watercourse alterations. Neighboring local governments and the OWRB have an interest in water resources and activities that affect them. A sample watercourse notification letter is provided in Appendix D-7.

If the watercourse alteration is significant and changes the watercourse characteristics sufficiently (the basis for the existing Flood Insurance Study), FEMA should be notified.

## NONRESIDENTIAL STRUCTURES

NFIP regulations allow nonresidential buildings (commercial structures, garages, warehouses, etc.) the option to floodproof, rather than elevate, as a means of protection from the Base Flood (see Figure 4-4). Floodproofing consists of designing a structure in a way that all parts of the structure located below the BFE are watertight and resistant to flood damage. One method of floodproofing is known as dry floodproofing. This method is described below and illustrated in Figure 4-5.

Dry floodproofing consists of the actual design of a structure providing protection from the Base Flood. The structure must be designed to prevent seepage, collapse or cracking of basement walls, buckling of basement floors and back-up of water from sewer lines. Walls and floors must be capable of withstanding hydrostatic pressure and all openings must be located one foot above the Base Flood Elevation. Walls and floors must be made watertight with waterproof seals and coverings used on exterior surfaces. The building must have sufficient weight to resist flotation. Features of dry floodproofing must operate automatically without human intervention. Floodproofing measures on nonresidential structures must be certified by a qualified engineer or architect.

Another method of floodproofing nonresidential structures under the NFIP is reliant on human intervention. This involves the use of door and window shields as temporary protection from the Base Flood. This method should be used only where adequate flood warning time or devices are present. Extreme caution must be used in designing this floodproofing measure. Generally, door and window shields are not effective for flood depths in excess of three feet and may cause more damage to older structures than they prevent.

Wet floodproofing allows floodwaters to enter the structure by design and to equalize the water pressure on the inside to the water pressure on the outside. The concept here is to have utilities raised above flood levels so that -- after a flood, only minimal cleanup and repair are necessary.

Any time a nonresidential structure is floodproofed, the design of the structure must be certified by a registered

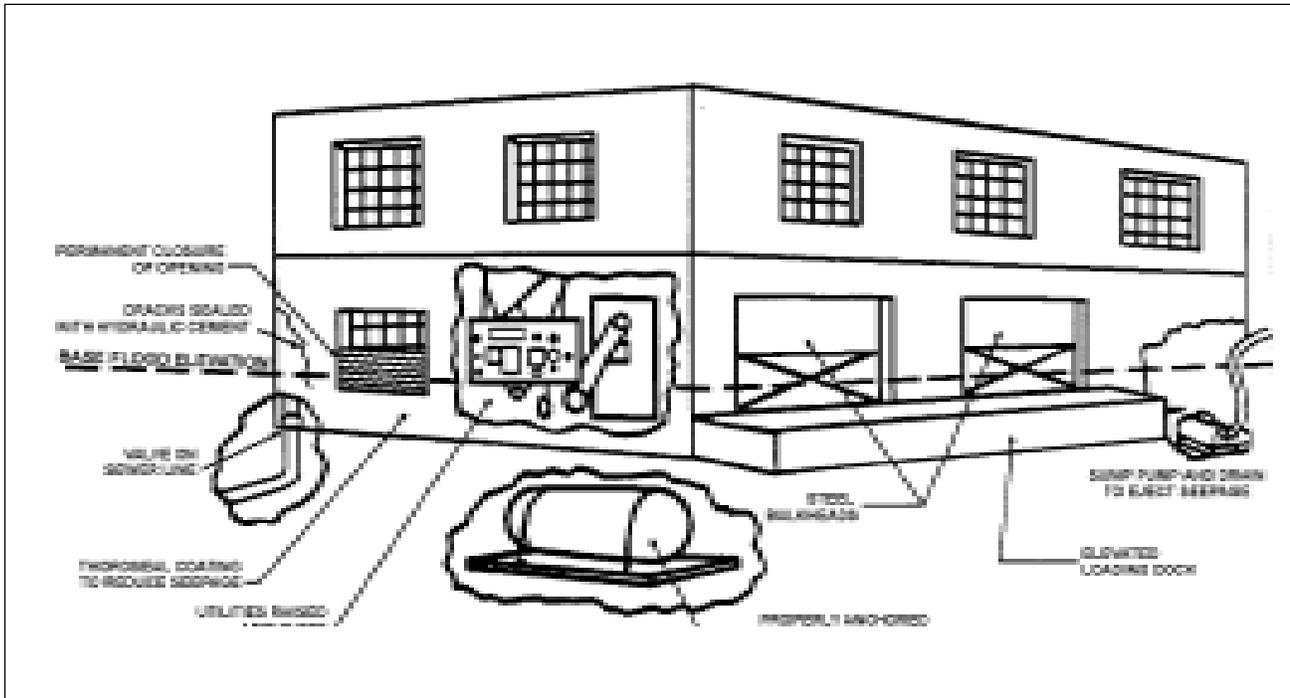


Figure 4-4 Floodproofing commercial structures.

professional engineer or architect, stating that it will provide protection against the Base Flood. This certification must be submitted before the permit application process can be completed (see Appendix D-8).

Dry floodproofing measures are recognized by the NFIP for flood insurance purposes (lower premium rates), but other types of floodproofing, such as wet floodproofing, are not recognized (see Appendix D-9).

## RESIDENTIAL STRUCTURES

NFIP regulations usually do not accept floodproofing of residential structures. The lowest floor, including basement, must be elevated to or above the BFE on fill, foundation, or on piers and columns.

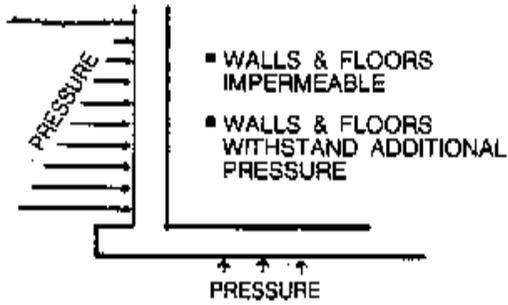
Because Oklahoma is located in an area that experiences severe storms (tornadoes, strong winds, hail, etc.), a community may pursue an 'exception' to the "No Basement Rule" from FEMA. Such exceptions are granted from the FEMA National Office upon application and fulfillment of strict requirements. A community receiving an exception to the "no basement" rule must supply sufficient technical data and adopt a floodproofing code before FEMA will consider the exception.

NFIP regulations require a community to obtain and maintain a record of the elevation of the lowest floor of all new or substantially improved structures in the flood hazard area. To comply with this regulation, communities must require the owner or developer of such structures to provide an "Elevation Certification" assuring the structure has been built above the BFE (See Appendix D-10).

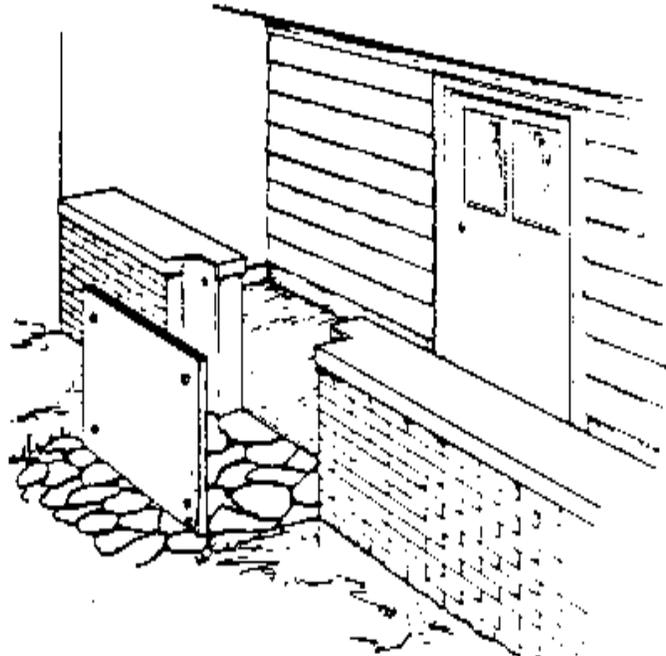
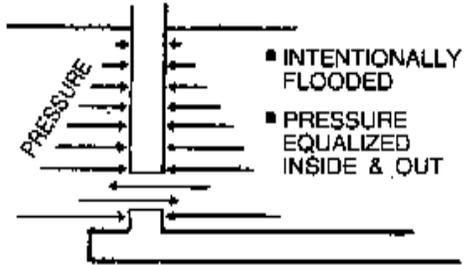
## SUBDIVISIONS

Where the Base Flood Elevation is not known and a subdivision of 50 lots or five acres (whichever is less) is planned, NFIP regulations state that the developer must determine a BFE and delineate it on the subdivision plat.

**DRY FLOODPROOFING**

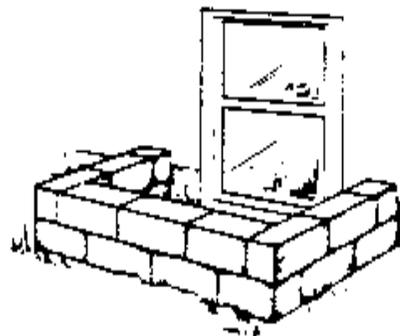
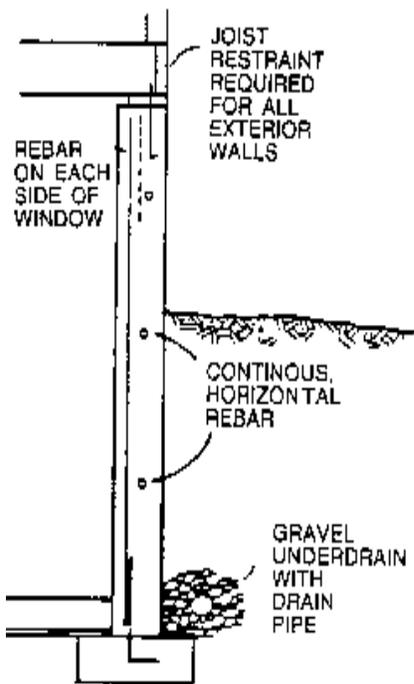


**WET FLOODPROOFING**



A TEMPORARY GATE OR CLOSURE TO PROHIBIT THE ENTRY OF FLOODWATERS

**TYPICAL REINFORCED CONCRETE WALL**



WINDOWS CAN BE PROTECTED FROM FLOODS

**KEYED JOINTS**

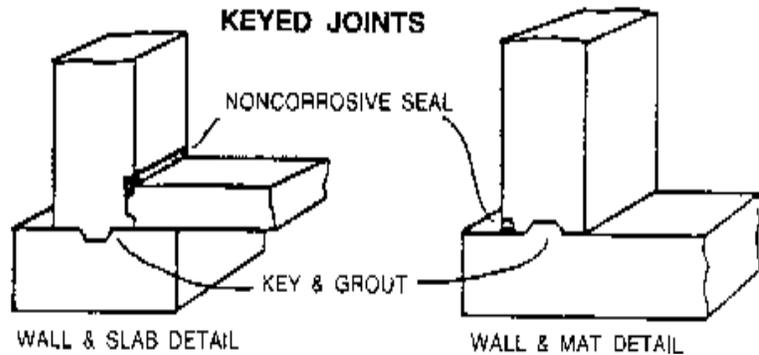


Figure 4-5 Examples of non-residential floodproofing.

For some Oklahoma communities, floodplains make up a significant portion of the land available for subdivision development. Floodplains are attractive for subdivision development because of their location; however, if these subdivisions are improperly developed, they can become a costly burden to the community.

Local governments which approve subdivisions in the floodplain must be careful that flood levels are not increased when these subdivisions are developed. Local governments may be liable where attempts to control flooding are ineffective or aggravate an existing situation.

## MANUFACTURED HOMES

NFIP regulations have changed the treatment of mobile homes. The term “mobile home” is no longer used; it has been replaced by the term “manufactured home”. Manufactured homes are now treated as conventional homes and, as such, must be elevated above the Base Flood Elevation when located in the identified floodplain.

Manufactured homes, for floodplain management purposes, include park and travel trailers and similar vehicles that are placed on a site for a period of more than 180 days. Past provisions that allowed replacement, new placement or substantial improvements of mobile homes in existing mobile home parks or subdivisions without elevation are now eliminated. New or replacement manufactured homes on lots in the floodplain must be elevated above the BFE and anchored to permanent foundations. Figure 4-6 shows the proper placement of manufactured homes in the floodplain. For further information regarding placement and anchoring, see Chapter 3.

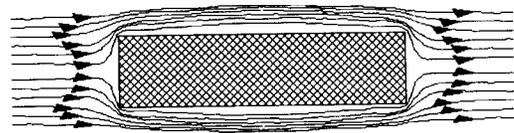


Figure 4-6 **CORRECT** Placement of manufactured homes parallel to flow reduces resistance to floodwaters.

Manufactured homes which have been continually located in the same floodplain location are affected by this rule change only if they are moved or replaced. This NFIP change will enable community officials to work closer with manufactured home parks and subdivisions located within their community’s floodplain.

## AO- AND AH-ZONES

AO-Zones are areas subject to shallow flooding (one to three feet) resulting from sheet flow conditions. Because no Base Flood Elevation is provided for AO-Zones, NFIP regulations require that residential structures in these areas must have the lowest floor (including the basement) elevated above the highest adjacent grade, at least as high as the depth number specified on the FIRM. If no depth number is indicated, a two foot flood protection level is required. Nonresidential structures must be elevated or floodproofed above the highest adjacent grade to the depth number specified on the FIRM.

The highest adjacent grade means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure. Figure 4-7 illustrates how a structure would need to be elevated in a Zone AO, Depth 2.

AH-Zones are those areas having shallow and/or unpredictable flow paths between one and three feet. These are usually areas subject to ponding.

When AH- and AO-Zones are designated, adequate drainage paths around structures are required to guide floodwaters away from these structures.

Only a small number of communities in Oklahoma have AO- or AH-Zones mapped.

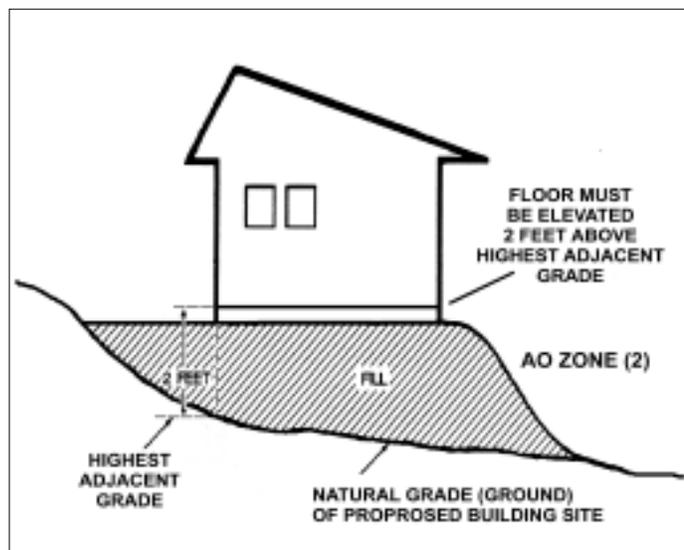


Figure 4-7. Two feet of fill was added to ground to meet elevation requirements for a structure in Zone AO, Depth 2.

## BOARD ACTION ON THE PERMIT APPLICATION

When a floodplain board completes its review of a development permit application, it has three options for action:

### 1. APPROVE THE PERMIT

If a permit application describes a development that will be built in compliance with the floodplain ordinance, the floodplain board may give its approval simply by signing the application form and providing a copy to the applicant.

### 2. CONDITIONALLY APPROVE THE PERMIT

If the permit application describes a development that would be in violation of the floodplain ordinance, the floodplain board may conditionally approve the application if the applicant will modify his development.

In cases where simple modifications will bring an application into compliance with the ordinance, the floodplain board or administrator should work with the applicant to work out problems with the proposed development.

### 3. DENY THE PERMIT

When a permit would blatantly violate the floodplain ordinance, the floodplain board must deny the permit and explain to the applicant why it was denied in a letter. A sample "denial letter" is found in Appendix D-12.

## APPLICANT'S OPTIONS UPON DENIAL OF PERMIT

If an applicant is denied a permit, he has three options:

1. He may ***redesign his development*** so that it meets the standards of the NFIP;
2. he may ***appeal the decision*** to the appropriate governing body if he feels the floodplain board is in error; or
3. he may ***request a variance*** to the ordinance if he feels the ordinance places an undue hardship on his property.

# VARIANCES

## DESCRIPTION OF VARIANCES

A variance, as defined by the Federal Emergency Management Agency, is a granting of relief from the requirements of a community's floodplain ordinance, permitting construction in a manner that would otherwise be prohibited by the ordinance (see Appendix D-13). Section 60.6(a) of National Flood Insurance Program regulations contains provisions for variance" allowed as a part of community floodplain management. If a floodplain management study has been completed for a community, its floodplain ordinance may contain a section allowing variances.

### IMPORTANT POINTS TO REMEMBER ABOUT VARIANCES

- \* Variances must meet the objectives of sound floodplain management.
- \* If a pattern of variance exists (obtained from the biennial report sent to FEMA by the floodplain administrator), FEMA will investigate the circumstance under which the variances were granted.
- \* Variance should be granted only in unique physical hardship situations.
- \* Variance should never be granted for structure to be built below the identified Base Flood Elevation.

It appears the only time variances could be safely used is prior to an impending map change. The map change would remove the development area from the floodplain. The variance, in this instance, would buy time for the structure which, under the new map, would be allowable development.

It should be noted that the granting of a variance in the floodplain is a floodplain board decision. The best advice concerning variances is DON'T USE THEM!

While the impact of a single variance on flood hazards may not be significant, the cumulative impact of several variance may be severe.

If a developer, however, requests a variance, the floodplain board should have a consistent and fair policy to deal with such requests. Variances can be handled through a board of adjustment or the governing body of the county or municipality where no board of adjustment exists.

See also 82, O. S. 1980, Sections 1615 and 1616 (Appendix B-1).

## ADMINISTRATIVE RESPONSIBILITIES

Regarding variances, NFIP regulations list two important documentation requirements:

First, the granting of a variance does not lessen or waive any insurance premium rates. Consequently, when a variance is granted, the floodplain administrator must provide written notification to the applicant that a project granted a variance is not exempt from insurance requirements. In some instances, a variance may result in increased insurance premium rates that could go as high as \$25 per \$100 of coverage. A sample "Variance" notification letter is found in Appendix D-15.

Secondly, any floodplain board granting a variance must maintain a record of all variance actions. This would include the justification for granting the variance, a record of the appeals proceedings and copy of the written notification referred to above. These records are reviewed during CAC and CAV visits.

# RECORD KEEPING

Record keeping is an extremely important part of a floodplain board's responsibility when participating in the NFIP. The following records must be kept on file and open for public inspections:

1. A complete and up-to-date copy of the floodplain ordinance, the flood map (FBFM or FIRM) and the Flood Insurance Study. If a study has not been completed, the community should obtain and maintain the best flood hazard data available for the area and use it in guiding floodplain development.
2. NFIP regulations specifically require that communities obtain and maintain the elevation of the lowest floor (including the basement) of all new or substantially improved structures in the Special Flood Hazard Area. For floodproofed structures, the elevation to which they have been floodproofed must be obtained and recorded. Floodplain administrators must require developers to provide elevation certifications to meet this NFIP requirement.
3. A project file containing the following items should be kept for each development permit application:
  - \* A copy of the permit application;
  - \* A copy of the permit review checklist;
  - \* A copy of all the engineering data (i.e., plans and specifications and hydraulic and hydrologic analyses used to document a development's compliance with the NFIP floodway and encroachment standards.
  - \* A copy of the engineering analyses submitted for watercourse alteration projects;
  - \* Copies of all pertinent correspondence relating to the project;
  - \* Any variance or appeals proceedings;
  - \* Documentation of inspections of the development;
  - \* Base Flood Elevation data for subdivisions of five acres, 50 lots or larger;
  - \* Elevation for floodproofing certifications indicating the lowest floodproof floor elevation; and
  - \* Elevation certificate indicating the lowest floor elevation and lowest adjacent ground elevation.
4. A file should be kept for the Biennial Reports that are submitted to FEMA. The floodplain administrator may want to keep the following information in this file:
  - \* Elevation certificate indicating the lowest floor elevation and lowest adjacent ground elevation.
  - \* Copies of previous years' annual and biennial reports;
  - \* A running total of permits and/or variances granted in the flood hazard area;
  - \* Maps of new annexations or other boundary changes;
  - \* Census data; and
  - \* Records of any major natural or man-made changes affecting flooding patterns.

The Biennial Report will be easy to complete if this information is readily available.

# LOCAL FLOODPLAIN ADMINISTRATOR

NFIP regulations, Section 59.22(b)(1), require a community to designate an official with the responsibility, authority and means to implement the ordinance adopted. The designation of an administrator is incorporated into the text of a community's floodplain ordinance.

Fair administration is the key to a successful permit system. To ensure consistent administration, the person selected as the administrator should have an understanding of NFIP technical concepts and the support of the local governing body.

Often, the position of floodplain administrator is part-time and related duties are added to other official responsibilities. The governing body must see to it that the floodplain administrator has the cooperation and support of all other community officials and departments in implementing the floodplain ordinance.

The floodplain administrator's job is not an easy one. If he or she has questions or problems, technical assistance is available from the OWRB (see Appendix D-23).

## DEVELOPMENT PERMIT ADMINISTRATION

The floodplain administrator is responsible for all aspects of the development permit process:

- \* Making permit application forms available to prospective floodplain developers.
- \* Reviewing all permits to initially determine whether or not they are in compliance with the ordinance.

\* Providing the BFE above which new buildings must be built. When FEMA has not provided BFE data, the local administrator must obtain the best available data from other sources to use in reviewing permits.

- \* Recommending approval, conditional approval or denial of all permit applications.

\* Follow-up on all permits granted with inspections.

- \* Initiating enforcement proceedings necessitated by ordinance violations.

## OBTAIN AND MAINTAIN INFORMATION

The floodplain administrator must obtain and maintain all the information described in the record keeping section discussed earlier in this chapter.

## WATERCOURSE ALTERATION NOTIFICATION

If a development permit application proposes a watercourse alteration (stream, river, drainage ditch, etc.), the local administrator must notify adjacent communities and the OWRB of the proposed action (see Appendix D-7). Notification of such alterations should be listed in the Biennial Report which is sent to FEMA.

## INTERPRETATION OF MAP BOUNDARIES

When there appears to be a conflict between the boundary on the flood map issued by FEMA and actual field conditions, the floodplain administrator must interpret the boundaries of the flood hazard area. The floodplain administrator does not, however, have to determine a particular structure's location on the map for flood insurance purchase requirements of lending institutions. That decision rests with the lender.

# ENFORCEMENT

A floodplain ordinance cannot effectively reduce the severity of flood damages unless it is properly enforced. Adequate, uniform and fair enforcement requires that:

all new **development** or improvements to existing development must have a permit; and

all **development** must adhere to the standards of the NFIP.

Communities need to establish a procedure to ensure the two requirements are met. For example, the best way to ensure the first requirement is to have a PERMIT certificate displayed at the development site in full view. Such a certificate could be brightly colored, so it is easily seen (see Appendix D-16). It should be printed on durable material to withstand the weather during the construction period. If construction is taking place without a permit, it can be readily observed.

Communities can ensure the development is built to NFIP standards by having the local administrator make inspections during the construction period. Such inspections should be documented in the project file.

After a structure is built, the NFIP regulations require a community to “obtain and maintain the elevation of the lowest floor or the floodproofed elevation of all new or substantially improved structures”. The burden of providing this requirement is on the permit applicant (see Appendix D-10).

## DEFICIENCIES AND VIOLATIONS

If a floodplain administrator identifies development occurring in the floodplain without a permit for construction contrary to the permitted plans, he should immediately contact the permit applicant in an effort to resolve the situation. At this time, the floodplain administrator may post a VIOLATION notice at the property site. A sample notice is provided in Appendix D-17. If removing the situation proves unfruitful, legal assistance may be necessary. This assistance may be enough to persuade the violator to comply with the floodplain ordinance. If the violating party refuses to comply, the community should pursue legal action.

Conscientious enforcement of the floodplain ordinance must be undertaken. Communities that do not strictly maintain a permit system, do not keep adequate records, or have developed a pattern of granting variances, have violated the conditions under which they participate in the National Flood Insurance Program. Communities must practice floodplain management as set forth in their floodplain ordinance. Failure to adequately do so could trigger a visit from FEMA representatives. This visit is called a Community Assistance Visit (CAV). The nature of a CAV will vary according to the circumstances of each community. If FEMA finds deficiencies in a community’s management of their floodplain ordinance, FEMA may request corrective actions be initiated by the community.

## COMMUNITY ASSISTANCE VISITS

Community Assistance Visits (CAVs) are FEMA’s most comprehensive form of contact with NFIP communities. A number of communities are selected and visited annually because of development pressure, flood history, high or repetitive insurance claims, known problems or other indicators of difficulty (i.e., variances) with NFIP requirements.

An on-site visit by OWRB or FEMA personnel consists of:

- \* meeting with community officials;
- \* a tour of the floodplain;
- \* an inspection of records, concentrating on development permits and as-built elevation and floodproofing certifications - as required in NFIP regulations part 59.22(9)(iii); and
- \* evaluation of the floodplain ordinance and administrative procedures used in floodplain management.

Following the on-site visit, a follow-up letter will be sent by FEMA or OWRB to the community outlining:

- \* assessment findings;
- \* specific deficiencies and violations;
- \* history of such deficiencies and violations;
- \* required corrective actions, protective measures and procedures to be changed by the community; and
- \* assistance provided or promised.



## FEMA GUIDELINES

When a community has failed to enforce its floodplain management program in compliance with NFIP criteria and the FEMA regional office has identified one or more program deficiencies or violations, FEMA may initiate an enforcement action against the community in order to obtain compliance. A substantive violation or program deficiency is one that has resulted or could result in increased flood damage potential or higher flood stages.

### EXAMPLES OF SUBSTANTIVE PROGRAM DEFICIENCIES:

- \* Failure to require permits for proposed construction *or* other development within flood-prone areas and to review such permit applications and subdivision proposals to assure that all such construction and development is adequately designed, located, constructed and anchored to minimize flood damage.
- \* Failure to obtain and reasonably utilize available flood data as criteria for setting local elevation and floodproofing requirements.
- \* Ordinances that are not compliant with NFIP floodplain management criteria.
- \* Ordinances that do not contain adequate enforcement provisions or that cannot be enforced through other mechanisms.
- \* Administrative procedures or practices that are not workable or cannot reasonably ensure compliance with the local ordinance.
- \* Variance procedures that are not consistent with NFIP variance criteria.
- \* Failure to operate and maintain flood protection projects that have been credited by FEMA as providing 100-year flood protection.

### EXAMPLES OF SUBSTANTIVE VIOLATIONS:

- \* Obstruction of floodways or stream channels that increase flood stages.
- \* In A-Zones, applying to new construction and substantial improvements:
  - residential structures that are located with their lowest floor (including basement) below the BFE;
  - residential structures that are not adequately anchored to resist flotation, collapse or lateral movement;
  - nonresidential structures that are not elevated and anchored or floodproofed;
  - structures without required elevation certificates or floodproofing certificates; and
  - structures with enclosures below the BFE used for purposes other than parking, access or storage.

Although all participating communities are required to enforce compliant NFIP ordinances, not all communities have the same capabilities; and the seriousness of deficiencies and violations will vary. Because of this, various mitigating and aggravating factors are taken into consideration by FEMA, and all enforcement actions are handled on a case-by-case basis. Mitigating factors do not relieve a community of its obligation to correct all deficiencies and remedy violations.

### **EXAMPLES OF MITIGATING FACTORS:**

- \* The community has demonstrated willingness to take positive actions to resolve past problems.
- \* Due to a lack of adequate local resources, including professional staff, the community has had to rely on the availability of technical assistance from state, regional or private sources.
- \* Deficiencies in the local program have not resulted in increased exposure to flood losses.
- \* There is no history of prior violations identified by FEMA.
- \* FEMA has had no prior contact with the community.
- \* Newly elected officials or recently hired staff have demonstrated a new attitude toward NFIP compliance on the part of the community.
- \* The violation occurred a number of years in the past.
- \* There are only isolated instances of violations or a single program deficiency rather than a pattern of widespread program deficiencies or violations.
- \* A particular remedial measure would undermine the credibility of local officials or their efforts to achieve compliance.
- \* The present owner of a property in violation was not the owner at the time the structure became noncompliant.

### **EXAMPLES OF AGGRAVATING FACTORS:**

- \* The community has not demonstrated willingness to take positive actions to resolve past problems.
- \* The community has adequate resources available to it, including professional staff or other sources of technical assistance, that have not been utilized.
- \* Deficiencies in the local program have resulted in increased exposure to flood losses.
- \* There is a history of prior violations or program deficiencies identified and brought to the community's attention by FEMA.
- \* FEMA has had prior contact with the community.
- \* FEMA has provided technical assistance to the community. -
- \* The violations occurred recently.
- \* There is a pattern of widespread program deficiencies or violations as opposed to an isolated instance to noncompliance.
- \* The present owner of a property in violation also was the owner at the time the structure became noncompliant (applies only when determining appropriate remedial measures).

### **EXAMPLES OF WAYS TO CORRECT PROGRAM DEFICIENCIES:**

- \* Amend ordinances to close loopholes or correct other program deficiencies that allowed the violations to occur.\*
- \* Amend ordinances to include more effective enforcement provisions or add penalty provisions.
- \* Change administrative procedures to improve the permitting and inspection process. This could include revisions of permit, certification or inspection forms, changes in inspection procedures, or changes in procedural instructions given to the building inspector and other staff.
- \* Pass a resolution of intent to fully comply with NFIP requirements.
- \* Change or increase staff or resources used to enforce the local ordinances. (FEMA generally does not mandate this remedial measure.)
- \* Provide missing elevations or floodproofing certificates.

### **EXAMPLES OF WAYS TO REMEDY VIOLATIONS:**

- \* Demonstrate that the structure is not in violation by providing missing elevation or floodproofing certificates.
- \* Submit engineering data showing that floodway fill results in "no increase" in flood stage.
- \* Rescind permits for structures not yet built or in early stages of construction.
- \* Tear down or modify the noncompliant structure or remove fill in the floodway. (If the structure or other development cannot be made fully compliant, a lesser degree of protection should still be provided).

- \* Develop and implement a master drainage plan or construct flood control works to protect noncompliant structures.
- \* Seek civil/criminal penalties as provided for in the local ordinance or community code. In the case of a judgment in court against the community in such an action, the community is expected to appeal the decision if there are grounds for doing so.
- \* Initiate licensing actions against architects, engineers, builders or developers responsible for the violations.
- \* Submit survey data/documentation required to verify insurance rates for existing policies.
- \* Issue declarations and submit them for Section 1316 denial of insurance.
- \* Submit evidence that the structure cannot be cited (legal constraints in state or local legislation, deficiencies in the ordinance, etc.).
- \* Submit sufficient data to verify the information submitted by the property owner of an uninsured building so that FEMA can ensure the building is properly rated if a flood insurance policy is applied for in the future.

## **PROBATION**

Communities which fail to adequately enforce floodplain management regulations can be placed on probation by FEMA. Probation allows a period of time for the community and FEMA to work out identified problems, deficiencies or violations. Probation can be imposed and terminated by FEMA's Regional Director in Denton, Texas, and can be continued for up to a year after the community corrects all program deficiencies. FEMA specifies what corrective actions or remedial measures need to be taken by the community in order to have probation lifted.

During probation, an additional premium charge of \$50 per policy will be levied on all new and renewed flood insurance policies. This surcharge is based on a one-year time period beginning with the imposition of probation and will be in effect this first year and during successive one-year periods during which the community remains on probation. If the probation period lasts three months, the surcharge is still in effect for the remainder of the year; if probation lasts 13 months, the surcharge is in effect for 24 months.

Probation is lifted or extended at the discretion of the FEMA Regional Director.

## **SUSPENSION**

When efforts to resolve identified community deficiencies do not meet FEMA's conditions or otherwise fail under probation, the community may be removed from the program. Suspension authority lies with the FEMA Washington office. The effects of being suspended from the NFIP are:

- \* Flood insurance will no longer be available. No resident will be able to purchase a flood insurance policy.
- \* No federal grants or loans for buildings may be made in identified flood hazard areas. This includes all federal agencies such as the Department of Housing and Urban Development (HUD), Small Business Administration (SBA), Federal Housing Authority (FHA) and Farmers Home Administration (FmHA).
- \* No federal disaster assistance may be provided in identified flood hazard areas.
- \* No federal mortgage insurance may be provided in identified flood hazard areas. This includes FHA, Veterans Administration (VA) and FmHA.
- \* Mortgages requiring the purchase of flood insurance may be foreclosed.
- \* Liability of local government for denying citizens the right to purchase flood insurance or by not taking positive steps to reduce exposure of life and property from a known natural hazard.

## **SUBROGATION**

Subrogation is an action brought when flood damages have occurred, flood insurance claims have been paid, and all or part of the damage can be attributed to acts or omissions of a community. FEMA then sues a third party to recover flood insurance claims it has paid.

## BEFORE SUBROGATION CAN TAKE PLACE

- \* The community must be in the Regular Phase of the NFIP;
- \* Flood damages occur to property carrying flood insurance;
- \* Flood insurance claims are paid by FEMA based on the property damage caused by flooding;

FEMA believes negligence by a third party has contributed to the flood damages occurring as covered by flood insurance policies; and

FEMA sues to recover the money paid out in claims due to damage attributable to a third party. This third party is believed to have caused, contributed to, or aggravated the documented flood damages. This third party could be a community, a political entity, a developer or an engineer.

The community in which the damages have occurred would be determined by FEMA to be delinquent in its floodplain management efforts. Extensive investigation and documentation by FEMA would precede any subrogation efforts by the agency (Figure 4-8).

Communities must ensure that new floodplain developments are built above the Base Flood Elevation. Communities must consciously guide development so it is not subject to flood damage and assure that these developments do not impact surrounding property, thereby increasing that property's susceptibility to flooding.

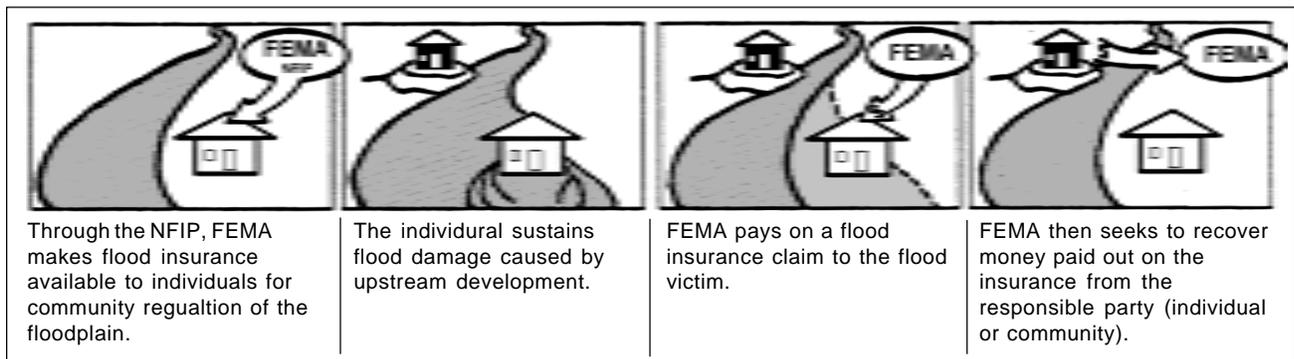


Figure 4-8 Subrogation process.

# DENIAL OF FLOOD INSURANCE AND DISASTER ASSISTANCE

## SECTION 1316 OF THE NFIP REFORM ACT

Under Section 1316 of the National Flood Insurance Act, flood insurance can be denied to properties in violation of state or local floodplain regulations (see Appendix D-18). FEMA will not allow new flood insurance coverage for any property declared in violation of floodplain regulations by the state or local entity in which the violation exists. A valid declaration shall consist of:

1. The name(s) of the property owner(s) and address or legal description of the property sufficient to confirm its identity and location;
2. A clear and unequivocal declaration that the property is in violation of a cited state or local law, regulation or ordinance;
3. A clear statement that the public body making the declaration has authority to do so and a citation of that authority;

4. Evidence that the property owner has been provided notice of the violation and the prospective denial of insurance; and
5. A clear statement that the declaration is being submitted pursuant to Section 1316 of the National Flood Insurance Act of 1968, as amended.

Denial of flood insurance coverage makes commercial financing for unauthorized floodplain structures difficult to obtain.

## AMENDMENTS AND REVISIONS TO FLOOD INSURANCE RATE MAPS

National Flood Insurance Program regulations provide information to communities seeking to remove property from the 100-year floodplain or from a Special Flood Hazard Area. Known as a Letter of Map Amendment (LOMA) and a Letter of Map Revision (LOMR), these two features of the NFIP allow amendments and revisions to community Flood Insurance Rate Maps (FIRM). Such amendments or revisions cannot adversely impact the floodplain, floodway delineations or the level of the 100-year flood.

### POINTS TO REMEMBER WHEN CONSIDERING A LOMA OR LOMR

The FIRM will not be reprinted when a LOMA or LOMR is granted. Copies of LOMAs and LOMRs should be kept with the community FIRM so changes are not forgotten or overlooked. Recent changes in NFIP regulations require that fill placement for residential or commercial structures meet compaction specifications to protect the fill against scour, erosion and settlement below the Base Flood Elevation (BFE) (Appendix D-11). Fill placement and compaction must be certified by a registered professional engineer to ensure engineering practices have been followed to protect the property against the extreme elements of a 100-year event.

Only the community's Chief Executive Officer (or designee) can request a LOMA or LOMR from FEMA. All requests should be directed to the FEMA Regional Office in Denton, Texas (see Appendix D-23). Even though it may be the principal purpose for requesting a LOMA or LOMR, the granting of a LOMA or LOMR by FEMA does not automatically cancel flood insurance requirements originally imposed on the structure. Persons initiating a LOMA or LOMR should check with their lending institutions to see if they will honor it. The lending institution may require flood insurance even though the structure has been removed from the SFHA.

### LETTER OF MAP AMENDMENT

A Letter of Map Amendment (LOMA) request seeks amending the community's FIRM's to remove a parcel of property (including structures) that has been included in the FIRM's statistical flood hazard area. The LOMA mechanism is used when the requesting community can demonstrate the property or structure was erroneously included in the SFHA as shown on the FIRM. Technical data must be submitted by the community to FEMA, proving that the property was at or above the level of the 100-year flood naturally, or that fill had been placed in the area before the date of the effective FIRM.

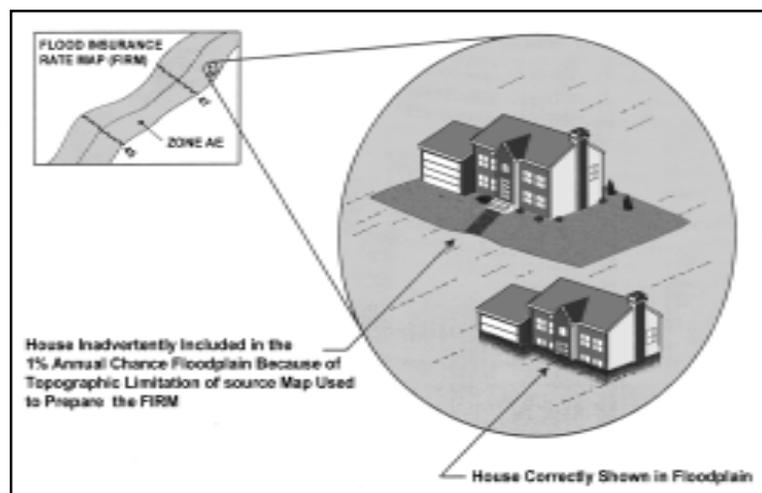


Figure 4-9 Letter of Map Amendment (LOMA) example

# LETTER OF MAP REVISION

A Letter of Map Revision (LOMR) allows property to be removed from the identified floodplain if it was placed on fill above the 100-year flood level after the date of the effective map. Again, technical data form the basis for any LOMR request sent to FEMA. When FEMA issues a LOMR, it acknowledges that the physical change in the floodplain is consistent with sound floodplain management practices.

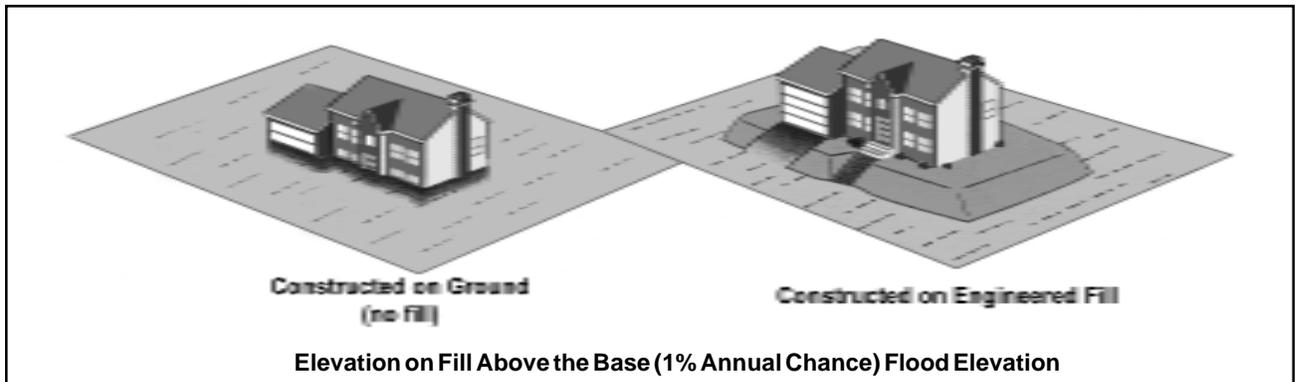


Figure 4-10 Letter of Map Revision (LOMR) example.

## CONDITIONAL LOMAS AND LOMRS

Conditional LOMAs and LOMRs are options available for removing proposed structures from the Special Flood Hazard Area (SFHA) of a community. These letters are briefly described in the following paragraphs.

Conditional LOMAs may be issued for proposed structures on land which is partially inundated by the base flood. It must be shown that the structure(s) will be located on natural high ground, or on compacted fill placed prior to the effective

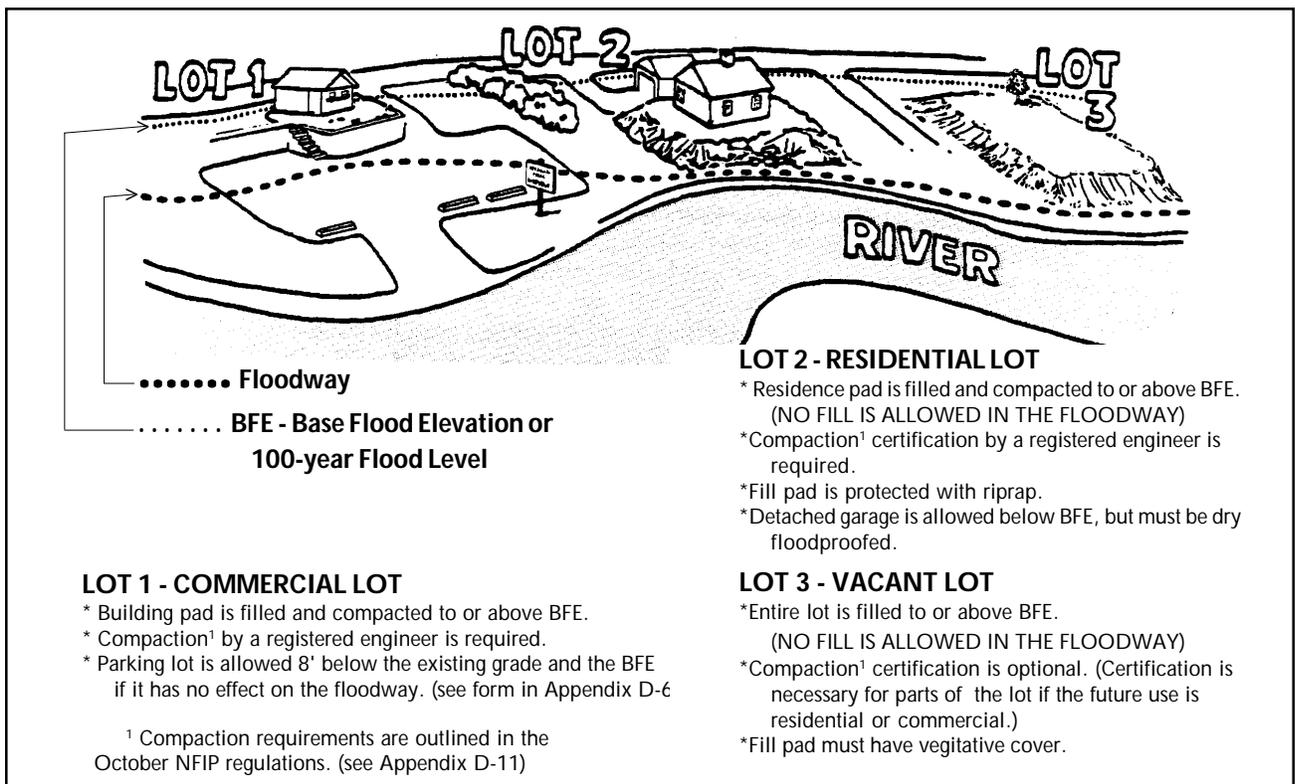


Figure 4-11 Conditions Requiring Letters of Map Revision (LOMR)

date of the first NFIP map designating the SFHA, on the portion of land that has been inadvertently included in a SFHA. After construction is completed, certified as-built information must be submitted to FEMA for the purpose of obtaining a LOMA. The information required for a Conditional LOMA is basically the same as that for a LOMA. MT-1 and MT-2 application packets are required for asking FEMA for a CLOMR.

Conditional LOMRs may be issued for proposed structures on parcels of land which have been, or will be, elevated above the BFE by fill. To qualify for a Conditional LOMR, the proposed structure must meet the same criteria as existing structures constructed on land elevated by fill. After construction is completed, certified as-built information must be submitted to FEMA for a final determination. Property owners and developers should note that a Conditional LOMR merely provides comment on the proposed plan and does not amend the map. A LOMR is required once the CLOMR condition has been completed.

For more information, the pamphlet entitled "APPEALS, REVISIONS, AND AMENDMENTS TO FLOOD INSURANCE MAPS, A GUIDE FOR COMMUNITY OFFICIALS" may be obtained from the FEMA Regional Office in Denton, Texas. Additional information that may prove helpful is provided in Appendix E. Publications available at no cost are also listed in Appendix E-10. Also contact the OWRB for a Single Lot Letter of Map Amendment packet, MT-1 or MT-2 packet, if needed.

# Chapter 5



## FLOOD MITIGATION PLANNING

REFERENCE - APPENDIX E

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# INTRODUCTION

Flooding cannot be totally eliminated, but the damages resulting from floods can be reduced. In order to do so, communities must develop a comprehensive plan for flood hazard mitigation that considers both structural and nonstructural measures.

Flood hazard mitigation is defined as a management strategy that reduces the severity of the effects of a flood disaster. The strategy involves actions which reduce exposure to flooding, susceptibility to flood damages and the impact of damages when a flood does occur. Flood hazard mitigation is a comprehensive approach to solving flooding problems.

Local governments have the best opportunity to implement flood mitigation plans for their communities. They are close to the problems and have the authority (and responsibility) to carry out solutions. In Oklahoma the Oklahoma Department of Civil Emergency Management (ODCEM) and the State Hazard Mitigation Team members work closely with community officials to help identify potential mitigation projects. The ODCEM is the agency in Oklahoma that is the point of contact for the new Federal Emergency Management Agency Flood Mitigation Assistance program and the Hazard Mitigation Grant Program as well as Project Impact. ODCEM encourages each community to develop a plan that identifies possible mitigation projects if implemented could reduce the amount of damage public and private property loss sustain as a result of flood. Potential projects could include acquisition of structures and their removal, stormwater channel projects, retrofitting of structures, open space incentives and others. Acquisition projects are encouraged to return floodplains back to their intended natural purpose. Appendix E-5 contain specific information on the FMA & HMGP programs as well as the ODCEM application and guidance for communities to initiate this process. Also, the OWRB & ODCEM have short videos that are available for loan to communities that explain the HMGP program & process. If you are interested in borrowing one of these videos, please contact the OWRB or ODCEM. Also, if you would like for an agency representative to further explain these programs please contact us.

This chapter provides a brief review of the process a community can follow to develop a flood hazard mitigation plan (Figure 5-1). Some of the methods a community can use to reduce flood damages are also described. This chapter is divided into five sections: (1) Defining the Problem, (2) Establishing Objectives, (3) Tools Available, (4) Selecting Alternatives, and (5) Implementation: Making It Work.

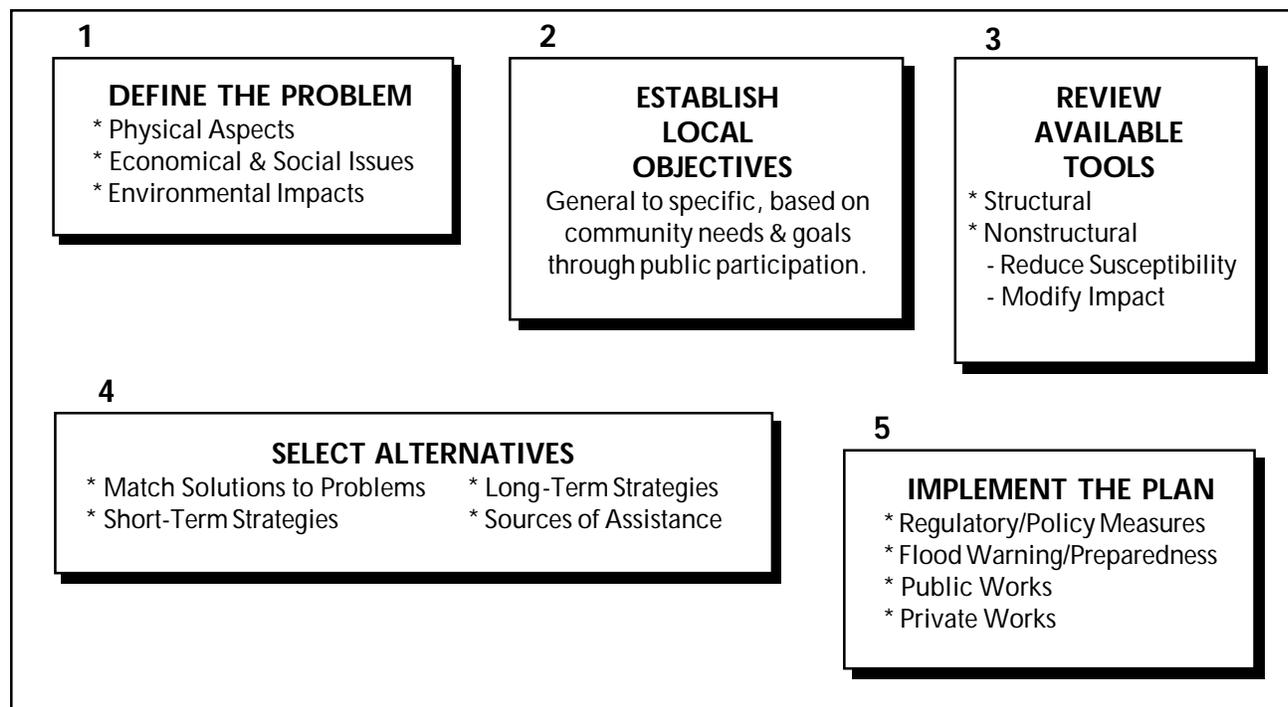


Figure 5-1. General process for a flood hazard mitigation plan.

# DEFINING THE PROBLEM

Any approach to flood hazard mitigation planning should begin with an evaluation of flood hazards and how they affect the community. The evaluation should address the physical aspects of both the floodplain and the flood, take into account the economic and social issues associated with flooding, as well as the environmental values of flooding and floodplains.

## PHYSICAL ASPECTS

It is important to obtain as much information as possible on flooding, relative to its source and cause; its area and depth of inundation; and such characteristics as frequency, speed of onset and duration. Information on physical aspects of a flood is sometimes available from a federal agency in the form of a floodplain study which delineates floodplain boundaries and lists flood elevations.

When detailed technical data on flooding aren't available, flood problems can be described by historical news accounts or by long-time residents. The best available data can then be used to define flood problems in an area.

Information on the floodplain can be obtained locally by conducting a survey of floodplain areas. Zoning maps and land-use plans can also be a good source of information for determining floodplain use. In order to have a good understanding of flooding problems communities should have complete data regarding the type, condition and extent of floodplain development; the potential for future development; and the status of any existing flood control structure, such as a dam or levees.

## ECONOMIC AND SOCIAL ISSUES

Two issues to be considered in defining flood problems and developing a flood hazard mitigation plan are the economic role of floodplain lands and the social effects of flooding.

Generally, floodplains are used for many purposes: agriculture, open space and recreation, and residential, commercial or industrial development. Some of these purposes may be more compatible with existing flooding problems than others and may be of more value to the community through taxes or increased property values. Any analysis of a community flood problem must include an estimate of the costs and benefits of existing or proposed land use.

The nature and extent of economic issues can be understood by gathering information such as property tax bases, market values and building costs in floodplain areas. This type of information can be compared against the cost of providing services and utilities such as streets, water and sewer systems and the cost of replacing or repairing those facilities if flood damaged.

The same kind of analysis should be made of the social impacts associated with flooding problems. For example, housing located in the floodplain may be for low income families. At the same time, however, that housing may require protection during flooding or replacement if flood damage is severe. Flooding may also present employment problems in two ways: (1) Floodplain sites may not be suitable for businesses with employment opportunities, thus the restriction of economic expansion, and (2) Flooding or flood damage can force businesses to close, causing unemployment hardships.

## ENVIRONMENTAL ISSUES

Floodplains have environmental value. They can provide recreation areas, open space and wildlife habitat and they are often the location of historic sites. Floodplains can serve to lessen the potential destructiveness of floods by contributing to the moderation of flood levels by acting as natural retention and storage areas; maintaining water quality by serving as a deposition area for sediment, debris or chemical impurities carried by floodwaters; and by protecting against erosion since floodplain vegetation can stabilize land by trapping sediment and debris.

In defining the problems created by flooding, a community should evaluate the environmental uses of floodplains. Benefits gained through flood control projects might be offset by environmental losses.

# ESTABLISHING LOCAL OBJECTIVES

Once a flooding problem is well-defined with good technical data regarding the flood hazard and with consideration given to the related economic, social and environmental issues, a community can establish objective—the next step in developing a flood hazard mitigation plan.

The general goal of any flood hazard mitigation program is to reduce future flood damages. This goal can be broken down into several objectives:

- Protecting a new development from flood damage.
- Protecting existing developments from flood damage.
- Reducing the impact of damage where flooding problems cannot be eliminated.
- Preserving or restoring natural floodplain values.
- Combining flood loss reduction efforts with other community needs, such as water supply or recreation facilities.

These general objectives must be further refined to a community's particular situation. For example, a community with a fully developed floodplain might want to tailor its flood hazard mitigation objectives to protect existing development by extending a levee system. Or, it might want to regain some of the lost environmental values of the floodplain through an aggressive acquisition/relocation program. On the other hand, communities with open floodplains may consider protection of new development as a priority for the flood hazard mitigation plan.

Before a flood hazard mitigation program is implemented, a community should look at alternative scenarios for programs with varying degrees of flood control. The scenarios can match community goals with community economic situations to establish the type and degree of floodplain control desired. A community should review both the advantages and disadvantages of an approach to floodplain management and carefully weigh the benefits of reduced flood damages against the costs of providing flood protection. At the same time, the community must keep in mind nature's need to use floodplain areas to carry excess flood waters.

## PUBLIC PARTICIPATION

The process of establishing objectives is highly individual and is unique to each community. Objectives should reflect the needs and desires of the community. For this reason, public participation is essential in developing a successful flood hazard mitigation program. A strong public participation program provides a means to gather input from citizens to identify objectives and needs, inform the public of flooding problems and the planning process, and evaluate the acceptability of various solutions identified to reduce future flood damages.

A public participation program should include methods to encourage and facilitate input from all sectors of the community, including floodplain residents, developers, realtors, engineers, planners, civic groups, disaster coordinators and representatives from the business community. Techniques used to acquire input can involve news releases, informational public meetings, formal hearings, surveys, brochures, reports or formation of committees and neighborhood groups.

While it is important that public involvement extend throughout the hazard mitigation planning process, it is particularly critical during the stage of setting objectives. The objectives should be carefully scrutinized, debated and revised as necessary because they form the basis for a plan that will guide the implementation of flood hazard reduction measures. Care should be given to ensure that all affected interests have had an opportunity to be heard, and that any conflicts between flood mitigation objectives and those of other authorities or community programs are reconciled. This step is especially important. For example, if a community chooses an objective that does not meet the Federal Emergency Management Agency's minimum development criteria for the NFIP, then certain sanctions may be invoked on the community. Or, if an objective, such as "Promote recreational uses of flood prone areas", is selected without input and consent from the local parks department, meeting that objective could prove difficult, if not impossible.

Each objective chosen for a hazard mitigation plan must be well thought out. The objectives must balance the needs of the community and nature to meet the overall goal of reduced flood damages.

# TOOLS AVAILABLE

With objectives firmly established, a community's next step in the hazard mitigation planning process is to review the tools or methods available to meet those objectives. This section describes many of the tools. Essentially, structural and nonstructural are the two major approaches a community can use to reduce or prevent future flood damages (see Figure 5-2).

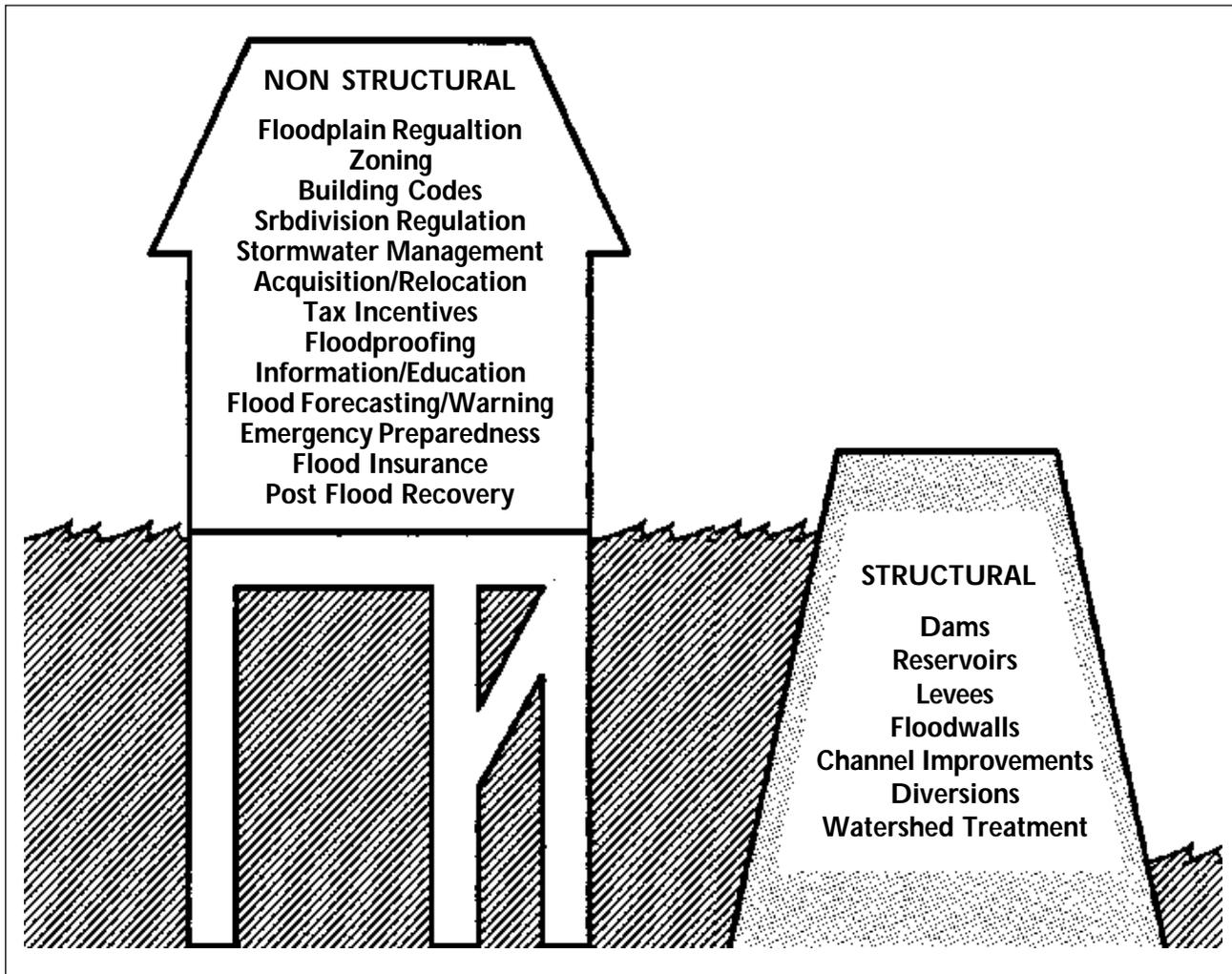


Figure 5-2. Structural and nonstructural approaches a community can use to reduce or prevent future flood damages.

## STRUCTURAL MEASURES

Traditional response to flooding problems has been through structural flood control projects such as dams or levees. These types of structural works attempt to control floodwaters. While they can be effective, structural measures-often are very expensive, provide a false sense of security and encourage, rather than discourage, development in flood-prone areas. For these reasons, structural methods of reducing flood damages can be only a partial solution to flooding problems.

### DAMS AND RESERVOIRS

Flood protection can be achieved by providing reservoirs to retard or delay excessive runoff for the purpose of reducing flood heights. The function of reservoirs is to store water when stream flow is excessive and to release it gradually after the threat of flooding has passed.

Some reservoirs have controlled outlets that release floodwaters after the peak flow has occurred. Although these storage areas are designed primarily to relieve flood problems downstream, they can be multipurpose and used for increasing water supply, hydropower generation or recreation.

Detention basins are smaller impoundments that have uncontrolled or fixed outlets. Small impoundments are designed to retain and retard floodwaters. They may also improve infiltration for recharge of aquifers. Detention basins may reduce flood damage at a low cost, but beneficial effects do not extend far below the impoundment.

## **LEVEES AND FLOODWALLS**

Levees and floodwalls are structures built to prevent floodwaters from overflowing onto the floodplain by confining the streamflow. Floodwalls are usually built of reinforced concrete while levees are usually constructed of earthen materials. A false sense of security can be associated with levees and floodwalls: they have a limited design life (improper design could cause the system to fail) and these structures could be overtopped by a flood larger than the design flood. Additionally, many levees were built in haste prior to or during the past flood emergencies and do not meet acceptable standards for permanent flood control projects.

## **CHANNEL IMPROVEMENTS**

Flood stages can be reduced by improving flow conditions within a channel and by increasing a stream's carrying capacity. Methods used to improve channels include:

- Straightening to remove undesirable bendways;
- Deepening or widening to increase size of waterway;
- Clearing to remove brush, trees and other obstructions; and
- Lining with concrete to increase efficiency.

Channel modification may be necessary or useful when used with other structural methods of flood control, such as below storage reservoirs where changes have occurred in the flow of water. Adverse effects of channel modification could occur at or downstream of the site, with unstable channel banks and a possible increase of flood impacts downstream. Modified channels must also be properly maintained to assure sufficient capacity to carry the 100-year flood.

## **WATERSHED TREATMENT**

Watershed treatment, generally applied to small areas, involves the treatment of land to render the soil more capable of absorbing and retaining excessive rainfall until flood heights in swollen streams have receded. These measures include improving or preserving vegetative cover, regrading and terracing to increase infiltration or delay runoff to the stream channel. Watershed improvements may also reduce erosion, maintain or improve groundwater levels, and recharge aquifers.

# **NONSTRUCTURAL MEASURES**

Nonstructural approaches to reduce flood damages are those which do not depend on controlling floodwaters. Rather, they concentrate on controlling activities which take place in flood-prone areas. These approaches fall into two general categories: reducing susceptibility to flooding and reducing the impact of floods.

## **REDUCING SUSCEPTIBILITY**

The methods available to reduce susceptibility to flood damage are the development of regulations and policies that prohibit dangerous, uneconomical or unwise floodplain development. Flood damages can be greatly reduced if activities along floodplains can be made more compatible with the natural flooding process. These regulatory programs and policy guidelines consist of a variety of land use management techniques. Methods to reduce susceptibility to flood damage may also include programs which reduce existing development's vulnerability to damage.

### ***Floodplain Regulation***

Floodplain regulations do not attempt to reduce or eliminate flooding, but are designed to mold floodplain development in such a manner as to lessen the damaging effects of floods. In most Oklahoma communities, floodplain regulations are adopted in compliance with the National Flood Insurance Program. These regulations generally establish a floodplain board within each community. Development in the floodway is restricted to uses which result in no increase in flood heights. The portion of the 100-year floodplain outside of the floodway can be more intensively developed, provided that new uses and additions to existing uses are properly elevated on fill or floodproofed to the 100-year flood protection elevation.

### ***Zoning***

A community's zoning authority can be used to discourage development in the floodplain. For example, flood-prone areas could be zoned "agricultural," "open space" or "recreation". Generally, these types of development suffer less flood damage than residential or commercial areas. Another zoning tactic is to control the density of structures by limiting lot sizes. Zoning ordinance can prevent the expansion of nonconforming uses and could incorporate a single loss option. This stipulation would mean that a structure could not be rebuilt after a flood loss of sufficient magnitude (i.e., 50 percent or more).

### ***Building Codes/Subdivision Regulations***

Building codes regulate building design and construction materials. Generally, these codes apply uniformly to buildings throughout a locality; however, certain provisions are also included that relate to natural hazards. Generally, four types of construction standards have been incorporated into flood-related building codes:

- Minimum protection elevations for the lowest floor or footings of a structure.
- Prohibition of basements or requirements that basements be floodproofed or otherwise protected against flooding.
- Structural reinforcement, waterproofing or other protective requirements for structure with floors below the flood protection elevation.
- Firmly anchored buildings to prevent flotation during floods.

Subdivision regulations control the division and sale of land. The regulations require landowners to prepare detailed maps, or "plats," prior to the sale of lots. Plats are generally approved by the planning commission and must comply with standards established in the subdivision regulations, zoning and other laws. Subdivision standards related to flooding typically require that lots are adequately elevated with proper drainage and that public facilities are protected from flooding.

### ***Stormwater Management***

Many times, development occurring outside floodplain areas causes increased runoff in downstream areas. Native vegetation, croplands, wetlands and pastures are being replaced by parking lots, streets and buildings. Natural drainage ways are replaced by storm sewers and culverts. These changes to a watershed result in increased stormwater runoff which can produce larger and more frequent floods. A good stormwater management program is designed to reduce existing runoff problems and prevent new runoff from developing. This is accomplished by controlling stormwater where it falls, on-site, through site grading, vegetation areas, temporary storage and other measures.

### ***Acquisition and Relocation***

The acquisition of structures located within the floodplain can decrease hazards associated with flooding. In areas where structures have been acquired and relocated, the land can be used for functions less susceptible to flood damage. While acquisition and relocation of flood-prone property can be expensive, in the long run it can be a very common sense approach to reducing flood damages.

### ***Development Policy***

Communities making wise decisions or policies to prevent construction of public facilities, such as streets, water and sewer, in undesirable areas (such as floodplains), will deter floodplain development. Public facilities, such as recreation areas or open spaces, could be extended into flood-prone areas. Both of these policies can result in reduced flood damage potential.

### ***Tax Incentives***

Tax adjustments for land dedicated to agriculture, recreation, conservation or other open-space uses may be effective in preserving existing floodplains. Unless such concessions are made, flood-prone land adjacent to communities will become more valuable each year as residential or commercial development expands. This could cause taxes of adjacent open land to rise sufficiently where the land no longer can be used profitably for farming or other open uses.

### ***Floodproofing***

Floodproofing consists of modifications to buildings, their sites or contents to keep water out or to reduce the effects of flooding. Although it is more simply and economically applied to new construction, floodproofing can be applicable to existing facilities. Floodproofing may be permanent (bricked-in openings) or contingent upon some action at the time of the flood. There are many different floodproofing measures: elevation, utility adjustments, wet floodproofing (deliberate flooding of basement areas to offset floodwater pressures), anchoring, protective covering, ring dikes or permanent closures.

## **REDUCING THE IMPACT**

The second nonstructural approach to reducing flood hazards includes those activities that attempt to reduce the impact of flooding when it occurs.

### ***Information and Education***

A good information and education program is a prerequisite for successful flood hazard mitigation plans. Local residents who are knowledgeable about flooding and flood hazards are more likely to make wise decisions when it comes to protecting themselves and their property from flood damage.

A community should have a continuous public awareness campaign about flooding to increase and reinforce public knowledge of flood hazards. Public media, such as radio, television and newspapers, can be used to convey the message to the public. Civic organizations or church groups could be presented information and then asked to disseminate that information. Information could be taught to students in public schools where it will filter back to parents. Messages could be included in utility bills, tax statements, newspaper delivery or printed on grocery bags. Warning signs could be positioned on public rights-of-way, warning potential property buyers of a flood hazard or indicating the high water mark of past floods.

### ***Flood Forecasting and Warning***

Reliable and accurate forecasts and warnings of floods can be coupled with timely evacuation to save lives and reduce property losses. While the federal government (through the National Weather Service) is generally responsible for disaster prediction, it is the local government that must be sure the general public is warned in sufficient time to take protective action. Well organized systems to effectively disseminate flood warning information must be established by communities in cooperation with the local County Civil Defense Office.

### ***Emergency Preparedness***

When a flood is imminent, a community can do much to reduce or prevent damages by having an effective emergency operation plan ready for implementation. Emergency flood fighting can involve a variety of activities, including evacuation of floodplain residents, installation of temporary pumping stations for interior drainage behind levees, and sandbag closures for openings in levees or low areas. For serious flood-prone communities, a well-coordinated flood fight would require a sophisticated flood response and recovery plan defining the responsibilities of various departments within the local unit of government, as well as support from various federal, state and private agencies. Equipment and materials necessary for the flood fight effort must be stockpiled in the community or be immediately accessible to the community.

### ***Flood Insurance***

Flood insurance, while not able to prevent flood damage, can repay most of the costs associated with flood damages. Flood insurance is available only in communities who agree to establish floodplain management programs. As such, its benefits are two-fold: property owners can buy reasonably priced flood insurance, and new construction will be safe from future flood damages.

### ***Post Flood Recovery***

Post-flood recovery activities include the restoration of public and private services and a normal lifestyle to individuals who have been affected by the flood. Although these activities do not reduce the amount of direct flood damage, they do reduce the overall impact of the flood by shortening the time of disruption within the community. During this time, communities should proceed cautiously with repair and construction. It is an ideal time to look for "mitigation," opportunities. For example, if a school or other public facility was flood damaged, it could be a good time to install floodproofing devices rather than rebuilding the structure as it was before the flood. This time is also ideal to explore the possibility for relocating severely damaged structures to flood-free locations.

# SELECTING ALTERNATIVES

Throughout the planning process, the community has established objectives to eliminate or reduce its flood problem and reviewed the tools available to meet these objectives. Now is the time to put those items together and select alternative. This section discusses the considerations in matching solutions to problems, suggests implementing short and long-term strategies, and lists sources of assistance.

## MATCHING SOLUTIONS TO PROBLEMS

Before it will work, a plan must be feasible, economical and acceptable. In other words, the plan must be capable of being accomplished, benefits received should equal or exceed the cost of implementation, and the measures implemented must satisfy the objectives set out early in the planning process. In matching solutions to flooding problems, a community must be keenly aware of these conditions and proceed accordingly.

In developing flood hazard mitigation program, professional personnel are very important to assist communities in determining feasibility of projects. Communities do not need full-time staff for this purpose; rather, they can rely on assistance from state or federal government or part-time experts. Ideally, a community would have input from a civil engineer, hydrologist, land-use planner, economist and attorney.

These professionals can help a community decide if a particular flood hazard reduction measure will work. For example, a community may feel levees would be the best way to protect flood-prone areas. After analyzing the project, however, the engineer may determine that the soil conditions in the area would not support levees of the size needed to provide protection, or the community may not be able to afford levees. In these instances, the community has to look for other solutions.

Sometimes, flood hazard reduction measures are feasible and economical but may not be publicly acceptable. For example, suppose the levees previously mentioned were feasible and affordable but unacceptable to neighborhood residents. In this case, land rights could be impossible to acquire and, therefore, make the project unattainable.

Communities can avoid this problem of unacceptability if they have been careful about acquiring the necessary public input and comment throughout the planning process. One of the best ways to do this is to have a "Flood Hazard Mitigation Committee." This committee should be comprised of the experts listed earlier and of citizens with broad representation in the community. Potentially, these citizens might include floodplain residents, zoning commissioners, local officials and businessmen.

The Flood Hazard Committee should be established early in the planning process and take an active part every step along the way: identifying problems, establishing objectives, reviewing flood hazard reduction measures and matching solutions to problems. The committee can also be the driving force behind implementing the program which is discussed later in this document.

The process of matching problems and solutions is a complex one, requiring careful evaluation of all alternatives on the "feasibility, affordability and acceptability" criteria. Compromises may be necessary and, in nearly all cases, a combination of approaches will work best. The decision on how to make the compromises can be recommended by the Flood Hazard Mitigation Committee.

## SHORT- AND LONG-TERM STRATEGIES

Once alternatives for reducing flood damage are selected, a community should plan for their implementation by developing short- and long-term strategies. Short-term measures are those that could be put into effect in a relatively short time period, while long-term measures are those requiring more extensive analysis and preparation before implementation. Each measure in both the short- and long-term strategies should be well described. The plan should identify the person or agency responsible for carrying out the measure, indicate the time-frame for implementation, and explain how the project will be financed.

### *Short-Term Strategies*

Measures such as floodplain regulations, emergency preparedness plans and public information programs can be easily implemented if a reliable delineation of the floodplain has been made. Careful analysis, however, is required before any of these measures will prove effective in reducing damage.

Floodplain regulations are restricted to the amount of technical data available. The less data available, the less stringent the regulations and the less effective the program. Emergency preparedness plans must be coordinated with county and state programs. Public information programs should be a part of short-term strategies. Creating a greater public awareness of the flood hazard and providing even minimal information about potential flooding enables people to take flood risk into account in making decisions on future development. It also helps create public interest in participating in the study of longer-term measures and support for their planning and implementation.

Other measures may also be suitable for short-range plans. When severe flooding occurs, an opportunity may exist for acquiring damaged properties. Careful consideration should be given to all types of measures to ensure identifying all reasonable opportunities.

### **Long-Term Strategies**

Long-term measures are those which generally have to be implemented in phases over a period of years. For example, a measure that calls for a major flood control work to be constructed by the Corps would take several years to accomplish, or an acquisition/relocation program may first require a community to restructure its capital improvements program to raise the necessary funds to finance a project.

The formulation and implementation of long-term flood hazard reduction measures usually requires a reevaluation of the selected alternatives (or combination of alternatives.) This evaluation should eliminate impractical or uneconomical measures and develop cost-effective designs for others. The process must address key issues:

- \* Potential for funding, including assistance from state and federal sources.
- \* Whether the measure can be successfully used with the physical, legal, financial and other existing restraints .
- \* Extent to which the measure will achieve established objectives.
- \* Acceptance by the public.
- \* Compatibility of the measure with community goals other than floodplain management.

Determining which measure to include in a flood hazard mitigation program can be approached by developing and comparing alternative programs. It may be necessary to consider as few as two or more than a dozen alternatives to evaluate the most effective combinations of possible measures.

Comparing the alternatives may make it apparent that some combinations of measures are clearly inferior to others and should be dropped from further consideration. Others may be reasonably satisfactory or even superior, except for some particular problem that can be corrected through a minor adjustment.

### **SOURCES OF ASSISTANCE**

Communities interested in developing flood hazard mitigation plans can receive advice and assistance from several state and federal agencies (See agency list below.) Communities may also contact other sources for assistance: water resource boards, regional planning councils, local colleges or universities, professional organizations or civic groups. All have an interest in flooding and are willing to work to develop a mitigation program.

#### **STATE AGENCY**

**Oklahoma Water Resources Board**  
3800 N. Classen  
Oklahoma City, Oklahoma 73106  
(405) 530-8800 (405) 530-8900 FAX

#### **FEDERAL AGENCIES**

**Federal Emergency Management Agency**  
**Natural Hazards Division, Federal Regional Center**  
800 N. Loop 288  
Denton, TX 76201-3698  
(817) 898-5334, (817) 898-5121 FAX

**Natural Resources Conservation Service - State Office**  
USDA Agricultural Center Building  
Stillwater, OK 74074  
(405) 624-4404, (405) 642-4409 FAX

(Federal Agencies continued)

**U.S. Army Corps of Engineers**  
**Tulsa District**  
ATTN: CESWT-EM  
P.O. Box 61  
Tulsa, OK 74121-0061  
(918) 669-7197, (918) 669-7546 FAX

**U.S. Department of Interior**  
**Geological Survey, Water Resources Division**  
Broadway Executive Park, Building 7  
202 N.W. 66th  
Oklahoma City, OK 73116  
(405) 231-4256 Business  
736-4256 FTS, (405) 231-5079 FAX

# HAZARD MITIGATION IMPLEMENTATION: MAKING IT WORK

No flood hazard mitigation plan will work unless the community is truly committed to its implementation. This requires allocation of both financial resources and manpower to ensure that selected alternatives recommended by the Flood Hazard Mitigation Committee are carried through. It also requires follow-up to ensure that measures are properly operated and maintained once they are implemented.

The first step in implementing a flood hazard mitigation plan is to have it formally adopted by the local governing body, such as the City Council. The plan, as recommended by the Flood Hazard Mitigation Committee, is presented for final review to local officials. Formal adoption should not be a problem if adequate coordination and public participation have been part of the planning process.

How the mitigation plan is implemented varies for the different measures identified.

## REGULATORY/POLICY MEASURES

Measures which involve policy changes or new regulations are largely a matter of formally adopting ordinances or incorporating flood hazard considerations into policy procedures. For example, a community which has selected an alternative requiring more restrictive building standards in floodplains must prepare an ordinance incorporating those standards, develop an administrative procedure to carry out and enforce the new regulations, and have the ordinance formally adopted.

If the recommended alternative is a policy change to restrict floodplain areas to open space uses, it will likely be necessary for a community to change its zoning ordinance and add this new objective to its comprehensive plan.

Maintenance of regulatory measures is usually done on a daily basis through the enforcement procedures established (permits and inspections). Annual review of the overall program should be conducted, however, to identify areas where improvements are needed.

## FLOOD WARNING AND PREPAREDNESS

Measures which are designed to help a community prepare for, fight and recover from a flood are primarily organizational in nature. The major step in preparing for the implementation of these measures is to develop detailed plans of action which describe what is to be done in each measure and assign responsibility for its accomplishment. Developing detailed plans of action requires technical skills and experience not always available in the community. These plans can be developed through a joint effort with state and federal agencies. Once that is accomplished, the plans of action (flood warning, flood fighting and recovery) can be formally adopted by a community and the necessary equipment and supplies stockpiled or prepared for use.

## PUBLIC WORKS

Projects involving major public works, such as the construction of dams or levees, acquisition of flood-prone property or floodproofing public buildings, are normally part of a long-term strategy and can be costly and complex. Such projects are often carried out in cooperation with state or federal agencies.

Construction of a large flood control structure requires acquiring the necessary lands, arranging for financing, contracting for construction and planning for operation and maintenance. Floodplain acquisition projects may require both purchasing lands and structures and modifying the site to facilitate the long-term use of acquired lands. Relocation projects involve acquiring the area to be cleared, acquiring and preparing the area to which any structures are to be moved, moving or demolishing structures, and cleaning up the site.

## PRIVATE MEASURES

Several measures identified in a flood hazard mitigation plan may have to be implemented by individuals or private firms. These might include measures for floodproofing residential structures, applying good soil conservation practices or paying flood insurance premiums. A community's major responsibility in the implementation of these measures is to maintain a good public education/awareness program.

The public participation program put in place at the beginning of the planning effort can be modified to carry out informational programs that encourage private sector action and advertise available assistance.

## OPTIONAL MEASURES

Planning considerations are outlined for communities in NFIP regulations.

Planning considerations for flood-prone areas (Section 60.22).

- (a) The floodplain management regulations adopted by a community for flood-prone areas should:
- Permit only that development of flood-prone areas which (i) is appropriate in light of the probability of flood damage and the need to reduce flood losses, (ii) is an acceptable social and economic use of the land in relation to the hazards involved, and (iii) does not increase the danger to human life; and
  - Prohibit nonessential or improper installation of public utilities and public facilities in flood-prone areas.
- (b) In formulating community development goals after the occurrence of a flood disaster, each community shall consider:
- Preservation of the flood-prone areas for open space purposes; Relocation of occupants away from flood-prone areas;
  - Acquisition of land or land development rights for public purposes consistent with a policy of minimization of future property losses; and
  - Acquisition of frequently flood-damaged structures.
- (c) In formulating community development goals and adopting floodplain management regulations, each community shall consider at least the following factors:
- Human safety;
  - Diversion of development to areas safe from flooding, in light of the need to reduce flood damages and prevent environmentally incompatible floodplain uses;
  - Full disclosure to all prospective and interested parties (including, but not limited to, purchasers and renters) that (i) certain structures are located within flood-prone areas, (ii) variances have been granted for certain structures located within flood-prone areas, and (iii) premium rates applied to new structures built at elevations below the base flood substantially increase as the elevation decreases;
  - Adverse effects of floodplain development on existing development;
  - Encouragement of floodproofing to reduce flood damage;
  - Flood warning and emergency preparedness plans;
  - Provision for alternative vehicular access and escape routes when normal routes are blocked or destroyed by flooding;
  - Establishment of minimum floodproofing and access requirements for schools, hospitals, nursing homes, orphanages, penal institutions, fire stations, police stations, communication centers, water and sewage pumping stations, and other public or quasi-public facilities already located in the flood-prone area, to enable them to withstand flood damage and facilitate emergency operations;
  - Improvement of local drainage to control increased runoff that could increase the danger of flooding to other properties;
  - Coordination of plans with neighboring communities' floodplain management programs;
  - The requirement that all new construction and substantial improvements in areas subject to subsidence be elevated above the Base Flood level equal to expected subsidence for at least a 10-year period.
  - For riverine areas, requiring subdividers to furnish delineations for floodways before approving a subdivision;
  - Prohibition of any alteration or relocation of a watercourse, except as part of an overall drainage basin plan. In the event of an overall drainage basin plan, provide that the flood carrying capacity within the altered or relocated portion of the watercourse is maintained;

- Requirement of additional elevation above the Base Flood level for all new construction and substantial improvements within Zones A1-30 and AE on the community's FIRM to protect against such occurrences as wave wash and floating debris, to provide an added margin of safety against floods having a magnitude greater than the Base Flood, or to compensate for future urban development;
- Requirement of consistency between state, regional and local comprehensive plans and floodplain management programs;
- Requirement of pilings or columns, rather than fill, for the elevation of structures within flood-prone areas to maintain the storage capacity of the floodplain and to minimize the potential for negative impacts to sensitive ecological areas; and
- Prohibition, within any floodway or coastal high-hazard area, of plants or facilities in which hazardous substances are manufactured.

# PROJECT IMPACT

## INTRODUCTION

Project Impact (PI) is a new initiative that FEMA is promoting to build disaster resistant communities. James Lee Witt, Director of FEMA, has taken a very strong stand to try and reduce the cycle of disaster losses and subsequent repair, time after time. Due to the rising cost of rebuilding, PI was conceived to help reduce the cost of large scale disasters. PI is another way where governments and the private sector can partner to help reduce government spending after disasters through mitigation initiatives. Mr. Witt's goal was each state have a disaster resistant community by October 1, 1998. Tulsa has been named the first Oklahoma Project Impact Community and FEMA is recommending other communities in the nation look to Tulsa as the example PI Community. Communities are encouraged to look at ways to mitigate against future disasters caused from earthquake, floods, high winds, wild fires and tornadoes. The adoption and enforcement of a standard building code is one way communities could start the disaster resistant process

### A LETTER FROM FEMA DIRECTOR

Each day, natural disasters destroy our communities and affect the lives of our families, neighbors and friends. While we can't stop natural hazards, we can change the way America deals with disasters. Project Impact: Building a Disaster Resistant Community is an initiative that challenges the nation to undertake actions that protect families, businesses and communities by reducing the effects of natural disasters.

Reducing the effects of natural disasters makes economic sense, and it is good public policy because it protects our citizens and our future. The collaboration, preparation and prevention found in Project Impact should be the way in which our nation, our states and our communities conduct their day-today business.

This article gives an overview of Project Impact and the things you can do as an individual - whether you are a business owner, a member of a civic or volunteer organization, acting on your own or as a government official to contribute to this exciting initiative.

Please join us by helping your community and communities around the nation protect themselves from disasters. Working together, we can forever change the way America prepares for and prevents the effects of disasters.

*James L. Witt, Director, Federal Emergency Management Agency*

## BUILDING A DISASTER RESISTANT COMMUNITY

Lives can be saved, damage to property reduced and economic recovery from disaster accelerated by taking action BEFORE the waters flow, the winds howl, the fires rage or the ground shakes.

FEMA and the other federal agencies responsible for disaster assistance are committed to reducing disaster losses. However, we cannot do it alone.

Project Impact seeks to change the way America deals with natural disasters. The goal of Project Impact is to reduce the personal and economic costs of disasters by bringing together community leaders, citizens and businesses to prepare for and protect themselves against the ravages of nature. This effort is an investment that will enhance and strengthen the economic structure and long-term stability of your community, regardless of when disasters strike.

You can make a difference. As an individual - whether you are a business owner, a member of a civic or volunteer organization, acting on your own or as a government official - you can play an important part in keeping your family, business and community safe. By working together through Project Impact, there are steps we can all take to reduce our vulnerability and to transform our own community into a disaster resistant one.

## **WHY DO WE NEED PROJECT IMPACT?**

Disasters occur in every state in the U.S. The direct costs are staggering, but perhaps more devastating are the indirect and long-term consequences. It takes years for local governments, businesses, and citizens to recover emotionally and financially. The long-term impact of disasters can be felt for years through lost jobs and a depressed economy that result from the need to redirect vital community resources from investments in the future to replace the losses of the present.

In many of the communities that have experienced disasters, homes, families and businesses could have been better protected through advance preparation. There are actions that citizens, government and businesses can take to lessen the impact of natural disasters. Project Impact promotes this forward-thinking philosophy so it will become a natural part of how we run our communities.

## **THE FOUR PHASES OF PROJECT IMPACT**

Many of the activities that you and your community should undertake as part of Project Impact may already be underway in some form. Here are steps that you can take to capitalize on the positive forces already at work and channel them into building a disaster resistant community:

### ***I. Building Community Partnerships***

The concept is simple: we can accomplish more as a group than as individuals. You can help by identifying and recruiting Project Impact partners in your community. For the greatest chance of success, the community partnership group should reflect all sectors: local government leaders, civic and volunteer groups, businesses and individual citizens.

### ***II. Assessing Risks***

Once Project Impact partners have been recruited, the first order of business is to examine your community's risks for natural disasters. Then, partners must assess the community's vulnerability to those risks.

### ***III. Prioritizing Needs***

Next, the Project Impact partners should take a close look at the specific buildings and systems that are most susceptible to risk. From this you can target the appropriate resources and prioritize the actions necessary to reduce the impact and aftermath of future disasters.

### ***IV. Building Support and***

Communicating What You Are Doing Keep the entire community focused on the objectives of Project Impact as well as provide on-going opportunities for additional involvement and support by updating citizens and businesses about what the Project Impact partners are doing and how the community will, and is, benefiting from these efforts.

## **WHAT YOU CAN DO NOW**

Like any broad-based community initiative, Project Impact has roles for those who can devote significant time and resources as well as those who are only able to play a small or one-time part. Following are a few examples of the types of things you can do as a supporter or participant in Project Impact:

**Individuals:**

- Conduct a neighborhood meeting to identify vulnerabilities in your area.
- Install storm shutters, remove dead brush and grass from your property, install smoke detectors and residential fire sprinkler systems, raise or floodproof your heating, ventilating and air conditioning units and encourage your neighbors to do the same.
- Purchase flood insurance to cover your home and its contents.

**Business People:**

- Comply with building, fire and other codes.
- Share information with fellow business people about what you've done to protect your business.
- Collaborate and coordinate efforts with nearby businesses.
- Support your local government's initiatives for disaster resistance.
- Encourage and support employees' efforts to participate in disaster resistant community activities.
- Purchase flood insurance to cover your business and its contents.

**Civic and Volunteer Organizations:**

- Take steps to integrate and streamline your disaster relief and recovery activities.
- Host public education forums on the importance of prevention.
- Foster a dialogue with local government and the private sector.
- Adopt a community and help them protect their homes.

**Government Officials:**

- Review policies regarding the construction and maintenance of critical utilities and systems.
- Ensure that regulations and codes are enforced and seek new measures to fill any gaps.
- Invest in the prevention of damage to public infrastructure.
- Host public education forums, soliciting the participation of the local government and Project Impact business partners.
- Encourage similar activities among all arms of local, regional and state governments.

**THE FIRST STEP TO BECOMING A DISASTER RESISTANT COMMUNITY**

Natural disasters permeate every corner of our communities. No individual, business or organization is left untouched. If your community were to suffer the hardship of a natural disaster, everyone would pull together to recover. But imagine if damage could be avoided by taking steps before the disaster. Project Impact is about tapping that same collaborative spirit BEFORE the disaster strikes.

FEMA can provide you and your community with more information about how to become a disaster resistant community. There are many resources available to you -call FEMA publications at 800-480-2520 for the following:

- *Project Impact* Community Guidebook
- *Project Impact* Video to build support in your community and begin to take action

- How-To Mitigation Tools
- Technical Assistance from FEMA personnel
- Prevention and Preparation “Tips” for Individuals, Communities and Businesses

You can also contact your FEMA regional office (listed on page 69 of this Guidebook), or access the FEMA website at <http://www.fema.gov> for more information.

## SUMMARY

Flooding cannot be eliminated. Communities can, however, protect themselves or reduce their flood damages by planning. This chapter has briefly presented a procedure a community may follow to develop a flood hazard mitigation plan.

The process described - defining problems, establishing objectives, reviewing tools, selecting alternatives and implementing programs - may sound simplistic, but in reality it is not. Flood hazard mitigation is a difficult concept that is complicated by the friend who wants to build a basement in the floodplain, by the taxpayer unwilling to vote for a tax increase to finance a stormwater utility fee and by the apathetic citizen who just doesn't care.

It is important to remember that flood hazard mitigation plans are designed for the good of everyone. Undoubtedly, there will be opposition, but mitigation plans - implemented in a consistent, fair manner with true concern for those with the problem - will surely be successful in meeting the objective of reduced flood damages.

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# Chapter 6



## ENFORCEMENT



# INTRODUCTION

To this point, these Guidelines have established the basis for what a floodplain management program must include and the state and local requirements necessary to meet the National Flood Insurance Program (NFIP) requirements. Now that your community is participating in the NFIP, how do you set up your program and make it work? Besides the development permit, there are three major components to a compliant floodplain management program: PUBLIC AWARENESS, PROGRAM IMPLEMENTATION, and ENFORCEMENT.

# ENFORCEMENT

## THE DEVELOPMENT PERMIT

The NFIP and your community's participation is based on the need to review and approve all development and to place certain requirements on development in identified floodplains. The requirements for and a discussion of development permits is presented in Chapter 4.

## PUBLIC AWARENESS

Public Awareness and the need to provide protection from the damage caused by flood are the reasons that the National Flood Insurance Program was established by Congress in 1968. In 1973 it was amended to make the purchase of flood insurance mandatory for new structures built in identified flood hazard areas. The cost of providing repetitive disaster assistance recovery grants to property owners, then allowing them to return to their flooded property to rebuild, and get flooded again, and apply for another grant, was an unwarranted expense to the taxpayers. Public awareness of the need for and the availability of affordable insurance protection, by citizens and elected officials, is part of the reason your community decided to participate in the NFIP.

Public Awareness starts with the public and elected officials and must extend to the furthestmost part of the community. All sectors of the community need to be aware of the risks to their property and how to protect it. The failure of one person to protect his/her property increases the risk to every other taxpayer based on the fact that unprotected property can become a hazard to adjacent property and the cost of providing public services in the event of a disaster can be an unwarranted cost to the rest of the community.

Participation in the NFIP is based on the requirement that floodplain management programs are enforced; both from the standpoint of meeting Federal, State, and Local regulations and by providing access to affordable insurance protection for the residents of the community and their property. Before a floodplain management program can work, all segments of the community must be aware that a permit is required before development takes place in the floodplain.

Lenders provide an excellent initial point of contact to make both developers and borrowers aware of the need for a development permit. Likewise, building material suppliers, concrete companies, water and electric companies, telephone companies, building contractors and trade professionals, health inspectors, propane and natural gas companies, real estate companies and salesmen, surveyors, engineers, architects, insurance agencies and agents and the manufactured home industry all need to know that before development takes place a permit is required as well as how and where to get one. The local Floodplain Administrator is responsible for the day to day administration of the permit system. This responsibility includes ensuring that permits are applied for, reviewed, issued, modified or denied and that proper records are maintained for all floodplain development.

One way to "get the word out" that permits are required is to enlist the cooperation of those individuals and agencies in the community which are directly involved in funding or providing services in the floodplains. This announcement is commonly done by making those individuals aware that permits are required and by enlisting their cooperation and support through a letter of agreement or memorandum of understanding. Several examples of these letters are included at the end of this chapter.

## PROGRAM IMPLEMENTATION

***Why do I need a permit?*** The question most frequently asked by an individual planning to develop is - " Why do I need a permit ? " Participation in the National Flood Insurance Program (NFIP) requires that development, in some cases, be reviewed to ensure that it will be reasonably safe from flooding and that it will not be vulnerable to flood damage. This review is recommended whether or not the development is inside or outside of an identified floodplain. A permit is required if the development is in an identified floodplain. If the development is outside of a floodplain, the review establishes that the project should not flood or cause flooding to someone else. Since the community agreed to implement a permit system when it applied to join the NFIP, it follows that FEMA expects the community to implement and enforce the permit requirement.

***Where do I get a permit?*** The local floodplain administrator who is responsible for administering the program can provide copies of local floodplain regulations, permit applications and permits. Some communities provide free copies of permit applications to lending agencies, utility companies, and the other service providers listed above. In addition to posting individual floodplain map panels (covering less than the entire community), permit applications should be made available in convenience stores, restaurants and cafes in the rural portions of the community. These applications can then be completed by a potential applicant and mailed to the floodplain administrator.

***How much does it cost?*** The cost for application review, if any, is the responsibility of the local floodplain administrator and the governing body to establish. The cost for reviewing an application to determine if a proposed development is or is not in a floodplain varies from \$3.00 to \$25.00. Generally, it is not refundable or credited to the cost of the permit. A high cost for a permit application review is \$100.00, which could be credited to the cost of the permit when issued. Some communities charge a \$25.00 review cost, then charge \$100.00 for issuing the permit. There are some communities which do not charge for the permit application review.

The cost of reviewing a permit application should be based on the cost of making the determination and informing the applicant. The determination process should also be available to anyone in the community including lenders, builders, insurance agents, real estate agents and individual property owners. The cost for the review of all permit applications in order to make a floodplain determination should be uniform throughout the community.

The cost for a floodplain development permit also varies depending upon local circumstances. Some communities establish a flat or fixed rate while others base the cost on the cost or value of the development. Where they have been established, costs initially are set to cover all of the program operating expenses and adjusted as necessary. Those communities which only charge for development permits in floodplains and do not charge for reviewing permit applications outside of floodplains unfairly place the entire review cost on those who are developing in the floodplains.

The cost for a development permit should be based on the cost of administering the program, including costs for initial review, any site inspections or visits required, administrative costs including clerical, copying, record filing, storage and a percentage for general office overhead.

***What can be done if I don't get a permit?*** When the community applied to join the NFIP it made a commitment to FEMA to recognize and duly evaluate flood hazards and take such official action as reasonably necessary to carry out the objectives of the program. Reasonable action includes the enforcement of the floodplain development requirements enacted by ordinance, resolution or statute. Although one violation of the floodplain management regulations may not seem significant, the cumulative effect of multiple violations can be devastating. Floodplain administrators, floodplain boards and elected officials need to guard against the notion that one small violation will not affect anyone else or cause victimization of the public and that it is allright not to enforce the regulations in this one small case.

Violations of the regulations can lead to the placement of administrative sanctions by FEMA which could deny the availability of flood insurance to everyone in the community and could place their mortgages in default if the purchase of flood insurance was a condition of the loan. In addition, suspension from the NFIP would also deny individual disaster grants and loans in the event of any natural disaster.

## **ENFORCING LOCAL ORDINANCES**

### **THE LEGAL BASIS**

The basis for enforcement of any ordinance/code is the Penalty Section, which prescribes the action local officials can take to enforce the community's ordinance/code.

The authority for state, county or municipal floodplain boards to enforce floodplain management regulations is provided in Title 82 Section 1604 of the Oklahoma Statutes (Appendix B-1).

There are other statutes available to community officials that can be used to assist in the enforcement of floodplain management. These other statutes include Titles 11, 19, 50 and 74. Titles 11 and 74 are for cities and towns, Titles 19 and 74 are for counties and Title 50 is for dealing with public nuisances. Planning, zoning and land use can be regulated through these statutes and through Title 82. More specifically, general authority may be found in Article 22 of Title 11

of the Oklahoma Statutes to abate safety hazards, dilapidated buildings, weeds, trash, junk cars and unsanitary conditions. In summary, communities in Oklahoma have the basic legislative tools to deal with situations that may jeopardize their floodplain safety.

There are important reasons why your community must enforce its floodplain management ordinance. First and foremost is the need to protect the lives and property of the community's residents, both present and future. Second is the need to meet state and federal requirements agreed to when the community applied to participate in the NFIP. Your community has the same responsibilities and enforcement powers for floodplain management as it does for other code-related violations (such as Fire/Building/Electrical and Plumbing).

Although one violation may not cause a measurable increase in risk or damage, the cumulative effects can be devastating. By allowing violations to go unabated, the community creates an atmosphere and establishes precedent that may make future enforcement much more difficult. It is imperative that the community actively enforce its floodplain management ordinance to insure that all new development is compliant and to protect existing development from the increased risk of flooding.

## **TYPES OF VIOLATIONS**

Over 350 communities in Oklahoma have adopted floodplain management ordinances which regulate development and establish special conditions for development in the floodplains.

Development in the floodplain falls into 9 categories, **construction, mining, dredging, excavating, drilling operations, filling, grading, excavating, paving and storage.**

It is important for the enforcement official to know what constitutes each of these activities and the impact of those activities which do not meet the requirements of the community's ordinance.

### ***Construction***

Construction is the act by which land is changed by the intervention of man or any man-made change to improved or unimproved real estate. Construction is commonly applied to the erection of buildings and other structures, however, it also includes any action that results in a man-made change to the existing character of a parcel of land.

Floodplain construction may take several forms:

- a. Construction, reconstruction, repair, replacement, rehabilitation or any addition to a building;
- b. Installing a manufactured home on a site or installing a travel trailer or recreational vehicle on a site (for more than 180 days);
- c. Construction or erection of levees, dikes, walls and fences; and
- d. Mining, dredging, drilling operations, construction of roads, bridges, boat ramps, jetties or similar projects.

Any of these activities may impact floodplains in several ways, as shown in the table on the following page.

### ***Filling***

Filling is the act by which a parcel of land is built-up by the placement of earth, gravel or man-made substance (i.e., concrete, rubble, trash, etc.).

Placing fill in a floodplain reduces its capacity to store water and can result in higher flood elevations or increased velocities elsewhere in the community, thereby causing new or increased damages.

### ***Grading***

Grading or regrading is the act of sloping or shaping the earth's surface. It may be for creating hills or berms or sloping to provide for positive drainage.

<b>ACTIVITY IMPACT COMPARISONS</b>				
	<b>Potential Impacts</b>			
<b>Type of Activity</b>	Flood Conveyance	Flood Storage	Building Protection	Structural Integrity
Construction	X	X	X	X
Reconstruction			X	X
Repair		X	X	X
Placement	X	X	X	X
Additions	X	X	X	X
Manufactured Homes and Recreation Vehicles	X	X	X	X
Mining, Dredging, Drilling, Excavation	X	X		
Utilities, Roads, Levees, Bridges and Floodwalls	X	X		X
Fences and walls	X	X		

Figure 6-1

While grading may not affect storage, it can block conveyance. In addition, grading to remove meanders from a stream or clearing out a channel bottom may cause the velocity of the stream to increase. Increased velocities can increase the danger to lives, increase damages to buildings and structures, and cause erosion.

**Excavating**

Excavating is the act of removing a portion of the floodplain.

Excavation may involve the removal of soil completely from the floodplain or depositing it in another portion of the floodplain. If the borrow material is placed in another part of the floodplain, conveyance could be affected. In addition, excavation could seriously affect stream or water quality or downstream erosion.

**Paving**

Paving is the act of hardening the surface of a parcel or part of a parcel of land, most often with man-made materials.

While paving may not directly affect the flood elevation at the site, it can increase the run off and velocity which can create downstream erosion and increased flood heights.

**Storage**

Storage includes placing supplies, materials or equipment below the base flood elevation in a floodplain. The community should pay particular attention to the storage of toxic, flammable and buoyant materials since they pose a threat to human life and safety.

Buoyant materials pose a threat since they can be washed into a downstream structure causing a damming effect and additional damage to other structures. The community should also pay attention to the means of elevating stored materials to assure that the means are structurally sound and secure. Structural failure could lead to the loss of life and property.

Anchoring is one of the more important forms of securing structures both in and out of a floodplain.

Preventing increased damage is the primary objective of floodplain management. To accomplish that objective, any type of activity which could block or divert water, increase velocities, or send floodwater onto properties that would not otherwise be flooded must be regulated. It is the community's responsibility to review and evaluate the impact of all floodplain development and to approve and permit only that which meets the requirements of the local floodplain management regulations. The community is responsible to prevent the negative effects of unwise and/or improper development in the floodplain.

## **RESOLVING A VIOLATION**

The ways to resolve a violation are as varied as the types of violations which may occur. There are, however, two common threads which hold all violations together:

- Either the violator did not obtain a permit prior to construction; or
- The violator did not follow the requirements of the approved permit application.

In either case it is the community's responsibility (normally the Floodplain Administrator) to ensure that the regulation requirements are met.

## **DISCOVERY, NOTIFICATION AND INSPECTION**

Once a community has discovered or received notification of a possible violation, an inspection should be scheduled. This action may be as simple as stopping and talking to the violator and receiving his/her assurance that the violation (dumping trash or fill in a drainage ditch or failing to post his permit) can and will be corrected on the spot.

If the violation cannot be resolved on the spot, the inspector may need to check the code and site information before visiting the site. Essential information includes:

1. Legal description of the property;
2. Property owners name and address along with any property identification numbers;
3. Flood Insurance Rate Map (FIRM), Flood Boundary Floodway Map (FBFM) and/or Flood Hazard Boundary Map (FHBM);
4. The base flood elevation; and
5. The lowest floor elevation on the property.

If there is an active permit, the inspector may enter the property. However, if there is not an active permit, the owners or occupants permission must be received prior to entering private property.

If the inspector is able to talk to the property owner, he/she may wish to hold an informal meeting and register the community's concern or determine that no violation has occurred. If the inspector is able to resolve the violation through this type of meeting and discussion, the community is ahead of the game and the public has been well-served. However, the inspector must keep a record of his conversation and the meeting because they could be used later in court.

If permission to enter the property is not obtained, the inspector should make a note in his/her records and leave the property. The inspector may inspect the property from any site accessible to the general public, such as roads, bridges or parks. The inspector may also inspect the site from adjacent property if the adjacent owner gives permission.

Under no circumstances should the inspector force his/her way onto the property or gain access through intimidation. If access is denied, discuss the next means of action with the appropriate supervisors or the municipal/district attorney.

## SAMPLE VIOLATION PROCEDURES

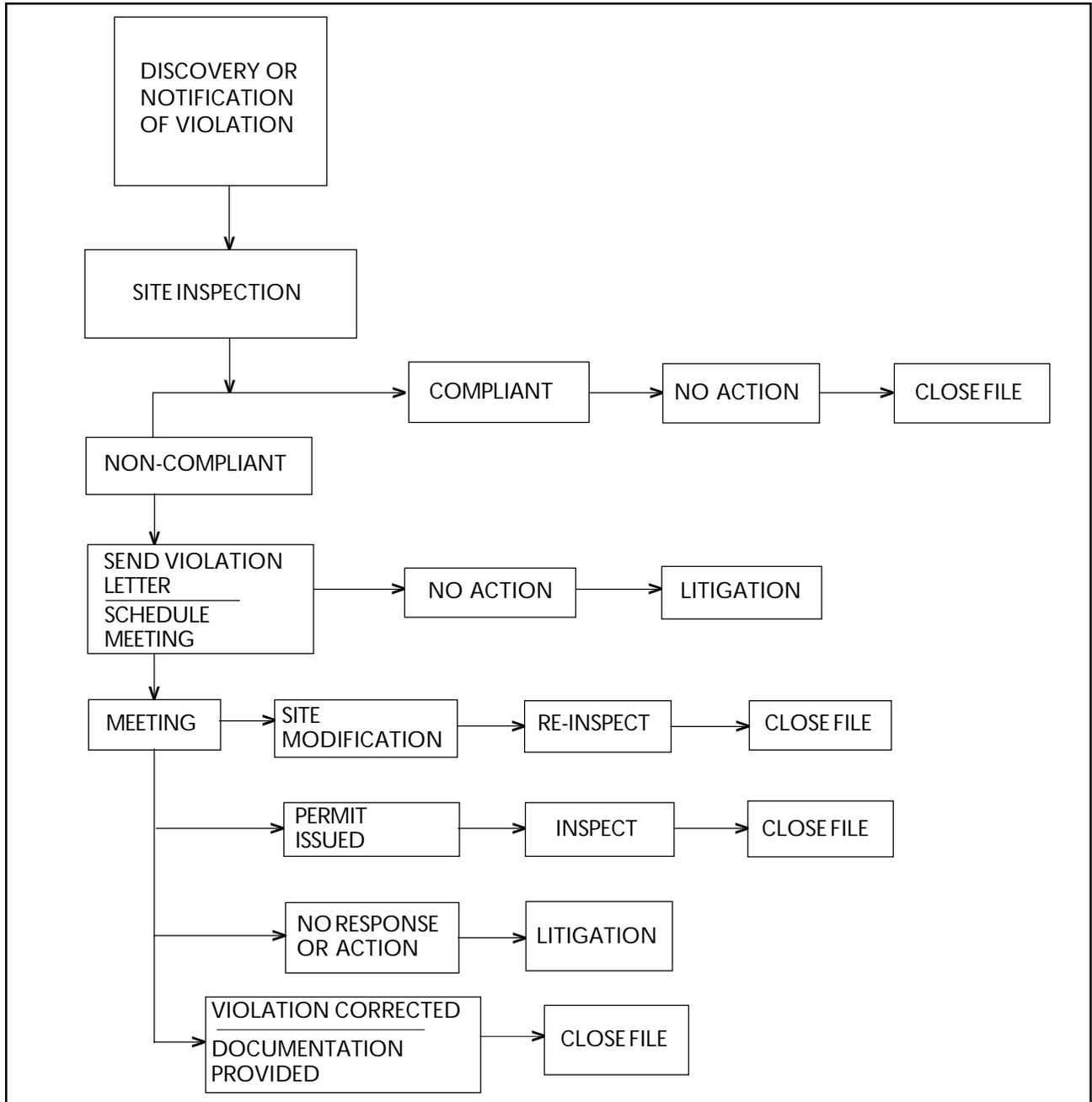


Figure 6-2

Once assured that a violation may be taking place, consult and get guidance from the municipal/district attorney before taking the next steps:

1. Post a notice of violation and stop work order in a prominent place on the property, clearly visible to anyone who enters the property or the structure; and
2. Send a certified (return receipt requested) violation notice letter and stop work order to the owner of the property notifying him/her of the violation and the applicable part of the community's regulations that is violated as well as the remedies required to abate the violation and remove the stop work order.

Posting the notice and sending the stop work order could be risky and questionable unless they are authorized in the state law.

Violation notices should always be sent by certified mail, with a copy of the receipt and the letter placed in the file. Often, violations have been dismissed in court because the community could not prove that the violator had been notified. If the violator refuses to sign the receipt, then it may be necessary to have the notice delivered by a law officer or two staff members (one to serve as witness). The notice should also specify a date by which the owner must respond to the notice. The period of time must be reasonable and should be based on the potential threat to life/property. This date establishes the timing for additional action.

## VIOLATION MEETING

Assuming that the property owner wishes to clear up the violation (no-action will be discussed later under litigation), a violation meeting should be scheduled as soon as possible. The stop work order should remain effective until the violation is resolved.

The enforcement official should be prepared for all eventualities, from voluntary removal of the violation through the worst case scenario, litigation. Explaining the possible ramifications of the violation may go a long way in convincing the violator to remove the violation without the need for litigation. Again, it is very important to keep a record of what was said at the meeting(s) as this information could be used later for a court record.

**REMEMBER - Litigation is the most time-consuming and costly method of abating a violation. It may be the only way that a violation can be abated but SHOULD BE USED ONLY WHEN ALL OTHER EFFORTS FAIL.**

Lets look at several violation scenarios and how you might deal with them.

### EXAMPLE A

**Violation:** Fill in floodway - No Permit

1. Too much fill put into floodway to repair erosion damage.

#### Possible Abatement Options:

##### Option A:

**Remove Fill** - If removal of the fill is the option that is used, it may entail more than removing a pile of dirt. If the fill has been graded and the original "natural" elevation can no longer be discerned, you will have to determine (as near as possible) the original elevations and slope. Then, you must require that the violator remove the fill only to that elevation and slope.

##### Option B:

**Leave Fill** - If the option, which you agree on, is to leave the fill in place and have the violator apply for a permit and get a Letter Of Map Revision (LOMR), then you must give him/her copies of all pertinent application forms and establish a specific date by which you must receive all applications and data. You then need to coordinate your response with all other applicable agencies and inform the Oklahoma Water Resources Board and FEMA in writing of your actions. You must monitor the situation and be ready to fall back to Option A if the violator fails to meet his/her part of the agreement.

If you do not receive the permit application and LOMR data as agreed, then the violation must be considered active and all violation notices should remain in effect until the LOMR and the permit application are received. You should inform the violator that the violation is still active, provide a second due date for the submission of the data and inform him/her that if the information is not received that the community will initiate litigation.

### EXAMPLE B

**Violation:** Fill in floodplain - No Permit

1. Fill, for low water crossing into a property on the other side of a designated floodplain, is being placed without a permit with no drainage openings.

## Possible Abatement Options:

### Option A:

**Remove Fill** - Although removal of the fill would abate the violation, it could cause considerable inconvenience (not a hardship) to the property owner and only delays the final decision regarding an otherwise valid land use, when properly permitted. Additional factors such as the effect of removal, possible replacement and the potential for damage from the existing fill on the water quality of the stream must be evaluated before the meeting with the property owner.

### Option B:

**Leave Fill** - The fill will have to be removed until its effect on the base flood elevation is determined and construction plans approved by the community and a permit issued. At the meeting, the violator proposes to breach the illegal fill but not remove all of it. If the permit is not approved, he will remove the remaining fill. If the permit is approved, he would not have to bear the cost of returning that portion of the fill which he proposes to leave in place temporarily. As the enforcement official, you determine breaching the fill would relieve the threat of flooding to adjacent properties and not increase the base flood elevation, and accept his proposal based on his providing construction plans and apply for a development permit within 10 working days. It is very important to keep a record of what was said at the meeting as this information may have to be entered as part of a court record. Also make sure that the property owner is aware that the violation will be pursued if the conditions of the agreement reached at the meeting are not met.

## EXAMPLE C

**Violation:** Single-family dwelling was not constructed to required elevation.

A single-family dwelling was built with its lowest floor (including basement) 3 ft below the elevation required by the local ordinance and is now 1 ft below the Base Flood Elevation (in violation of both the local ordinance and FEMA regulations).

## Possible Abatement Actions:

### Option A:

**Elevate Structure** - If the structure was built over a basement or crawl space, elevation may not be a viable option. If the structure has been built on slab, elevation may be an option but probably more expensive. Special care must be taken to ensure that the new elevation meets the elevation requirements of the ordinance.

If the structure is built over a basement, then the first floor may be at or above the ordinance elevation which may be more than the minimum FEMA requirement. If this is the case, you may wish to require that the basement be abandoned and filled. This option could be accomplished by moving all heating, plumbing and utilities and utility equipment to the first floor or higher and back-fill the basement.

### Option B:

**Allow Structure to Remain** - If you agree that the structure should remain on the site as is, then several actions should be taken:

1. The violator must be required to floodproof the structure to the maximum extent possible and submit a certified elevation certificate, a floodproofing certificate and a copy of a letter requesting rating or re-rating of the structure for flood insurance purposes to the community and to the State Coordinator's office.

2. The violator should file a notice with the County Clerk notifying any future purchasers that the property does not conform to the floodplain development requirements of the community. A copy of the notice should also be filed with the title abstract. This option should be considered only if all the requirements of the ordinance cannot be met.

3. The community should request a 1316 action under the provisions of Part 73 of the National Flood Insurance Program regulations if the structure cannot be brought into compliance. (See Appendix D-18)

### Option C:

**Demolish Structure** - Although demolition would not normally be required for a structure with the lowest floor (including basement) 1 ft below the base flood elevation outside of a designated floodway, this is an option that must

be considered. If the structure were in a floodway or more than one foot below the base flood elevation, demolition becomes a more appropriate option.

When determining what action your community should take in abating violations, you should remember that normally the agency does not have the authority to enter someone's property to correct a violation or to order another agency or contractor to perform the work. Always discuss the community's options with the community's legal counsel prior to taking or agreeing to any action. **Remember, if the structure remains, the community will eventually be providing emergency community services and possibly other financial assistance to the residents.**

The scenarios mentioned above are only three of many types of floodplain violations which a community may discover. The particular response should be tailored to each situation, but two things must always be kept in mind: **Violations of the community's floodplain management ordinance will eventually lead to increased damages and possible loss of life; ENFORCEMENT OF THE ORDINANCE IS YOUR RESPONSIBILITY.**

## **OTHER ENFORCEMENT OPTIONS**

There are two other enforcement actions that a community can use in gaining compliance with its ordinance:

### ***The Ticket Approach***

Several communities have begun using the citation or "ticket" approach to enforce zoning and floodplain development requirements. If the floodplain ordinance permit requirement falls under the zoning or building code requirements, then the "ticket" approach is feasible. If violations of the floodplain ordinance are declared to be public nuisances, the "ticket" approach is also feasible. This system should mirror local zoning and nuisance enforcement techniques that already exist in most communities.

If the community has a floodplain board or has assigned those duties to a planning or zoning board or uses a board of adjustment, it can use that system and procedure to hear appeals from and review any order, requirement, decision or determination made by any official charged with enforcing the floodplain requirements.

As for procedural questions, once the citation (ticket) is issued, the person charged may appeal the citation through the system adopted by the community.

There are limits on the types of penalties that can be imposed. A misdemeanor offense is punishable by imprisonment in a county jail not exceeding one (1) year or by a fine not exceeding five hundred dollars (\$500.00), or both fine and imprisonment. Where punishment is not prescribed, local counsel should be obtained if such actions are seriously considered or become the action of last resort.

### ***Recording Violation Notices***

Another option that a community may use to gain compliance is recording the violation notice in the County Clerks Office. This recordation has the effect of clouding the deed to the property, so that the Title Insurers may not be willing to insure the title until the violation is removed. Typically, a Title Insurer may require the property owners to certify that certain conditions are met prior to transfer of title. One condition typically is that "No notice of any structural code violations for the premises issued by any governmental agency has been received by the grantor within the past 10 years."

In determining whether to use this option, the enforcement official should determine whether the action will have the desired effect of encouraging the removal or abatement of the violation. The best way to record the violation should be discussed with legal counsel. This option should not be used if, in the opinion of the enforcement official, there will not be a transfer of the property in the near future (three years or less is recommended). This option should not be used unless you intend to follow through with the recording of a violation letter.

## **LITIGATION**

**IF ALL OTHER MEANS OF OBTAINING COOPERATION IN REMOVING OR ABATING A VIOLATION FAIL**, then the final step is to request the Municipal Attorney or the District Attorney to initiate legal action against the violator.

Prior to taking the case to the attorney, the enforcement officer should make sure that the chronology and the documentation of past action is in order and easily discernible including significant dates, actions taken and matters discussed. An inspection and meeting record should be attached, outlining the course of action taken up to this point.

When taking the case to the attorney, the enforcement official should have a clear idea of the type of resolution being requested. This organization will assist the attorney in determining the course of action to be pursued, such as demolition, restoration or another type of violation resolution.

Prior to actually filing a complaint, the attorney may wish to send a letter to the potential defendant outlining the charges and giving the defendant 30 days to respond. If successful, this will gain compliance without going through the long, tedious and costly effort of a court case.

If the attorney's actions fail to gain compliance, the enforcement official must be ready for a trial. This means either being ready to give testimony and/or lining up "expert witnesses" to give testimony. In these efforts, the enforcement official should follow the lead of the attorney who will actually prepare and present the case in court.

The enforcement official is the best witness in any floodplain violation case. He/she has:

1. The best working knowledge of the ordinance;
2. First-hand knowledge of the case;
3. Documents needed for witness corroboration (photos, eye witness accounts in writing, ordinances, etc.); and
4. Knowledge of the chain of custody of evidence (can verify that evidence has not been contaminated, altered or changed).

The community may also wish to obtain "expert witnesses" to further clarify the community's position and the effects of non-compliance. Expert witnesses may be paid consultants with knowledge regarding violations of this type or officials from other communities with experience in these matters. It is important to explain to the court how the witnesses relate to this case and their area and field of expertise.

## **SECTION 1316 - DENIAL OF FLOOD INSURANCE**

Section 1316 of the National Flood Insurance Act of 1968, as amended, provides for denial of flood insurance coverage for any property which the Administrator finds has been declared by a duly constituted State or local authority to be in violation of state or local floodplain management regulations which are intended to discourage or otherwise restrict land development or occupancy in flood-prone areas. Refer to Appendix D-18 for a discussion of 1316.

## **STATE ROLE IN COMPLIANCE EFFORTS**

The NFIP regulations state that it is the community's responsibility to enforce the requirements of its floodplain management ordinance and other more restrictive regulations of the state.

Help in dealing with a violation and a violator is available from the Oklahoma Water Resources Board. Staff will work with you to determine the best way to deal with the violation problem.

## **EXAMPLES OF LETTERS OF AGREEMENT AND MEMORANDUMS OF UNDERSTANDING**

The following are excerpts from several letters that reflect the commitment being sought from and provided by lending institutions. The letters are in response to meetings held with the lenders. The Floodplain Administrator reviewed the National Flood Insurance Program requirements and the community's ordinance requirements at a briefing/meeting with the lender which ended with a request for a Letter of Agreement from the lender.

## **FROM LENDERS**

"Thank you for your visit and please accept this letter as the confirmation by our bank that we will require building permits to be obtained by any borrower before this bank will participate in the financing of any building project or projects in \_\_\_\_\_ County."

" Please be advised that the \_\_\_\_\_ Bank and Trust Company has adopted the following lending practices in regards to property located in flood designated areas:

1. Notice to the borrower of Special Flood Hazard Area is to be given within 10 days prior to loan closing stating that property described which is to be mortgaged will be located in an area designated by the Director of the Federal Emergency Management Agency as a Special Flood Hazard Area. This area delineated on a Flood Insurance Rate Map or the Flood Hazard Boundary Map indicated for the community in which the property is located. ....

### **2. NOTICE TO THE BORROWER ABOUT FEDERAL DISASTER RELIEF ASSISTANCE:**

(A) Notice in Participating Communities

(B) Notice in Nonparticipating Communities

This Notice shall be given prior to closing of any mortgage and must accompany receipt of flood insurance along with a building permit from the local governing authority establishing that borrower has permission to build in area." (emphasis added)

"This will confirm our bank's intent to request from your board [the Floodplain Administrator] before doing any construction lending for our customers in \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_." [names of communities withheld]

"To aid you in monitoring construction county wide we will require building permits be issued, and a copy retained in the loan file, prior to the consummation of a construction loan (provided the loan is to construct insurable improvements as defined by FEMA).

## **FROM A WATER DISTRICT**

" \_\_\_\_\_ Water District Number \_\_\_\_ will provide assistance to the Floodplain Administrator as requested. It is my understanding that when an application for new water service is requested, we will determine if the location is within the designated flood plain area. If the location is in the flood plain area, as designated on the maps which we will receive from you, the applicant will be instructed to furnish the Water District with a building permit before water service is installed."

## **FROM A COUNTY HEALTH DEPARTMENT**

"The Environmental Health Section is concerned about issues such as this and we think a cooperative effort between our office any your Board would be mutually beneficial.

Therefore, this office will request the presentation of the appropriate permit when performing our normal duties. Any violations of the ordinance will be reported to your office in exchange for any water , wastewater or pollution construction of which you may be aware."

## **FROM AN ELECTRIC COMPANY**

"....the \_\_\_\_\_ will not provide permanent electrical service to any newly constructed building until receiving proof of such permit."

# Chapter 7



## PROFESSIONAL DEVELOPMENT

REFERENCE - APPENDIX F



# INTRODUCTION

Flood losses each year in the nation and in Oklahoma total more than all other natural hazard losses, yet the day to day management of the floodplain takes less than a top priority in many communities. Floodplain management becomes a very important issue after a flood disaster when community officials ask for government assistance such as federal disaster assistance. Various benefits are made available to communities participating in the National Flood Insurance Program. These communities have entered into an agreement with the Federal Emergency Management Agency to enforce building standards in flood hazard areas for flood loss reduction. The benefits are two fold, one -- affordable flood insurance backed by the federal government is made available and two -- low interest loans and grants can be obtained by qualifying applicants. The local floodplain administrator or manager is saddled with the responsibility of making this program work.

This local floodplain official needs to be respected and looked at favorably by his/her superiors if he/she will have success in implementing this program at the local level. Doing this is no easy matter considering all the other day to day business a city, town or county goes through in a normal, routine day. FEMA has developed a 5 day course entitled "Managing Floodplain Development Through the National Flood Insurance Program" which is taught at the National Emergency Training Center in Emmitsburg, Maryland. This course covers in detail the history of floodplain management and why it is important. It explains the flood insurance side of the program and how it relates to floodplain management. How to set up and run a floodplain development permitting system is explained in detail. The minimum standards under the NFIP are covered as well as setting up more stringent regulations. It provides details of how other communities have set up more stringent regulations. Appendix F-1 provides a general admissions application to the Emergency Management Institute (EMI) at NETC. For more information concerning courses offered or class schedules contact the NETC Admissions Office at (301) 447-1000.

In Oklahoma, the Oklahoma Water Resources Board teaches this course annually so that more Oklahoma Floodplain Managers can be trained each year. The course is limited to 36 individuals. There is no registration fee for taking this course. For more information about this course contact the OWRB at (405) 530-8800.

# ORGANIZATIONAL DEVELOPMENT

## ASSOCIATION OF STATE FLOODPLAIN MANAGERS, INC.

The Association of State Floodplain Managers is an organization of professionals involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and flood preparedness, warning and recovery. The group has become a respected voice in floodplain management practice and policy in the United States because it represents the flood hazard specialists of local, state and federal government, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources, and others.

### MISSION STATEMENT

The Association of State Floodplain Managers supports comprehensive nonstructural and structural management of the nation's floodplains and related water resources. The ASFPM believes that, through coordinated, well-informed efforts, the public and private sectors can:

- reduce loss of human life and property damage resulting from flooding
- preserve the natural and cultural values of floodplains, and
- avoid actions that exacerbate flooding.

To help reach these goals, the ASFPM fosters communication among those responsible for flood hazard activities, provides technical advice to governments and other entities about proposed actions or policies that will affect flood hazards, and encourages flood hazard research, education and training.

### HISTORICAL PERSPECTIVE

As with many organizations, the Association of State Floodplain Managers (ASFPM) was formed to present a united front to a common "enemy." In the 1970's, the National Flood Insurance Program (NFIP) had both a positive and negative impact on state programs. The NFIP encouraged good floodplain management, something the states supported, but it was based on mapping that often ignored or even violated state standards.

The issuance of a policy on state reviews of flood insurance maps proved to be a catalyst. Five of the six states in Region V (Illinois, Indiana, Ohio, Michigan, Minnesota, Wisconsin) had statutory authority that affected regulatory mapping. Several of them had floodplain management programs that pre-dated the NFIP. It appeared that the federal government was disregarding state law as well as neglecting important allies in working with local governments. In 1976, the NFIP Coordinating offices from the six states formed a loose association to deal with the NFIP.

From 1976 to 1982, the Association began to move its attention from reacting to NFIP efforts to outreach with others. Each year, the attendance at the annual meeting grew, as more states participated. Encouraged with funding support from the Federal Insurance Administration (FIA), the Association began a newsletter and made contact with other Federal agencies, especially policy offices such as the Water Resources Council and The White House Office of Domestic Policy. The official organization of the Association took form with a constitution, membership dues, a Board of Directors, standing committees, a budget, and a logo. State programs grew too, particularly after 1980 when FIA's State Assistance Program began.

1982 was a watershed year. It marked the end of Larry Larson's three terms as Chair during the most important formative years. Larry moved to the new position of Executive Director, an unpaid job wherein the Association has been tremendously supported by Larry's efforts and his employer, the State of Wisconsin. The annual conference held in Madison in 1982 was the first that was oriented more toward training participants than reacting to federal programs. 1982 also saw the creation of the first state association in Arizona.

Since 1982, ASFPM has continually expanded in two important areas: Federal relations and service to members. In

the first area, a formal Washington presence was established, with the Association funding either a person or an organization to monitor developments and provide representation at important meetings. ASFPM was instrumental in heightening interest in reforming the National Flood Insurance Program in the early 1990s. Over a six year period, Congress frequently requested assistance from the Association in preparing this legislation, which resulted in ultimate passage of the NFIP Reform Act of 1994. Rebecca Quinn took the lead for the Association in these efforts, working with our Washington liaisons Martha Braddock and Merrie Inderfurth as well as others over the years.

This work improved over the years as the office became more professional and as ASFPM worked more and more with other national organizations, such as the Council of State Governments, the National Governors Association, the National Emergency Management Association, the National Wildlife Federation, The Association of State Wetland Managers and others on common issues such as floodplain management, dam safety, disaster assistance, wetlands protection, coastal zone management, and, most recently, watershed and multi-objective management.

Relations with federal agencies were also advanced by a growing interest in Congress in the Association's positions and suggestions. Several Association initiatives have since been incorporated into law or included in new federal programs, including caps on flood insurance rate increases, postdisaster mitigation funding, the Community Rating System, and a national council on mapping standards.

From four newsletters a year in 1982, the Association's services for members has also grown significantly. Publications now include twelve newsletters each year, a national Directory of Floodplain Managers, a triennial status report on the state of floodplain management in the nation, annual conference proceedings, and numerous topical and technical reports. These and over 400 other publications are now cataloged and housed in the national Floodplain Management Resource Center.

The annual conferences attract over 400 participants who come for the training, technical updates, and chance to network with fellow professionals. There have also been a number of other conferences on special topics, such as and regions flooding, coastal flooding, multi-objective management, stormwater management, and floodproofing.

Other membership services include awards to recognize outstanding programs and persons, the Flood Hazard Fellowship Fund with monetary awards to pursue special projects. and (*coming soon*) professional certification.

One important evolution has been the expansion of the franchise. From the original concept of a state association, voting membership is open to all and anyone (except federal employees) can serve on the Board of Directors. The Association also supports its state and regional chapters in a variety of ways. Direct membership now stands at just under 1,000, with an additional 2,000 chapter members.

ASFPM has come a long way from a loose association of six state offices to a national organization representing 4,500 floodplain managers at all levels of the public and private sectors. Instead of a "common enemy", we now have common goals and close ties with the federal agencies and other associations that affect floodplain management. Instead of a focus on a few government programs, our conferences, training, publications, and national efforts now work toward mitigating flood losses in the nation and the improvement of the profession of floodplain management.

## STATE CHAPTERS

### CHAPTER MEMBERSHIP IN THE ASFPM

The Association of State Floodplain Managers (ASFPM) was founded in 1977 by professionals in state government. As is true of many organizations, the reasons for founding the ASFPM are centered in its goals and objectives.

1. To provide national representation for state and local Flood Hazard professionals with regard to policies and actions occurring in areas of flood hazard management;
2. To facilitate cooperation and exchange of information among state, local, federal and private sector officials on innovative ideas and trends in floodplain management, and;
3. To provide a forum for the education of those involved in floodplain management.

Every existing state association was formed for the same general purposes. And that leads us to our main topic:

## STATE ASSOCIATIONS: AN IDEA WHOSE TIME HAS COME

Forming a State Association is not an easy task. You will run into many road blocks and dead ends, but the benefits far outweigh the frustrations. Let's look at the benefits of a State Association:

- Members can gain a better perception of the state's floodplain management efforts and can develop a more cooperative and harmonious relationship through participation in association activities.
- Expedites the process of gathering and dispersing current and new information to intelligently and efficiently conduct the business of floodplain management.
- Brings together those individuals who are experiencing the same types of problems in dealing with floodplain management, and provides them with a variety of possible solutions to their problems.
- Gives its members the ability to transmit a uniform position on current concerns, rule changes, local programs, and other issues impacting floodplain management.
- Gives its members one loud voice to communicate the collective views of the communities to the state legislature.
- Promotes fellowship between groups and individuals which, on the job, may represent opposing viewpoints, leading to negotiation on issues regarding floodplain management, not deadlock.
- Provides collective input to state legislators interested in or proposing legislation regarding floodplain management issues.
- Provides a means to address specific flood hazard issues unique to each state.
- Provides for a unified leadership role in future floodplain/ flood mitigation activities in each state.
- Provides a unified state voice on National Flood Insurance Program issues.
- Provides a means to broaden the public's awareness of the state's flood hazards.

This list was compiled from comments provided by members of associations in those states which have put forth the effort to form State Floodplain Management Associations. They know firsthand the benefits that your state can receive by forming a State Association, as they have reaped them already and are sure they will enjoy many more in the future.

## BENEFITS OF ASFPM CHAPTER MEMBERSHIP

Now that you've formed a State Association, you will want to seriously consider becoming a Chapter member of the Association of State Floodplain Managers. Let's take a look at the general benefits this will afford you:

- \* A Chapter of the ASFPM can easily become involved in national issues that affect all flood hazard managers.
- \* A Chapter is able to place issues of a regional nature on the ASFPM agenda.
- \* The ASFPM Officers and Board place a significant emphasis on the views brought forth by the Chapters.
- \* In addition, specific membership benefits for the Chapter include:
  - The Chapter receives one vote at general membership meetings.
  - Members are represented on the Board of Directors at a ratio of one Board member for every five chapters.
  - Chapter members may serve on ASFPM policy committees.
  - Chapter members receive discounts on the purchase of all ASFPM publications.
  - Two Chapter officers receive all ASFPM mailings.
  - ALL Chapter members receive two issues of News & Views each year.
  - All Chapter members are eligible for the membership registration rate at ASFPM conferences and workshops.
  - Chapters may reproduce or excerpt information from ASFPM newsletters and publications (with proper credit).

For more information on becoming a State Chapter of ASFPM, or for a current list of Officers of existing chapters, please contact us.

## OKLAHOMA FLOODPLAIN MANAGEMENT ASSOCIATION



This organization was established in November 1990, in an attempt to bring floodplain managers together for one common goal-flood loss reduction. In its first year of its existence, membership more than tripled. In 1997, the OFMA established the Oklahoma Floodplain Managers Certification Program. Having a way for local floodplain managers to train and become certified is another way they can improve professionally. Professional development through this program and

NETC by the local floodplain manager allows those individuals to gain credibility and integrity in their fields. This credibility assists them in implementing their programs at the local level.

The objectives of the OFMA are: promoting interest in flood damage abatement, improving cooperation among various related local, state and federal agencies, and encouraging innovative approaches to managing the nation's floodplains.

The Association issues a quarterly newsletter with current information about the business of floodplain management and broadening the public's awareness of Oklahoma's flood hazards.

OFMA holds an annual conference with guest speakers which discuss pertinent floodplain management issues. Interacting with other members also provides opportunities for exchanging ideas and networking among agencies and companies to build cooperation.

A membership registration form can be found in Appendix F-2. Also, continuing education credits can be obtained from attending the annual conference or spring technical conference for the Oklahoma Certification Program. The OFMA current Chair and other Board members can be found by visiting the OFMA web site at [www.sirinet.net/ofma/](http://www.sirinet.net/ofma/). The mailing address for the OFMA is PO Box 8101, Tulsa, OK 74101-8101.

OFMA is a chapter member of the Association of State Floodplain Managers Association, Inc. This is a tremendous benefit of membership in OFMA. Not only do you have a voice in Oklahoma floodplain legislation with membership in OFMA, but by joining the ASFPM, Inc. members gain an opportunity to influence national floodplain legislation and policy. For more details about ASFPM, Inc., visit its web site at [www.floods.org](http://www.floods.org).

The ASFPM, Inc. is developing a national certification program that includes many elements of the OFMA program. This program is scheduled for implementation in May 1999. Several members of OFMA assisted in the professional development committee that initially designed this program. The creation of the certified floodplain manager programs is essential for the development of the floodplain management professional. Other states in Region VI that have a certification program include Texas and New Mexico. The Texas program is a product of the Texas Floodplain Managers Association which the Oklahoma program was patterned. The New Mexico program is mandated in its state's legislation.

Other avenues to gain professional development for the local floodplain manager is through training opportunities with the Office of Civil Emergency Management. Many of the courses offered by this office originated from the NETC. For more information about the courses available contact the Training Officer at the Oklahoma Department of Civil Emergency Management at (405) 521-2481 or visit their website at [www.onenet.net/~odcem/](http://www.onenet.net/~odcem/).



Paul Zachary of OFMA presents James Lee Witt, Director of FEMA, with a briefcase at the Project Impact signing

# EDUCATIONAL DEVELOPMENT

## THE EMERGENCY MANAGEMENT INSTITUTE - FEMA

The Federal Emergency Management Agency, National Emergency Training Center (NETC) in Emmitsburg, Maryland offers the finest in educational resources. The 107-acre campus is shared by the Emergency Management Institute (EMI), the National Fire Academy (NFA), and the United States Fire Administration. The NETC campus is located 12 miles south of Gettysburg, Pennsylvania, 75 miles north of Washington, DC, and 70 miles northwest of Baltimore, Maryland.

The EMI offers a variety of professional level courses for the floodplain manager. Resident courses are offered each year from October 1998 through September 1999. The cost is minimal for state and local community floodplain officials. The cost of a meal ticket at the guest services operated cafeteria is less than \$100 for a one week course. FEMA reimburses students for their air fare and offer newly remodeled dormitory housing on campus. For more information about the courses offered each year contact Admissions at 1-800-238-3358. Also, EMI has a website at <http://fema.gov/EMI/rclist.htm>.

### ELIGIBILITY

United States residents with substantial involvement in emergency operations are eligible to apply for Institute courses.

Applicants must meet the specific selection criteria outlined with each course described in the catalog. Selection also may be based on the impact the applicant would have on emergency preparedness in the local community, the utilization potential for skills acquired, and the representative distribution of applicants from the total emergency management community.

The Emergency Management Institute is an equal opportunity institution.

### HOW TO APPLY

Each applicant must complete the standard General Admission Application Form (FEMA FORM 75-5), (Appendix F-1 provides an application form). Originals of forms and additional information can be obtained from State emergency management offices, FEMA Regional offices, the NETC Admissions Office. They may also be downloaded from the EMI website. <http://www.fema.gov/EMI/rclist.htm>.

Users may need to download the form using a right mouse click, selecting "Save Target As," and following normal download procedures.

To view and print the forms, users may also need to download the FREE Adobe Acrobat Reader. Information to do this can be found at:

<http://www.fema.gov/EMI/crslist.htm>.

### RESIDENT COURSES

The Emergency Management Institute brochure lists the courses scheduled for on-campus delivery for current fiscal year, October 1, through September 30, at the resident facility in Emmitsburg, Maryland. Course codes beginning with an "S" indicate courses that are offered at the Conference and Training Center, Mt. Weather Emergency Assistance Center, in Bluemont, Virginia. For detailed information about the Institute and its programs, please refer to the EMI course catalog available from the following address:

Emergency Management Institute  
16825 South Seton Avenue  
Emmitsburg, MD 21727

### **NON-RESIDENT COURSES**

EMI offers a nationwide program of instruction through the Federal Emergency Management Agency (FEMA) regional offices. Most of this training is conducted in partnership with State emergency management offices. Information regarding nonresident training can be obtained from your State emergency management office.

## **FLOODPLAIN ADMINISTRATORS' WORKSHOPS - OWRB**

### **FLOODPLAIN MANAGEMENT 101-WORKSHOPS**

Each year the Oklahoma Water Resources Board staff with assistance from the ODCEM and FEMA host four or five one day floodplain management workshops. Appendix F-3 contains a typical workshop agenda of the topics covered during the one day workshop. The basics of floodplain management are presented to local officials to help them understand the principles of floodplain management and how new development can be constructed so it is reasonably safe from flooding. These workshops are generally given during the month of May to coincide with "Spring Flood Awareness Month". Each year the Board asks the Governor of Oklahoma to proclaim May "Flood Awareness Month" to alert state residents to the dangers of flooding and the availability of low cost government subsidized flood insurance. This is just one effort the Board takes to get the word out to encourage flood loss reduction in the State of Oklahoma.

These OWRB floodplain workshops allow workshop participants to earn up to 4 continuing education credits that can be applied towards the 16 CECs needed every two years to maintain their certification in the Oklahoma Floodplain Management Association Certified Floodplain Managers Program. If a local floodplain manager attends one of these workshops and the OFMA Spring Technical Conference, he/she garners up to 8 CEC's in one year. No more than 12 CEC's can be garnered in any one year. Again, these workshops provide basic floodplain education and benefit the OFMA-CFM Program.

The Board also hosts a five day floodplain management course in January at the Continuing Education Center at the University of Oklahoma. This course "Managing Floodplain Development Through the NFIP" is the sanctioned FEMA-EMI course gives floodplain managers another opportunity to garner CEC's. This course is "The Course" for floodplain management developed by FEMA. It is strongly recommended for any practicing floodplain manager as well as surveyors, civil engineers and others. For additional information about this course and OWRB workshops contact the State NFIP Coordinator at the Oklahoma City OWRB office at (405) 530-8800.

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# Appendix A



## THE NATIONAL FLOOD INSURANCE PROGRAM

COMPANION TO CHAPTER 1

# APPENDIX A-1

## NATIONAL FLOOD INSURANCE PROGRAM

The National Flood insurance Program (NFIP) was created by Congress in 1968 as a nonstructural approach for the prevention of flood damage. The Federal Emergency Management Agency (FEMA) administers the NFIP. FEMA's regional offices are responsible for much of the contact with local communities

The NFIP has two main objectives: (1) to enable property owners in flood-prone areas to purchase reasonably priced flood insurance; and (2) to discourage future development in floodplains. In order to accomplish these goals, the NFIP requires the local community to adopt floodplain management regulations before flood insurance is available. The local regulations must meet the minimum federal requirements in order for the community to participate in the Program. In short, the NFIP provides insurance to people living in flood-prone areas to cover future flood damages, while discouraging future development in the floodplain which might require further expenditures for disaster relief.

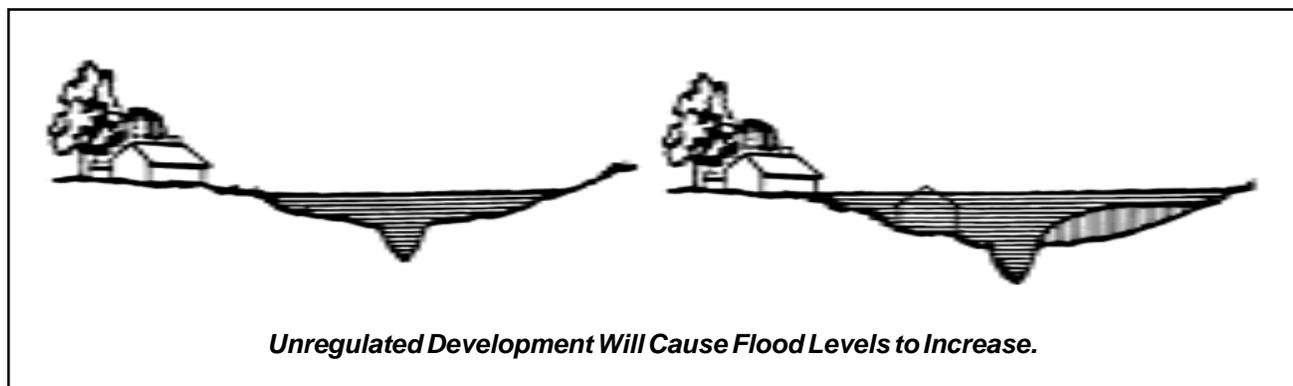
Community participation in the NFIP is voluntary. Each identified flood-prone community must assess its flood hazard and determine whether flood insurance and floodplain management would benefit the community's residents and economy. However, if a community chooses not to participate after the flood hazard has been identified, there are several ramifications, in addition to the availability of flood insurance, withheld from property owners. By law, if a flood disaster occurs in a nonparticipating flood-prone community, no federal disaster assistance is provided. Also grants, loans or guarantees made by federal agencies, such as the Small Business Administration, Federal Housing Administration and Veterans Administration, are prohibited for acquisition or construction in identified areas.

When a community enters the first step of the program (the emergency phase), it agrees to adopt and enforce a floodplain ordinance which meets the minimum regulatory requirements. These ordinances require the community to:

- 1) review all building permits for new construction and determine the flood zone
- (2) using the best available information, require that new construction have the lowest floor elevated to the 100 year flood level (nonresidential structures have the option to floodproof to the same level);
- (3) apply some requirements to existing structures if substantial improvement is made (any repairs, reconstruction or improvement which equals or exceeds 50 percent of the market value of the structure);
- (4) require all manufactured homes in a flood zone to be anchored to resist flotation, collapse or lateral movement; and,
- (5) review all subdivision proposals and require any necessary revisions to minimize the flood damage potential.

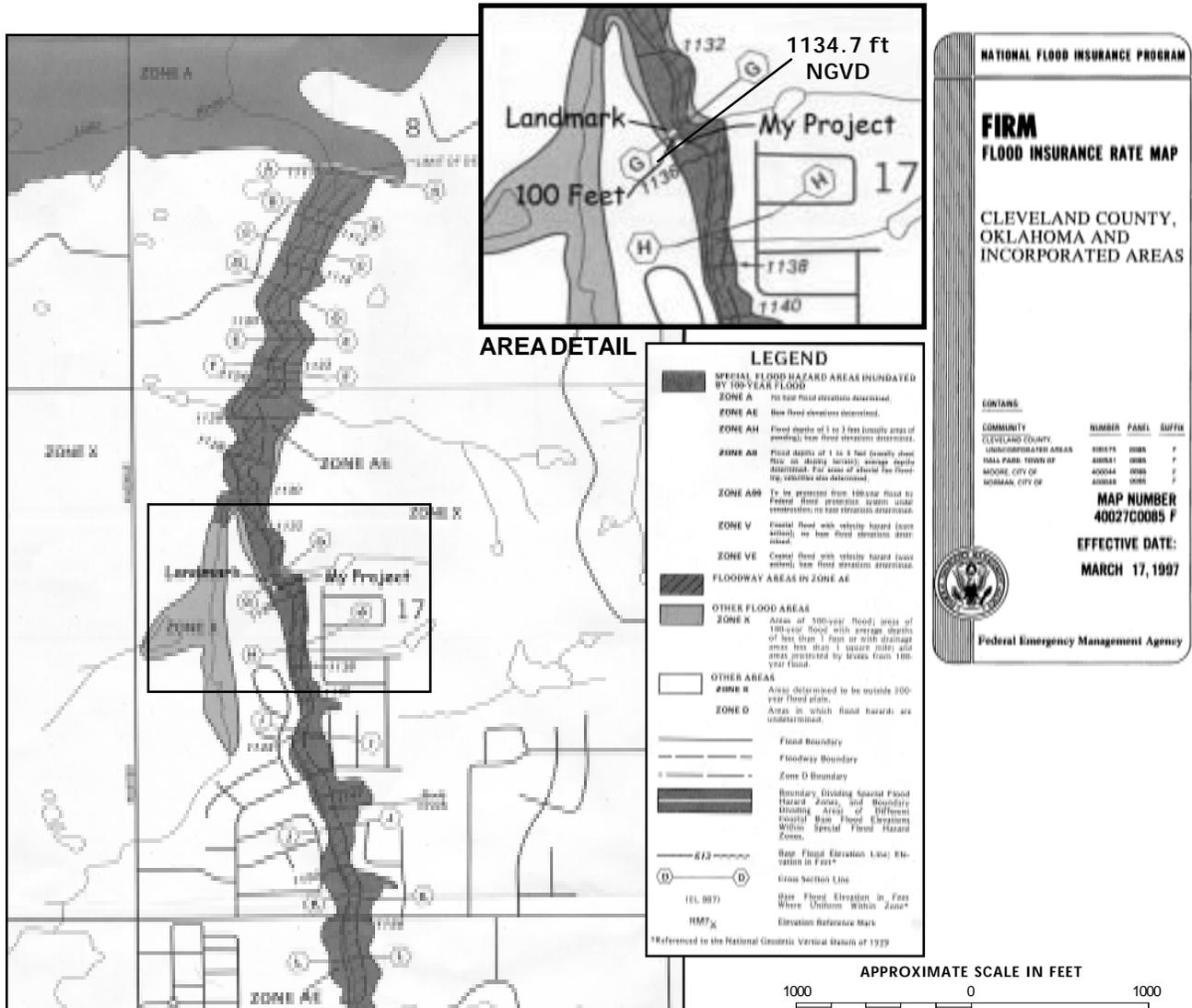
For additional requirements and explanations, refer to your local ordinances. In this phase, a limited amount of federally subsidized insurance is available for all structures in the community regardless of their flood risk.

A community is eligible to enter the regular phase of the program when FEMA complete a detailed engineering study which defines the flood hazard areas based on hydrologic, geologic and topographic data, and produces a flood Insurance Rate Map (FIRM). The community must adopt more stringent floodplain ordinances to enter this phase. When a community enrolls in the regular phase, increasing amounts of flood insurance become available to property owners.



# APPENDIX A-2 READING THE FLOOD INSURANCE RATE MAP (FIRM)

A Flood Insurance Rate Map (FIRM), . It shows the floodway special flood hazard areas inundated by 100-year flood in dark gray (see legend above), floodway areas in Zone AE in dark gray with black stripes, other flood areas (Zone X) in lighter gray and other areas (Zone X) in white.



To locate a site on the map, measure the actual distance ON THE GROUND between the site of concern and an identifiable point (bridge, river channel, reference mark or other landmark). Using the map scale, convert these figures to map units and plot the site on the map. For example, the point labeled MY PROJECT is 100 feet upstream from the landmark. It is located in the Special Flood Hazard Area.

Cutting across the floodplain are a series of lines, tagged with letters, called cross sections. Flood elevations are developed for each of the cross sections and displayed on flood profiles (see example, following page).

Communities use the information from the FIRM and flood profiles to regulate development in the floodplain to meet standards of the NFIP.

# APPENDIX A-3

## READING A FLOOD PROFILE

A flood profile is a chart which shows the elevation of the water surface during a flood event at particular locations along a river or stream. Flood insurance studies determine the elevation at the cross section marks for the 10-, 50-, 100 and 500-year events. The cross section locations can be more easily seen on the Flood Insurance Rate Map (FIRM) on the preceding page).

1. First, check the gridscales on the profile. On the example above, each line on the horizontal axis represents 50 feet along the stream. The vertical axis lines each represent a 0.5 foot change in elevation, NGVD (National Geodetic Vertical Datum).
2. Next, locate the point of concern on the horizontal axis. This will be the distance from the reference point on the ground, measured in the previous exercise (Appendix A-2). On the example above, the point of concern is about 100 feet upstream (toward the "H" cross section location marker) from the identified landmark. The point of concern is the same point referred to as "My Project" on the above example and on the Flood Insurance Rate Map (FIRM) on the previous page, Appendix A-2).
3. Now draw a line VERTICALLY from the point located on the horizontal axis (labeled "stream distance above mouth") until it intersects the line that represents the FLOOD EVENT of concern. The example shows this line intersecting the 100-year flood line. The 100-year flood elevation is the protection level of the NFIP.
4. Finally, to determine the elevation, draw a line HORIZONTALLY from the point on the 100-year flood line to the scale on the left, which represents the ELEVATION in feet, NGVD. In the example above the point of concern, based on the 100-YEAR FLOOD event, is 1,134.7 feet, NGVD. The 10-year flood elevation is 133.3 ft. NGVD and the 500-year flood elevation is 1,135.25 ft. NGVD.

# APPENDIX A-4

## THE FLOODWAY

**- REVIEW ALL DEVELOPMENT PROPOSALS TO DETERMINE IF THEY ARE LOCATED WITHIN A DESIGNATED "FLOODWAY".**

**- PROHIBIT ANY DEVELOPMENT OR ENCROACHMENT (FILLING, ETC.) WITHIN A DESIGNATED "FLOODWAY" AREA WHICH WOULD CAUSE ANY INCREASE IN THE BASE FLOOD ELEVATION.**

Communities participating in the Regular Phase of the National Flood Insurance Program (NFIP) usually have a detailed Flood Insurance Study completed for them by the Federal Emergency Management Agency (FEMA). This study describes flood hazards in the community and, if done in enough detail, designates a regulatory floodway.

For purposes of the NFIP, a floodway is defined as the channel of a stream, plus adjacent overbank areas, that must be kept free of encroachment so that the 100-year flood may be carried without substantial increases (one foot or less) in flood heights. A floodway divides the floodplain into two parts: the floodway and the flood fringe. The floodway is that area of the floodplain which must be removed to carry floodwaters so that flood damages are not increased in the remainder of the 100-year floodplain flood fringe.

The purpose of this requirement is to ensure that new development does not aggravate existing flooding conditions in the community. This objective is achieved through stringent control of development within a defined portion of the floodplain called the "floodway" (see Figure 2). Within designated floodways, the community must not permit any development, new construction, substantial reconstruction, use, activity or encroachment which would cause an increase in the heights of the 100-year (base) flood.

While the floodway requirement does not automatically exclude all forms of development, it does mandate that the flooding effects of new development be calculated beforehand so that adverse effects can be avoided. In general, when confronted with an application proposing new development within a designated floodway, local permit officials should assume that the development will increase flood heights unless the applicant can demonstrate otherwise. Development proposals which are found by engineering analysis to have no effect on (or to lower) flood heights are acceptable (see Figure-3). Such developments could include a "one-for-one" replacement of an existing structure by a building of equal dimensions and displacement; projects where a new floodway encroachment is satisfactorily offset by removal of an existing obstruction or by a compensatory excavation; or proposals where an improvement in channel flow will compensate for the adverse effect of the new encroachment. Also, depending upon the hydraulic characteristics of a particular floodway at a given site, it may be possible to design a new development project which does not increase flood heights; however, once again the burden of proof must be assumed by the applicant to document the contention of "no effect on flooding".

### WHY A FLOODWAY?

A community that is participating in the NFIP must make sure new development in the floodplain meets the standards of the program. Essentially, these standards require that new structures be protected from the 100-year flood event. The level this flood reaches is called the Base Flood (or 100-year) Elevation (BFE). If a new structure is built with its lowest floor at or above the BFE, it should be safe from flood damage. But, what happens if the BFE is increased?

BFEs can be increased by obstructions in the floodplain. For example, if dikes are constructed on both sides of a river channel, they constrict the river's floodplain, causing floodwaters to rise and back up, increasing flood heights upstream. To avoid the possibility of raising the BFE, the NFIP asks a community to reserve a portion of the floodplain (the floodway) nearest the channel to pass floodwater without causing a significant increase.

A significant increase has been determined by FEMA to mean a maximum one-foot rise in the BFE. This means that if all areas outside the floodway are obstructed or filled in, the BFE will not be raised by more than one foot. Any obstructions placed in the floodway then would exceed the maximum one-foot rise allowed by the NFIP regulations.

# THE CONCEPT OF THE FLOODWAY

The “floodway” is an engineering concept which has been incorporated into the NFIP floodplain management criteria. Floodways are defined as the areas of land immediately adjacent to a stream or river channel which in times of flooding actually become the enlarged stream or river channel and carry the floodwaters with the highest velocity. Floodways are calculated by FEMA for the 100-year base flood for major rivers and streams as part of the Flood Insurance Study undertaken for a community. Floodways are shown in the community’s Floodway and Flood Hazard Boundary Map prepared by FEMA, and data on their width, cross-sectional area and floodwater velocity are given in the Flood Insurance Study. When floodway delineations and data have been furnished by FEMA, the community is required to adopt a “regulatory floodway” and begin enforcing the “no encroachment” requirement through its zoning ordinance.

## DETERMINING A FLOODWAY

The floodway is determined by “squeezing in” a community’s floodplain boundary (done by a computer hydraulic model) until the Base Flood is raised one foot. Sometimes the rise will be less than one foot at certain points in order to keep the increase from exceeding one foot at other points within the study area or to avoid excessive velocity. This “squeezing in” simulates building a wall from both sides of the floodplain toward the center of the channel.

The “wall” could be fill, structures, a levee or physical obstruction. When the imaginary obstruction has constricted flood flow enough to raise the Base Flood Elevation one foot, the limits of the obstruction define the boundary of the floodway.

In the past, these boundaries were placed on a Flood Boundary Floodway Map (FBFM). Since FBFMs are no longer printed, they are now placed on the Flood Insurance Rate Map (FIRM) provided to the community along with the Flood Insurance Study.

Normally, floodway boundaries are determined by computer model applying the equal degree of encroachment rule. The rule requires that the quantity of floodwaters conveyed on both sides of the watercourse be reduced by an equal percentage when developing the encroached floodway boundary.

This rule is based on the legal need to treat similarly situated property owners in a similar manner. In practice, the rule is not always followed due to many factors, including property ownership, topography, existing development patterns and comprehensive land use plans. Any of these factors may justify modifications to the equal degree of encroachment rule. As such, FEMA generally works closely with a community in identifying boundaries to make sure the floodway that is defined meets NFIP standards and community needs.

## COMMUNITY RESPONSIBILITIES

Communities that have an identified floodway on an FBFM or an FIRM must not allow any development in the floodway unless it can be shown that the development will not Cause an increase in flood heights. Communities do this through their development permit system.

When reviewing permit applications in the floodway, the floodplain administrator must determine the extent of development. In some cases, it is apparent that the proposed development will cause no change in the existing topography (for example, a play area). However, in most cases, the administrator will NOT be able to determine whether the development will cause a rise in Base Flood Elevations.

When the floodplain administrator is uncertain, the permit applicant must prove to the community that the proposed floodway development, along with similar future development assumed by the equal degree of encroachment rule will cause no increase in the BFEs. The applicant must use a registered professional engineer to analyze the development plans and assess how the BFEs will be affected. Unless this analysis proves the development will cause no rise in the BFE the permit application must be denied.

Structures existing in a floodway prior to the floodway identifications are “grandfathered in” but are subject to NFIP regulations. Any substantial improvements to such structures, however, must be in compliance with the standards.

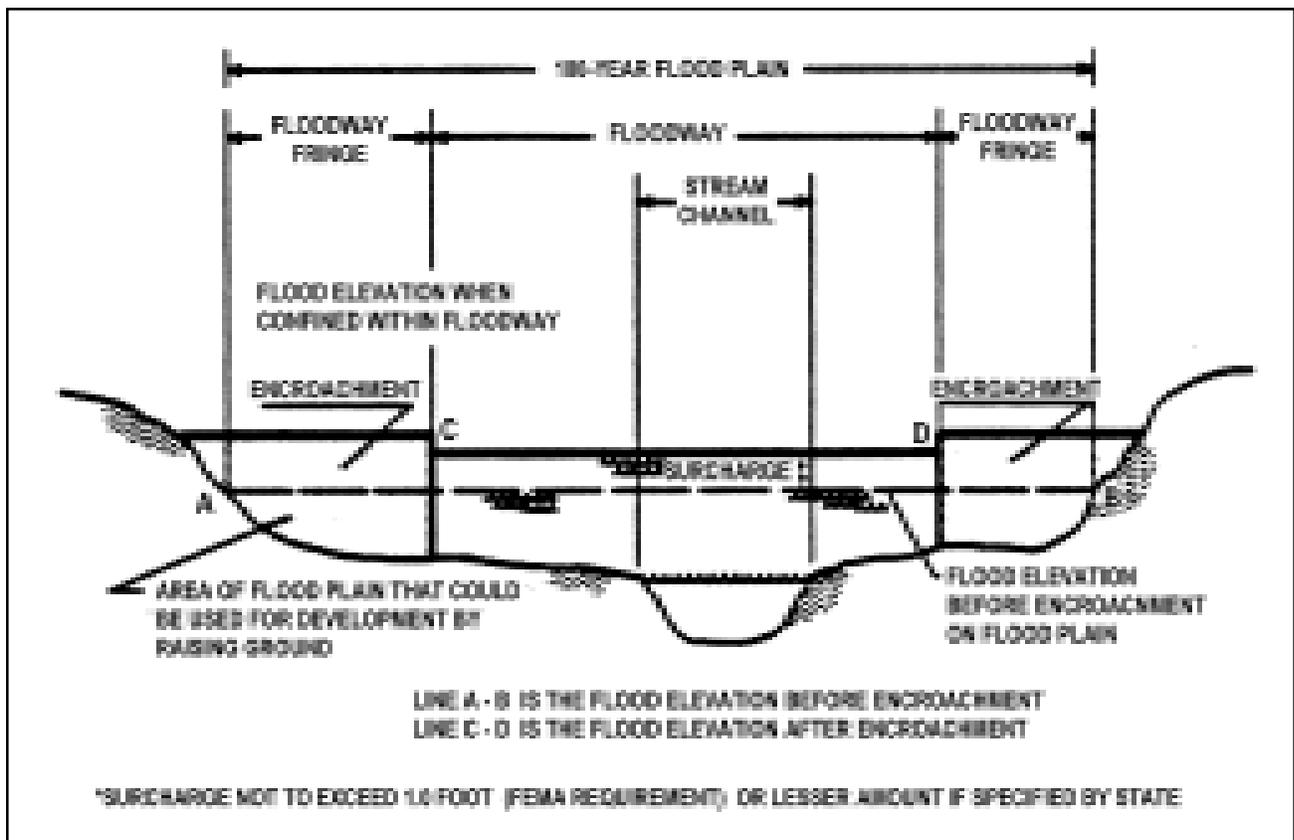
## ALLOWABLE FLOODWAY USES

Floodway areas can be utilized. There are several development activities that will not cause an increase in the BFE, yet can sustain flood damage without great economic loss. These might include agricultural uses that do not involve structures, parking lots, loading areas or landing strips; recreational uses, such as picnic grounds, golf courses, or swimming areas; and lawns, gardens or other uses incidental to residential structures. Additions to existing structures, which do not add to ground flood area, may be allowed if they do not exceed substantial improvement criteria. An engineering analysis is the final determinant in all cases.

## ADVANTAGES

Having an identified floodway on a FBFM or FIRM eases a community's task of administering its floodplain ordinance. When the floodway is identified, the floodplain administrator can determine if a proposed floodplain development is in the floodway. If it is in the floodway, it will cause a rise. Without the floodway, floodplain administrators should always question whether or not proposed developments will affect existing BFE's.

## FLOODWAY SCHEMATIC



# APPENDIX A-5

## QUESTIONS AND ANSWERS

### ABOUT FLOOD INSURANCE

#### What is Flood Insurance?

The National Flood Insurance Program (NFIP) was created to provide affordable flood insurance to property owners in flood-prone areas and promote good floodplain management so future developments will not suffer damage from flooding. The NFIP is administered by the Federal Emergency Management Agency (FEMA) and carried out by local community administrators.

#### Who Can Buy Flood Insurance?

Flood Insurance can be purchased by anyone in a community participating in the NFIP, whether or not their property is in the floodplain. Flood insurance is voluntary unless required as a condition of a mortgage.

#### Where Can I Buy Flood Insurance?

Any licensed property or casualty insurance agent can sell flood insurance.

#### What Does It Cover?

Any walled and roofed structure can be insured from direct loss caused by the general condition of flooding. Flooding is defined as a general and temporary condition of partial or complete inundation of normally dry land by the overflow of water, or; the unusual and rapid accumulation of runoff of surface waters from any source .

Property declared to be in violation of a state or local floodplain regulation can be denied coverage.

#### What About Basements?

For flood insurance purposes, a basement is defined as having its floor subgraded on all sides. The NFIP limits flood insurance coverage in basements and in areas below the lowest elevated floor or an elevated building. Items covered include:

- Stairways and staircases attached to buildings, not separated by elevated walkways.
- Sump pumps.
- Well water tanks and pumps.
- Oil tanks (and oil in them).
- Cisterns.
- Gas tanks.
- Electric junction circuit boxes.
- Furnaces and hot water heaters.
- Clothes washers and dryers.
- Food freezers.
- Air conditioners.
- Heat pumps, and
- Pumps and/or tanks used in conjunction with solar energy systems.

#### Items not covered include:

- Finished basement walls, floors, ceilings and other improvements to a basement except those needed for fire proofing.
- Enclosures below lowest elevated floor of elevated buildings.
- Contents, machinery and equipment in basements, other than those specifically listed as being covered, and -
- Contents below lowest elevated floor of elevated buildings.

#### ***How Much Does It Cost?***

Depending on if your community is in the Emergency or Regular Phase of the program, each policy premium differs, although there is a minimum premium of \$50.00 plus the policy fee of \$25.00 that is charged for each policy written, for a total of \$75.00.

# APPENDIX A-6

## FEMA FACT SHEET

- FACT:** Most homeowners insurance policies do not offer protection against flood damage.
- FACT:** Ninety percent of all disasters in the U.S. are flood related.
- FACT:** You are **four times more likely to experience a flood than a fire** if you live in a high risk flood zone, or Special Flood Hazard Area (SFHA).
- FACT:** Flood insurance is available through the federal government's National Flood Insurance Program (NFIP), which is administered by the Federal Insurance Administration, a part of the Federal Emergency Management Agency. Flood insurance can be purchased through any licensed property/casualty insurance agent or through many private insurance companies that are now writing flood insurance under arrangements with the Federal Insurance Administration.
- FACT:** Flood insurance is required by law. Congress passed the Flood Disaster Protection Act of 1973, and the National Flood Insurance Reform Act of 1994 mandating that all federally insured or regulated lenders require flood insurance for mortgages and other loans on buildings and manufactured (mobile) homes located in SFHAs.
- FACT:** Almost any building with at least two walls and a roof may be insured if it is principally above ground and located in a community participating in the NFIP. Coverage is also available for buildings under construction.
- FACT:** The average premium for an NFIP flood insurance policy is \$300 per year for approximately \$85,000 worth of coverage. For those not in an SFHA, but still exposed to a risk, there is a low cost policy available for as little as \$85 per year. Nearly one-third of our claims come from these lower risk areas.
- FACT:** Flood insurance is available for buildings in communities that have agreed to adopt and enforce sound floodplain management practices. Currently, there are over 18,000 communities participating in the NFIP throughout the United States and our overseas territories.
- FACT:** While there are more than 3 million flood insurance policyholders, estimates are that of flooding.
- FACT:** Businesses may also be insured through the NFIP.
- FACT:** Contents of insurable, fully enclosed buildings may be covered by a separate policy, making flood insurance available to renters, too.
- FACT:** There is normally a 30-day waiting period between the time flood insurance is purchased and the time coverage is in force.

(7/96)

# APPENDIX A-7

## PRINCIPLE FEATURES OF INCREASED COST OF COMPLIANCE (ICC) COVERAGE

The following are the principal features of Increased Cost of Compliance (ICC) coverage: Note all references are to the Standard Flood Insurance Policy Endorsement Number One.

- (1) ICC coverage responds to the enforcement of a State or local land use requirement to bring a flood-damaged structure into compliance with certain floodplain management standards during the rebuilding process.
- (2) The limit for increased cost of compliance (ICC) coverage is \$15,000.
- (3) Only Standard Flood Insurance Policies (SFIPs) with Building coverage will have ICC coverage. Appurtenant structures are not eligible for ICC coverage. (See Exclusion 10.)
- (4) The maximum amount collectible under the SFIP for both building coverage and Coverage A) and ICC (Coverage D) cannot exceed the maximum amount permitted under the Act, e.g., \$250,000 for a single family dwelling.
- (5) ICC coverage will be available for new or renewal policies effective on or after June 1, 1997.
- (6) Only structures in Regular Program communities are eligible for [CC coverage. Structures insured under a Group Flood Insurance Policy or a condominium unit owner's policy are NOT eligible for [CC coverage. (See Exclusions 11 and 12.)
- (7) Policies issued or renewed for structures while the community was in the Emergency Program are NOT eligible for [CC coverage. Once a community is converted to the Regular Program, these policies will be eligible for ICC coverage upon renewal with the payment of the ICC surcharge. (See Exclusion 1.)
- (8) No separate deductible applies to ICC coverage.
- (9) Only flood-damaged structures are eligible for the coverage.
- (10) Only those structures where flood damage meets the NFIP substantial or repetitive loss thresholds are eligible for ICC payments.
- (11) Activities eligible for ICC payments are: elevation, floodproofing, demolition, relocation, or any combination thereof.
- (12) ICC payments will be made to bring a structure into compliance with State or local elevation or floodproofing requirements for freeboard, i.e., an elevation above the base flood elevation. (See Eligibility, exception b.)
- (13) ICC payments will be made to bring a structure into compliance with State or local elevation requirements based on FEMA-issued advisory or preliminary base flood elevations which increase BFEs or change risk zones that add base flood elevations so long as such elevations are adopted by the State or community. (See Eligibility, exception a.)
- (14) ICC payments will be made to comply with NFIP requirements to elevate a structure in an unnumbered A zone to an elevation based on the best available elevation data. (See first paragraph after exception b of Eligibility.)
- (15) ICC payments will be limited to ONLY the cost to elevate a structure from the base flood elevation-- applicable at the time of construction-- to the current higher BFE IF the structure was NOT originally built in compliance AND IF no variance was obtained for the original construction.
- (16) ICC payments will be made to elevate a structure to the current BFE EVEN THOUGH the structure was not originally built in compliance so long as a variance was obtained for the original construction.

(17) ICC payments will be made for demolition and any incremental costs to comply with elevation requirements for the structure during rebuilding at the same or another site.

(18) All nonresidential structures are eligible for [CC payments in connection with floodproofing. Only residential structures with basements in communities that have been approved by the NFIP to floodproof basements in accordance with NFIP regulations at 44 CFR 60.6 (b) or (c) are eligible for ICC payments in connection with the floodproofing option. (See first paragraph.)

- (19) Repetitive loss structures are eligible for [CC payments when two conditions are met:
- (a) The community has adopted and is enforcing a cumulative substantial damage provision or repetitive loss provision in its floodplain management ordinance that requires action by the property owner; and,
  - (b) The property has a history of flood claims under the NFIP that satisfies the statutory definition of repetitive loss structure, i.e., two paid flood losses where the flood damage in a ten year period averages 25% of the structure's value at the time of loss. (See Eligibility 1.)

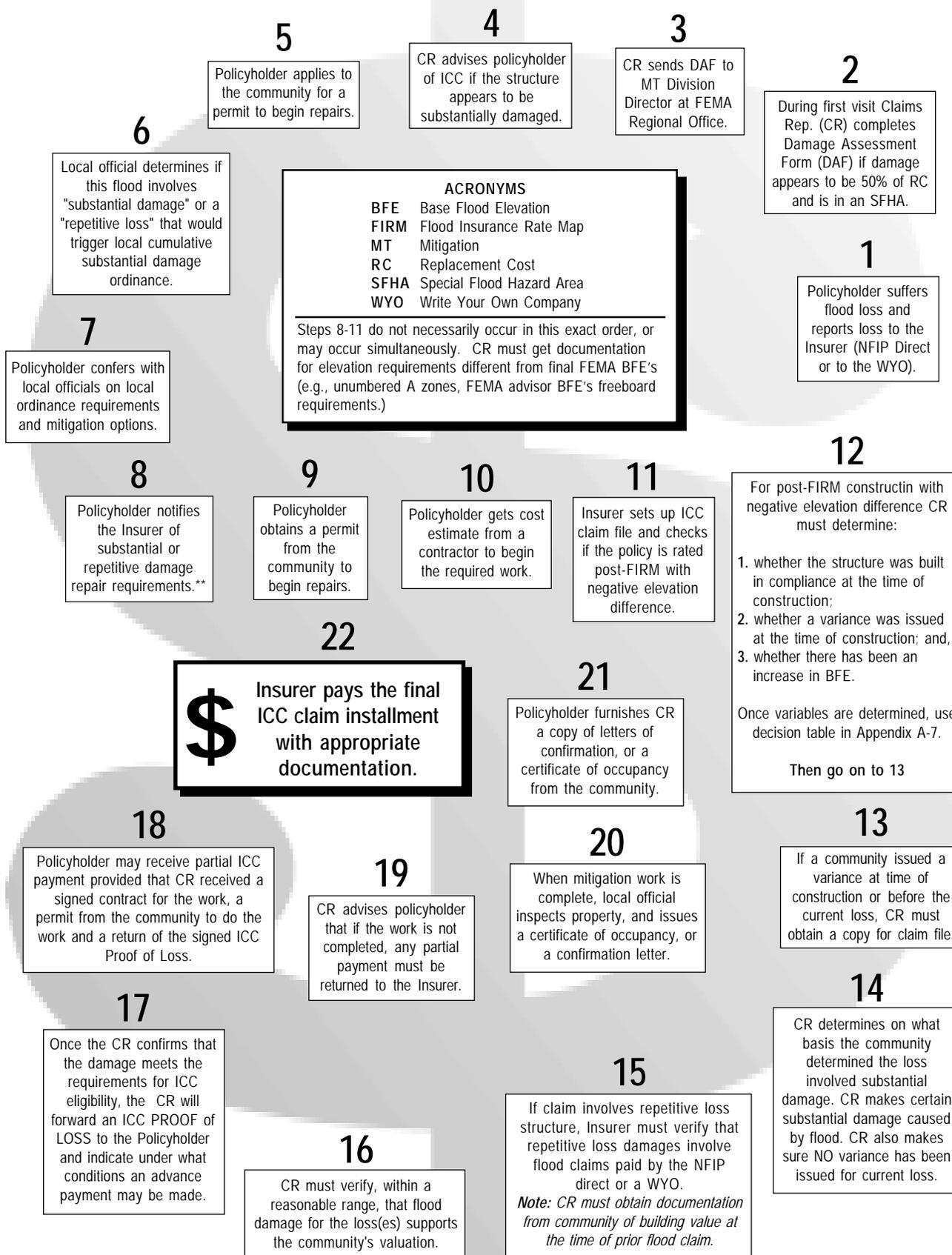
**TASK:** To adjust ICC claim for a policy rated post-FIRM with a negative elevation different when the structure was NOT built to the BFE in force at the time for construction.

<b>IF</b>	<b>AND</b>	<b>THEN</b>
A variance WAS issued.	There HAS been an increase in BFE.	ICC <b>claim</b> WILL BE ADJUSTED as usual. ICC <b>payments</b> WILL BE MADE to elevate the structure to the new BFE.
A variance WAS issued	There has been NO increase in BFE.	ICC <b>claim</b> WILL BE ADJUSTED as usual. ICC <b>payments</b> WILL BE MADE to elevate the structure to the BFE.
A variance was NOT issued	There HAS been an increase in BFE.	ICC <b>claim</b> WILL BE LIMITED to the cost of compliance to elevate the structure from the BFE at the time of construction to the CURRENT BFE
A Variance was NOT issued.	There has been NO increase in BFE.	ICC claim DENIED.

**NOTE:** If a structure WAS built to the BFE in force at the time of construction even though there is a negative elevation difference at the time of the ICC claim, the ICC claim will be paid to elevate to the CURRENT BFE.

# APPENDIX A-8

## ICC CLAIMS PROCESS



# **APPENDIX A-9 COMMUNITY RATING SYSTEM**

## **GENERAL DESCRIPTION**

The goals of the Community Rating System (CRS) are to reduce flood losses, to facilitate accurate insurance rating, and to promote the awareness of flood insurance.

The CRS has been developed to provide incentives for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding. The incentives are in the form of premium discounts.

## **ELIGIBILITY**

For a community to be eligible, the community must be in full compliance with the NFIP and be in the Regular phase of the program. Communities in the Emergency phase of the program are not eligible.

## **CLASSIFICATIONS AND DISCOUNTS**

All communities start out with a Class 10 rating (which provides no discount). There are 10 CRS classes: Class 1 requires the most credit points and gives the greatest premium reductions; Class 10 identifies a community that does not apply for the CRS, or does not obtain a minimum number of credit points and receives no discount. There are 18 activities recognized as measures for eliminating exposure to floods. Credit points are assigned to each activity. The activities are organized under four main categories: Public Information, Mapping and Regulation, Flood Damage Reduction, and Flood Preparedness. Once a community applies to the appropriate FEMA region for the CRS program and its implementation is verified, FIA sets the CRS classification based upon the credit points. This classification determines the premium discount for policyholders. Premium discounts ranging from 5 percent to a maximum of 45 percent will be applied to every policy written in a community as recognition of the floodplain management activities instituted. This is a voluntary program for communities.

An example follows showing how the CRS premium discount is reflected on the Application.

## **CRS ACTIVITIES THAT CAN DIRECTLY BENEFIT INSURANCE AGENTS**

Certain activities that are credited under the CRS provide direct benefit to agents writing flood insurance.

All CRS communities must maintain completed FEMA elevation and floodproofing certificates for all new and substantially improved construction in the Special Flood Hazard Area after the date of application for CRS classification. These certificates must be available upon request. Therefore, in writing a policy, an agent should be able to get these certificates from any CRS community. In addition, some CRS communities receive credit for having completed certificates for Post-FIRM buildings constructed prior to the CRS application date. If they do receive this credit, then these certificates should also be available to agents writing flood insurance. The community may charge a fee for copying certificates for inquirers.

Many CRS communities receive credit for providing inquirers with information from the community's FIRM. This includes a property's flood risk zone and the Base Flood Elevation. The service must be publicized once a year. If a community is receiving this credit, then agents should be able to use the service. There may be a fee charged for the service.

## CRS PREMIUM DISCOUNTS

CLASS	DISCOUNT
1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	-----

If you are interested in the CRS, and would like to visit with a community already participating, you are encouraged to contact one of the following:

## COMMUNITY RATING SYSTEM OKLAHOMA COMMUNITIES\*

COMMUNITY NO.	COMMUNITY NAME	CLASS
400220	Bartlesville, City of	9
400207	Bixby, Town of	10
400078	Blackwell, City of	8
400236	Broken Arrow, City of	9
400234	Chickasha, City of	9
400221	Dewey, City of	9
400252	Edmond, City of	9
400062	Enid, City of	9
400049	Lawton, City of	8
400245	Lindsay, City of	10
400211	Sand Springs, City of	8
400053	Sapulpa, City of	10
405380	Stillwater, City of	9

\*Participating communities at time of this printing.

## HOW TO APPLY

Participation in the CRS is voluntary. If your community is in full compliance with the rules and regulations of the NFIP, you may apply. There's no application fee, and all CRS publications are free.

Your community's chief executive officer (that is, your mayor, city manager, or other top official) must appoint a CRS coordinator to handle the application work and serve as the liaison between the community and FEMA. The coordinator should know the operations of all departments that deal with floodplain management and public information. And the coordinator should be able to speak for your community's chief executive officer.

The first step in the application process is to get a copy of the CRS Coordinator's Manual, which describes the program and gives details on the eligible activities.

The manual includes application worksheets and the formulas for calculating credit points. Computer software for completing the application is available at no charge. In addition, the CRS has a Short Form Application that may be more appropriate for your community. The Short Form is easier to complete than the regular worksheets, but it does not cover some of the more complicated activities you may be doing.

Your designated CRS coordinator should fill out and submit your application. The CRS will verify the information and arrange for flood insurance premium discounts.

Activity 630 - All Oklahoma communities currently receive CRS credit for the state's Dam Safety Program (56 points).

To order CRS publications or software at no charge, mail the attached order card. For more information, write, phone, or fax:

**NFIP/CRS**

P.O. Box 501016  
Indianapolis, IN 46250-1016  
Telephone (317) 848-2898  
Fax (317) 848-3578

### CRS ORDER FORM

Please send me these CRS publications:

Copies	Document
_____	<i>CRS Coordinator's Manual</i>
_____	Short Form Application
_____	Computerized Application for the CRS
	[ ] 5.25" disk    [ ] 3.5" disk

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

Community Name: \_\_\_\_\_ (if applicable)    NFIP Number: \_\_\_\_\_ (if applicable)

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# Appendix B



## OKLAHOMA FLOODPLAIN MANAGEMENT LEGISLATION

COMPANION TO CHAPTER 2

# APPENDIX B-1 FLOODPLAIN MANAGEMENT ACT

## WATERS AND WATER RIGHTS TITLE 82, OS 1980, SECTIONS 1601-1619

### CHAPTER 23 FLOODPLAIN MANAGEMENT ACT

#### §1601. Short title.

Chapter 23 of this title shall be known and may be cited as the Oklahoma Floodplain Management Act.

#### §1602. Purpose of act.

A. The State of Oklahoma recognizes the personal hardships and economic distress caused by flood disasters; in particular, the loss of life from floods, the physical and emotional impact of flooding on individuals and communities, public and private property damage and disruption, the increased cost for disaster relief and the need for preservation and restoration of the natural resources and functions of floodplains. Oklahoma also recognizes that it has become uneconomical for private insurance industry alone to make flood insurance available to those in need of such protection on reasonable terms and conditions. Recognizing these problems, Congress enacted the National Flood Insurance Act of 1968, which, among other things, requires the development of a unified national program for floodplain management which sets out a framework for national goals towards which agencies at all levels of government and in the private sector can work each within its own mission and role.

B. The purpose of the Oklahoma Floodplain Management Act pursuant to the most current version of a unified program for floodplain management is to:

1. Protect the natural and beneficial functions of the floodplain, to reduce damage and disruption to property from floods, to reduce costs of disaster relief and to reduce injury and loss of life from floods;
2. Assist state agencies, local government and the private sector in developing local floodplain management programs and in obtaining training and funding therefore; and
3. Procure flood insurance for those citizens that desire to participate in this federal program.

#### §1603. Definitions.

As used in the Oklahoma Floodplain Management Act:

1. "Area of jurisdiction" means:
  - a. all of the lands within an incorporated town or city, for a municipality,
  - b. all of the unincorporated areas of the county, for a county, or
  - c. all property owned or operated by the state, for the state;
2. "Board" means the Oklahoma Water Resources Board;
3. "Dwelling unit" means a place of residence and may be a single or multiple-dwelling building;
4. "Flood" or "flooding" means general and temporary conditions of partial or complete inundation of normally dry land areas from the overflow of lakes, streams, rivers or any other inland waters;
5. "Floodplain" means the land adjacent to a body of water which has been or may be covered by flooding, including, but not limited to, the one-hundred-year flood;
6. "Floodplain board" means an administrative and planning board, for floodplain management, of a county, a municipality or the state or the planning commission of a municipality or a county if so designated by the governing body of the municipality or county;
7. "Floodplain regulations" means the codes, ordinances and other regulations relating to the use of land and construction within the channel and floodland and construction within the channel and floodplain areas including, but not limited to, zoning ordinances, platting regulations, building codes, housing codes, setback requirements and open area regulations;
8. "Floodway" means the channel of a stream, watercourse or body of water and those portions of floodplains which are reasonably required to carry and discharge the floodwater or floodflow of any river or stream;
9. "One-hundred-year flood" means a flood which has a one percent (1%) chance of occurring each year, based upon the criteria established by the Oklahoma Water Resources Board; and

10. "Program" means the overall national flood insurance program authorized by the National Flood Insurance Act of 1968 (42 U.S.C. 4001-4128) as amended.

**§1604. County and municipal floodplain boards – Land use rules and regulations.**

A. To allow participation in the program, the Oklahoma Water Resources Board, boards of county commissioners and municipal governing bodies are authorized to establish floodplain board for their respective area of jurisdiction which may adopt, administer and enforce floodplain management rules and regulations, for the purpose of:

1. The delineation of floodplain and floodways;
2. The preservation of the capacity of the floodplain to carry and discharge regional floods;
3. The minimization of flood hazards;
4. The establishment and charging of reasonable fees, not to exceed Five Hundred Dollars (\$500.00), for services provided by the Board, county commissioners and municipalities in the administration of their responsibilities pursuant to the Oklahoma Floodplain Management Act.
5. The regulation of the use of land in the floodplain; and
6. The protection of the natural and beneficial functions of the floodplain, reducing damage to property from floods, reducing injury and loss of life from floods, and allowing communities to be eligible for flood insurance.

B. The rules and regulations shall be based on adequate technical data and competent engineering advice and shall be consistent with local and regional comprehensive planning.

C. The rules and regulations shall be approved by the Oklahoma Water Resources Board, the county or the municipality, as the case may be, by appropriate order, resolution or ordinance.

**§1605. County, municipal and state floodplain board – Composition – Term – Compensation.**

A. 1. A county floodplain board shall be composed of five (5) members to be appointed by the board of county commissioners.

2. All the members of the board shall be residents of the county and shall own or operate real property within the unincorporated area of the county;

3. Two members shall be appointed for terms of two (2) years, two members shall be appointed for terms of four (4) years and one member shall be appointed for a term of six (6) years. Thereafter, all appointments shall be made for terms of six (6) years.

4. All members shall serve without compensation. Members may be removed by the board of county commissioners for cause after a public hearing for that purpose.

5. Vacancies shall be filled by additional appointments for the unexpired term only.

B. 1. A municipal floodplain board shall be composed of five (5) members to be appointed by the municipal governing body. all the members of the board shall be residents of the municipality.

2. Membership of floodplain boards in existence prior to the effective date of this act shall remain as currently constituted. Membership for boards created subsequent to the effective date of this act shall consist of two members appointed for terms of two (2) years, two members appointed for terms of four (4) years and one member appointed for a term of six (6) years. Thereafter, all appointments shall be made for terms of six (6) years.

3. All members shall serve without compensation.

4. Members may be removed by the municipal governing body for cause after a public hearing for that purpose.

5. Vacancies shall be filled by additional appointments for the unexpired term only.

C. A state floodplain board shall be composed of the members of the Oklahoma Water Resources Board. All members shall serve without additional compensation.

**§1606. Establishment and delineation of floodplains and one-hundred-year flood elevations for Oklahoma.**

The Oklahoma Water Resources Board shall develop, adopt and promulgate criteria and rules for aiding the floodplain boards in the establishment and delineation of the floodplains and the one-hundred-year flood elevations for Oklahoma.

**§1607. Floodplain definitions and one-hundred-year elevations to be submitted.**

The floodplain boards shall delineate and submit to the Oklahoma Water Resources Board all floodplain definitions and one-hundred-year flood elevations within their respective area of jurisdiction, using methods consistent with the criteria and rules developed by the Board.

**§1608. Floodplain regulations – Requirements – Contents**

All floodplain boards that choose to participate in the program shall adopt floodplain regulations, which shall conform with the requirements necessary to establish eligibility and to maintain participation in the program and shall include the following:

1. Regulations for any platting of land in floodplains, construction of dwelling units and commercial or industrial structures in floodplains, and all other construction in the floodplains, which may divert, retard or obstruct floodwater and threaten public health, safety and welfare;

2. Regulations which establish minimum flood protection elevations and flood damage prevention requirements for use of structures and facilities which are located in a floodplain or are vulnerable to flood damage. Regulations adopted under this section are to be in accordance with any applicable state and local laws, regulations and ordinances.
3. Regulations which provide for coordination by the floodplain board with all other interested and affected political subdivisions and state agencies. The regulations of a floodplain board shall not apply to the use of usual farm buildings for agricultural purposes, the planting of agricultural crops or the construction of farm ponds; and
4. Counties and municipalities that choose to participate in the program and utilize a floodplain manager are encouraged to attend the floodplain development management class offered by the National Flood Insurance Program and any additional annual continuing education classes offered by the Oklahoma Water Resources Board.

**§1609. Cooperative agreements for delineation of floodplains and adoption of regulations.**

Floodplain boards may enter into cooperative agreements pursuant to the "Interlocal Cooperation Act" for the delineation of floodplains and adoption of regulations within the floodplains.

**§1610. Promulgation floodplain rules – Procedure.**

- A. Floodplain rules enacted pursuant to the Oklahoma Floodplain Management Act shall only be promulgated by the Oklahoma Water Resources Board in accordance with the Administrative Procedures Act.
- B. Floodplain regulations enacted pursuant to the Oklahoma Floodplain Management Act shall only be adopted by the county or municipal floodplain boards adopted by the county or municipal floodplain boards after a public hearing at which parties in interest and other citizens have an opportunity to be heard. At least thirty (30) days prior to the hearing, a notice of the time and place of hearing shall be published in a newspaper of general circulation regularly published nearest the area of jurisdiction.

**§1611. Redefining floodplain upon completion of flood control protective work.**

Within one hundred eighty (180) days after the completion of construction of any flood control protective works, the floodplain board in its area of jurisdiction shall redefine the floodplain as altered by the works. The new floodplain definition and one-hundred-year flood elevations shall then be submitted to the Oklahoma Water Resources Board

**§1612. Construction or development in floodplain area prohibited – Exceptions.**

A. After a floodplain board has submitted to the Oklahoma Water Resources Board definitions of all floodplains and one-hundred-year flood elevations within its area of jurisdiction, all platting of land, all construction of dwelling units or commercial or industrial structures, and all future development within the delineated floodplain area is prohibited unless:

1. Floodplain regulations have been adopted pursuant to the Oklahoma Floodplain Management Act for such areas and are in full force and effect;
2. Prior to regulations having been adopted, a special permit is granted by the floodplain board; or
3. A special permit is granted by the state floodplain board, if development or construction is to be on lands owned or held in trust by the state. provided, that notice of such construction or development must be afforded to all concerned governmental entities within thirty (30) days of the decision to undertake such construction or development.

B. Special permits authorized by subsection A of this section may be issued when the applicable floodplain board determines that construction or development in the floodplain in question is not a danger to persons or property. In making its determination, the floodplain board shall comply with Section 1610 of this title.

**§1613. Existing prior use may continue – Conditions.**

Any use that exists prior to May 13, 1980, which does not meet the minimum standards specified and authorized by the Oklahoma Floodplain Management Act may continue. However, unless brought into compliance with the minimum standards set forth in regulations adopted pursuant to the Oklahoma Floodplain Management Act such uses may be not substantially altered, enlarged or added to.

**§1614. Business needs to be considered in promulgating floodplain rules and preparing floodplain regulations.**

The Oklahoma Water Resources Board in promulgating rules pursuant to Section 1606 of this title and floodplain boards in preparing floodplain management regulations shall give due consideration to the needs of an industry, including agriculture, whose business requires that it be located within a floodplain.

**§1615. Variances.**

A. The floodplain board may grant variances for uses which do not satisfy the requirements of the Oklahoma Floodplain Management Act upon presentation of adequate proof that compliance with the local floodplain regulations adopted pursuant to the Oklahoma Floodplain Management Act will result in an arbitrary and unreasonable taking of property without sufficient benefit or advantage to the people. However, no variance shall be granted where the effect of the variance will be to permit the continuance of a condition which unreasonably creates flooding hazards. Any variance so granted shall not be construed as to relieve any person who receives it from any liability imposed by the Oklahoma Floodplain Management Act or by other laws of the state.

B. Any person seeking a variance shall file a petition with the floodplain board, accompanied by a filing fee of Twenty-five Dollars (\$25.00).

C. The floodplain board shall exercise wide discretion in weighing the equities involved and the advantages and disadvantages to the applicant and to the public at large when determining whether the variance shall be granted. The floodplain board shall conduct a hearing which complies with all requirements of the Oklahoma Floodplain Management Act

for public notice. In no case shall variances be effective for a period longer than twenty (20) years. A copy of any variance issued shall be sent to the Oklahoma Water Resources Board within fifteen (15) days of issuance.

**§1616. Appeals.**

A. Appeals of any decision of the Oklahoma Water Resources Board shall be in accordance with the Administrative Procedures Act.

B. Appeals of the decision of a county or municipal floodplain board shall be taken to the board of adjustment for the area of jurisdiction involved in the appeal or to the governing body of the county or municipality where no board of adjustment exists. Appeals may be taken by any person aggrieved or by a public officer, department, board or bureau affected by any decision of the floodplain board in administering the floodplain board's regulations. The appeal shall be taken within a period of not more than ten (10) days, by filing written notice with the appellant body and the floodplain board, stating the grounds thereof. An appeal shall stay all proceedings in furtherance of the action appealed from unless the floodplain board from which the appeal is taken shall certify to the appellant of body that by reason of facts stated in the certificate a stay would, in its opinion, cause imminent peril to life or property. The appellant body shall have the following powers and duties:

1. To hear and decide appeals where it is alleged that there is error of law in any order, requirement, decision or determination made by the floodplain board in the enforcement of the floodplain board's regulations.
2. In exercising its powers, the appellant body may reverse or affirm wholly or partly, or may modify the order, requirement, decision of determination as ought to be made, and to that end shall have all the powers of the floodplain board from which the appeal is taken.
3. In acting upon any appeal, the appellant body shall apply the principals, standards and objectives set forth and contained in all applicable regulations and plans adopted.

**§1617. New structures, fills, excavations or other uses prohibited without written authorization – Violations.**

A. No new structure, fill, excavation or other floodplain use that is unreasonably hazardous to the public or that unduly restricts the capacity of the floodway to carry and discharge the regional flood shall be permitted without securing written authorization from the floodplain board in which the floodplain is located.

B. Any person convicted of violating the provisions of this section shall be guilty of a misdemeanor.

**§1618. Application of Act.**

The provisions of this act shall not apply to those counties, municipalities or other agencies who are in compliance with federal floodplain regulations and are participating in the program prior to the effective date of this act.

**§1619.** Repealed by Laws 1989, c. 154, §2, operative July 1, 1989.

# **APPENDIX B-2**

## **PROCEDURES FOR A COMMUNITY TO ENROLL IN THE NATIONAL FLOOD INSURANCE PROGRAM**

### **MEMORANDUM**

DATE: March 31, 1993

SUBJECT: Procedural Requirements for a Community Entering the National Flood Insurance Program

When a community (i.e. county or municipality) wishes to enter the National Flood Insurance Program (NFIP), it must take several initial steps to meet both federal eligibility requirements and to insure proper compliance with the Oklahoma Floodplain Management Act. The following is a step-by-step procedure that should be followed by any community in Oklahoma when applying to enter the NFIP. Substate agencies may use the procedures below as a guideline when assisting municipal and county officials in getting communities into the Emergency Program of the NFIP.

### **PROCEDURES FOR COUNTIES**

1. The Board of County Commissioners shall by resolution establish a Floodplain Board which has the authority to adopt, administer and enforce floodplain management regulations.

a. The County Floodplain Board shall be composed of five (5) members appointed by the Board of County Commissioners, all of which must be residents of the county and must own or operate real property within the unincorporated area of the county. Terms of appointment to the County Floodplain Board shall vary from two (2) to six (6) years, and service shall be without compensation. Removals shall be made by the Board of County Commissioners for cause only after a public hearing. Any vacancies shall be filled by appointment for the expired term only.

b. The Board of County Commissioners may designate members of an existing County Planning Commission to serve as a County Floodplain Board if those members meet the qualifications set forth above.

2. The County Floodplain Board shall draft rules and regulations governing land use, building of structures, and construction in floodplains in unincorporated county areas. The Oklahoma Water Resources Board will provide guidelines to aid the County Floodplain Board in developing its rules and regulations. These guidelines will address the important aspects of (1) building and construction in floodplains, and (2) methodologies for determining 100-year floodplains.

a. Such rules and regulations shall include definitions of specific floodplain terms as used in the rules and regulations.

b. The County Floodplain Board shall also be responsible for determining the 100-year flood boundaries and elevations in the county's floodplains by either adopting federal, state or local maps (when available) or by developing such maps and information.

3. Once the rules and regulations have been drafted, the Floodplain Board shall hold a public hearing within the county so that county residents and other interested citizens may comment on proposed rules and regulations.

a. The County Floodplain Board shall, at least thirty (30) days prior to the date of the hearing, publish a Notice of Hearing in a newspaper of general circulation in the county. The notice shall specify the purpose, time, and place of the hearing.

b. Also, the County Floodplain Board shall, at least thirty (30) days prior to the date of the hearing, provide the Oklahoma Water Resources Board with written notification that such a hearing is forthcoming, accompanied by a copy of the proposed rules and regulations.

c. After the hearing, the County Floodplain Board resolves to adopt the floodplain regulations. The Floodplain Board must file a copy of the adopted regulations with the Oklahoma Water Resources Board within fifteen (15) days.

4. After the County Floodplain Board adopts the regulations, the Board of County Commissioners must approve the rules and regulations by an appropriate resolution.

## **PROCEDURES FOR MUNICIPALITIES, CITIES OR TOWNS**

1. The municipal governing body (city council, town council, board of trustees) shall by resolution establish a Floodplain Board which has the authority to adopt, administer and enforce floodplain management regulations.

a. The Municipal Floodplain Board shall be composed of five (5) members appointed by the municipal governing body. All the members must be residents of the municipality. Terms of appointment to the Municipal Floodplain Board shall vary from two (2) to six (6) years, and service shall be without compensation. Removals shall be made by the municipal governing body only after a public hearing. Any vacancies shall be filled by appointment for the unexpired term only.

b. The municipal governing body may designate members of an existing Planning Commission of the municipality to serve as the Municipal Floodplain Board if those members meet the qualifications set forth above.

2. The Municipal Floodplain Board shall draft rules and regulations governing land use, building of structures, and construction in floodplains in the incorporated area of the municipality. The Oklahoma Water Resources Board will provide guidelines to aid the Floodplain Board in developing its rules and regulations. These guidelines will address the important aspects of (1) building and development in the floodplain, and (2) methodologies for determining 100-year floodplain.

a. Such rules and regulations shall include definitions of specific floodplain terms as used in the rules and regulations.

b. The Municipal Floodplain Board shall also be responsible for determining the 100-year flood elevations in the municipality's floodplain by either adopting federal, state or local maps (when available) or by developing such maps and information.

3. Once the rules and regulations have been drafted, the Floodplain Board shall hold a public hearing within the municipality so that residents and other interested citizens may voice their opinions and views regarding the proposed rules and regulations.

a. The Municipal Floodplain Board shall, at least thirty (30) days prior to the date of the hearing, publish a Notice of Hearing in a newspaper of general circulation in the municipality. The notice shall specify the purpose, time, and place of the hearing.

b. The Municipal Floodplain Board shall, at least thirty (30) days prior to the date of the hearing, provide the Oklahoma Water Resources Board with written notification that such a hearing is forthcoming, accompanied by a copy of the proposed rules and regulations.

c. After the hearing, the Municipal Floodplain Board resolves to adopt the floodplain regulations. The Floodplain Board must file a copy of the adopted regulations with the Oklahoma Water Resources Board within fifteen (15) days.

4. After the Floodplain Board the regulations, the municipal governing body must approve the rules and regulations by an appropriate resolution.

## **FEMA AND STATE REQUIREMENTS**

Finally, the Floodplain Board (for either municipality or county) must submit two completed copies of FEMA Form 81-64, "Application for Participation in the National Flood Insurance Program," two certified copies of resolution

requesting participation in the National Flood Insurance Program, and two certified copies of the adopted floodplain regulations to:

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

Mitigation Division  
Federal Center, Region VI  
800 North Loop 288  
Denton, Texas 76201-3698

and one set of the above documents to:

**OKLAHOMA WATER RESOURCES BOARD**

Attention: Planning and Management  
3800 North Classen Boulevard  
Oklahoma City, Oklahoma 73118

The Federal Emergency Management Agency (FEMA) regional office will send a copy of the materials received from the community (county or municipality) to FEMA Headquarters in Washington, D. C. FEMA Headquarters reviews the community's floodplain regulations, and if approved, notifies the community's Floodplain Board, OWRB, and the FEMA regional office of the community's eligibility for flood insurance and the effective date that flood insurance can first be purchased by eligible residents in that community. If the application is not approved in Washington, the FEMA regional office will work with the community's Floodplain Board to resolve any problems causing such disapproval.

## **SUMMARY**

### **HOW TO ENROLL IN NFIP "IN A NUT SHELL"**

#### **INSTRUCTION FOR MAKING APPLICATION TO PARTICIPATE IN THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

1. Complete the attached Application for Participation in the National Flood Insurance Program. (Form 81-64)
2. Adopt and certify the attached Orders concerning participation in the National Flood Insurance Program and the adoption of a map delineating the flood areas to be used if an official FEMA Flood Insurance Rate Map or Flood Hazard Boundary map has not been published.
3. Adopt and certify legally enforceable regulations which meet or exceed the criteria stated in Part 60.3 of the National Flood Insurance Program Regulations. The attached Flood Model Damage Prevention Regulations can be adopted, without changes, to fulfill this requirement.

**4. Mail One Copy of All Documents and Maps to:**

**OKLAHOMA WATER RESOURCES BOARD**  
Attention: Planning and Management Division  
3800 N. Classen Boulevard  
Oklahoma City, Oklahoma 73118

**5. Mail Two Copies of All Completed Documents and Maps to:**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
Mitigation Division  
Federal Center, Region VI  
800 North Loop 288  
Denton, Texas 76201-3698

**6. Maintain one copy of the completed application, orders, regulations and maps for your official records.**

# APPENDIX B-3

## FEDERAL AND STATE REQUIREMENTS

### "IN A NUTSHELL"

#### MINIMUM FEDERAL AND STATE REQUIREMENTS

#### LEGAL REFERENCE

*Maintaining for public inspection all flood permit records (floodproofing and elevation certificates)	NFIP Regulations Section 59.22 (a)(9)(iii)
*Notifying FEMA in writing of community boundary changes (annexations, incorporations, etc.)	NFIP Regulations Sections 59.22 (a)(9)(v) and 64.4 (b)
*Using the Biennial Report to notify FEMA of variances granted	NFIP Regulations Sections 59.22 (b)(2) and 60.6 (a)(6)(ii)
*Using other reliable flood elevation data (preliminary, draft, or final)	NFIP Regulations Section 60.3 (b)(4)
*Updating floodplain management regulations within six months after FEMA revises NFIP regulations	NFIP Regulations Section 60.7
*Notifying FEMA of physical changes to the floodplain	NFIP Regulations Section 65.3
*Notifying state and adjacent communities on watercourse alterations or relocations	NFIP Regulations Section 60.3 (b)(6)(7)
*More restrictive regulations of state or local governments take precedence over NFIP regulations	NFIP Regulations Section 60.1 (d)
*Local Floodplain Boards	OS Title 82, Sections 1604 & 1605
*Floodplain Map	OS Title 82, Section 1606
*Development on state-owned or operated property within floodplains	OS Title 82, Sections 1612 & 1617 and OWRB Rules and Regulations, Chapter 55

# APPENDIX B-4

## CHAPTER 55 - DEVELOPMENT

### ON STATE OWNED OR OPERATED PROPERTY

### WITHIN FLOODPLAINS

Subchapter .....	Section
1. General Provisions.....	785:55-1-1
3. Development.....	785:55-3-1
5. Variances and Exemptions.....	785:55-5-1

[Authority: 82 O.S., Section 1085.2 and 1601 et seq.]

## SUBCHAPTER 1.

### GENERAL PROVISIONS

Section
785:55-1-1. .. Authority and purpose
785:55-1-2. .... Definitions
785:55-1-3. Administrative provisions
785:55-1-4. .... Permits

#### **785:55-1-1. AUTHORITY AND PURPOSE**

(a)**Authority.** These rules have been promulgated and adopted pursuant to and as authorized by 82 O.S. 1981, §§1601 et seq., as amended.

(b)**Purpose of rules.** The purpose of these rules and regulations is to set forth the minimum criteria for development of state owned or state operated property within floodplains and to comply with the requirements necessary to establish eligibility and maintain participation in the National Flood Insurance Program, as set forth in the Federal Emergency Management Agency regulations at 44 C.F.R., Part 60. These criteria and requirements are to:

- (1)Protect human life and health;
- (2)Minimize expenditure of public money for costly flood control projects;
- (3)Minimize the need for rescue and relief efforts associated with flooding and generally under taken at the expense of the general public;
- (4)Minimize prolonged business interruptions;
- (5)Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;
- (6)Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood losses;
- (7)Insure that potential buyers are notified that property is in a flood area; and
- (8)Allow for the procurement of flood insurance.

(c)**Coordination role of Board.** The Board acts as state coordinator of the National Flood Insurance Program (NFIP) for the Federal Emergency Management Agency (FEMA), and in that role provides guidance and information to local communities' floodplain boards about the NFIP and FEMA regulations promulgated thereunder. The Board also disseminates copies of floodplain maps which show the 100-year floodplain and may make expedited searches of its maps and records to advise whether particularly described tracts may lie within the floodplain as delineated on such maps and records, upon payment of fees as set forth in Chapter 5 of this Title.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

#### **785:55-1-2. DEFINITIONS**

The following words and terms, when used in this Chapter, shall have the following meaning, unless the context clearly indicates otherwise:

“**Base flood**” means the flood having a one percent chance of being equalled or exceeded in any given year.

**“Base flood elevation”** means the elevation above mean sea level for the base flood.

**“Basement”** means any area of the building having its floor subgrade (below ground level) on all sides.

**“Base flood discharge”** means the peak volume of water passing through a cross-section of a watercourse expressed in cubic feet per second.

**“Board”** means the Oklahoma Water Resources Board or any employee or agent or staff member thereof.

**“Certificate”** means a letter or statement signed and sealed by a Registered Professional Engineer stating that certain condition or requirements have been met.

**“CFR”** means Code of Federal Regulations.

**“Development”** means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

**“Development permit”** means specific written authorization from the Board to allow development within a floodplain in accordance with the applicable regulations governing development within floodplains.

**“ Dwelling unit”** means a place of residence which may be a single residence or a multiple-residence building [82:1603(3)] and includes mobile homes.

**“Elevation (MSL)”** means elevation in feet in relation to mean sea level.

**“Existing structures”** means structures constructed prior to May 13, 1980.

**“Existing manufactured home park or subdivision”** means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

**“Expansion to an existing manufactured home park or subdivision”** means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

**“Farm building”** means a walled and roofed structure which is not intended for human habitation or commercial use but which may be used for agricultural purposes including but not limited to the storage of crops, farm machinery, or livestock.

**“Farm pond”** means a reservoir impounding less than 50 acre-feet of water with a dam less than 25 feet in height and a drainage area less than one square mile used for stock water and domestic use.

**“FEMA”** means Federal Emergency Management Agency.

**“Flood”** means general and temporary conditions of partial or complete inundation of normally dry land areas from the overflow of lakes, streams, rivers or any other inland waters [82:1603(4)] or watercourses.

**“Flooding”** means “flood”.

**“Floodplain”** means the land adjacent to a body of water which has been or may be covered by flooding, including, but not limited to, the one-hundred year flood. [82:1603(5)]

**“Floodway”** means the channel of a stream, watercourse or body of water and those portions of floodplains which are reasonably required to carry and discharge the floodwater or floodflow of any river or stream. [82:1603(8)]

**“Flood carrying capacity”** means the ability of a stream or water course to pass the base flood.

**“Flood hazard boundary map (FHBM)”** means an official map of a community, issued by the Federal Emergency Management Agency, where the boundaries of the flood area having special hazards have been designated as flood zones.

**“Flood insurance rate map (FIRM)”** means an official map of a community, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

**“Flood insurance study”** means an official report provided by FEMA to communities regarding flood profiles, water surface elevations of the base flood, as well as the Flood Boundary-Floodway Map.

**“Floodplain management”** means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

**“Flood proofing”** means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

**“Functionally dependent use”** means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

**“Highest adjacent grade”** means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

**“Historic structure”** means any structure that is:

- (A) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- (B) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
- (C) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or
- (D) Individually listed on local inventory of historic places in communities with historic preservation programs that have been certified either:
  - (i) By an approved state program as determined by the Secretary of the Interior or;
  - (ii) Directly by the Secretary of the Interior in states without approved programs.

**“Levee”** means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

**“Lowest floor”** means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking or vehicles, building access or storage in an area other than a basement area is not considered a building’s lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of 44 CFR Section 60.3, FEMA regulations.

**“Manufactured home”** means a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term **“manufactured home”** does not include a “recreational vehicle”.

**“Manufactured home park or subdivision”** means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

**“Mean sea level”** means, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community’s Flood Insurance Rate Map are referenced.

**“Natural drainage”** means the drainage basin without man-made alterations.

**“New construction”** means for floodplain management purposes, structures for which the “start of construction” commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

**“New manufactured home park or subdivision”** means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

**“Non-residential structure”** means a building not used for one or more families.

**“One hundred year flood”** means the base flood.

**“Permit”**, for purposes of Chapter 55 means specific written authorization by the Board and consists of the following:

- (1) Building permits which are issued for the construction or substantial improvement of a structure.
- (2) Construction permits which are issued for any man-made alteration, construction or development which may have an adverse effect on the regulatory floodplain.

**“Program”** means the overall National Flood Insurance Program authorized by the National Flood Insurance Act of 1968 (42 U.S.C. 4001-4128) as amended [82:1603(10)], and the Oklahoma Floodplain Management Act (82 O.S. 1981, §§1601 through 1609).

**“Recreational vehicle”** means a vehicle which is:

- (1) Built on a single chassis;
- (2) 400 square feet or less when measured at the largest horizontal projections;
- (3) Designed to be self-propelled or permanently towable by a light duty truck; and
- (4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

**“Regulatory flood”** means the one-hundred-year flood, i.e., the flood having a one percent (1%) chance of occurrence in any given one year period.

**“Regulatory flood fringe”** means the area of the regulatory floodplain which may be developed by equal encroachment to the extent that the regulatory floodway is preserved and natural conditions allowed.

**“Regulatory floodplain”** means the area susceptible to being covered by the regulatory flood.

**“Regulatory flood protection elevation”** means the elevation which is one (1) foot above the regulatory floodplain elevation.

**“Regulatory floodway”** means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

**“Riverine”** means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

**“Start of construction”** means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date, unless the Board extends such time period for good cause shown. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footing, piers, or foundations of the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

**“State floodplain board”** means the Oklahoma Water Resources Board whose members also serve as members of the State Floodplain Board

**“State owned property”** means real property owned or leased in whole or in part or operated by any agency of the State of Oklahoma, and includes but is not limited to lands held in trust by the Commissioners of Land Office. It shall be presumed that development or substantial improvement on rights of way, licenses, easements, or other interests less than fee simple shall be considered to be development or substantial improvement on state owned property.

**“Structure”** means any walled and roofed edifice or building including but not limited to mobile homes and gas or liquid storage tanks.

**“Substantial improvement”** means reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the “start of construction” of the improvement. This term includes structures which have incurred “substantial damage,” regardless of the actual repair work performed. The term does not, however, include either:

- (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or
- (2) Any alteration of a “historic structure,” provided that the alteration will not preclude the structure’s continued designation as a “historic structure.”

**“Variance”** means a grant of relief to a person from the requirement of these rules. A variance, therefore, permits construction or development in a manner otherwise prohibited by these rules.

**“Watercourse”** means the channel or area that conveys a flow of water.

**“Water surface elevation”** means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929, (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of riverine areas.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93; Amended at 11 Ok Reg 3023, eff 6-13-94]

### **785:55-1-3. ADMINISTRATIVE PROVISIONS**

(a) **General prohibition assumption and methods of development.** A general prohibition assumption and methods of development are as follows:

- (1) In making determinations hereunder, the Board shall, to the extent possible, prohibit damaging or potentially damaging increases in flood elevation or velocity caused by alterations in or encroachments upon the regulatory floodplain by state owned or operated property.
- (2) All calculations of damaging or potentially damaging increases in flood elevation or velocity shall assume a reasonably equal degree of encroachment of existing and potential uses in the floodplain and shall take into account the cumulative impact of such encroachment.
- (3) The Board shall consider acceptable methods of developing floodplain areas, including but not limited to the following to prevent significantly increased flood elevations and velocities and to minimize damages to floodplain uses:
  - (A) Location of structures, landfills or other development outside of the regulatory floodplain, thus preserving the floodplain for uses which have no significant effect on the storage and conveyance of floodwaters.
  - (B) Location of limited development in the floodplain in accordance with Subchapters 3 and 5 of this Chapter so that development will be in itself safe from flood damage and will preserve the base flood elevation.

(b) **Rules as minimum criteria.** The provisions of these rules shall be construed to be minimum requirements to decrease

and eliminate human-induced changes to the floodplain which may increase flooding. Natural and human-induced conditions may still cause floods to occur within and outside the floodplain in any event. The degree of flood protection required herein is based on engineering and scientific methods reflecting the current state of the art.

(c) **Administration.** The Board, acting in its official capacity and/or by and through its Executive Director and Board staff, shall administer and enforce these rules.

(d) **Liabilities not imposed on Board.** The rules of this Chapter shall not be deemed nor construed to create any liability on the part of the Board or any officer or employee thereof for any flood damages which might be alleged or claimed to have occurred or sustained as a result of reliance on these rules or any administrative decision lawfully made thereunder.

(e) **Prior use.** Any state owned or operated buildings or uses within a regulatory floodplain that existed prior to May 13, 1980, which do not meet the minimum standards set forth herein may continue. However, unless brought into compliance with the minimum standards set forth herein, such prior uses may not be substantially improved, altered or enlarged.

(f) **Use of maps prepared by FEMA.** The Board will utilize FHBMs and FIRMs where appropriate in the administration of these rules.

(g) **Field surveys.** All required field surveys shall be conducted under the supervision of a Registered Professional Engineer or Registered Land Surveyor and shall be so certified.

(h) **Open records.** The Board shall maintain and hold open for public inspection all records submitted in accordance with this Chapter of these rules.

### **785:55-1-4 PERMITS**

(a) **A development permit shall be required** for all proposed development or substantial improvement located on state owned or operated property within the regulatory floodplain identified by the Board.

(1) Permits will be required for any proposed development or substantial improvement including the placement of manufactured homes within the regulatory floodplain.

(2) Development permits will be issued after the Board determines that the proposed development in the regulatory floodplain is not a danger to persons or property. The Board shall give notice of proposed development permit applications to counties and municipalities participating in the National Flood Insurance Program at least thirty (30) days before granting the permit to undertake such development.

(b) **Permit forms.** Permit application forms provided by the Board shall be used in applying for a permit. The application shall be submitted in duplicate and shall provide sufficient information to determine the effect of the proposed development on the conveyance of flood waters. If the Board deems necessary and so notifies the applicant in writing, one or more sets of plans and specifications may be required. The Board may enter into Memorandums of Agreement with applicants in accordance with this Chapter.

(c) **Board action.** The requirements imposed by these rules shall govern the Board in making development permit approval decisions. The Board shall exercise such discretion in its application of these rules as may be necessary to produce reasonable decisions based upon examination by and recommendation of the Board's staff.

(d) **Permit conditions.** When necessary to accomplish the purposes of these rules, special conditions may be included in the permit. Such conditions may include but are not limited to as-built certifications, maintenance guarantees, floodproofing requirements, fill, dike or levee requirements, control of the design and location of structures and other specifications related to the accomplishment of the purposes of this Chapter of these rules. When as-built certification is included as a special condition, the required key elevations or critical dimensions will be specifically identified. One or more sets of plans and specifications prepared by a Registered Professional Engineer may also be required under a special condition.

(e) **Bridges and roads.** All applications for development permits for bridges and roads shall include a certification signed and sealed by a Registered Professional Engineer that all applicable requirements of these rules have been met.

(f) **Riverine development.** In riverine situations, the Board shall notify adjacent communities at least thirty (30) days prior to granting a permit which would result in the alteration or relocation of a watercourse and submit copies of such notifications to the Federal Emergency Management Agency.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93; Amended at 11 Ok Reg 3023, 6-13-94]

## **SUBCHAPTER 3. DEVELOPMENT**

### Section

- 785:55-3-1. Development without base flood elevations determined or regulatory floodways delineated
- 785:55-3-2. Development in the regulatory floodplain with base flood elevations determined
- 785:55-3-3. Development in delineated regulatory floodways
- 785:55-3-4. General requirements for development in any regulatory floodway

### **785:55-3-1 DEVELOPMENT WITHOUT BASE FLOOD ELEVATIONS DETERMINED OR REGULATORY FLOODWAYS DELINEATED**

(a) **Applicability of section.** If a proposed development site is in a regulatory floodplain where no base flood elevations have been determined and no regulatory floodways have been delineated, the criteria and requirements of this section shall apply. Also, in such cases, all proposed development and substantial improvements shall:

- (1) Be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
- (2) Be constructed with material resistant to flood damage;
- (3) Be constructed by methods and practices that minimize flood damages; and
- (4) 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 or accumulating with the components during conditions of flooding.

(b) **Other permits.** The applicant for a proposed development permit shall assure that all necessary permits have been obtained for which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, as amended.

(c) **Subdivision development in regulatory floodplains.** Subdivision proposals and other proposed new development, including manufactured home parks, shall meet the requirements of these rules. If a subdivision proposal or other proposed new development is in a regulatory floodplain, any such proposals shall be reviewed to assure that:

- (1) All such proposals are consistent with the need to minimize flood damage within the regulatory floodplain;
- (2) All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage; and
- (3) Adequate drainage is provided to reduce exposure to flood hazards.

(d) **Water systems in regulatory floodplains.** New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems.

(e) **Sanitary sewers within regulatory floodplains.** Sanitary sewers within regulatory floodplains shall be subject to the following:

- (1) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and
- (2) Onsite waste disposal systems shall be located to avoid impairment to the system or contamination from the systems during flooding.

(f) **Development prior to delineation of regulatory floodway.** Until a regulatory floodway is delineated, no new construction, substantial improvements, or other development (including fill) shall be permitted within a regulatory floodplain, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(g) **Base flood elevation data.** All new subdivision proposals and other proposed developments (including proposals for manufactured home parks) greater than 50 lots or 5 acres, whichever is the lesser, shall include within such proposals base flood elevation data.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

### **785:55-3-2. DEVELOPMENT IN THE REGULATORY FLOODPLAIN WITH BASE FLOOD ELEVATIONS DETERMINED**

(a) **Applicability of section.** In addition to the criteria and requirements set forth in 785:55-3-1 and 785:55-3-4 herein, all developments within the regulatory floodplain where base flood elevations have been determined shall comply with the criteria and requirements of this section.

(b) **Use of base flood elevations.** The Board shall obtain, review and utilize any base flood elevation and floodway data available from a federal, state, or other source, including data developed pursuant to 785:55-3-1(g), as criteria for requiring that new construction, substantial improvements, or other development in the regulatory floodplain meets the requirements of these Rules as applicable.

(c) **Floor and floodproof elevations.** The applicant shall obtain and provide the Board with the elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures. If the structure has been floodproofed in accordance with (i)(2) and (j) of this section, the applicant shall obtain and provide the Board with the elevation (in relation to mean sea level) to which the structure was floodproofed.

(d) **Flood carrying capacity of altered watercourse.** The Board shall assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(e) **Manufactured home installation in general.** All manufactured homes which are to be placed within a regulatory floodplain shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not to be limited to, use of over-the-top frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(f) **Manufactured home with permanent foundations.** Manufactured homes that are placed or substantially improved on sites within a regulatory floodplain shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated at least one (1) foot above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement where the manufactured home is located as follows:

- (1) Outside of a manufactured home park or subdivision.
- (2) In a new manufactured home park or subdivision.
- (3) In an expansion to an existing manufactured home park or subdivision; or
- (4) In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood.

(g) **Manufactured homes without permanent foundations.** Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision within regulatory floodplains that are not subject to the provisions of (f) of this section shall be elevated so that either:

- (1) The lowest floor of the manufactured home is at or above the base flood elevation; or
- (2) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength, that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

(h) **Other residential structures.** All new construction and substantial improvements of residential structures within the regulatory floodplain shall have the lowest floor (including basement) elevated at least one (1) foot above the base flood elevation.

(i) **Non-residential structures.** All new construction and substantial improvements of non-residential structures within regulatory floodplains shall:

- (1) Have the lowest floor (including basement) elevated at or above the base flood elevation; or
- (2) Together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with wall substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(j) **Non-residential floodproofing.** Where a non-residential structure is intended to be made watertight below the base flood elevation, the following shall apply:

- (1) A Registered Professional Engineer or Architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice for meeting the applicable provisions of (i)(2) of this section; and
- (2) A record of such certificates which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Board.
- (3) Floodproofing for non-residential structures will be required only when the other aforementioned techniques for flood protection are impossible or impractical. Floodproofing measures shall be designed consistent with the base flood elevation for the particular area, flood velocities, durations, rate of rise, hydrostatic and hydrodynamic forces, and other factors associated with the regulatory flood. The Board may require that the applicant submit a plan or document certified by a Registered Professional Engineer or Licensed Architect that the floodproofing measures are consistent with the base flood elevation and associated flood factors for the particular area. Floodproofing measures which may be required include but are not limited to the following:
  - (A) Construction with materials and utility equipment resistant to flood damage.
  - (B) Anchorage to resist flotation and lateral movement.
  - (C) Installation of watertight doors, bulkheads and shutters or similar methods of construction.
  - (D) Reinforcement of walls to resist water pressures.
  - (E) Use of paints, caulks, or other substances to reduce seepage of water through walls.
  - (F) Addition of mass or weight to structures to resist flotation.
  - (G) Installation of pumps to lower water levels in structures.
  - (H) Construction of water supply and waste treatment systems so as to prevent the entrance of floodwaters.
  - (I) Pumping facilities or comparable practices for subsurface drainage systems for buildings, to relieve external foundation wall and basement flood pressures.
  - (J) Construction to resist rupture or collapse caused by water pressure or floating debris.
  - (K) Installation of valves or controls on sanitary and storm drains which will permit the drains to be closed to prevent

backup of sewage and storm waters into the buildings or structures. Gravity draining of basements may be eliminated by mechanical devices.

(L) Location of all electrical equipment, circuits, and installed electrical appliances to assure they are above the base flood elevation.

(k) **Enclosed areas below lowest floor.** For all new construction and substantial improvements:

(1) 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 and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.

(2) Designs for meeting this requirement must either be certified by a Registered Professional Engineer or Architect or meet or exceed the following minimum criteria:

(A) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

(B) The bottom of all openings shall be no higher than one foot above grade.

(C) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(l) **Recreational vehicles.** Recreational vehicles placed on sites within regulatory floodplains shall:

(1) Be on the site for fewer than 180 consecutive days.

(2) Be fully licensed and ready for highway use. A recreational vehicle will be considered ready for highway use if it is on its wheels or jacking system, if attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or

(3) Meet the permit requirements of 785:55-1-4 and the elevation and anchoring requirements for "manufactured homes" in (f) of this section.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

### **785:55-3-3 DEVELOPMENT IN DELINEATED REGULATORY FLOODWAYS**

(a) **Development where regulatory floodway delineated.** In areas in which a regulatory floodway has been delineated, the following shall apply to development in such delineated regulatory floodways in addition to those in 785:55-3-1, 785:55-3-2 and 785:55-3-4.

(b) **Regulatory floodway designation.** The Board shall designate regulatory floodways based on the principle that the area chosen for the regulatory floodway must be designed to carry the waters of the base flood, without increasing the water surface elevation of that flood more than one foot at any point.

(c) **Development or encroachments within regulatory floodway.** Encroachments, including fill, new construction, substantial improvements, and other development within the designated regulatory floodway are prohibited 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 levels within the community during the occurrence of the base flood discharge.

(d) **Increase in base flood elevations.** Encroachments within the designated regulatory floodway that would result in an increase in the base flood elevation are prohibited unless the permittee first provides to the Board all required information necessary to apply for a conditional letter of map revision or floodway revision. The Board shall make application for a conditional letter of map revision or floodway revision under FEMA regulations.

(e) **Modifications or additions.** For modification or additions, the following shall apply:

(1) Non-substantial improvements to existing structures which are located in a regulatory floodway or are vulnerable to flood damage may be allowed provided:

(A) The new construction does not increase flood damage potential of the structure and does not obstruct flood flows.

(B) Floodproofing of existing structures is allowed and encouraged, but must comply with these rules.

(2) The Board shall prohibit the repair or replacement of insured substantially damaged structures which are located in a regulatory floodway delineated by the Board. Destroyed structures may not be rebuilt without a permit issued by the Board in such a regulatory floodway. Where such insured perils are prohibited by regulation, the loss becomes a constructive total loss.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

### **785:55-3-4. General requirements for development in any regulatory floodplain**

(a) **Applicability of section.** The provisions of this section shall apply to development within any regulatory floodplain, regardless of whether base flood elevations have been determined or regulatory floodways have been delineated.

(b) **Temporary fills.** Temporary fills, such as cofferdams or fills used during construction, may be used upon assumption

of full responsibility by the sponsoring agency.

(c) **Roadways, bridges and public utilities within the regulatory floodplain.** For roadways, bridges and public utilities within the regulatory floodplain, the following shall apply:

(1) When failure or interruption of service of roadways, bridges, or public utilities would endanger public health or safety, such roadways, bridges, or public utilities shall be protected to the base flood elevation or to the elevation of the flood of record, whichever is greater. In other instances where only economic losses are threatened, protection shall be provided to the extent practical. A degree of protection less than the base flood elevation may be justified even in cases where overtopping could occur.

(2) The following provisions shall apply to all applicable construction:

(A) Buried crossings such as pipelines shall be maintained at least three (3) feet below the channel bottom.

(B) Modification, addition and replacement of existing roadways, bridges and public utilities shall be allowed providing adequate provision is made for the backwater effects of new flow obstructions in accordance with 785:55-3-1, 785:55-3-2, and 785:55-3-3.

(d) **Storage of materials.** Materials that are buoyant, flammable, explosive, or could be injurious to human, animal or plant life shall be stored above the base flood elevation, floodproofed or protected by structural measures consistent with the standards set forth herein. Storage of materials likely to cause water pollution, in the event of flooding, is prohibited unless adequate safeguards are provided.

(e) **Emergency repairs and replacements.** Emergency repairs and replacements which will not threaten public health or safety may be built or constructed without a permit. If the construction would normally require a permit, application for such permit must be made as soon as practical. Construction must be removed if it does not conform to the rules in this Chapter.

(f) **Government projects.** Government projects for flood damage control or other water management purposes otherwise authorized by law shall be allowed under the following conditions:

(1) The project does not increase flood damage potential.

(2) Any increase in flooding above, below or through the project area mitigated by project design.

(3) Plans, specifications and provisions for securing required land rights have been approved and a development permit issued by the Board; and

(4) A sponsoring agency is authorized and has accepted full responsibility for operations, maintenance and repair of the project.

(g) **Dikes, levees, floodwalls and similar structures.** For dikes, levees, floodwalls and similar structures, the following shall apply:

(1) Protection afforded by existing dikes, levees, floodwalls and similar structures will be evaluated during delineation of the regulatory floodplain. If the existing levee provides protection to the base flood elevation, to include at least 3 feet of freeboard, the boundary of the regulatory floodplain will be located channelward of the levee. Regulatory floodplains will then be delineated along interior streams, based on their regulatory flood discharge. If the existing levee does not provide protection to the base flood elevation, the regulatory floodplain will be delineated as if the levee does not exist.

(2) Construction of new levees may be allowed as a government project as provided in (f) of this section. Protection must be provided equivalent to that provided by filling to the base flood elevation.

(h) **Reservoir or channel improvements.** The regulatory floodplain shall not be changed on the basis of proposed reservoir or channel improvements. The regulatory floodplain may be changed after the reservoir or channel improvements are constructed and operative. All requests to change the regulatory floodplain boundaries must be submitted through the Board to FEMA for approval.

(i) **Error in delineation of the regulatory floodplain.** The delineation of the regulatory floodplain shall not be changed unless it has been shown that the original delineation is in error or there are changed conditions which modify the original computations. Any person contesting the correctness of the delineation shall be given reasonable opportunity to submit his own technical evidence. Such evidence along with a request to change shall be forwarded to FEMA through the Board for consideration.

(j) **Methods for providing flood protection.** The following are nonexclusive acceptable methods for providing flood protection:

(1) Permanent fill may be allowed as a means of providing safe construction sites, provided:

(A) The fill, except in exceptional circumstances, is contiguous with the boundary of the regulatory floodplain and shaped, in plan, so as not to create adverse velocities or current patterns.

(B) The surface of the fill is above the regulatory flood elevation.

(C) The channelward face of the fill shall be protected against erosion. If protected by vegetative cover, slopes shall be no steeper than three (3) horizontal to one (1) vertical. Steeper slopes shall be protected by riprap. A vertical bulkhead may be used if adequately founded and protected against scour.

- (D) Fill shall be of suitable material and so compacted to provide adequate support under saturated conditions.
- (E) Adequate provision is made for conducting drainage across or through the fill.
- 2) Elevating on adequately anchored pilings or columns is allowed provided:
  - (A) The lowest portion of the structural members of the lowest floor (excluding the pilings and columns) is elevated one-foot above the base flood elevation and securely anchored to such piles or columns.
  - (B) The elevating members are designed to withstand saturated conditions, hydrostatic pressure, and to minimize scouring.
  - (C) The size, shape, spacing and alignment of elevating members are selected to minimize turbulence and deflection of current patterns, and to facilitate easy passage of debris.
  - (D) Major access and utility services are elevated at least one (1) foot above the base flood elevation.
- (k) **Channel relocation and modification.** Channel relocation and modification may be allowed provided the upstream and downstream flood potential is not altered.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

## SUBCHAPTER 5. VARIANCES AND EXEMPTIONS

Section

785:55-5-1 Variances

785:55-5-2 Exemptions

### 785:55-5-1 VARIANCES

- (a) **State law applicable.** The Board shall hear and render judgment on request for variances from the requirements of these regulations in accordance with Title 82 O.S. 1981, Section 1615.
- (b) **Board discretion, hearing, term of variance.** The Board shall exercise wide discretion in weighing the equities involved and the advantages and disadvantages to the applicant and to the public at large when determined whether the variance shall be granted. The Board shall conduct a hearing which complies with all requirements of the Floodplain Management Act, Title 82 O.S. 1981, Section 1610(B), for public notice. In no case shall variances be effective for a period longer than twenty (20) years.
- (c) **Variances for historic structures.** Variances may be granted for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places of the State Inventory of Historic Places.
- (d) **Conditions on variances.** Upon consideration of the factors noted above and the intent of these rules, the Board may attach such conditions to the granting of variances as it deems necessary to further the purposes and objectives of this Chapter of the rules.
- (e) **Requirements for granting variances.** The following prerequisites for granting variances shall apply:
  - (1) Variances shall not be granted within any delineated regulatory floodway if any increase in flood levels during the base flood discharge would result. Notification of the denial of the requested variance shall be given to the applicant and shall be maintained with a record of all variance actions as required in 785:55-1-4(f).
  - (2) Variances for uses which do not satisfy the requirements of the Oklahoma Floodplain Management Act shall only be granted upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief and meets the following criteria:
    - (A) Showing a good and sufficient cause.
    - (B) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws, ordinances or regulations.
  - (3) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation, and will result in increased flood insurance premium rates up to amounts as high as \$25.00 for each \$100.00 of coverage. Applicants shall also be notified that construction below the base flood level increases risks to life and property.
  - (4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (f) **Variances for functionally dependent use.** Variances may be granted for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that:
  - (1) The criteria outlined in this subsection and subsection (h) are met, and

(2) The structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

(g) **Justification for variance in relation to lot size.** Variances may be granted for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the requirements of this Section are met. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

(h) **Variance prohibited if flood hazard.** No variance shall be granted where the effect of the variance will be to allow the continuance or to establish a condition which unreasonably creates flooding hazards.

(i) **Variances do not relieve liability.** Variances granted shall not be construed as to relieve any person who receives it from any liability imposed by the laws of this state.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

## **785:55-5-2. EXEMPTIONS**

(a) **Agricultural uses.** These floodplain management rules in this Chapter shall not apply to usual agricultural purposes, the planting of crops, or the construction of farm ponds.

(b) **New storm cellars.** For new storm cellars, the following shall apply:

(1) New storm cellars may be built below the flood elevation and shall be exempt provided that such new storm cellars are:

(A) Limited to nonhabitable uses.

(B) Designed so that all electrical, heating and other mechanical equipment is above the regulatory flood protection level.

(C) Designed so that the integrity of the storm cellar is preserved during the flooding.

(2) Compliance with requirements of (1)(A) through (C) of this subsection must be certified by a Registered Professional Engineer or Licensed Architect.

(c) **Recreational or open-space use of land.** Any use of land in the regulatory floodplain for recreational or open-space purposes, not otherwise specifically addressed by this Chapter of the rules is exempt provided that such use does not alter the flood carrying capacity or the regulatory floodplain. Such uses may include but are not limited to non-enclosed boat docks, fishing docks and boat houses; non-enclosed picnic shelters; anchored picnic tables; boat ramps; and unimproved parking lots.

[Source: Amended at 10 Ok Reg 3369, eff 6-25-93]

# APPENDIX B-5

## CHAPTER 5 FEES

### Section

- 785:5-1-1. Purpose
- 785:5-1-2. Definitions
- 785:5-1-3. Board to charge and collect fees
- 785:5-1-4. Special fund
- 785:5-1-5. Weather modification license and permit fees
- 785:5-1-6. Stream water permit application fees
- 785:5-1-7. Watercourse reclamation permit fee
- 785:5-1-8. Release of easement or easement deed fees
- 785:5-1-9. Dam fees
- 785:5-1-10. Groundwater application fees
- 785:5-1-11. Well driller and pump installer licensing fees
- 785:5-1-12. Waste disposal permit fees (Revoked)
- 785:5-1-13. Laboratory certification fees (Revoked)
- 785:5-1-14. Stream water and groundwater petition fees
- 785:5-1-15. Fees for reproduction, maps and publications
- 785:5-1-16. Fees required in other matters
- 785:5-1-17. Loan application fees
- 785:5-1-18. Development application fees

Appendix A. Instructions for Completing Wastewater Discharge Waste Disposal Permit Annual Fee Rating Worksheet (Revoked)

Appendix B. Oklahoma Water Resources Board Waste Disposal (Discharge) Permit Annual Fee Rating Worksheet (Revoked)

[Authority: 75 O.S., Section 302; 82 O.S., Sections 1085.4, 1087.9 and 1087.15]

[Source: Codified 12/31/91]

### **785:5-1-1. Purpose**

The rules in this Chapter are to specify the fees and charges to be collected by the Board for applications, copies, filing papers, making records, providing transcripts and other specified services, all as authorized by 82 O.S. 1981, §§1085.2(9) and 1087.15.

### **785:5-1-2. Definitions**

The following words and terms, when used in this Chapter, shall have the following meaning, unless the context clearly indicates otherwise:

**“APA”** means and refers to the Oklahoma Administrative Procedures Act set forth in 75 O.S. 1981, §§301 et seq., as amended.

**“Appropriation”** means the process under 82 O.S. 1981, §§105 et seq., by which an appropriative stream water right is acquired. A completed appropriation results in an appropriative right.

**“Board”** means the Oklahoma Water Resources Board authorized by law to make final adjudications, execute contracts, adopt rules and carry out other powers and duties set forth by law or, for duties authorized by law to be delegated to the Executive Director, the Executive Director or any employee or agent or staff member thereof as assigned by the Executive Director.

**“Definite stream”** means a watercourse in a definite, natural channel, with defined beds and banks, originating from a definite source or sources of supply. The stream may flow intermittently or at irregular intervals if that is characteristic of the sources of supply in the area [82:105.1(B)].

**“Executive Director”** means the Executive Director of the Oklahoma Water Resources Board.

**“Groundwater”** means fresh water under the surface of the earth regardless of the geologic structure in which it is standing or moving outside the cut bank of any definite stream. [82:1020.1]

**“Person”** means any individual, firm, partnership, association, corporation, business or public trusts, federal agency, state agency, the State or any political subdivision thereof, municipalities, and any other duly constituted legal entity.

**“Stream water”** means water in a definite stream and includes but is not limited to water in ponds, lakes, reservoirs, and playa lakes.

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93; Amended at 11 Ok Reg 2909, eff 6-13-94]

**785:5-1-3. Board to charge and collect fees**

Pursuant to 82 O.S. 1981, §§1085.2(10) and 1085.4, the Board shall prepare and charge a schedule of reasonable fees for services rendered; provided that such fees shall not be collected from any state agency or state institution who receives appropriated funds. All fees shall be paid in cash or by check payable to the Oklahoma Water Resources Board which shall be receipted by the Accounting Department. Each fee is a separate charge and is in addition to other fees. Required fees must be paid before any action will be taken by the Board on the matter relating thereto and before the issuance of any permit. Permit fees will not be refunded if the application for a permit is denied.

**785:5-1-4. Special fund**

All monies derived from fees shall be deposited with the State Treasurer and credited, apportioned, and appropriated to a separate and distinct fund known as the “Water Resources Board Revolving Fund” to be used to enforce and administer the water and pollution duties of the Board, except that all weather modification license and permit fees paid to the Board shall be deposited in the “Oklahoma Modification Revolving Fund” to be used to enforce, administer and implement the weather modification duties of the Board.

[Source: Amended at 11 Ok Reg 2909, eff 6-13-94]

**785:5-1-5. Weather modification license and permit fees**

The following fees are required for Weather Modification licenses and permits:

- (1) For issuing Weather Modification License - \$100.00
- (2) For annual renewal of license - \$100.00
- (3) For each Weather Modification Permit - \$25.00
- (4) For annual renewal of permit - \$ 25.00

**785:5-1-6. Stream water permit application fees**

(a) A filing fee based on amount requested in the application must be submitted with each application for a permit to appropriate stream water as follows:

- (1) 1 through 320 acre-feet - \$ 125.00
- (2) 321 through 640 acre-feet - \$ 200.00
- (3) 641 through 1,500 acre-feet - \$ 250.00
- (4) More than 1,500 acre-feet - \$ 250.00, plus an additional \$100.00 for each increment of 500 acre-feet above 1,500 acre-feet requested.

(5) If the applicant proposes to divert or use stream water from a scenic river or an area designated as an outstanding water resource by the State, the applicant must submit an additional fee of \$100.00 (see also Chapter 45 of this Title).

(6) The filing fee for any stream water permit application shall not exceed \$2,000.00.

(b) Applications for provisional temporary permits to appropriate stream water except expedited applications require a fee of \$150.00.

(c) Expedited applications for provisional temporary permits to appropriate stream water require a fee of \$200.00.

(d) Annual file maintenance fee for the submittal of water use reports shall be based on the total amount authorized to be used under the permit or water right as follows:

- (1) 1 through 320 acre-feet - \$10.00
- (2) 321 through 640 acre-feet - \$15.00
- (3) 641 through 1500 acre-feet - \$20.00
- (4) More than 1500 acre-feet - \$25.00

(e) If the annual water use report is filed later than 30 days after the due date as set forth in the report form mailed to the water right holder, an additional amount of \$30.00 for each permit shall be due (see also 785:20-9-5).

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93; Amended at 11 Ok Reg 2909, eff 6-13-94; Amended at 12 Ok Reg 2667, eff 7-1-95]

**785:5-1-7. Watercourse reclamation permit fee**

The filing and permit fee which must be submitted with application to reclaim water turned into a watercourse is \$35.00.

**785:5-1-8. Release of easement or easement deed fees**

The fee required when making application for release of easement or easement deed is based on acres contained in easement, as follows:

- (1) Less than 25 acres - \$ 35.00
- (2) 25 through 50 acres - \$ 70.00
- (3) 51 through 75 acres - \$100.00
- (4) 76 through 100 acres - \$150.00
- (5) More than 100 acres - \$200.00

**785:5-1-9. Dam fees**

(a) Filing fees which must be submitted with each application to construct, enlarge, alter, or repair a dam (based on estimated cost of construction, enlargement, etc.) are as follows:

- (1) \$ 20,000 or less estimated cost - \$ 100.00 filing fee
- (2) \$ 20,001 through 99,999 estimated cost - \$ 200.00 filing fee
- (3) \$ 100,000 through 999,999 estimated cost - \$ 500.00 filing fee
- (4) \$1,000,000 or more estimated cost - \$1000.00 filing fee

(b) Fees for inspections of dams classified as low or significant hazard potential made at request of a person who is not an owner of the dam or other routine or periodic inspections conducted by Board personnel are as follows:

Size classification of dam (see 785:25-3-3)	Fee for each inspection visit
Small	\$ 250.00
Intermediate	\$ 500.00
Large	\$1000.00

(c) Fees for inspections of dams classified as high hazard potential made at request of a person who is not an owner of the dam or other routine or periodic inspections conducted by Board personnel shall be the actual cost of such inspection.

(d) The fee required for issuance of a certificate of completion is \$25.00 plus the applicable inspection fee set out in subsection (b) or (c) of this Section.

[Source: Amended at 9 Ok Reg 1673, eff 5-11-92; Amended at 11 Ok Reg 2909, eff 6-13-94; Amended at 12 Ok Reg 2667, eff 7-1-95]

**785:5-1-10. Groundwater application fees**

(a) A filing and application fee based on amount requested must be submitted with each application for a permit for the withdrawal of groundwater as follows:

- (1) 1 through 320 acre-feet - \$ 125.00
- (2) 321 through 640 acre-feet - \$ 200.00
- (3) 641 through 1,500 acre-feet - \$ 250.00
- (4) More than 1,500 acre-feet - \$ 250.00, plus an additional \$ 100.00 for each increment of 500 acre-feet above 1,500 acre-feet requested, provided that the filing fee for any groundwater permit application shall not exceed \$2,000.00.

(b) Applications for provisional temporary permits except expedited applications require a fee of \$150.00.

(c) Expedited applications for provisional temporary permits require a fee of \$200.00.

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93; Amended at 11 Ok Reg 2909, eff 6-13-94]

**785:5-1-11. Well driller and pump installer licensing fees**

(a) The filing application and license fee for issuance of individual, partnership, or corporation well driller licenses for one activity to be certified under 785:35-3-1 which shall include the operator certification for the individual license or, in the case of a partnership or corporation, one operator certification for such activity shall be \$300.00 for two years, provided, that if the license application is only for the pump installation activity, there shall be no application fee.

(b) The license application fee for each additional activity shall be \$40.00 for two years.

(c) The application fee for each additional operator certificate which includes certification to conduct one activity shall be \$60.00 for two years.

(d) The application fee for each additional activity under an operator certificate shall be \$15.00.

(e) The renewal fee for each license for one certified activity, which shall include the operator certification shall be \$200.00

for a license renewed for two (2) years, provided that a late fee of \$150.00 shall be due for the completed license renewal application if received by the Board after July 1 of the year to be renewed, but before the end of the applicable grace period.

(f) The license renewal fee for each additional activity shall be \$40.00 for a two (2) year period.

(g) The fee for each additional operator certification renewal which includes certification to conduct the authorized activities shall be \$40.00 for a two (2) year period.

(h) The fee for examination of any operator shall be \$50.00.

(i) The fee for transfer of individual licensee designation to partnership, corporation or other entity or certified operator from one firm or corporation to another shall be \$50.00.

(j) The license fee for a nonresident shall be the amount charged in the state of the nonresident but in no case less than \$300.00 for two years.

(k) The initial fee for the Indemnity Fund for one activity certified under 785:35-3-1 shall be \$100.00 for a two (2) year period.

(l) The initial fee for the Indemnity Fund for each additional activity certified under 785:35-3-1 shall be \$40.00 for a two (2) year period.

(m) The renewal fee for the Indemnity Fund for each activity certified under 785:35-3-1 shall be \$40.00 for a two (2) year period.

(n) The fee to file a request for a variance or exception from any well construction, completion, plugging or other requirement set forth, for monitoring wells, site assessment observation wells or geotechnical borings, in Chapter 35 in this Title shall be \$50.00.

(o) There shall be no license application, certification or license renewal fees for the pump installation activity, provided however, the Indemnity Fund fees set out in subsections (k), (l) and (m) shall be applicable to the pump installation activity.

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93; Amended at 11 Ok Reg 2909, eff 6-13-94; Amended at 13 Ok Reg , eff 7-1-96]

#### **785-5-1-12. Waste Disposal Permit fees (Revoked)**

[Source: Amended at 9 Ok Reg 2619, eff 6-25-92; Revoked at 11 Ok Reg 2909, eff 6-13-94]

#### **785-5-1-13. Laboratory certification fees (Revoked)**

[Source: Revoked at 11 Ok Reg 2909, eff 6-13-94]

#### **785-5-1-14. Stream Water and Groundwater petition fees**

Stream water and groundwater petition fees are as follows:

(1) For the filing of a petition to add a well, change a location or changes in point or rate of diversion, storage or use, which do not require notice to be given - \$50.00

(2) For the filing of a petition to transfer ownership or record assignment of a permit or water right or Information Sheet regarding domestic use of stream water from federal reservoirs, except a transfer between the permittee or water right holder to any person related to him by affinity or consanguinity within the third degree or to a family owned corporation or partnership - \$50.00

(3) For the filing of a petition to subdivide the ownership or record partial assignment of a permit or water right, except a subdivision or partial assignment between a permittee or water right holder to any person related to him by affinity or consanguinity within the third degree - \$50.00

(4) For filing a petition for extension of time for commencement of any works for the taking of stream water - \$50.00

(5) For filing of a petition regarding addition or deletion of land from an irrigation district - \$50.00

(6) For filing of all other petitions to amend a permit or water right for which notice must be given - 150.00.

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93; Amended at 12 Ok Reg 2667, eff 7-1-95]

#### **785-5-1-15. Fees for reproduction, maps and publications**

Fees for reproduction, maps and publications shall be as follows:

(1) For making and certifying the transcript of a record for transmittal to the District Court pursuant to 75 O.S. 1991, as amended, §320, the fee shall be the actual cost of such transcription with \$35.00 minimum charge plus postage at cost.

(2) For reproducing tape(s) of recorded meetings, the fee shall be \$35.00 plus \$2.00 per tape.

(3) For making and certifying each and every copy of an instrument, application or permit, the fee shall be \$1.00 per page.

- (4) For machine copy charges for any instrument, the fee shall be \$.25 per copy and postage at cost.
- (5) For Oklahoma Base Maps (USGS 1:500,000 scale), the fee shall be \$3.00 each.
- (6) For Oklahoma Base Map with OWRB Stream Systems, the fee shall be \$5.00 per sheet.
- (7) For blueprints or copy from tracing:
  - (A) To 27" x 36" - \$2.50 per sheet.
  - (B) 2" x 60" - \$5.00 per sheet.
- (8) For publications, the fee shall not to exceed the established printing cost each.

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93; Amended at 13 Ok Reg , eff 7-1-96]

**785:5-1-16. Fees required in other matters**

- (a) The fee for making and certifying a measurement of the flow in any stream shall be \$50.00 per measurement.
- (b) The fee for computer services shall be as follows:
  - (1) Custom programming (when required) - \$40.00 per hour.
  - (2) Printing charges - \$.05 per page.
  - (3) Copying documents to diskette - \$1.00 per document or file plus actual cost of Board provided diskette.
- (c) The fee for a document search (as allowed in 51 O.S. Supp. 1995, §24A.5) shall be \$10.00 per hour.
- (d) The filing fee for Information Sheets regarding domestic use of stream water from federal reservoirs shall be \$50.00.
- (e) The fee for entering an annual standing request for notice of special meetings shall be \$18.00.
- (f) For transcripts prepared by certified court reporter, stenographer or Board staff under the provisions of 785:4-3-6, the fee shall be the actual cost of the transcription. Prior to such transcription being made, the person requesting the transcription (or appealing the Board's order) shall pre-pay to the Board the estimated cost of the transcribing the cassette tapes, with such estimate to be prepared by the Board. Upon completion of the transcription, the person requesting the same shall deposit the balance, if any, necessary for full payment of the transcription. The Board shall refund or credit any excess amount previously deposited.
- (g) For copies of National Wetlands Inventory maps prepared by the U.S. Department of Interior Fish and Wildlife Service, the fee shall be as follows:
  - (1) Processing charge for each order including first map shall be \$6.50.
  - (2) Each additional map in same order shall be \$2.50.
  - (3) Postage if mailed shall be the actual cost.
- (h) For expedited search and dissemination of flood zone and flood map information for each tract or description of land requested, the fee shall be \$25.00.
- (i) The fee for preparation and compilation of the administrative record for transmittal to a court pursuant to the Administrative Procedures Act shall be \$1.00 per page for written documents, plus the cost of copying cassette tapes and the tapes as provided in this Chapter, plus actual cost of duplication of other exhibits, all payable prior to the transmittal of the record in the court. If the party appealing an order of the Board requests a written transcription of the hearing, or if the district court orders a written transcription as authorized by 75 O.S. Supp. 1995, §309, the provisions in subsection (f) above, including prepayment of the cost of transcribing cassette tapes of the hearing, shall apply to the party appealing the Board's order. The full cost of transcribing the tapes must be paid before the Board shall transmit the transcription to the court. The Board shall review any such transcription for accuracy before transmitting the same to court.

[Source: Amended at 9 Ok Reg 1673, eff 5-11-92; Amended at 11 Ok Reg 2909, eff 6-13-94; Amended at 13 Ok Reg , eff 7-1-96]

**785:5-1-17. Loan application fees**

The following filing, review and processing fee is imposed upon all loan applications under the Board's program of financial assistance (See Chapter 50). Such fee shall be based on the amount of financial assistance applied for (as set out below) and must be paid by the applicant at the time of filing the secondary application - request for additional information.

Loan Application Amount	Fee
\$ 249,999 or less - - - - -	\$200.00
\$ 250,000 - 999,999 - - - - -	\$500.00
\$1,000,000 or more - - - - -	\$1000.00

[Source: Amended at 10 Ok Reg 3273, eff 6-25-93]

**785:5-1-18. Development application fees**

A fee in the amount of \$100.00 must be submitted with each application filed with the Board by a non-governmental entity for a development permit for proposed development or substantial improvement on state-owned or operated property (see Chapter 55).

[Source: Added at 11 Ok Reg 2909, eff 6-13-94]

# APPENDIX B-6

## OKLAHOMA RESIDENTIAL PROPERTY CONDITION DISCLOSURE ACT

Oklahoma Statutes, Title 60, Sections 831-839 1994 addition effective July 1, 1995

### ***§831. Short Title***

This act shall be known and may be cited as the "Residential Property Condition Disclosure Act".

### ***§832. Definitions***

As used in this act:

1. "Offer to purchase" means an offer to purchase property made by a purchaser pursuant to a written contract;
2. "Seller" means one or more persons who are attempting to transfer a possessory interest in property and who are either:
  - a. represented by a real estate licensee; or
  - b. not represented by a real estate licensee but receive a written request from the purchaser to deliver or cause to be delivered a disclaimer statement or disclosure statement as such terms are defined in paragraphs 11 and 12 of this section;
3. "Purchaser" means one or more persons who are attempting to acquire a possessory interest in property;
4. "Real estate licensee" means a person licensed under the Oklahoma Real Estate License Code;
5. "Transfer" means a sale or conveyance, exchange or option to purchase by written instrument of a possessory interest in property for consideration;
6. "Person" means an individual, corporation, limited liability company, partnership, association, trust or other legal entity or any combination thereof;
7. "Contract" means a real estate purchase contract for the sale, conveyance or exchange of property, option to purchase property, or a lease with an option to purchase property;
8. "Property" means residential real property improved with not less than one nor more than two dwelling units;
9. "Defect" means a condition, malfunction or problem that would have a materially adverse effect on the monetary value of the property, or that would impair the health or safety of future occupants of the property;
10. "Disclosure" means a written declaration required by this act based on actual knowledge of the seller regarding certain physical conditions of the property. A disclosure for purposes of this act is not a warranty, implied or express, of any kind;
11. "Disclaimer statement" means the statement described in paragraph 1 of subsection A of Section 3 of this act; and
12. "Disclosure statement" means the statement described in paragraph 2 of subsection A of Section 3 of this act.

### ***§833. Disclaimer and disclosure statements***

A. A seller of property located in this state shall deliver, or cause to be delivered, to the purchaser of such property one of the following:

1. A written property disclaimer statement on a form established by rule by the Oklahoma Real Estate Commission which states that the seller:

- a. has never occupied the property and makes no disclosures concerning the condition of the property, and
- b. has no actual knowledge of any defect; or

2. A written property condition disclosure statement on a form established by rule by the Oklahoma Real Estate Commission which shall include the information set forth in subsection B of this section.

B. 1. The disclosure statement shall include an identification of items and improvements which are included in the sale of the property and whether such items or improvements are in normal working order. The disclosures required shall also include a statement of whether the seller has actual knowledge of defects or information in relation to the following:

- a. water and sewer systems, including the source of household water, water treatment systems, sprinkler systems, occurrence of water in the heating and air conditioning ducts, water seepage or leakage, drainage or grading problems and flood zone status,
- b. structural systems, including the roof, walls, floors, foundation and any basement,
- c. plumbing, electrical, heating and air conditioning systems,
- d. infestation or damage of wood-destroying organisms,
- e. major fire or tornado damage,
- f. land use matters,

- g. existence of hazardous or regulated materials and other conditions having an environmental impact,
- h. any other defects known to the seller, and
- i. other matters the Oklahoma Real Estate Commission deems appropriate.

2. The disclosure statement shall include the following notices to the purchaser in bold and conspicuous type:

- a. "The information and statements contained in this disclosure statement are declarations and representations of the seller and are not the representations of the real estate licensee.",
- b. "The information contained in this disclosure statement is not intended to be a part of any contract between the purchaser and the seller.", and
- c. "The declarations and information contained in this disclosure statement are not warranties, express or implied of any kind, and are not a substitute for any inspections or warranties the purchaser may wish to obtain."

C. Either the disclaimer statement or the disclosure statement required by this section must be completed, signed and dated by the seller. The date of completion on either statement may not be more than one hundred eighty (180) days prior to the date of receipt of the statement by the purchaser.

D. The Oklahoma Real Estate Commission shall develop by rule the forms for the residential property condition disclaimer and the residential property condition disclosure statement. After development of the initial forms, the Oklahoma Real Estate Commission may amend by rule the forms as is necessary and appropriate.

Such forms shall be made available upon request irrespective of whether the person requesting a disclaimer or disclosure form is represented by a real estate licensee.

#### ***§834. Delivery of statements***

A. A seller should deliver either the disclaimer statement or disclosure statement to the purchaser as soon as practicable, but in any event it shall be delivered before acceptance of an offer to purchase.

B. If the disclaimer statement or disclosure statement is delivered to the purchaser after an offer to purchase has been made, the offer to purchase shall be accepted only after the purchaser has acknowledged receipt of the disclaimer statement or disclosure statement and confirmed the offer to purchase.

C. If the seller becomes aware of a defect after delivery to the purchaser of either a disclaimer statement or a disclosure statement, then the seller shall promptly deliver to the purchaser either a disclosure statement or an amended disclosure statement which discloses the newly discovered defect. The disclosure statement or any amendment shall be in writing and shall be signed and dated by the seller. However, if the required document is delivered to the purchaser after an offer to purchase has been made, the offer to purchase shall be accepted only after the purchaser has acknowledged receipt of the required document and confirmed the offer to purchase.

D. The purchaser shall acknowledge in writing receipt of the disclaimer statement or the disclosure statement and any amendment to the disclosure statement. The purchaser shall sign and date any acknowledgment. Such acknowledgment should accompany the offer to purchase the property. If the purchaser confirms the offer to purchase, such confirmation shall be in writing, shall be signed and dated by the purchaser and shall be promptly delivered to the seller.

#### ***§835. Limitations of seller's liability***

A. The seller shall not be liable for a defect or other condition in the property if the existence of the defect or other condition in the property was disclosed in the disclosure statement or any amendment delivered to the purchaser before acceptance of the offer to purchase.

B. The seller shall not be liable for any erroneous, inaccurate or omitted information supplied to the purchaser as a disclosure required by this act if:

1. The error, inaccuracy or omission results from an approximation of information by the seller, provided:

a. accurate information was unknown to the seller at the time the disclosure was made,

b. the approximation was clearly identified as such and was reasonable and based on the best information available to the seller, and

c. the approximation was not used to circumvent the disclosure requirements of this act;

2. The error, inaccuracy or omission was not within the actual knowledge of the seller; or

3. The disclosure was based on information provided by public agencies and the seller reasonably believed the information to be correct.

C. The delivery by a public agency of any information required to be disclosed by the seller of the property shall satisfy the requirements of this act as to the disclosures to which the information being furnished is applicable.

#### ***§836. Duties of real estate licensee***

A. A real estate licensee representing a seller has the duty to obtain from the seller a disclaimer statement or a disclosure statement and any amendment required by this act and to make such statement available to potential purchasers prior to acceptance of an offer to purchase.

B. A real estate licensee representing or assisting a purchaser has the duty to obtain and make available to the purchaser

a disclaimer statement or a disclosure statement and any amendment required by this act prior to the acceptance of an offer to purchase.

C. A real estate licensee has the duty to disclose to the purchaser any defects in the property actually known to the licensee which are not included in the disclosure statement or any amendment.

D. A real estate licensee who has complied with the requirements of subsections A, B and C of this section, as applicable, shall have no further duties to the seller or the purchaser regarding any disclosures required under this act.

A real estate licensee who has not complied with the requirements of subsections A, B and C of this section shall be subject to disciplinary action by the Oklahoma Real Estate Commission as set forth in paragraph 6 of Section 858-208 of Title 59 of the Oklahoma Statutes.

E. A real estate licensee has no duty to the seller or the purchaser to conduct an independent inspection of the property and has no duty to independently verify the accuracy or completeness of any statement made by the seller in the disclaimer statement or the disclosure statement and any amendment.

### ***§837. Remedies***

A. The purchaser may recover in a civil action only in the event of any of the following:

1. The failure of the seller to provide to the purchaser a disclaimer statement or a disclosure statement and any amendment prior to acceptance of an offer to purchase;

2. The failure of the seller to disclose in the disclosure statement or any amendment provided to the purchaser a defect which was actually known to the seller prior to acceptance of an offer to purchase; or

3. The failure of the real estate licensee to disclose to the purchaser any defects in the property actually known to the real estate licensee prior to acceptance of an offer to purchase and which were not included in the disclosure statement or any amendment provided to the purchaser.

B. The sole and exclusive civil remedy for a failure under subsection A of this section by the seller or the real estate licensee shall be an action for actual damages, including the cost of repairing the defect, suffered by the purchaser as a result of a defect existing in the property as of the date of acceptance by the seller of an offer to purchase and shall not include the remedy of exemplary damages.

C. Any action brought under this act shall be commenced within two (2) years after the date of transfer of real property subject to this act.

D. In any civil action brought under this act, the prevailing party shall be allowed court costs and a reasonable attorney fee to be set by the court and to be collected as costs.

E. A transfer of a possessory interest in property subject to this act may not be invalidated solely because of the failure of any person to comply with this act.

F. This act applies to, regulates and determines rights, duties, obligations and remedies of the seller, the real estate licensee and the purchaser with respect to disclosure of defects in property.

### ***§838. Exemptions from application of act***

A. This act does not apply to:

1. Transfers pursuant to court order, including, but not limited to, transfers pursuant to a writ of execution, transfers by eminent domain and transfers pursuant to an order for partition;

2. Transfers to a mortgagee by a mortgagor or successor in interest who is in default, transfers by any foreclosure sale after default in an obligation secured by a mortgage, transfers by a mortgagee's sale under a power of sale after default in an obligation secured by any instrument containing a power of sale, or transfers by a mortgagee who has acquired the real property at a sale conducted pursuant to a power of sale or a sale pursuant to a decree of foreclosure or has acquired the real property by deed in lieu of foreclosure;

3. Transfers by a fiduciary who is not an owner occupant of the subject property in the course of the administration of a decedent's estate, guardianship, conservatorship or trust;

4. Transfers from one co-owner to one or more other co-owners;

5. Transfers made to a spouse, or to the person or persons in the lineal line of consanguinity of one or more of the owners;

6. Transfers between spouses resulting from a decree of dissolution of marriage or a decree of legal separation or from a property settlement agreement incidental to such a decree;

7. Transfers made pursuant to mergers and from a subsidiary to a parent or the reverse;

8. Transfers or exchanges to or from any governmental entity; or

9. Transfers of a newly constructed, previously unoccupied dwelling.

B. Nothing in this act shall be construed to alter or change the requirements of Section 858-513 of Title 59 of the Oklahoma Statutes, regarding psychologically impacted real estate.

### ***§839. Notices and acknowledgments***

Any notices or acknowledgments required under this act need no be sworn to, verified or acknowledged.

# **APPENDIX B-7 LANDLORD AND TENANT**

## **TITLE 41 - RESIDENTIAL LANDLORD AND TENANT ACT**

§ 113a. Disclosure of flood or flooding problems in rental agreement.

A. If the premises to be rented has been flooded within the past five (5) years and such fact is known to the landlord, the landlord shall include such information prominently and in writing as part of any written rental agreements. Failure to provide such information shall entitle any tenant who is a party to the rental agreement to sue the landlord of the premises in a court of appropriate jurisdiction and to recover the personal property damages sustained by the tenant from flooding of the premises.

B. For the purpose of this section, "flooded and flooding" shall mean general and temporary conditions of the complete inundation of normally dry land areas and structures upon said areas from the overflow of lakes, ponds, streams, rivers, creeks and any other inland waters.

Added by Laws 1986, c. 194, § 1, eff. Nov. 1, 1986.

Section 2 of Laws 1986, c 194 provides for an effective date.

# Appendix C



## LOCAL FLOODPLAIN REGULATIONS AND NFIP STANDARDS

COMPANION TO CHAPTER 3

# APPENDIX C-1

## FLOOD DAMAGE PREVENTION ORDINANCE

60.3(d) Revised as of October 1, 1989

### ARTICLE I

#### STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND METHODS

##### SECTION A. STATUTORY AUTHORIZATION

The Legislature of the State of \_\_\_\_\_ has in (statutes) \_\_\_\_\_ delegated the responsibility of local governmental units to adopt regulations designed to minimize flood losses.

Therefore, the \_\_\_\_\_  
(local governing body)

of \_\_\_\_\_ does ordain  
(local unit) (State)

as follows:

##### SECTION B. FINDINGS OF FACT

(1) The flood hazard areas of \_\_\_\_\_ are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety and general welfare.

(2) These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed or otherwise protected from flood damage.

##### SECTION C. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(1) Protect human life and health;

(2) Minimize expenditure of public money for costly flood control projects;

(3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(4) Minimize prolonged business interruptions;

(5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

(6) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and

(7) Ensure that potential buyers are notified that property is in a flood area.

## **SECTION D. METHODS OF REDUCING FLOOD LOSSES**

In order to accomplish its purposes, this ordinance uses the following methods:

(1) Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;

(2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;

(4) Control filling, grading, dredging and other development which may increase flood damage;

(5) Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

## **ARTICLE 2 DEFINITIONS**

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

**ALLUVIAL FAN FLOODING** - means flooding occurring on the surface of an alluvial fan or similar landform which originates at the apex and is characterized by high-velocity flows; active processes of erosion, sediment transport, and deposition; and unpredictable flow paths.

**APEX** - means a point on an alluvial fan or similar landform below which the flow path of the major stream that formed the fan becomes unpredictable and alluvial fan flooding can occur.

**AREA OF SHALLOW FLOODING** - means a designated AO, AH, or VO zone on a community's Flood Insurance Rate Map (FIRM) with a one percent chance or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

**AREA OF SPECIAL FLOOD HAZARD** - is the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A on the Flood Hazard Boundary Map (FHBM). After detailed ratemaking has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AE, AH, AO, A1-99, VO, V1-30, VE or V.

**BASE FLOOD** - means the flood having a one percent chance of being equalled or exceeded in any given year.

**BASEMENT** - means any area of the building having its floor subgrade (below ground level) on all sides.

**CRITICAL FEATURE** - means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

**DEVELOPMENT** - means any man-made change in improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

**ELEVATED BUILDING** - means a nonbasement building (i) built, in the case of a building in Zones A1-30, AE, A, A99, AO, AH, B, C, X, and D, to have the top of the elevated floor, or in the case of a building in Zones V1-30, VE, or V, to have the bottom of the lowest horizontal structure member of the elevated floor elevated above the ground level by

means of pilings, columns (posts and piers), or shear walls parallel to the floor of the water and (ii) adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of Zones A1-30, AE, A, A99, AO, AH, B, C, X, and D, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters. In the case of Zones V1-30, VE, or V, "elevated building" also includes a building otherwise meeting the definition of "elevated building," even though the lower area is enclosed by means of breakaway walls if the breakaway walls meet the standards of section 60.3(e)(5) of the National Flood Insurance Program regulations.

**EXISTING CONSTRUCTION** - means for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. "Existing construction" may also be referred to as "existing structures."

**EXISTING MANUFACTURED HOME PARK OR SUBDIVISION** - means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.

**EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION** means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

**FLOOD OR FLOODING** - means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) the overflow of inland or tidal waters.
- (2) the unusual and rapid accumulation or runoff of surface waters from any source.

**FLOOD INSURANCE RATE MAP (FIRM)** - means an official map of a community, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

**FLOOD INSURANCE STUDY** - is the official report provided by the Federal Emergency Management Agency. The report contains flood profiles, water surface elevation of the base flood, as well as the Flood Boundary-Floodway Map.

**FLOODPLAIN OR FLOOD-PRONE AREA** - means any land area susceptible to being inundated by water from any source (see definition of flooding).

**FLOODPLAIN MANAGEMENT** - means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

**FLOODPLAIN MANAGEMENT REGULATIONS** - means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

**FLOOD PROTECTION SYSTEM** - means those physical structural works for which funds have been authorized, appropriated, and expended and which have been constructed specifically to modify flooding in order to reduce the extent of the areas within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

**FLOOD PROOFING** - means any combination of structural and nonstructural additions, changes, or adjustments to

structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

**FLOODWAY (REGULATORY FLOODWAY)** - means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

**FUNCTIONALLY DEPENDENT USE** - means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

**HIGHEST ADJACENT GRADE** - means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

**HISTORIC STRUCTURE** - means any structure that is:

(a) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;

(c) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or

(d) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:

(1) By an approved state program as determined by the Secretary of the Interior or;

(2) Directly by the Secretary of the Interior in states without approved programs.

**LEVEE** - means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

**LEVEE SYSTEM** - means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

**LOWEST FLOOR** - means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirement of Section 60.3 of the National Flood Insurance Program regulations.

**MANUFACTURED HOME** - means a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle".

**MANUFACTURED HOME PARK OR SUBDIVISION** - means a parcel ( or contiguous parcels ) of land divided into two or more manufactured home lots for rent or sale.

MEAN SEA LEVEL - means, for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

NEW CONSTRUCTION - means, for the purpose of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

NEW MANUFACTURED HOME PARK OR SUBDIVISION - means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

RECREATIONAL VEHICLE - means a vehicle which is ( i ) built on a single chassis; ( ii ) 400 square feet or less when measured at the largest horizontal projections; ( iii ) designed to be self-propelled or permanently towable by a light duty truck; and ( iv ) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

START OF CONSTRUCTION - (for other than new construction or substantial improvements under the Coastal Barrier Resources Act ( Pub. L. 97-348) ) includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/ or walkways; nor does it include excavation for basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building .

STRUCTURE - means a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home .

SUBSTANTIAL DAMAGE - means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT - means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before "start of construction" of the improvement. This includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either: ( 1 ) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary conditions or ( 2 ) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure."

VARIANCE - is a grant of relief to a person from the requirement of this ordinance when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner otherwise prohibited by this ordinance. (For full requirements see Section 60.6 of the National Flood Insurance Program regulations.)

VIOLATION - means the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other

certifications, or other evidence of compliance required in Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

WATER SURFACE ELEVATION - means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

## **ARTICLE 3 GENERAL PROVISIONS**

### **SECTION A. LANDS TO WHICH THIS ORDINANCE APPLIES**

The ordinance shall apply to all areas of special flood hazard within the jurisdiction of \_\_\_\_\_  
\_\_\_\_\_  
(local unit)

### **SECTION B. BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD**

The areas of special flood hazard identified by the Federal Emergency Management Agency in a scientific and engineering report entitled, "The Flood Insurance Study for \_\_\_\_\_," dated \_\_\_\_\_, with accompanying Flood Insurance Rate Maps and Flood Boundary-Floodway Maps (FIRM and FBFM) and any revisions thereto are hereby adopted by reference and declared to be a part of this ordinance.

### **SECTION C. ESTABLISHMENT OF DEVELOPMENT PERMIT**

A Development Permit shall be required to ensure conformance with the provisions of this ordinance.

### **SECTION D. COMPLIANCE**

No structure or land shall hereafter be located, altered, or have its use changed without full compliance with the terms of this ordinance and other applicable regulations.

### **SECTION E. ABROGATION AND GREATER RESTRICTIONS**

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

### **SECTION F. INTERPRETATION**

In the interpretation and application of this ordinance, all provisions shall be; (1) considered as minimum requirements; (2) liberally construed in favor of the governing body; and (3) deemed neither to limit nor repeal any other powers granted under state statutes.

### **SECTION G. WARNING AND DISCLAIMER OR LIABILITY**

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions greater floods can and will occur and flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the community or any official or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

# **ARTICLE 4 ADMINISTRATION**

## **SECTION A. DESIGNATION OF THE FLOODPLAIN ADMINISTRATOR**

The \_\_\_\_\_ is hereby appointed the Floodplain Administrator to administer and implement the provisions of this ordinance and other appropriate sections of 44 CFR (National Flood Insurance Program Regulations) pertaining to floodplain management.

## **SECTION B. DUTIES & RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR**

Duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following:

(1) Maintain and hold open for public inspection all records pertaining to the provisions of this ordinance.

(2) Review permit application to determine whether proposed building site, including the placement of manufactured homes, will be reasonably safe from flooding.

(3) Review, approve or deny all applications for development permits required by adoption of this ordinance.

(4) Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.

(5) Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the necessary interpretation.

(6) Notify, in riverine situations, adjacent communities and the state Coordinating Agency which is \_\_\_\_\_ prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

(7) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

(8) When base flood elevation data has not been provided in accordance with Article 3, Section B, the Floodplain Administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a Federal, State or other source. in order to administer the provisions of Article 5.

(9) When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

(10) Under the provisions of 44 CFR Chapter 1, Section b5.12, of the National Flood Insurance Program regulations, a community may approve certain development in Zones A1-30, AE, AH, on the community's FIRM which increases the water surface elevation of the base flood by more than one foot, provided that the community first applies for a conditional FIRM revision through FEMA.

## **SECTION C. PERMIT PROCEDURES**

(1) Application for a Development Permit shall be presented to the Floodplain Administrator on forms furnished by him/her and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, including the placement of manufactured homes, and the location of the foregoing in relation to areas of special flood hazard. Additionally, the following information is required:

- a. Elevation in relation to mean sea level, of the lowest floor (including basement) of all new and substantially improved structures;
- b. Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;
- c. A certificate from a registered professional engineer or architect that the nonresidential floodproofed structure shall meet the floodproofing criteria of Article 5, section B(2);
- d. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.
- e. Maintain a record of all such information in accordance with Article 4, Section (B)(l).

(2) Approval or denial of a Development Permit by the Floodplain Administrator shall be based on all of the provisions of this ordinance and the following relevant factors:

- a. The danger to life and property due to flooding or erosion damage;
- b. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- c. The danger that materials may be swept onto other lands to the injury of others;
- d. The compatibility of the proposed use with existing and anticipated development;
- e. The safety of access to the property in times of flood for ordinary and emergency vehicles;
- f. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;
- g. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;
- h. The necessity to the facility of a waterfront location, where applicable;
- i. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
- j. The relationship of the proposed use to the comprehensive plan for that area.

## **SECTION D. VARIANCE PROCEDURES**

(1) The Appeal Board as established by the community shall hear and render judgement on requests for variances from the requirements of this ordinance.

(2) The Appeal Board shall hear and render judgement on an appeal only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this ordinance.

(3) Any person or persons aggrieved by the decision of the Appeal Board may appeal such decision in the courts of competent jurisdiction.

(4) The Floodplain Administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.

(5) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this ordinance.

(6) Variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre

or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the relevant factors in Section C(2) of this Article have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

(7) Upon consideration of the factors noted above and the intent of this ordinance, the Appeal Board may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this ordinance (Article 1, Section C).

(8) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(9) Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

(10) Prerequisites for granting variances:

a. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

b. Variances shall only be issued upon, (i) showing a good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

c. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(11) Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria outlined in Article 4, Section D(1)-(9) are met, and (ii) the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

## **ARTICLE 5 PROVISIONS FOR FLOOD HAZARD REDUCTION**

### **SECTION A. GENERAL STANDARDS**

In all areas of special flood hazards the following provisions are required for all new construction and substantial improvements.

(1) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(3) All new construction or substantial improvements shall be constructed with materials resistant to flood damage;

(4) All new construction or substantial improvements shall 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 or accumulating within the components during conditions of flooding.

(5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

(6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and,

(7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

## **SECTION B. SPECIFIC STANDARDS**

In all areas of special flood hazards where base flood elevation data has been provided as set forth in (i) Article 3, Section B, (ii) Article 4, Section B(8), or (iii) Article 5, Section C(3), the following provisions are required:

(1) Residential Construction - new construction and substantial improvement of any residential structure shall have the lowest floor (including basement), elevated to or above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this subsection as proposed in Article 4, Section C(l)a., is satisfied.

(2) Nonresidential Construction - new construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to or above the base flood level or together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.

(3) Enclosures - new construction and substantial improvements, with 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 and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

b. The bottom of all openings shall be no higher than one foot above grade.

c. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(4) Manufactured Homes -

a. Require that all manufactured homes to be placed within Zone A on a community's FHBM or FIRM shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces.

b. Require that manufactured homes that are placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM on sites (i) outside of a manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to or above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

c. Require that manufactured homes be placed or substantially improved on sites in an existing manufactured home park or subdivision with Zones A1-30, AH and AE on the community's FIRM that are not subject to the provisions of paragraph (4) of this section be elevated so that either:

(i) the lowest floor of the manufactured home is at or above the base flood elevation, or

(ii) the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

(5) Recreational Vehicles - Require that recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM either (i) be on the site for fewer than 180 consecutive days, (ii) be fully licensed and ready for highway use, or (iii) meet the permit requirements of Article 4, Section C(1), and the elevation and anchoring requirements for "manufactured homes" in paragraph (4) of this section. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

## **SECTION C. STANDARDS FOR SUBDIVISION PROPOSALS**

(1) All subdivision proposals including the placement of manufactured home parks and subdivisions shall be consistent with Article 1, Sections B, C, and D of this ordinance.

(2) All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet Development Permit requirements of Article 3, Section C; Article 4, Section C; and the provisions of Article 5 of this ordinance.

(3) Base flood elevation data shall be generated for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than 50 lots or 5 acres, whichever is less, if not otherwise provided pursuant to Article 3, Section B or Article 4, Section B (8) of this ordinance.

(4) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.

(5) All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

## **SECTION D. STANDARDS FOR AREAS OF SHALLOW FLOODING ( AO/AH ZONES)**

Located within the areas of special flood hazard established in Article 3, Section B, are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of 1 to 3 feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident, such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

(1) All new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified).

(2) All new construction and substantial improvements of non-residential structures;

(i) have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the Community's FIRM (at least two feet if no depth number is specified), or;

(ii) together with attendant utility and sanitary facilities be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads or effects of buoyancy.

(3) A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section, as proposed in Article 4, Section C (1)a, are satisfied.

(4) Require within Zones AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

## SECTION E. FLOODWAYS

Floodways - located within areas of special flood hazard established in Article 3, Section B, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:

(1) 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 levels within the community during the occurrence of the base flood discharge.

(2) If Article 5, Section E (1) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 5.

(3) Under the provisions of 44 CFR Chapter 1, section 65.12, of the National Flood Insurance Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first applies for a conditional FIRM and floodway revision through FEMA.

## CERTIFICATION

It is hereby found and declared by \_\_\_\_\_  
(local unit)

that severe flooding has occurred in the past within its jurisdiction and certainly occur in the future; that flooding is likely to result in infliction of serious personal injury or death, and is likely to result in substantial injury or destruction of property within its jurisdiction; in order to effectively comply with minimum standards for coverage under the National Flood Insurance Program; and in order to effectively remedy the situation described herein, it is necessary that this ordinance become effective immediately.

Therefore, an emergency is hereby declared to exist, and this ordinance, being necessary for the immediate preservation of the public peace, health and safety, shall be in full force and effect from and after its passage and approval.

APPROVED \_\_\_\_\_  
(community official)

PASSED \_\_\_\_\_  
(date)

I, the undersigned, \_\_\_\_\_, do hereby  
certify that the above is a true and correct copy of an ordinance duly adopted by the \_\_\_\_\_, at a regular  
meeting duly convened on \_\_\_\_\_.  
(Secretary or responsible person)

(SEAL)

# APPENDIX C-2

## LOCAL FLOODPLAIN MANAGEMENT PROGRAM GUIDELINES

The primary objectives of an effective local floodplain management program are:

- (1) the mitigation of flood damage to real and personal property; and
- (2) the reduction of risk to human lives from floodwaters. These objectives can be accomplished through the implementation and enforcement of local floodplain management regulations designed to reduce flooding risks.

The National Flood Insurance Program (NFIP) was created to make available flood insurance coverage to communities who choose to adopt and agree to enforce an effective local floodplain management program. The NFIP regulations at 44 CFR 60.3 establish minimum floodplain management requirements which, if adopted, will enable community participation in the Program and serve as the basis for an effective local floodplain management program. The NFIP minimum requirements are designed to reduce flooding risks and are based in part on the following criteria:

- A. The community must have an adopted and enforceable floodplain management ordinance which meets or exceeds the minimum requirements of the NFIP.
- B. There must be an individual who is assigned floodplain management responsibilities or coordination of the community's floodplain management program.
- C. The community must have a development permit application process which will:
  - 1) Assist the community with the early identification of proposed activities which meet the NFIP definition of development;
  - 2) Allow for identification of the flood status or flood zone for the property on which the development is proposed;
  - 3) Result in advising the property owner, developer and/or other individuals of any floodplain management requirements that may apply to the property and the proposed development within the special flood hazard area (SFHs), including as appropriate:
    - a) lowest floor elevation requirements;
    - b) requirements for breakaway walls (V-Zone);
    - c) hydrostatic equalization requirements;
    - d) certification that the pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement;
    - e) prohibition of man-made alterations of sand dunes;
    - g) substantial improvement permit requirements;
    - h) the need for review, permits and/or approval of other federal or state agencies;
    - i) floodway encroachment restrictions and data needs;
    - j) the design and installation of water supply and sanitary sewage systems;
    - k) certification requirements for floodproofing of nonresidential structures; and
    - l) requirement to elevate mechanical and utility equipment; and
  - 4) Assure the community that development which is permitted within the identified SFHA will be in compliance with minimum NFIP requirements and requirements of its local ordinance.
- D. The community must maintain a file with specific information on all development which takes place within the SFHA.
- E. The community must have a system or process for periodic field survey of the SFHA to:
  - 1) assure that permitted development is being carried out in a compliant manner;
  - 2) detect unpermitted development; and
  - 3) assure continued compliance of permitted and compliant development.

- F. When a comprehensive plan exists, the plan and floodplain management objectives must be consistent. A community shall assure that when a comprehensive plan exists, the floodplain management objectives are consistent.
- G. The community must notify adjacent communities of proposed development which may impact areas outside their jurisdictional boundaries.
- H. The community must require that existing floodplain-related data be identified on subdivisions of 50 lots or five acres, whichever is smaller, before they are approved. This should include the 100-year flood boundaries, floodway boundaries (if established), velocity zones (if appropriate), required elevations and other necessary floodplain management data.
- I. Communities should also be concerned with:
- 1) The improvement of local drainage to control increased runoff that might increase the danger of flooding to other properties;
  - 2) State regulations and Executive Orders;
  - 3) Flood warning and emergency preparedness planning;
  - 4) The provision for alternative routes when normal routes are blocked or destroyed by flooding; and
  - 5) The establishment of minimum floodproofing and access requirements for critical facilities, such as schools, hospitals, nursing homes, orphanages, penal institutions, fire stations, police station communications centers, water and -sewerage pumping stations and other public or quasi-public facilities already located in the flood-prone area, to enable them to withstand flood damage and to facilitate emergency operations.

# **APPENDIX C-3 PRE-FIRM AND POST-FIRM FOR FLOODPLAIN MANAGEMENT AND INSURANCE**

## **PROPOSED CLARIFICATIONS OF STANDARDS FOR ADDITIONS, RECONSTRUCTION, REHABILITATIONS AND SECOND FLOORS.**

### ***PRE-FIRM, POST-FIRM ADDITIONS, RECONSTRUCTION, REHABILITATION***

If the total cost of the addition, reconstruction, rehabilitation or any combination thereof is LESS than 50% of the market value of the original structure then the addition, reconstruction or rehabilitation must meet the floodplain elevation requirements in effect at the time the original structure was built.

### ***PRE-FIRM, POST-FIRM ADDITIONS***

If the total cost of the addition is MORE than 50% of the market value of the original structure and there is no major alteration to the original structure then only the addition must meet the current floodplain standards. Major alteration is defined as structural changes in walls or roof: i.e.: removal of exterior wall for tie-in purposes or change in primary roof line.

### ***PRE-FIRM, POST-FIRM ADDITIONS***

If the total cost of the addition is MORE than 50% of the market value of the original structure and includes major alterations to the original structure then the addition and the original- structure must be upgraded to meet current floodplain standards.

### ***PRE-FIRM, POST-FIRM RECONSTRUCTION, REHABILITATION***

If the total cost of the reconstruction, rehabilitation or any combination thereof is MORE than 50% of the market value of the original structure then the entire structure must be upgraded to meet current floodplain standards.

### ***PRE-FIRM, POST-FIRM SECOND FLOOR***

If the total cost of the second floor is LESS than 50% of the market value of the original structure then the second floor must meet the floodplain standards of the original structure.

### ***PRE-FIRM, POST-FIRM SECOND FLOOR***

If the total cost of the second floor is MORE than 50% of the market value of the original structure then the entire structure must be upgraded to current floodplain standards.

# APPENDIX C-4

## THE LOWEST FLOOR

No, it is not the title to a new horror movie, but the question posed above continues to puzzle floodplain managers as they try to apply floodplain management standards to residential and nonresidential structures. However, applying the regulations can be simplified if the definitions of a few words and knowledge of both the design and performance standards as they pertain to a community's flood damage prevention regulations are understood.

One of the most critical performance standards found in the National Flood Insurance Program (NFIP) regulations is to flood protect structures to or above the 100-year (base flood) elevation. Section 60.3(c)(2) of the NFIP regulations states that the lowest floor of a residential structure must be elevated to or above the 100-year flood elevation. Section 60.3(c)(3) adds that nonresidential or commercial structures can be either elevated or dry floodproofed to or above the 100-year flood elevation. The remainder of this article focuses on elevating structures; dry floodproofing may be an option for nonresidential structures.

Although the term "first floor" is commonly used, it has no place in a community's floodplain management program. NFIP standards and your community floodplain management regulations use the term lowest floor. As defined in the NFIP regulations, the lowest floor is:

*the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is built in accordance with the applicable design requirements specified in this ordinance for enclosures below the lowest floor.*

A lowest floor may be the concrete slab when the structure has a "slab-on-grade" foundation, it may be the basement floor when the structure has a basement, or it may be the first floor when the structure is built on an enclosed area such as a crawl space.

Recall that the definition of the lowest floor of a structure includes the "basement" floor. So, basement must be defined. The NFIP regulations define a basement as:

*any area of a building having its floor subgrade (below ground level) on all sides.*

Of course, this definition includes buildings with standard 8-10 foot deep basements. However, the definition is also inclusive of any enclosed area in which the interior grade is lower than the exterior grade of the enclosed area on all sides. This is extremely important to local floodplain permitting officials since any enclosure defined as a "basement" must have its "basement" floor elevated to or above the 100-year flood elevation.

The final term that must be defined is that of an enclosure below the lowest floor. It is found within the definition of lowest floor:

*... An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor; provided that such enclosure is built in accordance with the applicable design requirements specified in this ordinance for enclosures below the lowest floor.*

Three requirements are given here. First, the only uses recognized for an enclosure below the lowest floor are parking, building access and storage. In other words, enclosures below the lowest floor are not meant to be finished and certainly not to be used as living space. Second, enclosures below the lowest floor must not fall under the definition of a basement. For example, backfilling around the enclosed area could make it a basement if the grade on all sides of a structure outside of the enclosed area is higher than the grade inside the enclosed area. Finally, enclosures below the lowest floor must be designed to equalize the flood forces on the enclosure. The design requirements are found in community floodplain regulations under "Specific Standards".

A crawl space is not specifically defined in a community's floodplain regulations. If the local floodplain administrator receives a Special Flood Hazard Area Development (SFHA) permit application, he should carefully evaluate applications with plans showing a structure built on a crawl space. There have been several instances throughout the state where an applicant has proposed a structure with a crawl space and the local floodplain official allowed the development to proceed without applying any design or elevation standards. Once the structure was built, and flood insurance was required, the

homeowner discovered that flood insurance was very expensive. Why? Because the enclosed area, initially called a crawl space, was actually a basement according to the community's floodplain regulations and flood insurance rating criteria.

In closing, please remember that many communities have building and zoning codes in addition to their floodplain regulations. Each code may have a slightly different definition of basements, first floor, lowest floor, crawl space, etc. When a structural development is proposed in an identified SFHA, the development must be evaluated against the criteria found in the community's floodplain regulations. In doing so, terms such as "first floor" and "crawl space" have no relevance. Local floodplain officials should be thinking in terms of lowest floor, basement, and enclosures below the lowest floor.

# Appendix D



## FLOODPLAIN ORDINANCE ADMINISTRATION

COMPANION TO CHAPTER 4

# APPENDIX D-1

## DEVELOPMENT PERMIT APPLICATION

For Proposed Development on  
LANDS LOCATED IN A COMMUNITY WITH FLOODPLAIN AREAS

### INSTRUCTIONS

***TO COMPLY WITH FLOODPLAIN MANAGEMENT REGULATIONS AND TO MINIMIZE POTENTIAL FLOOD DAMAGE, IF YOU ARE BUILDING WITHIN AN IDENTIFIED FLOOD HAZARD AREA, YOU MUST AGREE TO CONSTRUCT YOUR PROPOSED DEVELOPMENT IN ACCORDANCE WITH THE FOLLOWING SPECIAL PROVISIONS:***

#### SPECIAL FLOODPLAIN PROVISIONS

1. For RESIDENTIAL structures, the lowest floor (including basement) must be elevated to or above the base flood elevation (100-year flood elevation). See provisions for manufactured homes in local regulations.
2. For NON-RESIDENTIAL structures, the lowest floor must be elevated to or above the base flood elevation, or floodproofed to withstand the flood depths, pressures, velocities, impact and uplift forces associated with the 100-year flood.
3. For ALL STRUCTURES, the foundation and the materials used must be constructed to withstand the pressures, velocities, impact and uplift forces associated with the 100-year flood.
4. All utility supply lines, outlets, switches and equipment must be installed and elevated so as to minimize damage from potential flooding. Water and sewer connections must have automatic back flow devices installed.
5. You must submit certification on the attached form(s) from a REGISTERED ENGINEER, ARCHITECT or LAND SURVEYOR, that the floor elevation and/or floodproofing requirements have been met. Failure to provide the required certification is a violation of this permit.
6. Other Provisions — See attached list \_\_\_\_\_ None \_\_\_\_\_

### AUTHORIZATION

I have read or had explained to me and understand the above special provisions for flood plain development. Authorization is hereby granted the permitting authority and their agents or designees, singularly or jointly, to enter upon the above-described property during daylight hours for the purpose of making inspections or for any reason consistent with the issuing authority's floodplain management regulation. I further verify that the above information is true and accurate to the best of my knowledge and belief.

---

Signature of Applicant

**DEVELOPMENT PERMIT  
APPLICATION FORM**  
For Proposed Development on  
**LANDS LOCATED IN A COMMUNITY WITH FOODPLAIN AREAS**

Date \_\_\_\_\_ Permit No \_\_\_\_\_

Applicant \_\_\_\_\_

Address \_\_\_\_\_

List Type and Purpose of Development \_\_\_\_\_

Located \_\_\_\_\_

Is property to be located in an identified Special Flood Hazard Area (Regulatory Floodplain)?  Yes  No

If yes, complete the following and require certified elevation of lowest floor (including basement) and lowest adjacent grade.

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Name of Community \_\_\_\_\_

NFIP Community No \_\_\_\_\_

Applicant Requests That (To):

- Construct     Mine     Construct Addition     Remodel     Elevate  
 Drilling     Demolish     Add Fill     Manufactured Housing (Placement)  
 Storage (Equipment or Supplies)

Base Flood Elevation \_\_\_\_\_ Proposed Lowest Floor Elevation \_\_\_\_\_

Flood Map Effective Date \_\_\_\_\_

Flood Zone Type:  A  B  C  X  Other \_\_\_\_\_

Community - Panel No. \_\_\_\_\_

Lowest Finished Floor Elevation \_\_\_\_\_ Lowest Adjacent Grade \_\_\_\_\_

Permit Fee \_\_\_\_\_ Has permit fee been collected?  Yes  No

Plans, specifications and application for permit filed by the applicant shall constitute by reference, a part of this permit.

Approved By: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
Signature of Applicant

# APPENDIX D-2 NOTICE OF INTENT

## For Proposed Development on STATE OWNED OR OPERATED PROPERTY WITHIN FLOODPLAINS

**Mail or fax this notice to:** Planning and Management Division  
Oklahoma Water Resources Board  
3800 North Classen Blvd.  
Oklahoma City, OK 73118  
(405) 530-8800 (405) 530-8900 (FAX)

1. Applicant: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

2. General Description of Development: \_\_\_\_\_

(i.e. building, bridges, roads, substantial additions/rehabilitations, utilities, mining, dredging, drilling, filling, excavating, raising/lowering of grade, paving, materials storage, etc.)

3. Location of Proposed Development (attach map(s))

(a) Legal Description

\_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ County \_\_\_\_\_

\_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ County \_\_\_\_\_

\_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ County \_\_\_\_\_

(b) If proposed development is located within the corporate limits of an incorporated town or city, please provide names or numbers (if numbered) of roads, streets, or thoroughfares that bound the area of the proposed development:

On the North \_\_\_\_\_ On the East \_\_\_\_\_

On the South \_\_\_\_\_ On the West \_\_\_\_\_

I verify that the above information is true and accurate to the best of my knowledge.

Signed by: \_\_\_\_\_  
(Applicant)

\_\_\_\_\_  
Type name and title

Attested by: \_\_\_\_\_

\_\_\_\_\_  
Type name and title

=====

**OWRB USE ONLY**

Date Reviewed: \_\_\_\_\_

Community Panel Number: \_\_\_\_\_

Date of Map: \_\_\_\_\_

Flood Zone: \_\_\_\_\_

Permit Application Needed: \_\_\_\_\_  
Yes/No

Response to Applicant Mailed: \_\_\_\_\_

**APPENDIX D-3**  
**DEVELOPMENT PERMIT APPLICATION**  
**For Proposed Development on**  
**STATE OWNED OR OPERATED PROPERTY WITHIN FLOODPLAINS**

*Mail or fax this notice to:* Planning and Management Division  
Oklahoma Water Resources Board  
3800 North Classen Blvd.  
Oklahoma City, OK 73118  
(405) 530-8800 (405) 530-8900 (FAX)

Permit Application No. \_\_\_\_\_

1. Applicant: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

2. General Description of Development: \_\_\_\_\_

(i.e. building, bridges, roads, substantial additions/rehabilitations, utilities, mining, dredging, drilling, filling, excavating, raising/lowering of grade, paving, materials storage, etc.)

3. Location of Proposed Development (attach map(s))

(a) Legal Description

\_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ County \_\_\_\_\_

\_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ County \_\_\_\_\_

\_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ County \_\_\_\_\_

(b) If proposed development is located within the corporate limits of an incorporated town or city, please provide names or numbers (if numbered) of roads, streets, or thoroughfares that bound the area of the proposed development:

On the North \_\_\_\_\_ On the East \_\_\_\_\_

On the South \_\_\_\_\_ On the West \_\_\_\_\_

4. Attach preliminary engineering/project report(s) for this proposed development.

5. Attach hydrologic/hydraulic study(s) that address potential impacts to the floodplain from the proposed development.

6. Provide proposed lowest finished floor elevation(s) of the proposed development (if applicable):

Provide lowest adjacent grade elevation:

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Provide base flood elevation:

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7. Provide copies of any coordination notices with local community officials on the proposed development.

8. Were alternative development locations outside the floodplain area considered? **YES/NO**. If yes, please detail locations and reasons why they were not pursued:

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I verify that the above information is true and accurate to the best of my knowledge and that the proposed development (if permitted) will be constructed in accordance with the Oklahoma Water Resources Board's rules and regulations.

Signed by: \_\_\_\_\_

(Applicant)

\_\_\_\_\_

Type name and title

Attested by: \_\_\_\_\_

\_\_\_\_\_

Type name and title

Certified by: \_\_\_\_\_

(As required under Sec. 785:55-1-4(e) of OWRB Rules and Regulations)

\_\_\_\_\_

Type name and title

(SEAL)

# APPENDIX D-4 PERMIT REVIEW CHECKLIST

PERMIT # \_\_\_\_\_

## APPLICATION

1. Does proposed development meet NFIP standards?
  - Construction materials and methods resistant to flood damage
  - Utilities floodproof or flood resistant
  - Anchored properly
  - Manufactured Homes elevated on permanent foundations
  - Subdivisions designed to minimize flood damage
  - Encroachments - proposed-action will not obstruct flood waters
  - Not located in floodway
  
2. Is permit application complete?
  - Development adequately described
  - Plans attached
  - B.F.E. determined at development site
  - Applicant/Builder knowledgeable of:
    - BFE
    - Lowest floor or floodproof elevation
    - Elevation or floodproofing certificates
    - mandatory for your records
  - Hydraulic analysis of development on the BFE (if \_\_\_\_\_ necessary)
  - Fee paid

## PERMIT WRAP-UP

1. Action by floodplain administrator or governing body?
  - Grant permit
  - Request additional information
  - Deny permit

COMMENTS OR INFORMATION NEEDED:

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2. On file:
  - Development description
  - Elevation certification
  - Floodproofing certification
  - Analysis of development on BFE (if necessary)
  - Physical changes to the floodplain
  - Signed and approved development permit

# APPENDIX D-5 INFORMATION REQUIRED FOR PROPOSED FLOODWAY DEVELOPMENT

## GENERAL

*-All hydraulic analyses must be prepared by a Registered Professional Engineer.*

*-There shall be zero increase in the water surface profile for the entire length of the floodway.*

*-The applicant's engineer will verify his/her findings with a seal and signature.*

## INFORMATION REQUIRED

- The applicant shall supplement the existing data with additional cross sections across the entire floodplain, prepared from field survey measurements. The number of additional cross sections required shall be determined by (community representative), and the minimum shall be one additional cross section at the site.
- The applicant shall prepare and submit for review a 100-year flood water surface profile analysis of the entire length of the floodway within (community name). The analysis shall utilize the original FEMA Flood Insurance Study (FIS) data and analysis method, for ( community name ), dated \_\_\_\_\_. The analysis shall be developed without the imposition of any development which has occurred since the original study and also with floodway development which has occurred, or which has been approved but not constructed, since the original FIS. If a Step Backwater Model (HEC-2) was used to determine the floodway, the same model must be used for any revision analysis. The applicant can use community-furnished data for the proposed development in addition to data from the original study.
- There shall be zero increase in the water surface profile for the entire length of the floodway when compared to the \_\_\_\_\_ FIS elevations.  
(date)
- In the event that the applicant's project is in close proximity to the ( community name ) limits, the analysis shall extend into the adjoining political entity a sufficient distance, as determined by the analysis results, to demonstrate that there are no impacts beyond the analysis limits.

# APPENDIX D-6

## FLOODWAY DEVELOPMENT CHECKLIST

COMMUNITY NAME: \_\_\_\_\_

PERMIT APPLICATION NUMBER: \_\_\_\_\_

DATE: \_\_\_\_\_

LOCATION/LEGAL DESCRIPTION/PROJECT DESCRIPTION: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_ Description of the proposed development on the surrounding area

\_\_\_\_ Notification of adjoining property owners and affected neighboring political entities by applicant.

\_\_\_\_ Public notice of applicant's intent to place development in the floodway.

\_\_\_\_ Proposed development conforms to elevating or floodproofing requirements.

\_\_\_\_ Preparation and submittal of a hydraulic analysis of the proposed development by a registered professional engineer.

\_\_\_\_ The revised hydraulic analysis shall contain

- Use of the original hydraulic model
- At least one additional cross section at proposed development site
- A floodway comparison before and after development
- A topographic drawing of the area including existing structures, the proposed development and/or structures
- A detailed analysis comparing existing flood flows and velocities to the anticipated flood flows and velocities due to the proposed development
- Hydraulic analysis of floodplain development occurring since original model was developed

\_\_\_\_ Analysis signed and certified by registered professional engineer that there will be no increase in water surface profile for entire length of floodway

\_\_\_\_ Hold harmless agreement with (community), signed by permit applicant.

\_\_\_\_ Additional permits secured by applicant

\_\_\_\_ Review and comments by the Oklahoma Water Resources Board and the Federal Emergency Management Agency

- The applicant shall prepare two sets of plans to accompany the site for community review. The analysis shall include:
  - an assessment of impact on surrounding property.
  - a before and after comparison of the proposed development on the original Base Flood Elevations of the floodway.

- a detailed description of flood flow and velocity changes which will result from the proposed project.
- a topographic drawing of the proposed project showing structures and obstructions on surrounding properties. The drawing shall detail the flood flow patterns through the proposed project.
- mitigation measures necessary to retain the existing flood carrying capacity offset the effect of the proposed development or any adverse change in flood flow or velocity. These measures shall be verified by recomputing the 100-year water surface profile.
- the ability to pass ice and debris must be considered.
- operation and maintenance plans as part of the development if necessary.

-All analyses shall, after review and final modification, be submitted in a form that will serve as a permanent record. A minimum of two copies must be made which include complete input and output printouts and floodway data tables, which will accompany on-site topographic information and development site plans.

The applicant engineer shall conclude his/her report with a statement certifying that all work accomplished in this study was done in accordance with the current regulations of the National Flood Insurance Program, the community's floodplain management ordinance and accepted engineering practices. The engineer will state that, in his/her opinion, there will be no increase in flood levels nor the creation of hazardous velocities within the community as a result of the construction of this development.

# APPENDIX D-7

## SAMPLE LETTER - NOTIFICATION OF WATERCOURSE ALTERATION

City of Soonerville, OK

Date

The Honorable V. 1. Power.  
Mayor of  
Adjacent Community, OK  
Sooner City

RE: Notification of Watercourse Alteration

Dear Mayor Power: -

You are hereby notified that the City of Soonerville, OK, has received and is reviewing a permit application to clear and straighten a section of Winding River. A copy of the project plans are attached for your information and review.

If you have concerns about the impacts of this project on your community, please contact me as soon as possible.

Sincerely,

Local Administrator  
Soonerville, OK

cc: Oklahoma Water Resources Board  
Oklahoma City, OK

# APPENDIX D-8 FLOODPROOFING CERTIFICATE

This form is to be used for: 1) Post-FIRM construction only when the base flood information is available for the building site; and 2) Pre-FIRM buildings rated using Post-FIRM rules.

BUILDING OWNER'S NAME \_\_\_\_\_ POLICY NUMBER \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

Apt.-A/Unit-U      Suite-S/Bldg.-B      NO.      ROUTE      BOX NUMBER

OTHER DESCRIPTION (Block and Lot Nos., etc.) \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_

*This form is to be completed by a land surveyor, engineer, or architect who is authorized to certify elevation information. Community officials who are authorized by local law or ordinance to provide floodplain management information may also complete this form.*

### SECTION I FLOOD INSURANCE RATE MAP INFORMATION

Provide the following from proper FIRM and accompanying insurance application:

COMMUNITY NO.	PANEL NO.	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEV. (In AO Zone, use depth)	COMMUNITY ESTIMATED BASE FLOOD ELEVATION ESTABLISHED FOR ZONE A OR ZONE V. IF AVAILABLE

Elevation reference mark used appears on FIRM [ ]Yes [ ]No

### SECTION II FLOODPROOFING CERTIFICATION (Certified by a Registered Professional Engineer or Architect)

I certify to the best of my knowledge, information, and belief, that the building is designed so that the building is watertight, with walls substantially impermeable to the passage of water and structural components having the ability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy that would be caused by the flood depths, pressures velocities, impact and uplift forces associated with the base flood.

In the event of flooding, will this degree of floodproofing be achieved with human intervention? [ ]Yes [ ]No  
*(Human intervention means that water will enter the building when floods up to the base flood level occur unless measures are taken prior to the flood to prevent entry of water, e.g., bolting metal shields over doors and the windows)*

Will the building be occupied as a residence? [ ]Yes [ ]No

If the answer to both questions is Yes, the floodproofing cannot be credited for a rating purposes and the actual reference level floor must be completed and certified instead. Complete both the elevation and floodproofing certificates.

FIRM ZONES A, AE, AI-A30, VE, VI-V30, AO and AH: Certified Floodproofed Elevation is \_\_\_\_\_ feet (NGVD).

### SECTION III CERTIFICATION

*I certify that the information on this certificate represents my best effort to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code. Section 1001.*

CERTIFIER'S NAME \_\_\_\_\_ LICENSE NUMBER (or Affix Seal) \_\_\_\_\_

TITLE \_\_\_\_\_ COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_ PHONE \_\_\_\_\_

The insurance agent should attach the original copy of the completed form to the flood insurance policy application. The second copy should be supplied to the policyholder and the third copy retained by the agent.

**THIS FORM MAY BE REPRODUCED.**

# APPENDIX D-9

## FLOODPROOFING STANDARDS

### Available Flood Data

**A.** No or little flood data (i.e., no Flood Boundary Maps, no water surface elevations, and no floodway or coastal high hazard area delineations).

**B.** Flood Hazard Boundary Maps available but no surface water elevation data or data sufficient to identify the floodway or coastal high hazard area.

**C.** Flood Insurance Rate Maps available and water surface elevation for the 100-year flood but insufficient data to identify the floodway or coastal high hazard area.

### Minimum Standards for the Community

*The **community must:** (for all new and **substantially Improved** construction within a **flood prone area**)*

- (1) Be constructed with materials and utility equipment resistant to flood damage;
- (2) Be constructed by methods and practices that minimize flood damage;
- (3) Require new and replacement water system utilities designed to minimize or eliminate the infiltration of flood waters;
- (4) Require new and replacement sanitary sewage systems designed to minimize or eliminate the infiltration of floodwaters and discharges from the systems floodwaters; and
- (5) Require on site waste disposal systems to be located to avoid impairment to them or contamination from them during flooding.

*The **community must:***

- (1) Meet the requirements for an area with no or little flood data (see requirements above) for development within Zone A on the community's FHBM;
- (2) Require new or substantially improved nonresidential structures with the lowest floor elevated below the base flood level; and,
- (3) Obtain the elevation to which the structure was floodproofed and maintain the information with the official designated by the community.

*The **community must:** (within all AI-30 zones, unnumbered A zones and AO zones on the community's FIRM)*

- (1) Meet the requirements for an area with Flood Hazard Boundary Maps (see requirements above);
- (2) Require that if not elevated to or above the base flood level then all new and substantially improved nonresidential structures along with attendant utility and sanitary facilities be designed so that below the base flood level the structure is watertight with:
  - a. Walls substantially impermeable to the passage of water; and
  - b. Structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

**Available Flood Data (continued)**

**Minimum Standards for the Community (continued)**

3) Require where floodproofing is Used then:

- a. A registered professional engineer or architect shall certify that the floodproofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the base flood, and a record of such certificates indicating the specific elevation to which such structures are floodproofed shall be maintained with the official designated by the community,

OR

- b. A certified copy of a local regulation containing detailed floodproofing specifications which satisfy the watertight performance standards shall be submitted to the Federal Insurance Administrator for approval.

**D.** Flood Insurance Rate Maps Wa. ter surface elevations for the 100. year flood and floodway data available.

***The community must:*** (within all AI-30 zones, unnumbered zones, AO zones, and A99 zones along with identifying VI-30 zones on the community's FIRM).

(1) Meet the requirements for an area with Flood Hazard Boundary Maps (see requirements above) and an area with Flood Insurance Rate Maps but no floodway (see requirements above.)

**E.** Flood Insurance Rate Maps for coastal floodplain area having special flood hazard, water surface elevations for the 100-year flood, and coastal high hazards data available.

***The community must:***

(1) Meet the requirements for an area with Flood Hazard Boundary Maps and Flood Insurance Rate Maps but no coastal high hazard area information (see requirements above);

(2) Require that:

- a. All new construction and substantial improvements within zones VI-30 on the community's FIRM are elevated on adequately anchored pilings or columns and securely anchored to such piles or columns so that the lowest portion of the structural members of the lowest floor (excluding the pilings or columns) is elevated to or above the base floor level.)

- b. A registered professional engineer or architect certify that the structure is securely anchored to adequately anchored pilings or columns in order to withstand velocity waters and hurricane wave wash.

# **APPENDIX D-10 ELEVATION CERTIFICATE**

## **PAPERWORK REDUCTION ACT NOTICE**

Public reporting burden for the Elevation Certificate is estimated to average 2.25 hours per response. Burden means the time, effort, or financial resources expended by persons to generate, Maintain, retain, disclose, or provide information to the Federal Emergency Management Agency (FEMA). You are not required to respond to the collection of information unless a valid OMB control number is displayed in the upper right corner of each form. You may send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW., Washington, DC 20472, Paperwork Reduction Project (3067-007). To ensure timely receipt and processing of the completed forms, return them to the address provided in the instructions to the forms. Do not send completed form(s) to the above address. To obtain or retain benefits under the National Flood Insurance Program (NFIP) you must respond to this collection of information .

## **PURPOSE OF THE ELEVATION CERTIFICATE**

The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP).

The Elevation Certificate is required to properly rate post-FIRM buildings, which are buildings constructed after publication of the Flood Insurance Rate Map (FIRM), for flood insurance Zones AI-30, AE, AH, A (with BFE), VE, VI-V30, V (with BFE), AR, AR/A, AR/AE, AR/AI-30, AR/AH, AR/AO. In addition, the Elevation Certificate can be used for pre-FIRM buildings being rated under post-FIRM flood insurance rules.

As part of the agreement for making flood insurance available in a community, the NFIP requires the community to adopt a floodplain management ordinance containing certain minimum requirements intended to reduce flood losses. One such requirement is that the community “obtain the elevation of the lowest floor (including basement) of all new and substantially improved buildings, and maintain a record of such information.” The Elevation Certificate is one way for a community to comply with this requirement.

Use of this certificate does not in any way alter the flood insurance purchase requirement. The Elevation Certificate is used to determine the proper flood insurance premium rate, to provide information necessary to ensure compliance with applicable community floodplain management ordinances, and/or to support a request for a Letter of Map Amendment or Revision (LOMA or LOMR). Only a LOMA or LOMR from the Federal Emergency Management Agency (FEMA) can amend the FIRM and remove the Federal requirement for a lending institution to require the purchase of flood insurance. Note that the lending institution still has the option of requiring flood insurance even if a LOMA/LOMR has been issued.

This certificate is only used to certify building elevations. For a non-residential building that is being floodproofed, a Floodproofing Certificate must be completed. Floodproofing is not permitted by a community's floodplain management ordinance and does not affect the building's flood insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements.

## **INSTRUCTIONS FOR COMPLETING THE ELEVATION CERTIFICATE**

The Elevation Certificate is to be completed by a land surveyor, engineer, or architect who is authorized by state or local law to certify elevation information when the elevation information for Zones AI-30, AE, AH, A (with BFE), VE, VI-V30, V (with BFE), AR, AR/A, AR/AE, AR/AI-30, AR/AH, AR/AO is required. Community officials who are authorized by local law or ordinance to provide floodplain management information may also complete this form. For Zones AO

and A (without BFE's), a building official, a property owner, or an owner's representative may also provide information on this certificate.

## SECTION - A PROPERTY INFORMATION

This section identifies the building, its location, and its owner. Provide the building owner's name(s), the building's complete street address, and the lot and block number. If the building's address is different than the owner's address, enter the address of the building being certified. If the property address is a rural route or a Post Office box number, provide a lot and block number, a tax parcel number, a legal description, or an abbreviated location description based on distance from a reference point. For the purposes of this document "building" means both building and manufactured home.

NOTE. A detailed map may be attached to this certificate to indicate the location of the building footprint on the property. A tax map, FIRM, or detailed community map is appropriate. If no map is available, provide a sketch of the property location and the location of the building on the property for use by the community official. Include appropriate landmarks such as the locations of a body of water and/or adjacent roads.

If available, provide latitude and longitude data in degrees, minutes, and seconds, taken at the center of the front of the building. State arc seconds to an accuracy of three decimal places.

## SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

The Elevation Certificate may be completed based on either the FIRM in effect at the time of the certification or the FIRM in effect when construction of the building was started.

The information in this section is obtained by reviewing the FIRM on which the building is located. Information regarding the current FIRM, and a pamphlet titled "Guide to Flood Maps," may be obtained from the Federal Emergency Management Agency (FEMA's website <http://www.fema.gov> or by calling 1-800-611-6125. If a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR) has been issued by FEMA, the current Map Panel Effective/Revised Date that revised the flood hazards affecting the building should be noted in the comments section.

**Item B1.** NFIP Community Name. Enter the complete name of the community in which the building is located. For a building that is in an area that has been **annexed** by one community but is shown on another community's FIRM, enter the Community Name of the **annexing** community. For a newly **incorporated** community use the name of the new community. Under the NFIP, a "community" is any State or area or political subdivision thereof, or any Indian tribe or authorized native organization, which has **authority to adopt and enforce floodplain management regulations** for the areas within its jurisdiction.

**Item B2.** County(ies). Enter the name of the county or counties in which the community is located. For unincorporated areas of a county, enter "unincorporated areas." For independent cities, enter "independent city."

**Item B3.** State. Enter the 2-digit state abbreviation. (Example: VA, TX, CA.)

**Item B4.** Community Number. Enter the 6-digit number shown on the FIRM on which the building is located. To determine if this is the current number consult the NFIP Community Status Book, obtainable on FEMA's website <http://www.fema.gov>, or by calling 1-800-611-6125

**Item B5.** Panel Number. Enter the 4-digit panel number shown on the FIRM on which the building is located.

**Item B6.** Suffix. Enter the suffix letter shown on the FIRM on which the building is located.

**Item B7.** NFIP Map Panel Effective/Revised Date. Enter the map effective date or the map revised date shown on the FIRM. This will be the latest of all dates shown on the map. The effective date of the current FIRM can be determined by calling 1-800-611-6125.

**Item B8.** Flood Zone: Enter the flood zone of the building. All flood zones containing the letter "A" or "V" are considered Special Flood Hazard Areas. The flood zones are A, AE, AI-30, V, VE, VI-V30, AH, AO, AR, AR/A, AR/AE, AR/AI-30, AR/AH, and AR/AO. Each flood zone is defined in the legend of the FIRM on which it appears.

**Item B9.** Base Flood Elevation. From the appropriate FIRM panel, locate the property and record the BFE (or base flood depth) at the building site. BFEs are shown on a FIRM for Zones AI-30, AE, AH, VI-30, VE, AR, AR/A, AR/AE, AR/AI-30, AR/AH, and AR/AO; flood depth numbers are shown for Zone AO. Use the AR BFE when the building is located in zones AR/A, AR/AE, AR/AI-A30, AR/AH, and AR/AO. In A or V Zones where BFEs are not provided on the FIRM,

the community may have established BFEs or have obtained BFE data from other sources. For subdivisions and other developments greater than 50 lots or 5 acres, establishment of BFEs is required by the community's floodplain management ordinance. If the BFE is obtained from a source other than the FIRM, enter that BFE in this box.

Complete item B10 to identify the source of the BFE.

**Item B10.** Indicate the source of the BFE in item B9.

**Item B11.** Record the vertical datum to which the elevations on the applicable FIRM are referenced. The datum is specified in the upper right corner of the title block of the FIRM.

## SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

**Completion of this section is required if the building is located in a FIRM Zone AI-30, AE, AH, A (with BFE), VE, VI-V30, V (with BFE), AR, AR/A, AR/AE, AR/AI-30, AR/AH, AR/AO. If the building is located in a Firm Zone A (without BFE) or Zone AO, complete Section D.**

The Elevation Certificate instructions contain a series of eight diagrams of various building types that identify the elevations at the building that are required when determining the lowest floor elevation

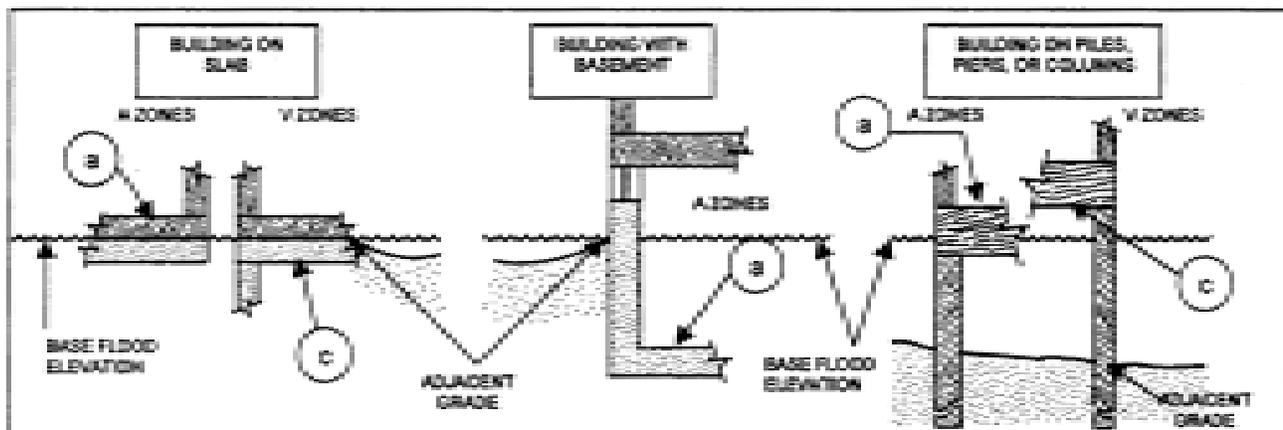
**Item C1.** Indicate whether the elevation measurements used in this section are based on actual construction or construction drawings. Construction drawings should only be used if the building does not yet have the lowest floor level in place, in which case the Elevation Certificate will only be valid for the building during the course of construction. A post-construction Elevation Certificate will be needed once construction is complete.

**Item C2.** Choose the diagram (see pages 5 and 6) that best represents the building, record the diagram number, and use the diagram to identify, and determine the appropriate elevations requested in Items C3 a-g, and i. Enter the elevations that are specified by the selected building diagram. If the individual filling out this section is unsure of the correct diagram, indicate the diagram that most closely resembles the building being certified and provide all elevations in Items C3a-g, and 1.

**Items C3a-g, and i.** State whether the elevation reference mark (benchmark) used during the field survey is an elevation mark on the FIRM. If it is not, indicate the source and datum from which the elevation was attained. Vertical control benchmarks other than those shown on the FIRM are acceptable for elevation determinations. Show the conversion from the field survey datum used to the datum indicated on the applicable FIRM. All elevations for the certificate must be referenced to the datum on which the BFE is based. Show the datum conversion, if applicable, in this section or in the comments section of Section E. In areas experiencing ground subsidence, the most recently adjusted reference mark elevations must be used for determining building elevations. Reporting of elevations in Items C3 should be to the nearest tenth of a foot, or alternatively, unless prohibited by state or local ordinance, the elevations may be "rounded down" to the nearest whole foot ("rounding up" is prohibited).

**Items C3a-e, and i.** Record the building elevations as indicated by the selected building diagram (Item C2) in Items C3 a-e, and i. Elevations for top of garage slab (d) and top of slab supporting machinery/equipment (e) are self-explanatory and are not illustrated in the diagrams. If the building is located in a V zone on the FIRM, complete Item C3c. If the

## ELEVATION MEASURING



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flood zone can not be determined, provide elevations for all Items in C3a-g, and i. For buildings in A zones, elevations a, b, d, and e should be measured at the top of the floor. For buildings in V zones, elevation c should be measured at the bottom of the lowest horizontal structural member of the floor (see figure below).

**Items C3f-g.** Adjacent grade is defined as the elevation of the ground, sidewalk, patio, deck support or basement entryway immediately next to the building. This measurement should be to the nearest tenth of a foot if this certificate is being used to support a request for a LOMA/LOMR-

**Items C3h-j.** Indicate whether openings (flood vents) exists in the walls supporting the building. If openings are found, provide the elevation of the bottom of the opening(s) and determine the total size of all the openings.

## **SECTION D - BUILDING ELEVATION INFORMATION [SURVEY NOT REQUIRED FOR ZONES A (W/OUT BFE) & AO]**

**Completion of this section and Items C1. and C2. are required if the building is located in a FIRM Zone A (without BFE) or Zone AO. Otherwise, completion of this section is not required.**

**Item D1.** For buildings located in FIRM Zone A (without BFE'S) or Zone AO, record the height (to the nearest tenth of a foot) of the top of the floor (as indicated in the applicable diagram provided on pages 5 and 6) above or below the highest adjacent grade. For FIRM Zone AO, the FIRM will show the base flood depth.

For buildings located in FIRM Zone AO, record the height (to the nearest tenth of a foot) of the top of the floor (as indicated in the applicable diagram provided on pages 5 and 6) above or below the highest adjacent grade. For post-FIRM buildings, the community's floodplain management ordinance requires that this- value equal or exceed the base flood depth provided on the FIRM. Note, buildings located in Zones A (without BFE) may qualify for a lower insurance rate if an engineered BFE is developed at the site.

**Item D2.** For those few communities where this base flood depth is not available, the community will need to determine whether the top of the bottom floor is elevated accordance with the community's floodplain management ordinance.

## **SECTION E - SURVEYOR CERTIFICATION**

Complete as indicated. 'Ibis section of the Elevation Certificate may only be signed by a land surveyor, engineer, or architect who is authorized by state or local law to certify elevation information. Embossed seal and signature shall be placed in the box provided next to elevations in Section C. The surveyor is certifying that the information in Sections A, B, and C on this certificate represents the surveyor's best efforts to interpret the data available, and that the surveyor understands that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

## **SECTION F - PROPERTY OWNER (OWNERS' REPRESENTATIVE) INFORMATION**

Complete as indicated. This section is provided for certification of measurements taken by a property owner or property owner's representative when responding to Sections A, B, and D. The address provided in this section of the certificate is the actual mailing address of the property owner or property owner's representative who provided the information on the certificate.

## **SECTION G - COMMUNITY INFORMATION**

Complete as indicated. The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A-D and G of this Elevation Certificate. If the authorized local official completes Sections C, D, or G, check the appropriate box(es) and sign this section.

The local official checks the first box if Section C is completed using elevation information obtained from other documentation in which the elevation data has been signed and embossed by a licensed surveyor, engineer, or architect who is authorized by state or local law to certify elevation information. The local official should provide the source of the elevation data obtained from other documentation in the comments section provided. If the local official is a licensed land surveyor, engineer, or architect who is authorized by state or local law to certify elevation information in Section

C and performs the actual survey for a building in Zones AI-30, AE, AH, A (with BFE), VI-30, V, AR, AR/A, AR/A 1 - 3 0, AR/AE, AR/AH, or AR/AO, the local official must also complete Section E above.

The local official checks the second box if information is provided in Section D by the community for a building located in Zone A (without a FEMA or community issued BFE) or Zone AO.

The local official checks the third box if the information in Questions GI -G7 has been completed for community floodplain management purposes to document the as-built lowest floor elevation of the building. The Elevation Certificate records the elevation of various building components, but does not determine the lowest floor of the building or whether the building, as constructed, complies with the community's floodplain management ordinance. This must be done by the community. Questions GI -G7 provide one way that the community can document these determinations.

**Item G1.** Permit Number. Enter the permit number or other identifier to key the Elevation Certificate to the permit issued for the building.

**Item G2.** Date Permit Issued. Enter the date the permit was issued for the building.

**Item G3.** Certificate of Compliance for as-built lowest floor elevation. Enter the date that the Certificate of Compliance or Occupancy or similar written official documentation was issued by the community as evidence that all work authorized by the floodplain development permit has been completed in accordance with the community's floodplain management laws or ordinances.

**Item G4.** New Construction or Substantial improvement. Check the applicable box as to whether the permit is issued for new construction or a substantial improvement Under the NFIP, a building has been substantially improved if the cost to reconstruct, rehabilitate, build an addition, or other improvement equals or exceeds 50 percent of the market value of the building.

**Item G5.** As-built lowest floor elevation. Enter the elevation of the lowest floor (including basement) when the construction of the building is completed and a final inspection has been made to confirm that the building is built according to the permit and approved plans and in accordance with the community's floodplain management laws or ordinances.

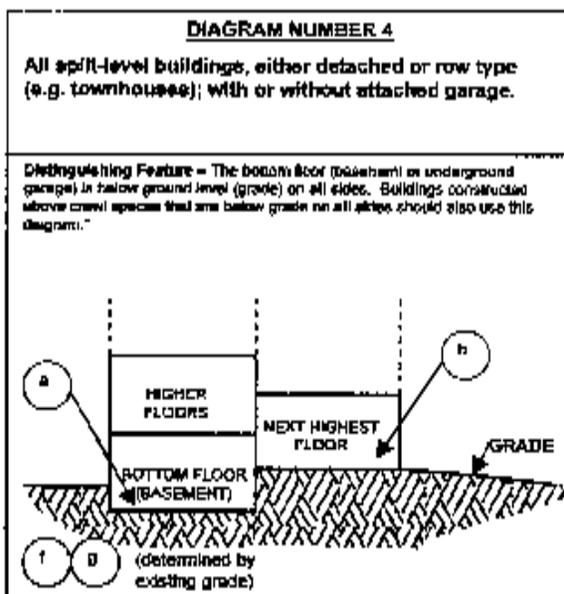
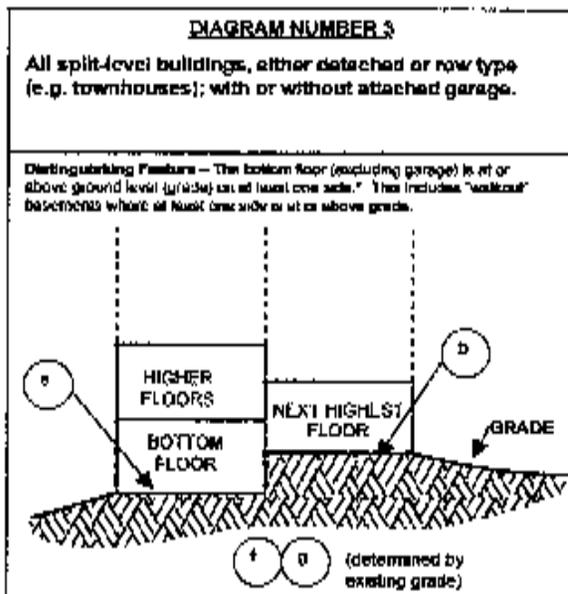
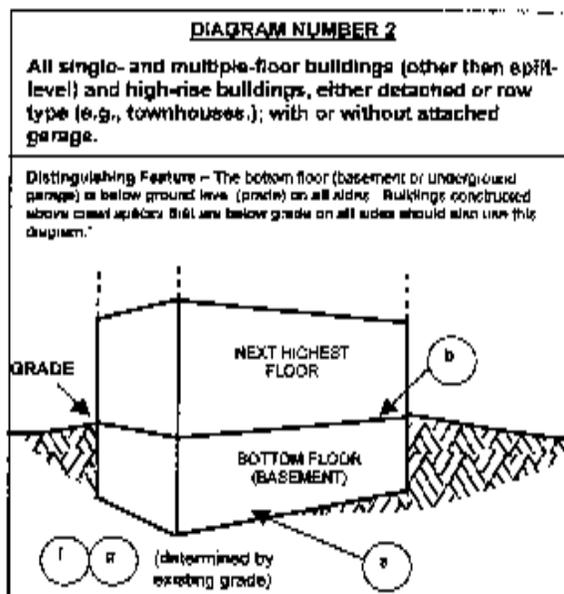
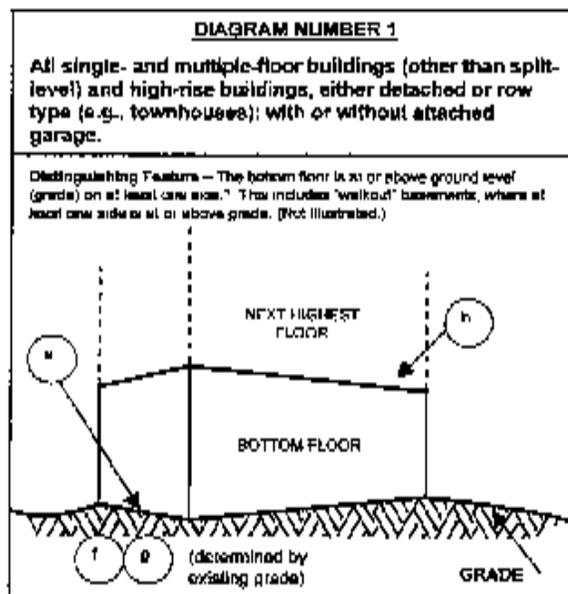
**Item G6.** BFE. From the appropriate FIRM panel Flood Insurance Study, or other data source, locate the property and record the BFE (or base flood depth) at the building site.

Provide the name, title, and signature of the local official who is authorized by law or ordinance to administer the community's floodplain management ordinance. In addition, state the name of the community which has the authority to adopt and enforce floodplain management regulations for the site in which the building is located.

## INSTRUCTIONS FOR SELECTING BUILDING DIAGRAMS

The following eight diagrams illustrate various types of buildings. Compare the features of your building with those shown in the diagrams and select the diagram most applicable. Indicate the diagram number on the Elevation Certificate (Section C, Item 2) and provide the elevations in SECTION C of the Certificate.

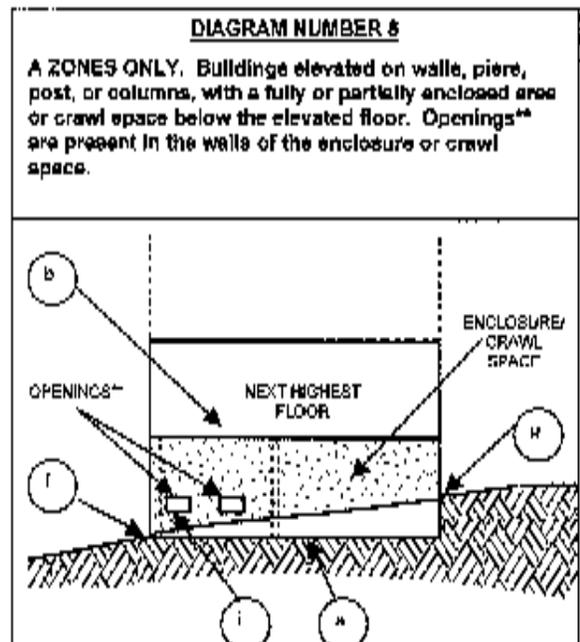
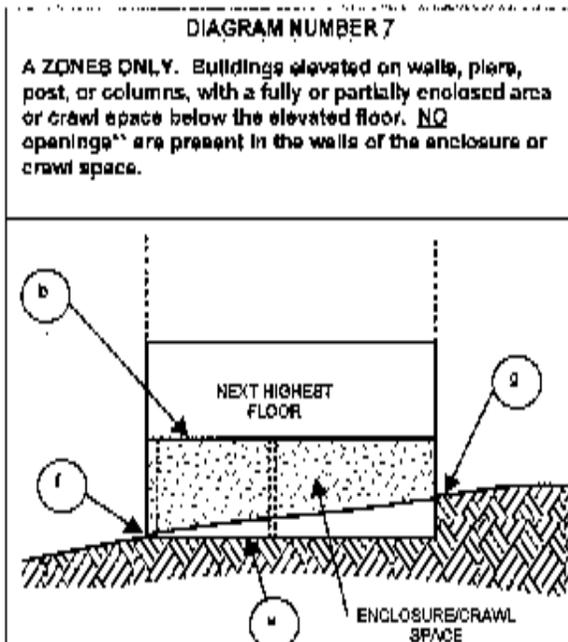
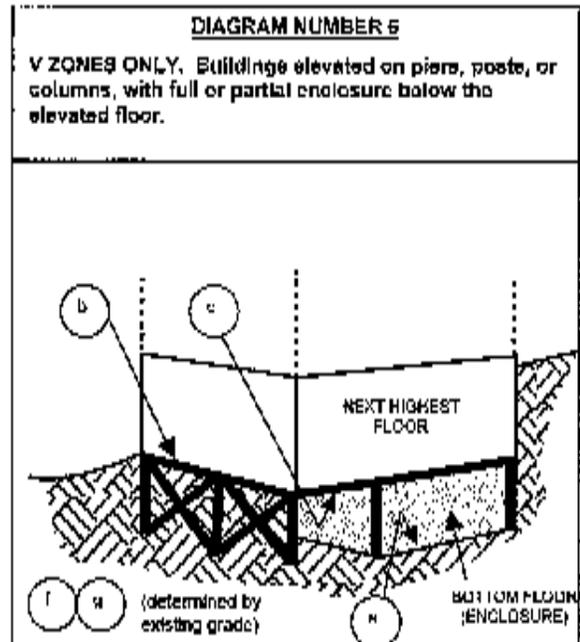
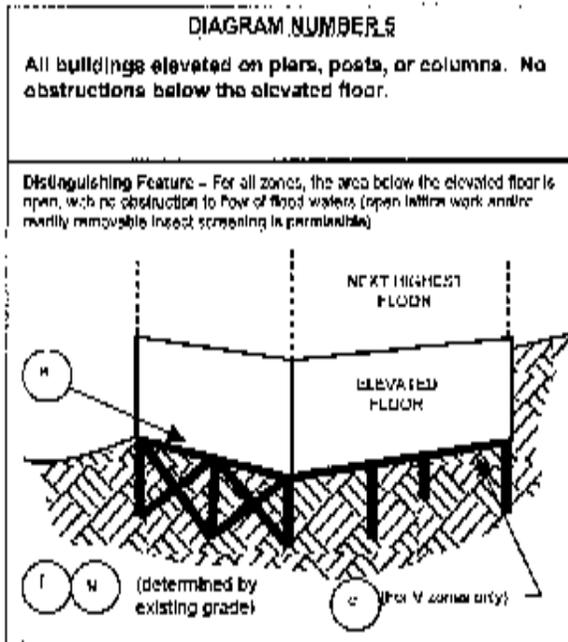
**NOTE:** In all A zones, the floor elevation is taken at the top finished surface of the floor indicated; in V zones the floor elevation is taken at the bottom of the lowest horizontal structural member (see Diagram in Section C of *INSTRUCTIONS FOR COMPLETING THE ELEVATION CERTIFICATE*). Agents should refer to the Flood Insurance Manual for instruction on determining the lowest floor of a building. The NFIP Flood Insurance Manual may be found at FEMA's website at <http://www.fema.gov>.



\*Under the National Flood Insurance Program's risk classification and insurance coverage (and 44 CFR § 59.1 Definitions), a floor that is below ground level (grade) on all sides is considered a basement even though the floor is used for living purposes, or as an office, garage, workshop, etc.

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**NOTE:** In all A zones, the lowest floor elevation is taken at the top finished surface of the lowest floor; in V zones the lowest level elevation is taken at the bottom of the lowest horizontal structural member (see Diagram in Section C of *INSTRUCTIONS FOR COMPLETING THE ELEVATION CERTIFICATE*). Agents should refer to the Flood Insurance Manual for instruction on determining the lowest floor of a building. The Flood Insurance Manual may be found at FEMA's website at <http://www.fema.gov>.



\*\*Under the National Flood Insurance Program's risk classification and insurance coverage (and 44 C.F.R. § 39.1 Definitions), a floor that is below ground level (grade) on all sides is considered a basement even though the floor is used for living purposes, or as an office, garage, workshop, etc.

\*\*An OPENING (FLOOD VENT) is defined as a permanent opening in a wall that allows the free passage of wind and/or water. A window is not considered an opening.

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**ELEVATION CERTIFICATE**  
**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**NATIONAL FLOOD INSURANCE PROGRAM (NFIP)**

O.M.B. No. 3067-0077  
 Expires July 31, 2002

Instructions for completing this form can be found on pages 2 through 6.

<b>SECTION A PROPERTY OWNER INFORMATION</b>		For Insurance Company Use
BUILDING OWNER'S NAME		Policy Number
BUILDING STREET ADDRESS (Including Apt., Unit, Suite and/or Bldg. No.) OR P.O. ROUTE AND BOX NO.		Company NAIC Number
PROPERTY DESCRIPTION (Lot and Block Numbers, Tax Parcel Numbers, Legal Description etc.)		
City	STATE	ZIP CODE
LATITUDE/LONGITUDE (IF AVAILABLE) (##-##-####)		

**SECTION B FLOOD INSURANCE RATE MAP (FIRM) INFORMATION**

Provide the following from the proper FIRM (See instructions)

B1. NFIP COMMUNITY NAME		B2. COUNTY(IES)		B3. STATE	
B4. COMMUNITY NUMBER	B5. PANEL NUMBER	B6. SUFFIX	B7. FIRM PANEL EFFECTIVE/REVISFD DATE	B8. FLOOD ZONE	B9. BASE FLOOD ELEVATION (In AO Zones, use depth)

R10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth provided in B9.  
 FIRM     Community Determined     Other (describe \_\_\_\_\_)

R11. Indicate the elevation datum used on the FIRM for the BFE in B9:  
 NGVD 1929     NAVD 1988     Other (describe \_\_\_\_\_)

**SECTION C BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)**

C1. Building elevations are based on:  Actual Construction     Construction Drawings  
 NOTE: A certificate completed using construction drawings is valid only for a building during the course of construction. A new certificate will be required once construction of the building is complete.

C2. Building Diagram Number \_\_\_\_\_ (Select the building diagram type most similar to the building under consideration - see pages 5 and 6).

C3. Elevations - Zones A1-30, AE, AH, A (with BFE), VF, V1-V30, V (with BFE), AR, AR/A, AH/AE, AR/A1-30, AR/AH, AR/AO:  
 Complete the elevation information below (Items C3a-f) based on the selected building diagram. State the datum used. If the datum is different from the datum used for the BFE in Section B, convert the datum to that used for the BFE. Show field measurements and datum conversion calculation. The comments section can be used to document the datum conversions.  
 Datum \_\_\_\_\_ Conversion/Comments \_\_\_\_\_

Elevation reference mark used \_\_\_\_\_ Does elevation reference mark appear on the FIRM     Yes     No

<input type="checkbox"/> a) Top of the bottom floor (including basement or enclosure)	_____ ft.	License Number, Embossed Seal and Signature
<input type="checkbox"/> b) Top of next highest floor	_____ ft.	
<input type="checkbox"/> c) Bottom of the lowest horizontal structural member (V zones only)	_____ ft.	
<input type="checkbox"/> d) Attached garage (top of slab)	_____ ft.	
<input type="checkbox"/> e) Top of supporting platform for machinery and/or equipment in the attached garage or enclosure	_____ ft.	
<input type="checkbox"/> f) Lowest adjacent grade	_____ ft.	
<input type="checkbox"/> g) Highest adjacent grade	_____ ft.	
<input type="checkbox"/> h) Are there two or more permanent openings (flood vents)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> i) Bottom of lowest permanent opening (flood vent)	_____ ft.	
<input type="checkbox"/> j) Total size of permanent openings (flood vents)	_____ square inch	

**SECTION D BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED FOR ZONES A (WITHOUT BFE) AND AO)**

For Zones A (without BFE) and AO, complete items C1. and C2. and provide the following:

D1. The top of the bottom floor (including basement or enclosure) of the building is \_\_\_\_\_ ft. \_\_\_\_\_ above or \_\_\_\_\_ below (check one) the highest adjacent grade.

D2. For Zone AO only: If no flood depth number is available, is the top of the floor elevated in accordance with the community's floodplain management ordinance:  Yes     No     Unknown

BUILDING STREET ADDRESS	Policy Number
CITY STATE ZIP CODE	Company NAIC Number

**SECTION E SURVEYOR CERTIFICATION**

This certification is to be signed by a land surveyor, engineer, or architect who is authorized by state or local law to certify elevation information.

*I certify that the information in Sections A, B, and C on this certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code Section 1001*

CERTIFIER'S NAME	LICENSE NUMBER
TITLE	COMPANY NAME
ADDRESS	CITY STATE ZIP
SIGNATURE	DATE PHONE

Copies should be made of this Certificate for 1) community official, 2) insurance agent/company, and 3) building owner.

COMMENTS

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**SECTION F PROPERTY OWNER (OWNER'S REPRESENTATIVE) INFORMATION**

The Property owner or Owner's Authorized Representative who completes Sections A, B, and D for Zones A (without a FEMA or community-issued BFE) or AO signs here.

BUILDING OWNER'S OR OWNER'S AUTHORIZED REPRESENTATIVE NAME

ADDRESS	CITY	STATE	ZIP CODE
SIGNATURE	DATE	TELEPHONE	

COMMENTS

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**SECTION G COMMUNITY INFORMATION (OPTIONAL)**

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A - D, and G of this Elevation Certificate. Check the applicable box(es) and sign below:

- The information provided in Section C was taken from other documentation which contains elevation data that has been signed and embossed by a licensed surveyor, engineer, or architect who is authorized by state or local law to certify elevation information. State the source of the elevation data in the comments section below.
- A community official completed Section D for a building located in Zone A (without a FEMA or community-issued BFE) or Zone AO.
- The following information (Items G1-G7) is provided for community floodplain management purposes.

G1. PERMIT NUMBER	G2. DATE PERMIT ISSUED	G3. DATE CERTIFICATE OF COMPLIANCE ISSUED
G4. This permit has been issued for: <input type="checkbox"/> New Construction <input type="checkbox"/> Substantial Improvement		
G5. Elevation of As-built lowest floor of the building is:                     ft.		
G6. BFE or base flood depth at the building site is:                     ft.		

NAME OF LOCAL OFFICIAL	TITLE
NAME OF COMMUNITY	
SIGNATURE	DATE
COMMENTS	

# APPENDIX D-11

## CERTIFICATION OF FILL PLACEMENT

### PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average .35 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C. Street, S.W., Washington DC 20503.

_____	_____
Community Name	Property Name or Address
The Fill is: [ <input type="checkbox"/> ] Existing [ <input type="checkbox"/> ] Proposed	

I hereby certify that fill placed on the property to raise the ground surface to or above the base (100-year) flood elevation in order to gain exclusion from a Special Flood Hazard Area (100-year floodplain) meets the criteria of Title 44 of the Code of Federal Regulations, Section 65.5(a) (6), listed below. For proposed fill, I hereby certify that it is designed in accordance with these criteria.

1. That the fill has been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test method or and acceptable equivalent method for *(check on of the following)*:

\_\_\_\_\_ a. Fill pads prepared for the foundations of residential or commercial structures

\_\_\_\_\_ b. Entire legally defined parcel *(Note: If the location of fill pads has not been determined, the fill over the entire legally defined parcel must be compacted to the above criteria)*.

_____	
Name (Please print or type)	
_____	
Signature	
_____	_____
Date	Community Official's Title or Engineer's Seal/Registration Number

2. That fill slopes for granular materials are not steeper than one vertical on one-and-one-half horizontal *(steeper slopes must be justified)*; and

3. That adequate erosion protection is provided for fill slopes exposed to moving flood waters *(slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a permanent cover to grass, vines, weeds or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by appropriately designed stone, rock, concrete or other durable products)*.

_____	
Name (Please print or type)	
_____	
Signature	
_____	_____
Date	Community Official's Title or Engineer's Seal/Registration Number

# APPENDIX D-12

## SAMPLE LETTER - PERMIT DENIAL

City of Intuition, OK

Date

Mr. Lem Meedoit, Permit Applicant  
P. O. Box 000  
Intuition, OK 00000

RE: Denial of Development Permit 1

Dear Mr. Meedoit:

Your application for a permit to construct a two-story residential structure at 543 River Road is denied. The structure, as proposed, is in violation of the Floodplain Ordinance adopted by the Intuition City Council

on \_\_\_\_\_ for the following reason(s):  
(date)

1. Your plans show a lowest floor elevation of 882 feet NGVD. The Base Flood Elevation (BFE) at that site is 891 feet NGVD. The Floodplain Ordinance requiring that the lowest floor, including the basement, of all new structures be elevated to or above the BFE.

If you wish to pursue this development project, you have three options:

1. You may redesign your building plans so it is in compliance with the Floodplain Ordinance and resubmit your permit application; or

2. If you feel I have made a mistake or misinterpreted the ordinance, you may appeal this decision to the Intuition Planning and Zoning Commission; or

3. If you feel you have a unique situation and the ordinance places an unfair hardship on you, you may request a variance

from the \_\_\_\_\_.  
Appeal Board

Should you have any questions, please contact me.

Sincerely,

I.M. Frank  
Floodplain Administrator  
Intuition, OK

# APPENDIX D-13

## VARIANCE GUIDE

NOTE: This guide is not FEMA policy. It is intended to provide community floodplain administrators and elected officials who must in granting a variance comply with CFR 44 Part 59-60, Section 60.6, with information upon which the local decision to grant or not to grant a variance should be based.

### TITLE 44--EMERGENCY MANAGEMENT AND ASSISTANCE

#### *§60.6 Variances and exceptions.*

(a) The Associate Director does not set forth absolute criteria for granting variances from the criteria set forth in Sections 60.3, 60.4, and 60.5. The issuance of a variance is for flood plain management purposes only. Insurance premium rates are determined by statute according to actuarial risk and will not be modified by the granting of a variance. The community, after examining the applicant's hardships, shall approve or disapprove a request. While the granting of variances generally is limited to a lot size less than one-half acre (as set forth in paragraph (a)(2) of this section), deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. The Associate Director may review a community's findings justifying the granting of variances, and if that review indicates a pattern inconsistent with the objectives of sound floodplain management, the Associate Director may take appropriate action under Section 59.24(b) of this subchapter. Variances may be issued by a community for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or a State Inventory of Historic Places, without regard to the procedures set forth in this section. Procedures for the granting of variances by a community are as follows:

(1) Variances shall not be issued by a community within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result:

(2) Variances may be issued by a community for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the procedures of paragraphs (a) (3), (4), (5) and (6) of this section;

(3) Variances shall only be issued by a community upon ( i ) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances;

(4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief;

(5) A community shall notify the applicant in writing over the signature of a community official that (i) the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage and (ii) such construction below the base flood level increases risks to life and property. Such notification shall be maintained with a record of all variance actions as required in paragraph (a)(6) of this section; and

(6) A community shall (i) maintain a record of all variance actions, including justification for their issuance, and (ii) report such variances issued in its annual report submitted to the Associate Director.

### NATURE OF VARIANCES

The NFIP variance criteria are based on the general principle of zoning law that variances pertain to a piece of property, and are not personal in nature. Though standards vary from state to state, in general, a properly issued variance is granted for a parcel of property with physical characteristics so unusual that complying with the ordinance would create an exceptional hardship to the applicant or the surrounding property owners. Those characteristics must be unique to that property and not be shared by adjacent parcels. The unique characteristic must pertain to the land itself, not to the structure, its inhabitants, or the property owners.

Examples of the kinds of characteristics that might give rise to a hardship that might justify a variance to certain other building or zoning ordinances would include an irregularly shaped lot, a parcel with unstable soils, or a parcel with an unusual geologic condition below the ground surface. It is difficult, however, to imagine any physical characteristic that would give rise to a hardship sufficient to justify a variance to a flood elevation requirement. A frequently encountered example is the case of a very small undeveloped lot completely surrounded by lots on which buildings have been constructed at grade, and an ordinance that requires that new buildings be constructed at a level several feet above grade. If the owner were to elevate the house on fill the lot might drain onto the neighbors' property. In this case, the size of the lot and its status as the only undeveloped one in the vicinity are the characteristics that could result in a hardship. However, this situation still probably would not warrant a variance because, as discussed below, the owner does not face an exceptional hardship, since there are many other ways to alleviate the drainage problem (elevation on pilings or a crawl space, grading the fill to drain away from adjoining properties, etc.).

## **INDIVIDUAL HARDSHIP VS. COMMUNITY GOALS**

In determining whether or not an applicant has established an exceptional hardship sufficient to justify a variance, the applicant's hardship must be weighed against the purpose of the ordinance. In the case of variances from a flood elevation requirement, this would mean asking which is more serious: the hardship that this individual applicant would face or the community's need for strictly enforced regulations that protect its citizens from the dangers and damages of flooding? Only a truly exceptional, unique hardship on the part of an individual would persuade local officials to set aside provisions of an ordinance designed with the whole community's safety in mind. The hardship might not have to be so severe if the applicant were seeking a variance to a setback ordinance, for instance, which was intended merely to simplify street repair and modifications. In the course of considering variances to flood protection ordinances, however, communities continually must face the more difficult task of frequently having to deny requests from applicants whose personal circumstances evoke compassion, but whose hardships are simply not sufficient to justify deviation from community-wide flood damage prevention requirements.

### **HARDSHIP (SECTION 60.6(A)(3)(II))**

The hardship that would result from failure to grant a requested variance must be exceptional, unusual, and peculiar to the property involved. Mere economic or financial hardship alone is not exceptional. Inconvenience, aesthetic considerations, physical handicaps, personal preferences, or the disapproval of one's neighbors likewise cannot, as a rule, qualify as exceptional hardships. All of these problems can be resolved through other means, without granting a variance. This is so even if the alternative means are more expensive or complicated than building with a variance, or if they require the property owner to put the parcel to a different use than originally intended, or to build his or her home elsewhere.

For example, a situation in which it would cost a property owner several thousand dollars more to elevate a house to comply with the ordinance and an additional several thousand to build a wheelchair ramp or an elevator to provide access to that house for a handicapped member of the family might at first glance seem like the sort of problem that could be relieved by a variance. However, while financial considerations are always important to property owners and the needs of the handicapped person certainly must be accommodated, these difficulties do not put this situation in the category of exceptional hardships as they relate to variances. This is because, first, the characteristics that result in the hardship are personal (the physical condition and financial situation of the people who propose to live on the property) rather than pertaining to the property itself. Second, the problem of day-to-day access to the building can be alleviated in any one of a number of ways (going to the additional expense of building a ramp or an elevator), without granting a variance. Third, the situation of handicapped persons occupying flood-prone housing raises a critical public safety concern. If a variance is granted and the building is constructed at grade, it will be absolutely critical that the handicapped or infirm person evacuate when flood waters begin to rise, yet he or she may be helpless to do so alone. Not only does this pose an unnecessary danger to handicapped persons but also it places an extra demand on the community's emergency services personnel who may be called upon during the early stages of the flood to rescue them. In contrast, if the building is properly elevated, the handicapped person can still be evacuated if there is sufficient warning and assistance available but if there is not, that person can, in all likelihood, survive the flood simply by remaining at home safely above the level of the flood waters.

More simply, the property owner's difficulties would not really be relieved by the variance, but likely only postponed and perhaps ultimately increased. It would be more prudent over the long run both for the property owner and the community if the variance were denied and the home built at the proper elevation, with handicapped access. This will ensure the safety of all family members when flood waters rise and also protect individual and community investment in the property, as discussed below.

## **PUBLIC SAFETY AND NUISANCES (§60.6(A)(3)(III))**

Variations must not result in additional threats to public safety or create nuisances. As mentioned above, local flood damage prevention ordinances (including elevation requirements) are intended to help protect the health, safety, well-being and property of the local citizens. This is a long-range community effort usually made up of a combination of approaches such as adequate drainage systems, warning and evacuation plans, keeping new property -- especially homes -- above the flood levels, and participating in an insurance program. These long-term goals can only be met if exceptions to the laws are kept to an absolute minimum.

## **FRAUD AND VICTIMIZATION (§60.6(A)(3)(III))**

Properly granted variations must not cause fraud on or victimization of the public. In examining this requirement, local boards should consider the fact that every newly constructed building adds to local government responsibilities and remains a part of the community for fifty to one-hundred years. Buildings that are permitted to be constructed below the base flood elevation are subject to increased risk of damage from floods during all those years, while future owners of the property and the community as a whole are subject to all the costs, inconvenience, danger and suffering that those increased flood damages bring. In addition, future owners may purchase the property unaware that it is subject to potential flood damages and can be insured only at very high flood insurance rates.

## **MINIMUM NECESSARY TO AFFORD RELIEF (§60.6(A)(4))**

The variance that is granted should be for the minimum deviation from the local requirements that will still alleviate the hardship. In the case of variations to an elevation requirement this means the board need not grant permission for the applicant to build at grade, for example, or even to whatever elevation the applicant proposes, but only to that level that the board believes will both provide relief and preserve the integrity of the local ordinance.

## **INSURANCE RATES**

While the building standards in a local ordinance may be altered by means of a variance, the flood insurance purchase requirement, which must be enforced by lending institutions, cannot be waived and thus may create severe financial consequences for the property owners. Insurance rates for structures built below BFE can be substantially higher than those for elevated structures. In many instances the rates will be so high as to make the structure essentially uninsurable because the owners cannot afford the premium. This may not matter to the original owner who applied for the variance in the first place, but it may matter a great deal to subsequent potential owners who cannot find buyers because of the high insurance rates, or to the community that finds itself with large numbers of unsalable houses. In addition, if the property is not insured and cannot be insured due to high actuarial rates, there may be no funds available to build the structure or to repair the structure if it is seriously damaged by a flood. Even disaster loans may not be obtainable if the flood insurance coverage required as a condition of the loan was available only at very high rates. The result may be that the present owner or a future owner may choose to abandon the damaged house rather than repair it since the damages may exceed the equity in the house. The local government and/or the holder of the mortgage are left with the problem of one or more vacant, flood-damaged, and essentially uninsurable houses.

## **SUMMARY**

Because the duty and need of local governments to help protect their citizens from flooding is so compelling, and the implications of the cost of insuring a structure built below flood level are so serious, variations from the flood elevation or from other requirements in the flood ordinance should be quite rare. This is why the NFIP variance guidelines at Section 60.6 are so detailed and contain multiple provisions that must be met before a variance can be properly granted. The criteria are designed to screen out those situations in which alternatives other than a variance are more appropriate. It is not surprising that, when these guidelines are followed, very few situations qualify for a variance.

The comments presented above reflect the principles and ideas upon which the NFIP variance criteria are based. These concepts are also kept in mind when the Federal Emergency Management Agency conducts routine monitoring of a community's compliance with NFIP requirements. A community that grants variations in accordance with these standards generally can maintain good standing with the NFIP. In addition, it should be noted that these are general guidelines and that States and localities may have more restrictive or slightly varying standards.

# APPENDIX D-14 FLOODPLAIN MANAGEMENT VARIANCE CHECKLIST

<i>FEMA JUNE 1985</i>	Yes	No
1. If property for which variance is requested is located within the floodway, has sufficient technical data been provided which substantiates that there will be NO INCREASE IN FLOOD LEVELS during the base flood (100-year) discharge? .....	_____	_____
2. Is size of lot on which new construction or substantial improvements will be built one-half acre or less contiguous to and surrounded by lots with existing structures constructed below the base flood level? (NOTE: <b><i>Variances generally are limited to lot sizes of less than one-half acre. Deviations from this limitation may occur only if the technical justification increases as the lot size increases beyond one-half acre.</i></b> ) .....	_____	_____
3. Has good and sufficient cause been shown? .....	_____	_____
4. Has it been determined that failure to grant the variance would result in exceptional hardship to applicant? .....	_____	_____
5. Has it been determined that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances? .....	_____	_____
6. If a variance is issued, has it been determined that the variance is the minimum necessary, considering the flood hazard, to afford relief? .....	_____	_____
7. If a variance is granted, has applicant been notified, IN WRITING, that:		
a. Issuance of a variance to construct a structure below the base flood level will result in increased flood insurance premium rates up to amounts as high as \$25 for each \$100 of coverage. ....	_____	_____
b. Construction below the base flood level increases risks to life and property. ....	_____	_____
<p>If the answer to any of the above is "NO", with the exception of Number 2., the request for a variance should be denied. (See Number 2. NOTE above)</p> <p>FEMA may review a community's findings justifying the granting of variances, and if that review indicates a pattern inconsistent with the objectives of sound flood plain management, may take appropriate action.</p> <p>Refer to National Flood Insurance Program (NFIP) regulations 60.6 for additional information or contact a FEMA Representative at (817) 387-5811.</p>		

# APPENDIX D-15 SAMPLE LETTER GRANTING OF VARIANCE

City of River City, OK  
Date

Mr. Euell Pay, Permit Applicant  
P. O Box 000  
River City, OK 00000

RE: Permit Application #000/Appeals Board Decision - Variance Request

Dear Mr. Pay:

On September 5, 1989, the Appeals Board reviewed your permit application to construct a detached garage at 543 River Road and determined that the Floodplain Ordinance does cause you an exceptional hardship. Consequently, the Board hereby grants you a variance to the ordinance and you may build the garage with the lowest floor below the Base Flood Elevation (BFE) of 891 Ft. NGVD.

You are notified that this variance does not waive any flood insurance premium rates and the cost of insuring the garage will be commensurate with the increased risk resulting from the reduced elevation.

By building below the BFE of 891 Ft. NGVD, your garage will be exposed to damages caused by floods known to occur at your building site.

Sincerely,

I. B. Overuld  
Floodplain Administrator  
River City, OK

**APPENDIX D-16  
PERMIT POSTER**

THIS CERTIFIES THAT

# PERMIT

NO. \_\_\_\_\_

HAS BEEN ISSUED TO

LOCATION \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATE ISSUED \_\_\_\_\_

BY \_\_\_\_\_ PHONE \_\_\_\_\_

LOCAL ADMINISTRATOR

POST ON PREMISES IN PLAIN VIEW OF A PUBLIC ROAD.

**APPENDIX D-17  
VIOLATION POSTER**

THIS CERTIFIES THAT

**VIOLATION**

NO. \_\_\_\_\_

HAS BEEN ISSUED AT

LOCATION \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATE ISSUED \_\_\_\_\_

BY \_\_\_\_\_ PHONE \_\_\_\_\_

LOCAL ADMINISTRATOR

POST ON PREMISES IN PLAIN VIEW OF A PUBLIC ROAD.

# **APPENDIX D-18**

## **SECTION 1316 OF THE NFIA, DENIAL OF FLOOD INSURANCE COVERAGE**

### **13 DENIAL OF FLOOD INSURANCE UNDER SECTION 1316 OF THE NFIA**

The basic requirement that communities adopt and enforce adequate floodplain management measures can be found in Section 1316 of the National Flood Insurance Act, which states that "...no new flood insurance coverage shall be provided ... in any area ... unless an appropriate body shall have adopted land use and control measures [with effective enforcement provisions]..."

If the use of the enforcement provisions required by Section 1316 fails to obtain compliance with local floodplain regulations, the State or community can declare the structure be in violation and request that FEMA deny flood insurance coverage under Section 1316 of the National Flood Insurance Act, which states,

#### **PROPERTIES IN VIOLATION OF STATE AND LOCAL LAW**

Sec. 1316. No new flood insurance coverage shall be provided under this title for any property which the Secretary finds has been declared by a duly constituted State or local zoning authority, or other authorized public body, to be in violation of State or local laws, regulations, or ordinances which are intended to discourage or otherwise restrict land development or occupancy in floodprone areas.

The basic intent of Section 1316 is to support enforcement actions by States and local units of government by providing them with an additional tool for obtaining compliance with their local floodplain management regulations. Section 1316 does this by providing the States or communities with:

- (1) A means of providing economic incentive to the property owners for correcting the violations; and
- (2) A way to take action against uncorrectable violations that also acts as a deterrent to future violations.

Section 1316 is not intended as substitute for abrogating violation by modifying the structure or development so that becomes compliant and can be insured at affordable rates. Neither should Section 1316 be viewed merely as a mechanism removing bad risks from the policy base.

Besides the unavailability of flood insurance, a structure for which flood insurance has been denied under Section 1316 will suffer additional impacts. Grants, loans or guarantees made by Federal agencies such as the Small Business Administration, Federal Housing Administration and Veterans Administration, will not be available for acquisition of or construction on the structure. After a flood, no Federal disaster assistance will be available to rebuild. The availability of acquisition and construction funds from federally regulated or federally insured lending institutions may also be affected.

Section 1316 will only be applied in those instances where a state or community submits the declaration to FEMA and specifically identifies it as a submission under Section 1316 of the Act. Communities will be required to co-abrogate to the maximum extent possible all violations, but may be able to choose forms of abrogation other than the submission of declarations for Section 1316 action. Provided that the objectives of an individual enforcement action are met, these abrogation measures could be acceptable and could returning a community to full program status.

There will be instances where structures have their lowest floors below BFE, but are not violations or cannot be declared as such by the state or community. In these instances, FEMA can verify the insurance rate assigned to structures, but cannot require that individual structures be cited or declared to be in violation. Proper abrogation is to correct the deficiencies in the local program so that the problem will not reoccur. Examples include:

1. Investigations may determine that the structure is pre-FIRM or compliant with the map in effect at start of construction.

2. A structure may have been granted a variance. These structures are generally not violations unless the conditions attached to the variance have not been or the variance was obtained through misrepresentation. Follow-up actions must be directed at the community rather than the individual structure.

3. There may be a defect in the ordinance or accompanying enforcement provisions that prevent the community from citing the structure or declaring it to be a violation. (This is a program deficiency and must be corrected by the community.)

4. There may be constraints in enabling legislation, case law, or statutes of limitation that prevent a community from citing a particular structure or declaring it to be a violation.

## **13.1 REQUIREMENTS FOR IMPLEMENTING SECTION 1316**

The following basic requirements must be met before insurance can be denied under Section 1316:

A. The State or local law, regulation or ordinance violated must be " ...intended to discourage or otherwise restrict land development or occupancy in flood-prone areas."

This includes not only NFIP floodplain management criteria, but also more restrictive State and local standards. It can also include regulations such as wetlands ordinances that have limiting floodplain management development as one of their expressed purposes. However, States and communities should be discouraged from submitting declarations for violations of provisions that are not directly related flood damage reduction.

B. The declaration must be made by a "duly constituted State or local zoning authority or other authorized public body"

Generally, the law, regulation or ordinance will contain enforcement provisions that authorize an individual such as the building inspector or a body such as the planning commission to declare structures in violation. In the absence of these provisions or other delegations of authority, the declaration should be made by the local legislative body that adopted the law, regulation or ordinance. A State can declare a structure to be in violation of its own regulations if it has direct regulatory authority. However, it could not declare a structure to be in violation of a local ordinance unless there were provisions in state law that allowed it to do so.

C. The declaration itself must be in writing and must include:

1. a reference to the specific state or local laws, regulations or ordinances that have been violated;
2. a reference to, the specific enforcement provision of the law, regulation or ordinance that authorizes the State or local body or individual to declare the structure to be in violation;
3. an adequate street address or legal description of the property in violation;
4. the name of the property owner; and
5. a clear statement declaring the identified structure to be in violation of the law, regulation or ordinance provision referenced.

If the state or locality has a procedure for issuing citations for violations and if the citation includes all five of the components listed above, then the citation can serve as a valid declaration, If such a procedure does not exist, then a letter from the appropriate authorized official to the property owner or to FEMA containing all five of the components listed above will constitute a valid declaration. Citations containing ambiguous language cannot be accepted for purposes of Section 1'316.

D. The submission to the Regional Office under Section 1316 must include either:

I . a cover letter clearly stating that this is a submission under Section 1316 of the National Flood Insurance Act and enclosing copies of each component of the declaration as described in C, above

or

2. a letter incorporating both the statement that this is a submission under Section I-' ) 16 and all five components of the declaration as described in C, above.

E. The State or community should notify the property owner that the property has been declared to be in violation, that a submission has been made to FEMA pursuant to Section 1316, and that FEMA may deny flood insurance coverage on the structure.

## **13.2 PROCEDURES FOR IMPLEMENTING SECTION 1316**

**Step 1** The State or local zoning authority or other authorized public body declares the structure to be in violation of its state or local laws, regulations or ordinance intended to discourage or restrict development or occupancy of flood-prone areas.

**Step 2** The State or local authority submits the declaration and necessary backup documentation described in C, above, to the Region with a cover letter identifying it as a Section 1316 submission.

**Step 3** The Region reviews the submission and makes the following preliminary determinations:

- a. The individual or body issuing the declaration is authorized to do so.
- b. The ordinance or regulation that has been violated is intended to “discourage or otherwise restrict land development or occupancy in flood-prone areas.”
- c. The address and legal description that accompany the declaration provide sufficient information to deny insurance.

The Region may have to obtain additional information from the community or state in order to make these preliminary determinations.

**Step 4** The Region submits **its** recommendation along with the declaration and supporting documentation to OLR which evaluates the recommendation in light of the requirements for implementing Section 1316 (see above).

**Step 5** OLR obtains the approval of the Administrator (or his designee) on a finding that the property has been declared to be in violation for denial of flood insurance under Section 1316.

**Step 6** OLR forwards the signed finding(s) to the **Office** Insurance Policy Analysis and Technical Services (IPATS).

**Step 7** IPATS forwards the finding(s) to the Office of Insurance Operations (10) for final processing with NFIP servicing contractor.

**Step 8** NFIP servicing contractor receives each submission, determines whether it represents a current policy or application and then either denies the issuance of the policy using language approved by FIA or places an edit in the computer system so that the property owner is notified at renewal time that the policy cannot be renewed because of finding of a violation pursuant to Section 1316. The servicing contractor also maintains a permanent record of all such actions.

If a structure that was declared to be in violation is later modified to be compliant, the State or local zoning authority or other authorized body may rescind the declaration, and provide notification to the Region. A parallel review process incorporating steps 3-8, above, will be followed. Flood insurance will then be made available for the structure. Flood insurance cannot be available again unless the state or local authority rescinds its declaration.

# APPENDIX D-19

## SAMPLE SECTION 1316 DECLARATION

As Building Inspector of \_\_\_\_\_ County and under my authority under Section 78-1  
(a) of the \_\_\_\_\_ Code of Ordinances, I hereby declare the structures listed below  
to be in violation of the \_\_\_\_\_ County Building Regulations.

The County requests FEMA deny insurance coverage under the National Flood Insurance Program for these structures pursuant to Section 1316 of the National Flood Insurance Act of 1968.

Owner/Property Address  
John Q. Public  
1414 Seabreeze Drive

Type of Structure  
residence  
Zone A 12

Violation  
built below Base Flood  
Elevation in violation of  
Section 80-2(a) of

\_\_\_\_\_  
County Building  
Regulations

(Signed)

\_\_\_\_\_  
County Building  
Inspector

cc: John Q. Public

# APPENDIX D-20

## SAMPLE SECTION 1316 RECISSION

As Building Inspector of \_\_\_\_\_ County and under my authority under Section 78-1 (a) of the \_\_\_\_\_ Code of Ordinances, I hereby declare the structures listed below is now in compliance with the \_\_\_\_\_ County Building Regulations.

The County requests FEMA deny insurance coverage under the National Flood Insurance Program for these structures pursuant to Section 1316 of the National Flood Insurance Act of 1968.

Owner/Property Address

John Q. Public  
1414 Seabreeze Drive

Type of Structure

residence  
Zone A I2

Violation

built below Base Flood  
Elevation in violation of  
Section 80-2(a) of

\_\_\_\_\_  
County Building  
Regulations

(Signed)

\_\_\_\_\_  
County Building  
Inspector

cc: John Q. Public

# APPENDIX D-21

## TEN COMMANDMENTS

### OF FLOODPLAIN MANAGEMENT

Following are ten points of floodplain management for community officials:

1. Post your flood insurance rate map and floodway map next to your zoning map. This will serve as a constant reminder that you have a floodplain ordinance in effect.
2. Review all development proposals for possible floodplain management implications.
3. Ensure all residential developments have adequate road access during the 100-year flood. A key goal of floodplain zoning is to ensure the lives of floodplain dwellers and rescue personnel are not placed in jeopardy.
4. Specify the base flood elevation (BFE) on every building Permit which authorizes construction within the floodplain. Either modify existing permit forms or adopt new ones that provide for the entry of the BFE.
5. Review proposed developments to assure that all necessary permits have been received from the appropriate federal and state agencies. Require copies of the issued permit or a written statement from the issuing authority indicating that a permit is not required from the U.S. Army Corps of Engineers or the Department of Natural Resources.
6. Ensure the floodway is unobstructed by fill or structure placement. Periodically check fill projects near water courses to ensure the floodway is not being filled and proper permits are in hand.
7. Do not allow floodproofed basements below the BFE.
8. Require a Floodplain Permit for replacement of manufactured homes (i.e. mobile homes) in mobile home parks located in the floodplain and require elevation to the BFE. Read the wording of your ordinance carefully. If it doesn't clearly allow you to regulate the siting of manufactured homes in a flood prone area, then the ordinance needs revision.
9. Be sure to require certification of as-built elevations and flood proofing measures and maintain a record thereof. These records are especially useful down-the-road when a new owner has to purchase flood insurance.
10. Make sure the permittee is aware that a certificate of occupancy or zoning compliance must be secured before he/she can legally occupy the authorized floodplain development. This is your last chance to ensure that compliance with your ordinance has been achieved.

*Source: Federal Emergency Management Agency*

# APPENDIX D-22

## DAMAGE ASSESSMENT FIELD WORKSHEET FOR COMMUNITY OFFICIALS

### INSTRUCTIONS

*TO COMPLETE THIS ASSESSMENT, YOU MUST TAKE THE FLOOD INSURANCE RATE MAP (FIRM) WITH YOU.*

1. ADDRESS: Street address of damaged home or exact location (*i.e.*, the fourth house north of the intersection of Highway 32 and Highway 38 on the west side of the road). Geographic Position System (GPS) Lat./Long. is optional. Draw map\* on page 2 of the form.
2. OWNERS NAME: If someone is on the site or within the area, ask for the name of the property owner or occupant.  
or RENTERS NAME: If someone is on site or within the area ask about the occupant's name.
3. TYPE OF STRUCTURE: Check off the type of structure. (*i.e.*, Residential, Commercial, Multi-family or other)
4. TYPE OF CONSTRUCTION: Check off the type of construction. (*i.e.*, Masonry, Wood Frame)
5. DAMAGE ASSESSMENT: The building components are identified in eight areas, each indication a percent of the total cost of the structure. Each damage category (Minor, Major or Destroyed) has a percent of damage multiplier that adjusts the percent of damage for each component.
  - a. If the Roof/Trusses received MINOR damage, then the Roof/Truss damage is ... ( $17 \times .25 = 4.25$ ).
  - b. If the Roof/Trusses received MAJOR damage, then the Roof/Truss damage is ..... ( $17 \times .5 = 8.5$ ).
  - c. If the Roof/Trusses were DESTROYED, then the Roof/Truss damage is ..... ( $17 \times 1 = 17$ ).Check the box under the category that best indicated the amount of damage. Complete the form for each of the eight building components. Then add the percentages for each column for the subtotals. Add the subtotals in each column for the total.
6. DAMAGE CATEGORY: Using the total from number 5. above, check the proper category provided on the form: (Less than 25% - MINOR); (26 to 49% - MAJOR) or (50% or greater - DESTROYED).
7. STRUCTURAL INFORMATION: In order to answer the questions, first determine if the structure is habitable (by FEMA Standards). A habitable structure is one that is safe, secure and sanitary. A structure which approaches or is over 50% damaged, with significant damage which undermines the integrity of the structure, is not likely to be safe and/or secure. Due to the lack of alternative housing here, you may find such a structure inhabited.
8. LOCATION: Using Flood Insurance Rate Map (FIRM), answer the following questions. If the property is located near the boundary of the SFHA or regulatory floodway and you can't clearly determine if it is in or out, check "CAN'T TELL".
9. PHOTOGRAPHS: If photographs were taken, attach a copy or identify by roll number and frame number of the picture.
10. TEAM IDENTIFICATION: Fill in the names of each of the team members, what agency each represents and sign and date the form.

\*Draw a map:

Show the nearest major intersection and/or landmark which can be easily identified,  
label street/road by name(s) and Route Number,  
show the location of the house and  
note any identifying characteristics to help locate it.)

# DAMAGE ASSESSMENT FIELD WORKSHEET FOR COMMUNITY OFFICIALS

1. Address \_\_\_\_\_

Island \_\_\_\_\_ (GPS) Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(Draw map on page 2.)

2. Occupant's Name \_\_\_\_\_  
Owner Renter (Circle One)

3. Type of Structure: Residential \_\_\_\_\_ Other \_\_\_\_\_  
Commercial \_\_\_\_\_  
Multi-Family \_\_\_\_\_

4. Construction Type: Masonry \_\_\_\_\_  
Wood Frame \_\_\_\_\_

5. Damage Assessment:

		Percent of Damage		
Damage Multiplier		Minor (.25)	Major (.5)	Destroyed (1)
Component	Percent of Structure			
Roof/Trusses	17	4.25	8.5	17.0
Exterior Walls	23	5.75	11.5	23.0
Interior Walls	12	3.00	6.0	12.0
Floors/Flooring	5	1.25	2.5	5.0
Foundation/Cistern	30	7.50	15.0	30.0
Plumbing	5	1.25	2.5	5.0
Electrical	7	1.75	3.5	7.0
Air Conditioning	1	0.25	0.5	1.0
SUB TOTALS		_____	_____	_____
TOTAL DAMAGE (Add Subtotals) _____ PERCENT				

6. Damage Category: MINOR \_\_\_\_\_ MAJOR \_\_\_\_\_ DESTROYED \_\_\_\_\_  
(Less Than 25%) (26% to 49%) (50% or Greater)

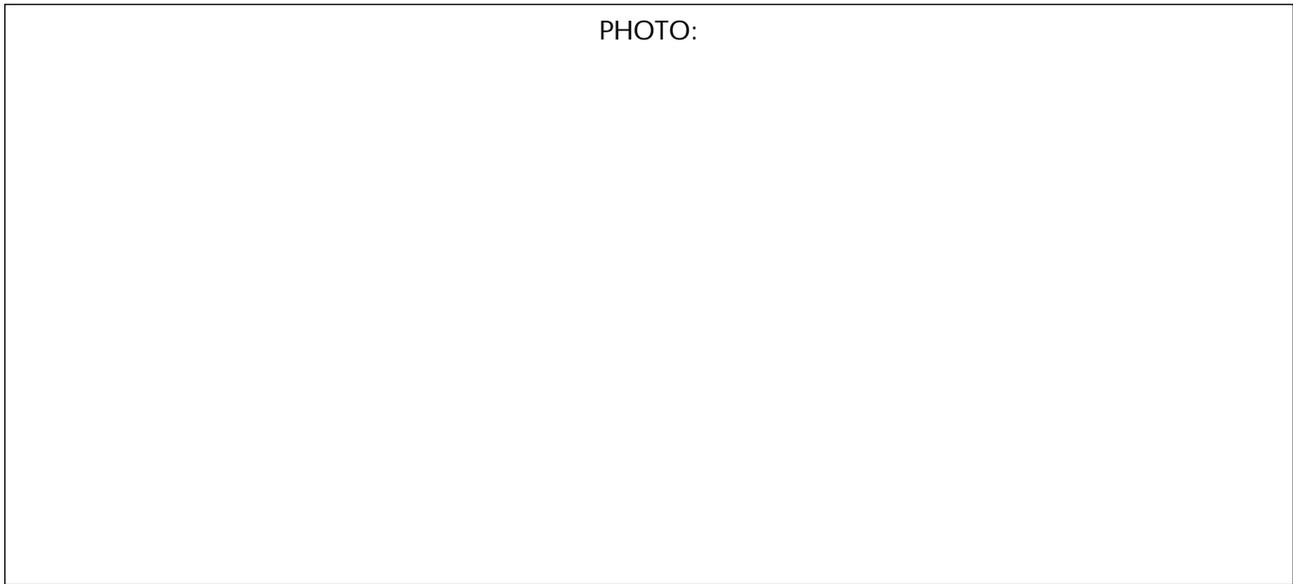
7. Structural Information:  
Is the structure habitable? YES\_\_ NO\_\_  
Is the structure inhabited? YES\_\_ NO\_\_  
Is the roof covered with visqueen? YES\_\_ NO\_\_  
Did the structure have flood damage? YES\_\_ NO\_\_

8. Location:  
Is the property located in a SFHA? YES\_\_ NO\_\_ Can't Tell\_\_  
If Yes: A-ZONE \_\_\_\_\_ UNNUMBERED A-ZONE \_\_\_\_\_ V-ZONE \_\_\_\_\_

Is the property in the regulatory floodway: YES\_\_ NO\_\_ Can't Tell\_\_

9. Photographs: If photographs were taken, **ATTACH A COPY** or identify by roll number and frame number of the picture. ROLL Number \_\_\_\_\_ FRAME Number \_\_\_\_\_

PHOTO:



10. TEAM Identification:  
Names of team members:

---

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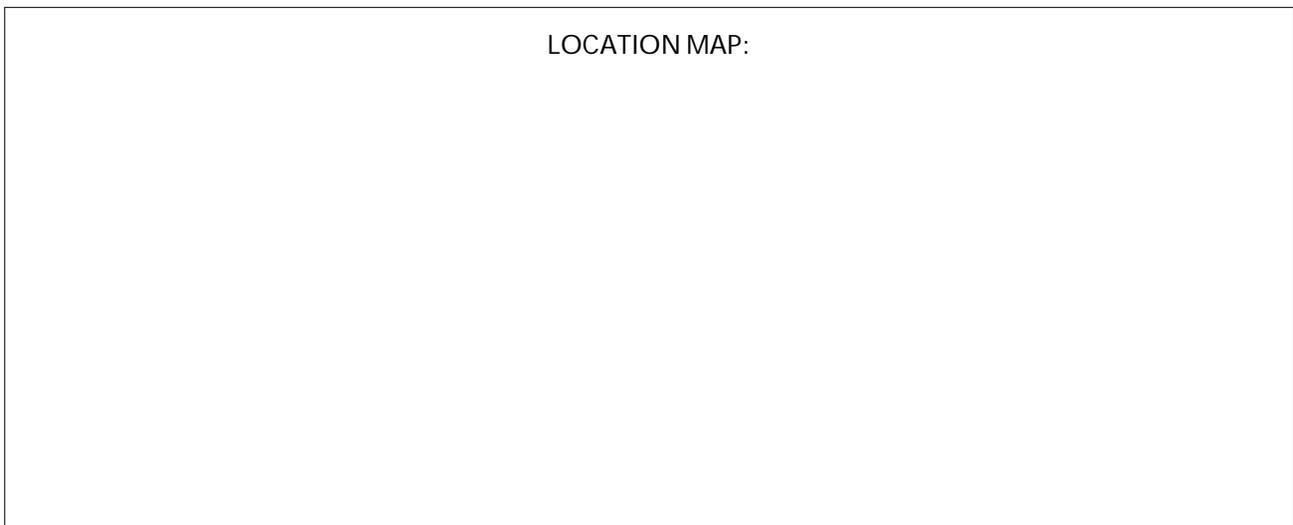
---

Name of person completing the form:

---

Date: \_\_\_\_\_

LOCATION MAP:



# APPENDIX D-23

## WHERE TO GO FOR HELP

Communities can receive assistance and guidance for their floodplain management program. If you have questions or problems, don't hesitate to ask for help. For information regarding the NATIONAL FLOOD INSURANCE PROGRAM or the OKLAHOMA FLOODPLAIN MANAGEMENT ACT, call or write:

### **OKLAHOMA WATER RESOURCES BOARD**

3800 N. Classen Boulevard  
Oklahoma City, OK 73118  
(405) 530-8800  
(405) 530-8900 FAX  
OWRB's website: [www.state.ok.us/~owrb/](http://www.state.ok.us/~owrb/)

Assistance may also be available to you from your substate planning district, district conservationist or consulting engineer.

### **FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION VI, Natural and Technologies Division**

Federal Regional Center  
800 North Loop 288  
Denton TX. 76201-3698  
(817)898-5334  
(817) 898-5195 FAX

### **NATURAL RESOURCE CONSERVATION SERVICE - STATE OFFICE**

USDA Agricultural Center Building  
Stillwater, OK 74074  
(405) 624-4404

### **U.S. ARMY, CORPS OF ENGINEERS TULSA DISTRICT**

Attn: CESWT-PL-GF  
P.O. Box 61  
Tulsa, OK 74121-0061  
(918) 669-7197

### **U.S. GEOLOGICAL SURVEY WATER RESOURCES DIVISION**

Broadway Executive Park  
Building 7  
202 N.W. 66th. Street  
Oklahoma City, OK 73116  
(405) 231-4256  
(405) 736-4256 FTS  
(405) 231-5079 FAX

### **NATIONAL WEATHER SERVICE**

1200 Westheimer Dr., Room 101  
Norman, OK 73069-7902  
(405) 360-5928 (M-F, 8am-5pm CST/CDT)

### **OKLAHOMA DEPARTMENT OF CIVIL EMERGENCY MANAGEMENT**

Sequoyah-Will Rogers Tunnel  
P.O. BOX 53365  
Oklahoma City, OK 73152-4053  
e-mail: [odcem@oklaosf.state.ok.us](mailto:odcem@oklaosf.state.ok.us)  
(405) 521-2481

### **OKLAHOMA DEPARTMENT OF TRANSPORTATION, Planning Division**

200 N.E. 21st Street  
Oklahoma City, OK 73105-3204  
(405) 521-2515

### **OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY, Director**

707 N. Robinson  
Oklahoma City, OK 73102  
**Mailing:** P.O, Box 1677  
Oklahoma City, OK 73101-1677  
(405) 702-6100

### **OKLAHOMA CORPORATION COMMISSION, Director**

Jim Thorpe Building  
2101 N. Lincoln  
P.O. Box 52000-2000  
Oklahoma City, OK 73152-2000  
**Pipeline Safety:** (405) 521-2258  
**Oil & Gas:** (405) 521-2613  
**Complaints & Information:** (405) 521-2613  
**Railroads:** (405) 521-3407

### **OKLAHOMA DEPARTMENT OF MINES**

4040 N. Lincoln  
Oklahoma City, OK 73105  
(405) 521-3859

**GRAND RIVER DAM AUTHORITY, Director**

707 S. Wilson  
Vinita, OK 74301-0409  
(918) 256-5545

**NFIP SOUTH CENTRAL REGION VI OFFICE**

Computer Sciences Corporation  
Bureau and Statistical Agent  
11931 Wickchester, Suite 304  
Houston, TX 77043  
(281) 531-5990 FAX: (281) 531-5992

**OKLAHOMA WATER RESOURCES BOARD  
FIELD OFFICES:**

**OWRB LAWTON OFFICE**

601 "C" Avenue, Suite 101  
P.O. BOX 886  
Lawton, OK 73502  
(580) 248-7762

**OWRB MCALESTER OFFICE**

321 S. 3rd Street, Suite 1  
McAlester, OK 74501  
(918) 426-5435

**OWRB TULSA OFFICE**

State Agencies Building - Room 2  
440 S. Houston  
TULSA, OK 74127  
(918) 581-2925

**OWRB WOODWARD OFFICE**

2411 Williams Avenue, Suite 116  
Woodward, OK 73801  
(580) 256-1014

**OKLAHOMA TURNPIKE AUTHORITY**

Oklahoma City, OK  
(405) 521-2688

**OKLAHOMA REAL ESTATE COMMISSION**

4040 Lincoln Boulevard, Suite 100  
Oklahoma City, OK 73105  
(405) 521-3387

# APPENDIX D-24

## SUBSTATE PLANNING DISTRICTS

- 1. GRAND GATEWAY ECONOMIC DEVELOPMENT ASSOCIATION (GGEDA)**  
Ed Crone, Executive Director  
Drawer B  
Big Cabin, OK 74332-0502

(918) 783-5793  
1-800-482-4594  
FAX (918) 783-5786
- 2. EASTERN OKLAHOMA DEVELOPMENT DISTRICT (EODD)**  
Bruce Mahaffey, Executive Director  
215 N. State, #408  
P.O. Box 1367  
Muskogee, OK 74402-1367

(918) 682-7891  
FAX (918) 682-5444
- 3. KIAMICHI ECONOMIC DEVELOPMENT DISTRICT OF OKLAHOMA (KEDDO)**  
Chester Dennis, Executive Director  
Highway 2 North  
P.O. Box 638  
Wilburton, OK 74578

(918) 465-2367  
1-800-722-8180  
FAX (918) 465-3873
- 4. SOUTHERN OKLAHOMA DEVELOPMENT ASSOCIATION (SODA)**  
**Roy Boatner (Acting ED)**  
Box 709  
Durant OK 74702

(580) 920-1388  
FAX (580) 920-1391
- 5. CENTRAL OKLAHOMA ECONOMIC DEVELOPMENT DISTRICT (COEDD)**  
Wayne Manley, Executive Director  
400 N. Bell Street  
P.O. Box 3398  
Shawnee, OK 74802

(405) 273-6410  
1-800-375-8255  
FAX (405) 273-3213
- 6. INDIAN NATIONS COUNCIL OF GOVERNMENTS (INCOG)**  
Jerry Lasker, Executive Director  
201 W. 5th Street, #600  
Tulsa, OK 74103-4236

(918) 584-7526  
FAX (918) 583-1024
- 7. NORTHERN OKLAHOMA DEVELOPMENT ASSOCIATION (NODA)**  
Larry Tipps, Executive Director  
2901 N. Van Buren  
Enid, OK 73703

(580) 237-4810  
1-800-749-1149  
FAX (580) 237-8230
- 8. SOUTHWESTERN OKLAHOMA DEVELOPMENT AUTHORITY (SWODA)**  
Gary Gorshing, Executive Director  
Building 420, Kliver Road  
Clinton Industrial Air Park  
P.O. Box 569  
Burns Flat, OK 73624

(580) 562-4882  
1-800-627-4882  
FAX (580) 562-4880
- 9. ASSOCIATION OF CENTRAL OKLAHOMA GOVERNMENTS (ACOG)**  
Zach Taylor, Executive Director  
6600 N. Harvey Place, Suite 200  
Oklahoma City, OK 73116

(405) 848-8961  
FAX (405) 840-9470  
TDD (405) 848-9724

**10. ASSOCIATION OF SOUTH CENTRAL OKLAHOMA GOVERNMENTS (ASCOG)**

Blaine Smith, Jr., Executive Director  
802 Main Street  
P.O. Box 1647  
Duncan, OK 73534

(580) 252-0595  
1-800-658-1466  
FAX (580) 252-6170  
TDD (580) 252-8006

**11. OKLAHOMA ECONOMIC DEVELOPMENT AUTHORITY (OEDA)**

Larry M. Bostic, Executive Director  
330 Douglas  
P.O. Box 668  
Beaver, OK 73932

(580) 625-4531  
FAX (580) 625-3420

**OKLAHOMA ASSOCIATION OF REGIONAL COUNCILS**

Richard L. Hess, Executive Director  
601 W. 1-44 SERVICE ROAD, STE. C  
OKLAHOMA CITY, OK 73118-6032

(405) 879-0115  
FAX (405) 879-0304

*Updated May 1998*

## **SUBSTATE PLANNING DISTRICTS**

# APPENDIX D-25 ORDERING FLOOD MAP PRODUCTS



## FEDERAL EMERGENCY MANAGEMENT AGENCY MAP SERVICE CENTER ORDER FORM

*For Flood Maps, Flood Insurance Studies, and Subscriptions*

**Flood Maps:** Each map panel is 2.58, including index maps.

ED Panel No.	Community/Country/State	Qty	Price/Panel	Cost
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____

**Flood Insurance Studies (FIS):** Each FIS is \$2.58.

ED Panel No.	Community/Country/State	Qty	Price/Panel	Cost
_____	_____	_____	\$ 2.58 =	_____
_____	_____	_____	\$ 2.58 =	_____

**CD - Digital Flood Data Information on CD ROM:** Each CD ROM is \$200.

State	Qty	Price/CD	Cost
_____	_____	\$ 200 =	_____
_____	_____	\$ 200 =	_____

### Over Time Orders

**Community Status Books:** Individual States are \$2.58, entire U.S. is \$26.38.

State	Price/State	Cost
_____	\$ 2.58 =	_____
All U.S.	\$ 26.38 =	_____

**Flood Map Status Information Service (FMSIS):** Individual States are \$13, entire U.S. is \$138.

State	Price/State	Cost
_____	\$ 13 =	_____
All U.S.	\$ 138 =	_____

Sub Total = \_\_\_\_\_

Shipping & Handling for all orders except subscriptions = + \$2.50

TOTAL for page one = \_\_\_\_\_

*All map sales are final - no refunds on material shipped. (Prepayment of less than stated dollars (100%) is not subject to refund.)*

FD-50704

### Annual Subscriptions

Community States Book State _____	Quantity _____	Cost/Book X \$ 50 = _____
	All U.S. _____	X \$150 = _____
MPIP Insurance Manual 200118	Quantity _____	Cost/Book X \$15 = _____
Flood Map State Information Service (FMSIS) State _____	Quantity _____	Cost/Book X \$148 = _____
	All U.S. _____	X \$118 = _____
Letter of Map Change Distribution Service (LDMC)	Quantity _____	X \$1,000 = _____
	Subscription Sub Total = _____	

Grand Total - add total from page one and subscription sub total = \_\_\_\_\_

Please complete the Shipping and Mailing Information below.

### Shipping and Payment Information

Name: \_\_\_\_\_  
 Organization: \_\_\_\_\_  
 Street Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Daytime Telephone Number: (\_\_\_\_) \_\_\_\_\_ Fax Number: (\_\_\_\_) \_\_\_\_\_

**Payment:** Orders paid by check can be mailed to Map Service Center  
 P.O. Box 1038  
 Jessup, MD 20794-0038

All other orders can be faxed to: 1-800-358-9638

Check or money order payable to MPIP is enclosed for \$ \_\_\_\_\_  
 Charge by  MC  Visa Acct No. \_\_\_\_\_ for \$ \_\_\_\_\_  
 Expiration Date: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Change my deposit account number \_\_\_\_\_ for \$ \_\_\_\_\_

If you would like information about setting up a deposit account, call Customer Service at 1-800-358-9638.

**Thank you for your order.**

# APPENDIX D-26

## ORDERING NFIP SUPPLIES AND MATERIALS



FEMA

FE MA Distribution Center

### NFIP Supply Order Form

1 (800) 485-3030 • FAX 1 (301) 497-6178



Inventory # Number	Title	Quantity
<b>Underwriting/Plating Forms (to obtain a total by day)</b>		
008 (1/97)	Application	_____
009 (1/97)	Participation Worksheet	_____
100 (1/97)	Issuing Policy	_____
003 (1/97)	Special Conditions	_____
004 (1/97)	Underwriting Certificate for Non-Builded Structure	_____
001 (1/97)	General Change Substitution	_____
100 (1/97)	General Property Policy	_____
109 (1/97)	Increased Cost of Compliance Endorsement	_____
005 (1/97)	Preferred Risk Policy Application	_____
006 (1/97)	Premium Calculation Pad	_____
008 (1/97)	Residential Business Underwriting Certificate	_____
100 (1/97)	Residential Commercial Building Association Policy	_____
000 (1/97)	2-2nd Step Paper Rating Form	_____
<b>Separate Forms</b>		
100 (1/97)	Police Fire Association De Stolic Residential De Condominium (Residential Condominium Building Association Policy)	_____
100 (1/97)	Police Fire Association National General Property Policy	_____
100 (1/97)	Police Fire La Florida (Existing Policy)	_____
<b>Claim Forms</b>		
002 (1/97)	Case of Loss Submission Report	_____
003 (1/97)	ICC Adjuster Report	_____
000 (1/97)	Bill of Proof of Loss	_____
100 (1/97)	Manufactured (Mobile) Home Worksheet	_____
004 (1/97)	NFIP Final Report	_____
005 (1/97)	NFIP Narrative Report	_____
006 (1/97)	NFIP Preliminary Report	_____
100 (1/97)	Notice of Loss	_____
100 (1/97)	Proof of Loss	_____
100 (1/97)	Statement of Repair	_____
000 (1/97)	Worksheet-Building	_____
100 (1/97)	Worksheet-Building Copy	_____
000 (1/97)	Worksheet-Contents Property	_____
<b>Order Forms</b>		
100 (1/97)	NFIP Flood Insurance Plating Order Form	_____
000 (1/97)	NFIP Multi-Agency Plating Order Form	_____
100 (1/97)	NFIP Supply Order Form (Underwriting/Claims)	_____

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Telephone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_

MO (1/97)

Policyholder or Agent   
  Builder/Contractor   
  Real Estate  
 Appraiser   
  Engineer   
  Surveyor  
 Insurance   
  Insurance Agent   
  Other  
 Lender   
  Other Company

To place an order call 1-800-485-3030 9:00 a.m. to 5:00 p.m.  
 Eastern Standard Time. Monday through Friday, or by (301)  
 497-6178, or visit us: [www.nfip.gov](http://www.nfip.gov) (FEMA website)  
 P.O. Box 3041  
 Jersey, MD 20794-3041



# Appendix E



## FLOOD MITIGATION PLANNING

COMPANION TO CHAPTER 5

# APPENDIX E-1

## WHAT IS MITIGATION

Mitigation is the cornerstone of emergency management. It's the ongoing effort to lessen the impact disasters have on people and property. Mitigation involves keeping homes away from floodplains, engineering bridges to withstand earthquakes, creating and enforcing effective building codes to protect property from hurricanes — and more.

Mitigation is defined as “sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects.” It describes the ongoing effort at the Federal, State, local, and individual levels to lessen the impact of disasters upon our families, homes, communities and economy.

Through the application of mitigation technologies and practices, our society can ensure that fewer Americans and their communities become victims of natural disasters. For example, mitigation measures can be applied to strengthen your home, so that your family and belongings are better protected from floods, earthquakes, hurricanes, and other natural hazards. They can be utilized to help business and industry avoid damages to their facilities and remain operational in the face of catastrophe. Mitigation technologies can be used to strengthen hospitals, fire stations, and other critical service facilities so that they can remain operational or reopen more quickly after an event. In addition, mitigation measures can help reduce disaster losses and suffering so that there is less demand for money and resources in the aftermath.

In practice, mitigation can take many forms. It can involve actions such as:

- Promoting sound land use planning based on known hazards
- Buying flood insurance to protect your belongings
- Relocating or elevating structures out of the floodplains
- Securing shelves and water heaters to nearby walls
- Having hurricane straps installed to more securely attach a structure's roof to its walls and foundation
- Developing, adopting, and enforcing effective building codes and standards
- Engineering roads and bridges to withstand earthquakes
- Using fire-retardant materials in new construction
- Developing and implementing a plan in your business or community to reduce your susceptibility to hazards

### HAZARD MITIGATION GRANT PROGRAM

The Hazard Mitigation Grant Program (HMGP) was created in November 1988, by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The HMGP assists States and local communities in implementing long-term mitigation measures following a Presidential disaster declaration. The objectives of the HMGP are:

- To prevent future losses of lives and property due to disasters;
- To implement State or local mitigation plans;
- To enable mitigation measures to be implemented during a State's or community's immediate recovery from a disaster; and
- To provide funding for previously identified mitigation measures that benefit the disaster area.

To meet these objectives, FEMA can fund up to 75 percent of the eligible costs of each project. The State or local cost-share match does not need to be cash; in kind services or materials may also be used. With the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, Federal funding under the HMGP is now based on 15 percent of the Federal funds spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the State and local government's overall mitigation strategy for the disaster area, and comply with program guidelines. Examples of projects that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages; and the development of State or local standards designed to protect buildings from future damages.

Eligibility for funding under the HMGP is limited to State and local governments, certain private non-profit organizations or institutions that serve a public function, Indian tribes or authorized tribal organizations, and Alaska Native villages or organizations.

In order to apply for HMGP project funding, applicants must work through their State, since the State is responsible for setting priorities for funding and administering the program.

# APPENDIX E-2 FLOOD RECOVERY PLAN AND MITIGATION

## "AN OUNCE OF PREVENTION, IS WORTH A POUND OF CURE"

The proverb's age-old meaning is clear. It's less expensive to protect your home and property before they are damaged than to repair them afterwards. Why spend time, energy and money replacing your damaged items only to have them damaged in a future flood? If you are repairing your home or replacing its contents take that extra step now to protect your home, property and family for the future.

Every homeowner and renter can determine what preventive measures can be taken to reduce or minimize damage to their property. Taking action to reduce the risk of **future** damage is called *hazard mitigation*. Mitigating your risk to future flooding is an important step in recovering from the losses you faced this time.

This specially-developed *Flood Recovery Plan* will help you evaluate your home and property. Whether you own or rent, whether your home was damaged or **not**, it will be an invaluable tool in helping you during the weeks and months ahead.

Your personalized plan will assist you in talking with contractors, lenders, insurers, or government representatives about your individual needs.

Flood recovery specialists from the North Carolina Division of Emergency Management and the Federal Emergency Management Agency (FEMA) are available now and in the future to provide basic guidance on your flood risks, flood damage reduction techniques and flood insurance. Right now, one of the flood recovery specialists can assist you in getting started by helping you complete your *Flood Recovery Plan*.

It's important to remember that this plan is intended only as a guide. You are encouraged to work with your local building permit officials to ensure that your plans meet all local building code requirements.

Those of you who suffered flood losses are encouraged to seek out licensed contractors, architects, and engineers to ensure compliance with the law.

***Protect your home, property and  
family now. BEFORE the next flood.***

***An ounce of prevention is worth it Isn't it?***

# APPENDIX E-3 DAMAGE REDUCTION WORKSHEET

You are encouraged to check your own home or apartment to identify items that have been damaged by the recent flood. Make notes about what damage occurred and what needs to be repaired and/or moved. Even if you didn't have damages you can use this worksheet to identify actions to take before the next flood. Keep your *Flood Recovery Plan* and use it while talking to contractors, lenders, or government representatives about your needs.

## WHAT IS YOUR FLOOD RISK

What is the flood zone for your home? \_\_\_\_\_

Low risk: B, C, X or D

High risk: any zone beginning with the letter A or V

What is the Base Flood Elevation (BFE)? \_\_\_\_\_

Do you know of any history of flooding near your home?  Yes  No

If you need flood zone information, please contact your community officials to view the flood maps that are kept on file.

Flood maps are generally kept in the Building Permit Department or with the floodplain manager.

Building Department Official Telephone # \_\_\_\_\_

Zoning Department Official Telephone # \_\_\_\_\_

Did you have flood damage from a recent flood?  Yes  No

On what levels of your house did the flooding occur? \_\_\_\_\_

What type of foundation does your house have?

Slab-on-grade  Raised with crawlspace

Below grade with basement  Other

How did the water enter your home? \_\_\_\_\_

If you have a basement, how high did the water rise in the basement? \_\_\_\_\_

What is the ceiling height of your basement? \_\_\_\_\_

How high did the water rise on the first floor? \_\_\_\_\_ second floor? \_\_\_\_\_

Have you had flooding before?  Yes  No If yes, when? \_\_\_\_\_

What equipment in your home was damaged?

Heating  Yes  No Air conditioning  Yes  No Washer/dryer  Yes  No

Refrigerator/Freezer  Yes  No Hot water heater  Yes  No Electrical panel  Yes  No

Can any of that equipment be elevated or relocated to avoid future flood damage?  Yes  No

## WHAT FLOOD PROTECTION MEASURES CAN YOU TAKE?

When a home is destroyed or severely damaged by a flood, serious consideration may be given to relocating out of the floodplain, elevating the repaired buildings, or investing in a flood control project.

In many cases, where flood damage is not extreme, you may consider reduction measures that are far less expensive. The following questions and checklist should help you determine your risk and identify which techniques are appropriate for your home.

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Is there debris on your roof that can cause water to backup?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Are the roof drain channels clear?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Are the downspouts clear?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Are your drains blocked?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Do you have a backflow valve in your sewage discharge pipe?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Should the drainage pattern around your house be changed?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Are the doors and windows tightly sealed?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Do you have exceptionally valuable pieces of furniture or furnishings that should receive special protection? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Do you know of a licensed contractor with whom you would be comfortable working?                              | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

## CHECKLIST

The booklet, *Protect Your Home from Flood Damage - Mitigation Ideas for Reducing Flood Losses* will assist you in identifying flood reduction techniques appropriate for your home. The checklist below reflects the information sheets and diagrams contained in the booklet. You are encouraged to review the booklet and then mark all the related items below.

- |  |  |
|--|--|
| <input type="checkbox"/> National Flood Insurance Program & substantial damage     | <input type="checkbox"/> suspend heating system                        |
| <input type="checkbox"/> obtaining & implementing National Flood Insurance Program | <input type="checkbox"/> elevate washer and dryer                      |
| <input type="checkbox"/> house elevation regulations                               | <input type="checkbox"/> relocate washer and dryer                     |
| <input type="checkbox"/> obtaining a building permit                               | <input type="checkbox"/> relocate/elevate water heater                 |
| <input type="checkbox"/> getting a good contractor                                 | <input type="checkbox"/> elevate air conditioning compressor/heat pump |
| <input type="checkbox"/> building tips   | <input type="checkbox"/> anchoring a fuel tank                         |
| <input type="checkbox"/> water-resistant building materials                        | <input type="checkbox"/> improve interior wall construction            |
| <input type="checkbox"/> relocating your house                                     | <input type="checkbox"/> pumping out a flooded basement                |
| <input type="checkbox"/> elevating your house                                      | <input type="checkbox"/> sealing openings in walls                     |
| <input type="checkbox"/> elevate wood frame structure with crawlspace foundation   | <input type="checkbox"/> install an exterior floodwall                 |
| <input type="checkbox"/> elevate mobile home                                       | <input type="checkbox"/> install an interior floodway                  |
| <input type="checkbox"/> elevate electrical system                                 | <input type="checkbox"/> foundation drainage system                    |
| <input type="checkbox"/> elevate electric baseboard heaters                        | <input type="checkbox"/> sump pumps                                    |
| <input type="checkbox"/> elevate or relocate the electrical panel                  | <input type="checkbox"/> install backflow valve                        |
| <input type="checkbox"/> relocate/elevate heating plant                            | <input type="checkbox"/> install floor drain plug                      |

## POTENTIAL FUNDING SOURCES

- |   |  |
|---|--|
| <input type="checkbox"/> Insurance                                | <input type="checkbox"/> Increase from your present lender |
| <input type="checkbox"/> Bank Loan                                | <input type="checkbox"/> Home equity loan                  |
| <input type="checkbox"/> FEMA Minimal Home Repair grant           | <input type="checkbox"/> Voluntary agencies                |
| <input type="checkbox"/> Small Business Administration (SBA) loan | <input type="checkbox"/> Other                             |

***It is important to note that you will not receive funds from all of these sources.***

## WHAT ABOUT FLOOD INSURANCE?

Once you have identified your risk, and taken the appropriate flood protection measures, you should protect your financial investment by purchasing flood insurance.

Do you have flood insurance on your: home? [ ] contents? [ ]

Contact your insurance agent to purchase flood insurance. If your agent is unable to write a flood insurance policy, or refer you to someone who can, call 1-800-427-4661.

## **GETTING STARTED**

It is important to talk with your local building officials before you start any work. They can provide useful information on safe building methods.

Consult with a licensed contractor, architect, or structural engineer if necessary to evaluate your construction project. Have them prepare recommendations and construction documents to obtain a building permit for reconstruction or retrofitting. If you plan to do the project on your own, contact your local building officials to obtain information on building codes and documents required for a permit.

For free help on technical questions and to obtain information on available programs and flood reduction techniques and practices, contact the Floodplain Management Section of the North Carolina Division of Emergency Management at (919) 733-3427 or your local floodplain management official.

## **SELECTING A CONTRACTOR**

Avoid adding more frustration to your recent flooding experience by selecting a qualified contractor. Look for the following factors:

- Experience in the type of work you need
- Good references, license, bond, and proper insurance
- Local building knowledge
- A time schedule that meets your needs

Use the services of the Contractors State License Board before you hire a contractor or sign a contract. They should be able to answer questions such as:

- Is your contractor licensed?
- Is your contractor in good standing?
- Is your contractor in the proper trade to fit your project?

Once you have found a few qualified contractors, obtain a minimum of three bids. Compare equal bids for best price and best qualifications.

**Rev. 9/96**

# APPENDIX E-4 FLOOD MITIGATION ASSISTANCE PROGRAM PLANNING GRANT

## PLANNING GRANT APPLICATION

DIRECTOR  
Oklahoma Department of Emergency Management  
Attn: State Hazard Mitigation Officer  
P.O. Box 53365  
Oklahoma City, OK 73125  
Phone: 405-521-2481

Application Date: \_\_\_\_\_

Applicant: \_\_\_\_\_ COUNTY: \_\_\_\_\_

Street/P.O. Box: \_\_\_\_\_

City: \_\_\_\_\_ State: OK Zip: \_\_\_\_\_

FIPSCODE: \_\_\_\_\_

Primary Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_ Phone: \_\_\_\_\_

Secondary Contact Person: \_\_\_\_\_

Title: \_\_\_\_\_ Phone: \_\_\_\_\_

I certify, to the best of my knowledge and belief, that information in this application and supporting documentation is true and correct, and that it has been duly authorized by the governing body of the applicant.

Typed Name and Title: \_\_\_\_\_

Applicant's Signature: \_\_\_\_\_

Date Signed: \_\_\_\_\_

All questions must be answered completely and accurately. If necessary, attach additional pages and reference the question number. Type or print clearly. If you are unsure about the meaning of a question, please contact us at the above address.

# 1. FLOOD MITIGATION PLAN COST ESTIMATE

## FEMA MONIES REQUESTED:

TOTAL: \$ \_\_\_\_\_

FEDERAL SHARE (75%): \$ \_\_\_\_\_

APPLICANT'S SHARE (25%): \$ \_\_\_\_\_

OTHER FUNDING SOURCES: \$ \_\_\_\_\_

Development of a new plan

Update existing plan

# 2. LOCAL FUNDING

Has the applicant (local) share been committed or secured through resolution or the budget process, or from another funding source? If yes, attach appropriate documentation. If not, describe the actions which will be taken to secure the local share. **NOTE:** As a reminder, 50% of the local share must be a "hard match."

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# 3. GEOGRAPHIC AREA TO BE COVERED BY THE FLOOD MITIGATION PLAN

Include a floodway map or flood insurance rate map (FIRM) showing the project location if a floodway is involved. Submit general area maps and specific area maps if area is not in a floodway. Provide as much detail as possible.

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# 4. DESCRIPTION OF FLOOD HAZARD

Include the number of structures (commercial and residential) at risk, including the number of repetitive loss structures. Provide as much detail as possible.

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**5. DESCRIPTION OF PROBLEM**

Provide a description of the flood problems in the community and damages incurred during flooding events. You should take into account damage to public and private property, both residential and commercial, threats to public health and safety, to infrastructure, and government response costs (fire, police, EMS, public works, social services, etc.)

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**6. DESCRIPTION OF THE PLANNING PROCESS/APPROACH**

Describe the planning process that will be used, how interested organizations and the community residents will be involved in the process. . plan adoption procedures, implementation strategy, plan maintenance, etc.

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**7. EXPECTED BENEFITS AND OUTCOMES OF THE PLANNING PROCESS**

Describe how the planning grant and the planning process will benefit the community.

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**8. WORK SCHEDULE AND ESTIMATED COMPLETION DATES**

Include a work schedule for developing the flood mitigation plan. The schedule should indicate major milestones of the planning process and the expected completion date of each phase.

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**9. FLOOD MITIGATION PLAN COORDINATION ACTIONS**

Indicate the local/State or federal agencies/departments that should be contacted for comments about the plan. Indicate that these organizations will be contacted as part of the "Work Schedule" indicated in paragraph 8 above. As a minimum, consider the National Historic Preservation Act; archeological considerations; Endangered Species Act; Fish and Wildlife Coordination Act; Wild and Scenic Rivers Act; E.O. 11988, Floodplain Management; E.O. 11990, Wetlands Management; E.O. 12898, Environmental Justice; air quality; water quality; Does the plan have health and/or safety issues for the jurisdiction's citizens?; Land use - how will the land be used when the plan is implemented; hazardous or toxic substances asbestos, for an example; Soil Conservation; local, State and federal codes, ordinances and permits - this needs to be researched thoroughly; Are flood certificates needed?; Does the plan involve public controversy?; Has the jurisdiction published a public notice about the project?; and, Is there a Council or Commission meeting agenda on file to indicate that this was discussed in an open meeting?

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**10. ADDITIONAL COMMENTS/INFORMATION**

Include any additional information which will support the proposed project that you feel is appropriate for use in reviewing this application.

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# APPENDIX E-5

## FLOOD MITIGATION ASSISTANCE

FEMAs Flood Mitigation Assistance (FMA) provides funding to assist States and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the NFIP. FMA is a pre-disaster grant program.

### GETTING STARTED

Planning is the foundation of FMA. FEMA encourages communities to identify ways to reduce their risk of flood damage by preparing Flood Mitigation Plans.

Communities that have Flood Mitigation Plans can request approval of their plans from their FMA State Point of Contact (POC) and FEMA. Approved plans make a community eligible to apply for FMA project grants. Plans must assess flood risk and identify actions to reduce that risk.

### TWO TYPES OF GRANTS TO COMMUNITIES

#### *Planning Grants*

Grants to States and communities to develop or update Flood Mitigation Plans.

#### *Project Grants*

Grants to States and communities to implement measures to reduce flood losses.

### EXAMPLES OF ELIGIBLE PROJECTS

Projects that reduce the risk of flood damage to structures insurable under the National Flood Insurance Program (NFIP) are eligible.

#### *Such activities include:*

- Elevation of insured structures.
- Acquisition of insured structures and real property.
- Relocation or demolition of insured structures.
- Dry floodproofing of insured structures.
- Minor, localized structural projects that are not fundable by State or other Federal programs.
- Beach nourishment activities such as planting of dune grass.

### APPLICANT ELIGIBILITY

Any State agency, participating NFIP community or qualified local organization is eligible to participate in FMA. Communities that are suspended or on probation from the NFIP are not eligible.

Individuals wishing to participate in FMA should contact their community officials.

### PROJECT GRANT ELIGIBILITY CRITERIA

#### *A project must, at a minimum, be:*

- Cost effective.
- Cost beneficial to the National Flood Insurance Fund.
- Technically feasible.
- Physically located in a participating NFIP community or must reduce future flood damages in an NFIP community.

***A project must also conform with:***

- The minimum standards of the NFIP Floodplain Management Regulations.
- The applicant's Flood Mitigation Plan.
- All applicable laws and regulations, such as Federal and State environmental standards or local building codes.

## **HOW FMA WORKS**

FEMA distributes FMA funds to States, which in turn provide funds to communities. The State serves as the grantee and program administrator for the FMA.

***The State:***

- Sets mitigation priorities.
- Provides technical assistance to communities applying for FMA funds.
- Evaluates grant applications based on minimum eligibility criteria and State priorities.
- Awards planning grants.
- Works with FEMA to approve projects and awards funds to communities.
- Ensures that all community applicants are aware of their grant management responsibilities.

## **COST-SHARE AND FUNDING LIMITS**

FEMA may contribute up to 75 percent of the total eligible costs. At least 25 percent of the total eligible costs must be provided by a nonfederal source. Of this 25 percent, no more than half can be provided as in-kind contributions from third parties. There are limits on the frequency of grants and the amount of funding that can be allocated to a State or community in any 5-year period.

# APPENDIX E-6

## TOP 10 FACTS EVERY LENDER NEEDS TO KNOW

### *About the National Flood Insurance Program (NFIP)*

The National Flood Insurance Program was created by the National Flood Insurance Act of 1968. Two subsequent laws, the Flood Disaster Protection Act of 1973 and the National Flood Insurance Reform Act of 1994, have made the purchase of flood insurance mandatory for federally backed mortgages on structures located in special flood hazard areas.

The top ten facts listed below apply to Federally regulated lending institutions that are supervised by the Comptroller of the Currency, Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of Thrift Supervision, Farm Credit Administration, and National Credit Union Administration, as well as Government Sponsored Enterprises Freddie Mac and Fannie Mae.

1. Flood insurance is mandatory for buildings in FEMA-identified high-risk flood areas, which are called Special Flood Hazard Areas (SFHAs).

This requirement applies to structures located in SFHAs on FEMA's flood maps including loans for manufactured (mobile) homes, and commercial buildings. Whenever you make, increase, extend, or renew a mortgage, home equity, home improvement, commercial or farm credit loan in a SFHA, you must require flood insurance. You may require flood insurance on all loans, even those outside SFHAs.

2. Ensure that flood insurance coverage is maintained for the term of the loan. Escrowing flood insurance premiums can help make sure you meet this requirement, and it helps protect you and your borrowers from uninsured flood losses.

**3. Flood zone determinations are required to establish whether a structure is located in a SFHA. Document your findings on the required Standard Flood Hazard Determination Form (SFHDF).**

The SFHDF is available on the FEMA Fax by calling (202) 646-FEMA and requesting document 23103.

4. Know the amount of flood insurance coverage to require.

The coverage required by law is the lesser of the following:

1. The maximum amount of NFIP flood insurance coverage available,
2. The outstanding principal balance of the loan, or
3. The value of the property minus the land.

**5. Notify borrowers in writing of the requirement to buy flood insurance for new and existing loans.**

#### ***New Loans:***

If you determine that a home or business is in a SFHA before loan closing, you are required to notify the borrower within a reasonable time (defined by Federal regulation as at least 10 days) prior to the loan closing.

#### ***Existing Loans:***

If you determine that an existing loan for a home or business is in a special flood hazard area, you are also required to notify the borrower within a reasonable time. The law provides for force placement of flood insurance 45 days after the borrower is notified of deficient flood insurance coverage. The National Flood Insurance Program's Mortgage Portfolio Protection Program helps you force place flood insurance when necessary. For more information about the Mortgage Portfolio Protection Program, call the FEMA Fax at (202) 646-FEMA and request document 23105.

**6. Escrow flood insurance premiums.**

The law requires you to escrow flood insurance premiums for homes in SFHAs when taxes, other forms of insurance, or any other payments are escrowed. To help maintain flood coverage for you and your borrower, consider escrowing flood insurance premiums for all loans, including loans on non-residential improved real-estate.

**7. There is no waiting period for flood insurance to go into effect when it is purchased in connection with the making, increasing, renewing, or extending a loan.**

In most other instances, there is a 30-day waiting period before flood insurance goes into effect. For more information about the waiting period and its exceptions, call the FEMA Fax at (202) 646-FEMA and request document 23106 for a copy of Policy Issuance 8-95.

**8. Notify the insurance company or agent when the lender or servicer of a loan changes.**

Notification of a change of lender or servicer must be made to the insurance company or agent who wrote the flood insurance policy within 60 days after the effective date of the change. An instruction sheet about this requirement is available on the FEMA Fax by calling (202) 646-FEMA and requesting document 23108.

**9. For more details, read The Mandatory Purchase of Flood Insurance Guidelines.**

For a copy, call 1-800-480-2520 starting July 1997 and request document 000083.

**10. Flood insurance and the mandatory purchase laws help protect your investments as well as your borrowers' against uninsured flood losses.**

Floods happen all over the country. Make sure you and your borrowers are protected from uninsured flood losses for their homes, businesses, and belongings by following these requirements. It's just good business.

# **APPENDIX E-7 FLOODPLAIN MANAGEMENT INFORMATION SHEET 1**

## **PREPARING FOR FLOODS**

1. Get to know the flood warning system in your community. When you are advised to evacuate, be prepared to leave immediately.
2. Make emergency plans now, involve your entire family. Have an evacuation route for leaving your house. When charting your evacuation route, be aware of low road elevations that may be subject to inundation by flood waters. Remember, the worst case in your community may involve your evacuating in the middle of the night with little flood warning. Plan now!!
3. If you receive a civil defense warning, listen to the radio for the latest local information. Have a battery powered radio and an extra set of fresh batteries.
4. When advised to evacuate, do so immediately! Take personal necessities with you; including such items as medication, eye glasses and suitable clothing.
5. Know your flood insurance policy. Make sure it fully covers your structure(s) and their contents.
6. If there is time, move important items to higher elevations - food, furniture, valuables, legal papers and insurance policies, rugs, appliances, clothing, books and electric motors and controls.
7. Consider keeping basement windows open to keep the indoor and outdoor water levels equal. This will help prevent basements from collapsing. If possible, flood the basement with clean water. This will keep out the mud and silt and keep the basement from collapsing.

(NOTE: Certain expenditures for flood fighting activities (e.g. removal of damageable items, protecting structure against structural damage, etc.) may be reimbursable under your flood insurance policy if the action is taken after you have been instructed by competent local officials to take action to protect your property. Keep good records, and take photos to document actions you have taken. If you have any questions about reimbursable flood fighting activities, contact your insurance agent or call the Federal Insurance Administration (FIA) toll-free number, (1-800-638-6620).

8. Shut off all utilities at the main switches and valves - water, gas, oil, and electric. Remove switch plates and cover electrical boxes with rubberized tape. Use caution if area is already inundated with water.
9. Take special precautions with domestic water systems. If you have a well, seal it to keep out silt and debris.

## **DURING THE FLOOD**

1. Be sure everyone is safe from the fast flowing flood waters. Flowing water that an adult can walk through may sweep children away. Arrange for shelter (if possible with friends or relatives), food, clothing, transportation and medical care.
2. Cooperate fully with local officials. Keep informed of local conditions. Obey all health regulations for protection against epidemics. Report all violations.
3. Wait until officials assure you that the flood danger is over before reentering any area. Cooperate fully with local officials.

## AFTER THE FLOOD

1. Test the plumbing by flushing system with buckets of water. Have your individual sanitary disposal systems inspected by health officials.
  2. Have your water supply tested by health officials. Boil or chlorinate emergency drinking water.
  3. Destroy all fresh or frozen food that has been in contact with flood water or has thawed. Do not use it!!
  4. Start clean up as soon as flood water recede. Scrub and disinfect walls and floors, household items and appliances. Use flashlights, not matches when entering buildings. Do not use electrical system until it has been checked by a qualified electrician. Have any electrical appliances that were inundated by flood water checked by a serviceman before using them.
  5. Document all flood related damage, including debris removal and clean-up costs. Photographs are extremely helpful in documenting flood damage for insurance purposes. Under the debris removal clause of a flood insurance policy, certain expenditures for debris removal from the structure and cleaning of the structure (both inside and outside) are reimbursable. Keep good records, including how much of your personal time was spent on debris removals and clean-up. If you have any questions about reimbursable items under the debris removal provisions of a flood insurance policy, call your agent or the above referenced FIA toll-free number.
  6. Wait until surrounding flood waters are well below the basement floor level before draining your basement. The additional pressure of saturated soil may cause your basement walls to collapse. Begin pumping in stages -- about 1/2 of the water per day.
  7. Use stoves and heating systems as soon as possible to hasten drying. Clean, dry and recondition heaters and flues and be sure electric motors are dry before using them.
  8. Clean, dry and air clothing, bedding and mattresses, furniture and rugs as soon as possible. Disinfect, if necessary.
  9. Delay all permanent repairs until buildings are thoroughly dry. Check with local building contractors and local officials on methods of repairs and check with local officials to determine what building permits may be required to do the work.
- \*All references in this brochure to "Flood Insurance" or "flood Insurance Policy" relate to a standard flood insurance policy purchased through the National Flood Insurance Program (NFIP). If you have any questions about the NFIP, contact your insurance agent or call the FIA toll-free number.

# APPENDIX E-8

## FLOODPLAIN MANAGEMENT

### INFORMATION SHEET 2

#### PREPARING TO EVACUATE

1. Fill available containers, including your bathtubs, with water. If water becomes contaminated by flood water the only safe water may be what is on hand.
2. Move items such as food, furniture, rugs, books, clothing, electric motors and controls to upper floor levels.
3. Collect valuables, important legal papers, and small appliances (such as toasters) and secure them in plastic bags. Move them to upper floor levels.
4. Fill all portions of your water system with clean water, and cap openings. If you have a well, seal it to keep out silt and debris.
5. Shut off utilities (electricity, water, gas) at main switches. **DO NOT TOUCH ELECTRICAL SWITCHES WHILE WET OR STANDING IN WATER.** Remove wall and floor outlet plates and cover with rubberized tape.
6. Remove items from the basement, and open basement windows so water can enter. Most residential basement walls and floors will not withstand additional pressure of water soaked soil and will collapse unless water is allowed in to equalize the pressure.
7. If possible, move frozen food to a locker plant.

#### IF ADVISED TO EVACUATE:

1. Move quickly and calmly. Don't take chances. If you have time to gather supplies, take with you:
  - a) Protective clothing, especially water-repellent outer garments and footwear; several blankets,
  - b) Flashlights and batteries; battery-powered radio,
  - c) Personal hygiene items,
  - d) Infant supplies,
  - e) Important documents and papers,
  - f) Drinking water in plastic bottles; other liquids,
  - g) Emergency supplies of ready-to-eat foods,
  - h) Necessary prescription drugs or medicines.
2. Keep your battery radio turned on and located where you can hear it
3. Know where you are going before you leave. Local officials and volunteer organizations will probably establish shelters in public buildings. If an evacuation route is suggested, USE IT.
4. If you and your family are told to evacuate immediately, GO!! Take only family medicines, blankets, and a battery-powered radio with you.
5. Lock the door of your home when you leave it.
6. As you travel, listen to the radio. Watch for:
  - h) Necessary prescription drugs or medicines.
  - a) Washed out bridges or roads
  - b) Undermined roadways
  - c) Landslides
  - d) Fallen rocks

- e) Downed power lines
- f) Floating hazards

7. DON'T DRIVE OVER FLOODED ROADS, especially where they cross overflowing streams and rivers.

Compiled from materials published within "Flooding: Survival Preparation and Cleanup", Minnesota Division of Emergency Services in cooperation with the University of Minnesota, Agricultural Extension Services.

"The work that provided the basis for this publication was supported by funding under a Cooperative Agreement with the Federal Emergency Management Agency. The substance and findings of that work are dedicated to the public. The author and publisher are solely responsible for the accuracy of the statements and interpretations contained in this publication. Such interpretations do not necessarily reflect the views of the Government."

# APPENDIX E-9

## FLOODPLAIN MANAGEMENT

### INFORMATION SHEET 3

#### "IT'S CLEAN UP TIME"

Once again, your home has a flooded basement or even water on the first floor. The flood 'waters have receded and it's time to get things cleaned up and back to normal.

The first thing to do is establish your priorities for the required repair work. Your priorities list will generally depend on the seriousness and extent of the damages. Here are some suggested steps you can follow.

1. Look at the structure of the building. Check the foundations for settling, cracking or undermining. Look at the walls, floors, doors and windows to determine what repairs are necessary. **BEFORE ENTERING THE STRUCTURE, MAKE SURE THAT ALL ELECTRIC, GAS AND OIL VALVES ARE TURNED OFF.**

2. If the basement is flooded, begin pumping the water in stages - about 1/3 of the water per day. Make sure that the level of the flood waters is below the level of the basement floor. **IF NOT, DO NOT PUMP THE BASEMENT ALL AT ONCE BECAUSE THE SATURATED SOIL COULD CAUSE THE BASEMENT WALLS TO COLLAPSE.**

3. Get the electrical system back in operation. Have the system checked by a **QUALIFIED ELECTRICIAN**. Take your electrical appliances to a serviceman **BEFORE** using.

4. If furnace was inundated by flood waters **HAVE INSPECTED BY QUALIFIED SERVICEMAN**. Before operating, the system may need to be cleaned, dried and reconditioned. Make sure the chimney is cleaned of debris before using.

5. Get the water system back in operation. Clean drains, pipes, etc. **DISINFECT WELLS AND THE WATER SYSTEM**. A qualified plumber can provide the "how to" and methods to use.

6. Shovel the mud and silt out **BEFORE** it dries. Before the walls and floors dry, wash down with a hose, starting at the top of the wall and then working down. Scrub and **DISINFECT** walls and floors. Leave windows and doors open to speed up drying. A complete drying may take as long as a few months. Repair walls and floors that have buckled. **MAKE SURE THAT THE UNDERLYING MATERIAL IS DRY BEFORE INSTALLING NEW MATERIALS.**

7. Start up the heating system, if possible. This can help in the drying process.

8. Throw out all food which has spoiled or has been touched by floodwaters. Do not refreeze any vegetables, fruits or meats which have thawed completely. If there is any question, **THROW IT AWAY.**

9. Clean and dry all household items which were affected by the flood waters. This includes all furniture, carpets, clothing, dishes and bedding. **DISINFECT, IF NECESSARY**. Treat household items for mildew, if necessary. Before you begin to salvage damaged items, you must decide which pieces are worth restoring. These decisions should be based on:

- a) the extent of the damage
- b) the cost of the article
- c) the sentimental value
- d) cost of restoration

Remember, consider each item individually.

10. Clean up the yard. Trim and care for damaged trees and shrubs. Rake and possibly reseed the lawn.

Some of the basic cleaning supplies and equipment that you may need for home clean-up include:

***Cleaning Supplies:***

- a) low sudsing detergents
- b) bleaches
- c) disinfectants
- d) ammonia
- e) scouring powder
- f) rubber gloves

***Equipment:***

- a) buckets
- b) small tools, (crowbar, hammer, screwdriver)
- c) sponges and wiping cloths
- d) scrub brush
- e) broom or shovel
- f) a mop that is easily squeezed out
- g) throw-away containers for garbage
- h) water or garden hose

***Other equipment to use with larger jobs may include wheelbarrows, dollies, wash tubs, etc.***

Most common household cleaners will do the trick with cleanup. Powder or liquid cleaners are more economical to use than aerosol sprays. Household cleaners help remove the dirt and disinfectants will help stop the growth of disease-causing organisms carried in the floodwaters. All products are not suited for all uses. REMEMBER, READ THE LABEL FOR SPECIFIC DIRECTIONS AND PRECAUTIONS.

Certain products may be harsh on your skin and may burn your eyes. Protect your hands and eyes with protective gear. Wash your skin immediately if you splash or spill any cleaner on yourself.

# APPENDIX E-10

## FLOODPLAIN MANAGEMENT AND FLOOD INSURANCE PROGRAM PUBLICATIONS

### **FEMA-165**

#### **Alluvial Fans: Hazards and Management**

Discusses the identification, hazards, and alluvial fan flood management.

### **FIA-2**

#### **Answers to Questions about the National Flood Insurance Program**

Answers general questions about the National Flood Insurance Program.

### **FEMA-213**

#### **Answers to Questions about Substantially Damaged Buildings**

Answers questions regarding National Flood Insurance Program regulations and policy governing substantially damaged structures.

### **FIA-12**

#### **Appeals, Revisions and Amendments to Flood Insurance Maps**

A Guide for Community Officials A guide on how to obtain revisions to FEMA flood maps.

### **FEMA-55**

#### **Coastal Construction Manual**

Design and construction techniques for construction in coastal high hazard areas.

### **FIA-15**

#### **Community Rating System - Coordinators Manual**

Contains application forms and detailed information about CRS requirements.

### **HQ-1**

#### **Community Status Books - Arkansas, Louisiana, New Mexico, Oklahoma, Texas**

Region VI listings by state of the communities participating and nonparticipating in the National Flood Insurance Program.

### **TVA-90/5**

#### **Conserving Your Valuable Floodplain Resources**

Describes the benefits and values of relatively undisturbed floodplain lands; local protection techniques; identifies sources of assistance available to public official and citizens.

### **FEMA-15**

#### **Design Guidelines for Flood Damage Reduction**

General information on flooding and how to properly design and build in floodprone areas.

FEMA-114 Design Manual for Retrofitting Flood-Prone Residential Structures Presents floodproofing techniques that can be used for existing residential structures.

### **FEMA-54**

#### **Elevated Residential Structures**

Proper design and construction methods for elevated buildings.

### **FIA-16**

#### **Federal Regulations and Instructions on Flood Insurance Compliance for Lenders and Services**

Extracts from recent editions of the Code of Federal Regulations and other instructions and guidance on flood insurance issued by the instrumentalities and agencies.

### **FIA-13**

#### **Flood Emergency and Residential Repair Handbook**

Outlines for homeowner actions that can be taken before and after a flood to help reduce damage and speed repairs.

**FEMA-102****Floodproofing Non-Residential Structures**

Describes a variety of floodproofing strategies for commercial and industrial structures.

**COE-2****Floodproofing Techniques, Programs and References**

Explains the most widely used floodproofing techniques.

**EO-1****Further Advise on Executive Order 11988 Floodplain Management**

Provides EO 11988 implementation guidance for field level staff.

**FIA-14****Guide to Flood Insurance Rate Maps**

Provides guidance for reading and understanding the Flood Insurance Rate Map (FIRM).

**FEMA-186****Mandatory Purchase of Flood Insurance Guidelines**

Provides guidelines pertaining to the mandatory flood insurance purchase requirements.

**FEMA-85****Manufactured Home Installation in Flood Hazard Areas**

How to properly site and install a manufactured home in a flood hazard area with emphasis on design of elevated foundations.

**L-186****Nothing Could Dampen the Joy of Home Ownership. Or Could it?**

Addresses legal requirements and advisability of purchasing flood insurance.

**COE-1****Raising and Moving the Slab-on-Grade House with Slab Attached**

Discusses the procedures for raising or relocating "slab-on-grade" structures with slab attached, some of the advantages/disadvantages and possible costs.

**REG-1****Regulations for Floodplain Management and Flood Hazard Identification**

Regulations concerning the administration of the National Flood Insurance Program.

**FEMA-116****Reducing Losses in High Risk Flood Hazard Areas: A Guidebook for Local Officials**

A guidebook to help local governments improve their floodplain management programs for high risk flood hazard areas.

**TWC-1****State of Texas Floodplain Administrators Manual**

Texas Water Commission publication intended to familiarize local officials in Texas with the National Flood Insurance Program.

**L-134****Tips on Handling Your Flood Insurance Claim after a Major Disaster**

Provides tips for filing a flood insurance claim.

**FEMA-100****A Unified National Program for Floodplain Management**

Updates a 1979 report which presents strategies fundamental to implementing a balanced approach to floodplain management.

**43FR 6030****Floodplain Management Guidelines, E.O. 11988, U.S. Water Resources Council, July 1986**

"The Hidden Danger" Low-Water Crossing, Video, National Weather Service, Office of Hydrology SSMC-2, 1325 East-West Highway, Silver Spring, MD, 20910, 301-713-0006

**Crawl Spaces and Basements in the Floodplain**, Pamphlet, Texas Natural Resources Conservation Commission, TNRCC Publications, 512- 239-0028

**FEMA Flyers**, available at FEMA web site - <http://www.fema.gov>

- Digital Q3 Flood Data
- How to Request a Flood Hazard Determination Review from FEMA
- How to Request Flood Insurance Study Hydrologic and Hydraulic Data and What to do when it has Vanished
- General Information about the Availability of LOMC data
- Flood Insurance Study (FIS) Data Requests

**FEMA Fact Sheets**, available at FEMA web site - <http://www.fema.gov>

- Zone AR

**Community Mitigation - Simple Solutions**, brochure, ODCEM, P.O. Box 53365, Oklahoma City, OK 73152

**NFIP and HMGP**, brochure available from OWRB, 3800 N. Classen Blvd., Oklahoma City, OK 73118

**L-169**

**Hazard Mitigation Grant Program**, Feb 1997, FEMA brochure

**National Mitigation Strategy, Partnerships for Building Safer Communities**, L-232, May 1997, FEMA

**Floodplain Management Home Study Course**, FEMA, contact EMI 301/477-1062

**Revisions to National Flood Insurance Program Maps**, MT-2, FEMA form 81-89 - Series, May 1996

**Amendments and Revisions to National Flood Insurance Program Maps**, MT-1, FEMA form 81-87 Series, May 1996

**APA/PAS Report No. 473, Subdivision Design in Flood Hazard Areas** - FEMA Marge Morris, Sept 1997

**FEMA Technical Bulletins**

- FIA-TB-77-93 - *Wet Flood Proofing Requirements*,
- FIA-TB-11-93 - *Openings in Foundation Walls*,
- FIA-TB-22-93 - *Flood Resistant Material Requirements*,
- FIA-TB-44-93 - *Elevator Installation*,
- FIA-TB-33-93 - *Non-Residential Floodproofing - Requirements and Certification*,
- FIA-TB-55-93 - *Free-of-Obstruction Requirements*,

**Sharing the Challenge, Floodplain Management in the 21st Century**, General George E. Galloway, U.S. Gov. Printing Office, ISBN 0-16-045078-0, June 1994

**FEMA-301**

**NFIP Interim Guidance for State and Local Officials, Increased Cost of Compliance Coverage**, Sept. 1997

**FEMA 311**

**Guidance on Estimating Substantial Damage, NFIP**, Oct. 1997

**Floodplain Management Services Planning Assistance to States/Tribes**, U.S. Army Corps of Engineers, Feb 1998

**Retrofitting and Flood Mitigation in Florida**, Jan 1995, Dept. of Community Affairs Division of Emergency Management. Bureau of Recovery and Mitigation, State Assistance Office for the NFIP

**State Hazard Mitigation Plan**, Oklahoma Department of Civil Emergency Management, 405-521-2481

**State of Oklahoma, Emergency Operations Plan**, Oklahoma Department of Civil Emergency Management, July 1998

**Protecting Floodplain Resources, A Guidebook for Communities**, The Federal Interagency Floodplain Management Task Force, FEMA

**Laypersons Guide to Flood Management**, Water Education Foundation, 1995, 916-333-6240

**Texas Community Officials' Primer on Floodplain Planning Strategies and Tools**, P.O. RG-85, TNRCC, June 1994, 512-239-0010

**Reports on Costs and Benefits of Natural Hazard Mitigation**, FEMA, April 1997

**Update of the Oklahoma Comprehensive Water Plan, 1995**, Oklahoma Water Resources Board, Publication No. 139

**Addressing Your Community's Flood Problems, A Guide for Elected Officials**, Association of State Floodplain Managers, Inc., 608-274-0123

**Catalog of Activities, Emergency Management Institute**, 1-800-238-3358, 16825 S. Seton Ave., Emmitsburg, MD, 21727

**FEMA-20, FEMA Publications Catalog**, *August 1996*,

**FEMA-320, Taking Shelter from the Storm: Building a Safe Room Inside Your House**, October 1998

**City of Norman, Oklahoma Stormwater Law - Drainage Criteria Manual**, February 1998

Copies of FEMA publications may be ordered by writing to:

**Federal Emergency Management Agency**  
P.O. Box 70274  
Washington, D. C. 20024

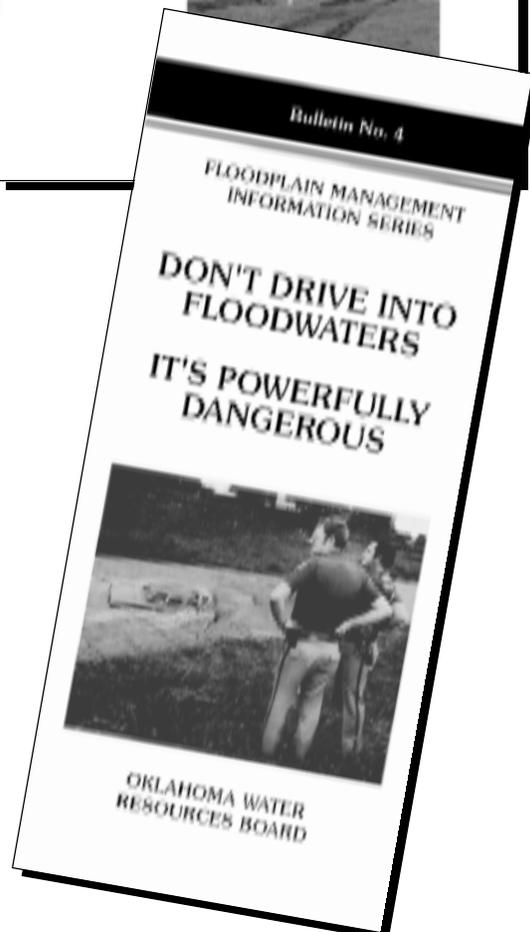
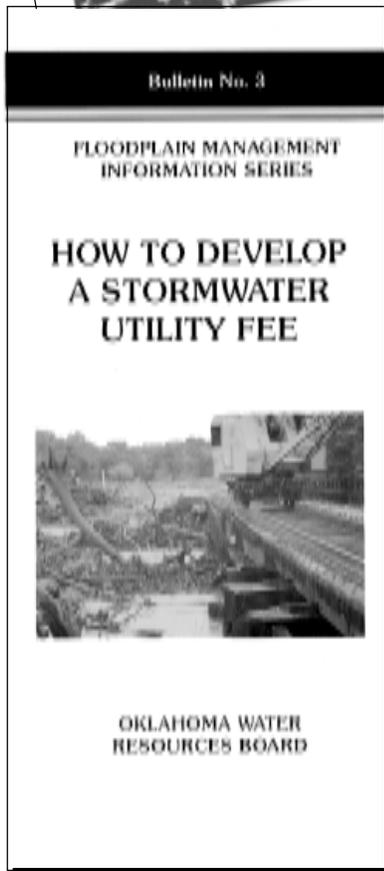
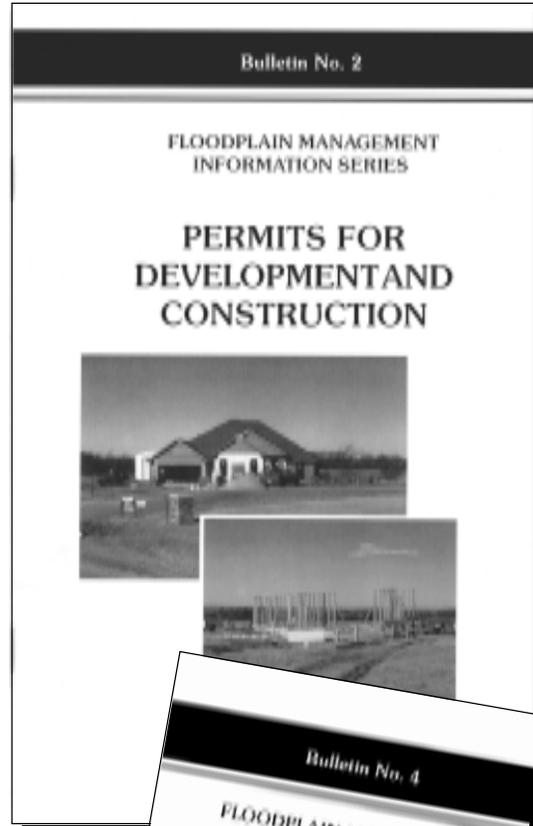
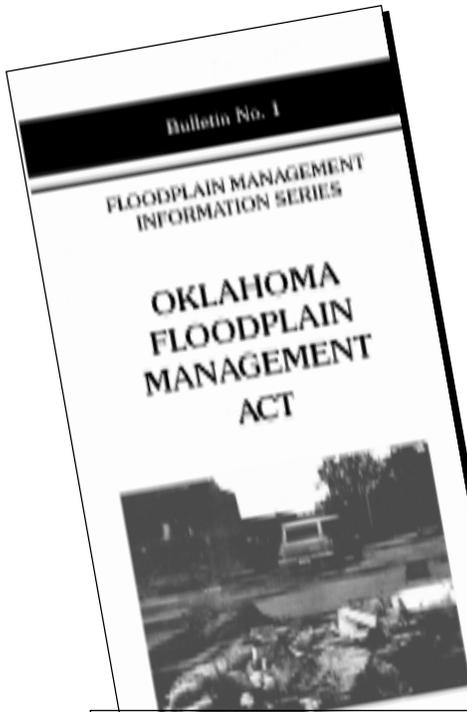
Copies of OWRB publications may be ordered by writing to:

**Oklahoma Water Resources Board**  
3800 N. Classen Boulevard  
Oklahoma City, OK 73118

Copies of TVA publications may be ordered by writing to:

**Tennessee Valley Authority**  
400 West Summit Hill Drive  
Knoxville, TN 37902

**APPENDIX E-11**  
**FLOODPLAIN MANAGEMENT BULLETINS**  
**OKLAHOMA WATER RESOURCES BOARD**



## APPENDIX E-12

# CLEANERS AND DISINFECTANTS

TYPE OF CLEANER	USES	PRECAUTIONS	ADDITIONAL SUGGESTIONS
Liquid household cleaner (Top Job, Ajax, Janitor in a Drum, Lysol, Mr. Clean)	Wash hard surfaces such as painted walls, floors, woodwork, porcelain.	Dilute with water as directed on container for specific uses.	
Powdered household cleaner (Spic'n Span, Ajax)	Removes mud, silt, greasy deposits.	Dissolve in water to make a solution	
All-purpose laundry soaps	General household cleaning. Hand-washing and laundry. Moderately and heavily soiled washable colorfast textiles.	Do not use on wool, silk, or fabric blends containing these fibers.	Rinse well to remove suds.
All-purpose laundry detergents (Tide, Wisk, Oxydol, Arm & Hammer, Hilex)	Moderately or heavily soiled washable, colorfast textiles. Outside of appliances. Painted walls and woodwork, Floors.	Do not use on wool, silk or fabric containing these fiber blends.	Rinse well to remove suds.
Light-duty dish-washing soaps (Ivory Snow, Drefl) or detergents (Lux, Joy)	Lightly soiled washable fabrics and household textiles. Rugs and carpets. Appliances and furniture. Washable wall paper.	Rinse well to remove suds.	Safe for wool and silk fibers and fabric blends containing these fibers. Safe for most dyes.
Household ammonia	Hard surfaces: windows, walls, woodwork, floors, tile, porcelain.	Dilute in water. Do not get in eyes. May irritate skin.	
Tri-sodium phosphates (TSP 90)	Walls, woodwork, floors.	Powder, Dilute in water.) Do not get in eyes. May irritate skin.	
Quaternary disinfectants	Laundry-safe for all fibers.	May cause some color change.	Add at beginning of rinse cycle.
Pine oil disinfectants	Laundry-safe for washable clothing.	Do not use on wool or silk. Pine odor will linger on these fabrics.	Add before putting clothes in machine or dilute in 1 quart water.
Liquid chlorine disinfectants (Clorox, Purex, Hilex)	Laundry	Do not use on wool, silk, or water-repellent fabrics.	Add bleach before putting clothes in washer or dilute in 1 quart water.
Phenolic disinfectants.	Laundry-safe for washables	Do not use on wool or silk.	Add in wash or rinse cycle.

# APPENDIX E-13

## FLOOD ZONE DETERMINATION LIABILITY NEWS ARTICLE

### Bank Is Held Liable For Inaccurate Flood Hazard Determination

NORWALK, Conn. - For the first time in history, a jury has brought in a judgement against a bank for failure to notify the mortgage holder that the mortgaged property was in a flood hazard area, according to the Federal Emergency Management Agency (FEMA).

The litigation, "Small v. South Norwalk Savings Bank" (205 CONN. 751), centered on the bank's failure to advise a Ms. Small that her property was in a flood hazard area after she had taken a \$52,000 loan to buy the property. But Small did not take out flood insurance because the appraiser, after having used the bank's out-of-date flood map to evaluate flood danger, did not tell her that such insurance was necessary. An up-to-date map would have warned of the danger.

The jury awarded \$35,000 in actual damages, a judgement that was upheld after appeal. Both the jury and the appeals judge refused to consider the fact that the award was greater than the flood insurance claim Ms. Small might have received. The jury, in effect, compensated her for both insurable and uninsurable losses.

A FEMA memo suggests that the lawsuit should put lenders, particularly smaller-scale lenders, on guard to

comply with Federal Insurance Administration flood hazard guidelines when making real estate loans. Independent flood certification agencies agree. Martin M. Friedman, president of one such company, Flood Hazard Certification, Inc. of Elmwood Park, N. J., said fully insured flood search services are available to lenders in many states. The fee for his company's services, said Friedman, is \$12.50.

"Many lenders," Friedman said, "have chosen to use halfway measures because they felt there was no danger to them in the event they made a mistake." Of the Small decision, Friedman said that lenders should be put on guard "that they are required to be as careful with flood insurance requirements as they are with any of the statutory requirements".

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*This article is taken from the December 1988 issue of U.S. Water News. Area Hydrologist Leo Getsfried, Mankato, deserves special thanks for bringing this very pertinent issue to our attention.*

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# APPENDIX E-14

## ARE YOU LIABLE FOR MAKING FLOOD ZONE DETERMINATIONS?

The new Fannie Mae/Freddie Mae flood insurance guidelines require lenders to determine whether a structure is in a Special Flood Hazard Area (SFHA). The key distinction for government officials is between providing information and making an determination that a property is in or out of a SFHA.

If you make a determination and fill out the Standard Flood Hazard Determination Form (SFHDF), you could be liable for inaccuracies or misrepresentations. A local official's only obligation is to have the information available and accessible to the public, including the determination companies.

According to the Federal Emergency Management Agency, local officials should be extremely cautious about making flood zone determinations. The flood zone determinations companies are being paid to use their expertise to make this determination and to guaranteed that it is accurate. These companies cannot expect local officials to make the determination. This is not the local official's responsibility -- it is the lender's under federal law.

If a local official chooses to assist property owners in determining their flood zone status, it should be made clear that the determination is for informational purposes only. The property owner's lender must still have an official determination done on an approved form with the preparer's name, address and telephone number listed. The preparer is the individual or company that made the determination, not the government agency or official that provided information. Local planning and zoning officials should make sure the lenders in their area understand this.

The making of flood zone determinations is a growing business and competition is keen. There are over 100 companies providing the service. To cut costs, some companies simply call local officials, asking them to interpret a flood map over the phone. It is best to not provide the interpretation. The local official has no way of knowing if the property information they are giving is accurate. It is the determination company's responsibility to interpret visually the correct map in making a determination. Any reputable company will gave all the current maps for any area in which they do business. Local governments simply need to make the flood maps available for public review.

Communities currently participating in the Community Rating System (CRS) program may wish to take note of the requirements of Activity 320 -- Map information. This CRS activity is designed to reward communities for informing a requestor of a property's flood zone status, not to determine wether flood insurance is required.

This activity does not create any liability for government officials. Make it clear to all requesters that the lender ( or a third party hired by the lender) is still required to do an accurate determination and fill out the determination form.

# **APPENDIX E-15**

## **ADMINISTRATIVE PROCEDURES**

### **PUBLIC AWARENESS ACTIVITIES**

1. Post copies of floodplain maps at various sites in your community.
2. Print public information articles in local newspapers (sample articles attached).
3. Perform annual and/or biannual mail out of public awareness materials, especially to individuals owning property or living in designated floodplain areas (perhaps enclosed with tax notices).
4. Issue public announcement messages to local radio stations.

### **FLOODPLAIN BOARD RESPONSIBILITIES**

1. Schedule and hold regular monthly meetings.
2. Review the activities of your floodplain administrator (EPA) and other floodplain issues.

### **FLOODPLAIN ADMINISTRATOR DUTIES**

1. Be accessible to the public (office location and hours; publish telephone number and address).
2. Become familiar with floodplain maps and designated floodplain areas.
3. Review proposed development and issue permits (ensure lowest floor elevation is at or above the base flood elevation and/or commercial structures are floodproofed accordingly); require post-construction elevation certificates.
4. Maintain publicly accessible development permit files.
5. Complete biennial report forms for FEMA.
6. Report monthly activities to your floodplain board.

### **SUGGESTED ACTIVITIES FOR MONITORING COUNTY DEVELOPMENT**

1. Enter into agreements with local utility companies for regular notification of new service hook-ups (gas, electrical, water, etc.).
2. Contact lending institutions and insurance agents in the community and ask that they contact the FPA when they receive questions and/or requests for floodplain areas.
3. Require your FPA or other designated individual to perform periodic floodplain inspections.

# APPENDIX E-16

## ESTIMATING BASE FLOOD ELEVATIONS

### USING A FLOOD MAP AND A TOPOGRAPHIC MAP

It is often necessary to determine the base flood elevation for an area before commencing any development in a flood-prone area. For some areas, flood insurance studies have been performed which show base flood elevations on a special map. Usually for unincorporated areas and some incorporated areas, such maps have not been prepared.

Unincorporated areas do usually have Flood Hazard Boundary Maps (FHBM) which show the areas of the 100-year floodplain by shading. For most areas, the U.S. Geological Survey (USGS) has prepared topographic maps which are of the same scale as the FHBM. This scale is 1:24,000 (see figure 2). For information on obtaining USGS maps, contact U.S. Geological Survey, Denver, Colorado 80225, or the Oklahoma Geological Survey at the University of Oklahoma (405) 325-3031, 100 E. Boyd, Norman, OK 73109.

The following estimating procedure requires a light table (electric light under a glass) or a window pane with a bright sun outside.

1. Place the FHBM on the light table or against the window.
2. Place the USGS topographic map over it.
3. Line-up corresponding features on the two maps. This technique is easy for maps with numbered sections (square miles).
4. Where a contour line on the topographic map crosses the edge of a shaded area on the FHBM, the base flood elevation will have the same value as the contour line. Interpolation can be used to estimate the base flood elevation for other points.

For more information, contact:

**Henry (Hank) Elling**  
Water Resources Engineer  
Oklahoma Water Resources Board  
601 "C" Avenue, Suite 101  
P.O. Box 886  
Lawton, OK 73502  
(405) 248-7762

# APPENDIX E-17

## SAMPLE PRESS RELEASE ABOUT THE NFIP, RELATED BENEFITS AND REQUIREMENTS

Date

FOR FURTHER INFORMATION,  
PLEASE CONTACT:

Name  
Floodplain Administrator  
Name of Community  
Telephone Number

### FOR IMMEDIATE RELEASE

#### Water Board, Name of Community Encourage Residents to Purchase Flood Insurance

OKLAHOMA CITY — The Oklahoma Water Resources Board and city, town or county officials remind local residents that they are eligible to purchase affordable flood insurance through the National Flood Insurance Program (NFIP).

According to Duane Smith,, Director of OWRB, participation in the program allows city, town or county residents who live within corporate boundaries to purchase low-cost, federally backed flood insurance. "An average flood policy costs approximately \$325, which is quite a bargain. In addition, flood insurance policies can be purchased from any licensed property and casualty agent."

"City, Town or County officials chose to participate in this program because of the considerable benefits it provides to their citizens," Morris pointed out. "The program also entitles eligible city, town or county residents to obtain low-interest loans and grants in the event of a presidentially declared flood disaster."

City, Town or County entered the regular phase of the NFIP, administered by the Federal Emergency Management Agency, on date.

Flood insurance is required if a home is located in a regulatory floodplain and is mortgaged by a federally regulated lender, such as Farmers Home Administration, Federal Housing Administration, Veterans Administration, Small Business Administration, Fannie Mae or Ginnie Mae. To purchase flood insurance, Morris suggests that local citizens call their insurance agent who normally handles their home owners or car insurance policies.

Smith also encourages city, town or county citizens who currently have flood insurance policies to continue to pay their insurance premiums. "Every property owner or renter who lives near a regulatory floodplain or in an area subject to localized flooding should look into purchasing a flood policy. In addition, it is important for those who now have flood insurance to keep their policies up-to-date."

Participation in the NFIP allows residents who live within corporate boundaries to purchase low-cost, federally backed flood insurance in exchange for proper management of area floodplains and implementation of other actions to mitigate flood damage.

Finally, Morris reminds local residents of the need for permits prior to construction or development in federally designated floodplains.

"We want to inform people that before they build or construct **anything** in a floodplain, they should first check with the local floodplain administrator to determine if the site is in a special flood hazard area designated by the Federal Emergency Management Agency," he added. "Alteration of floodplains or the placement of structures in them can significantly increase the magnitude and velocity of floodwaters. Development is controlled so that construction and related activities never divert, retard or obstruct floodwaters to the point where the public could be threatened." City, town or county and other entities participating in the NFIP regulate floodplain development through construction and building permits. Permits are not necessary for the use of flood-prone lands for certain agricultural uses — such as the planting of crops or the construction of smaller livestock watering ponds — and other purposes which pose little or no threat to local citizens.

For more information on the NFIP, contact name, city, town or county Floodplain Administrator, at phone number, or Ken Morris at the OWRB's Oklahoma City office, 405/530-8800.

# APPENDIX E-18

## RECORDING HIGH WATER MARKS

### WHY RECORD HIGH WATER MARKS?

Recording high water marks (HWM's) after a major flood contributes to the accuracy of analyzing riverine and coastal systems. Reliable records of past HWM's are used to more accurately model these systems and can be used in calculating future flood events.

The high water marks you accurately identify and record can help preserve valuable flood information and may save tax dollars. Following major flood events, personnel from federal and state water resource agencies available for flood data recovery are limited both by funds and time. This is especially true in major flood events covering multiple watersheds or even the entire state.

### WHAT AND WHERE TO MEASURE & WHO SHOULD MEASURE

Following a major flood, anyone who has high watermarks on their property or observed flood marks on public property can assist. This includes the home and business property owners, and state, county, and city road department personnel.

### POINTS TO REMEMBER

*Write down your measurements using this form or note pad.*

- Be sure to record time and date.
- Try to place a permanent mark. Where a permanent mark is not possible, use flagging or tape. Write the form number near the mark.
- Provide HWM data on the accompanying form, and send to the NFIP State Coordinator, Oklahoma Water Resources Board, 3800 N. Classen Boulevard, Oklahoma City, OK 73118 .

To be accurate, HWM's and measurements should reflect true conditions.

*How can HWM's be unreliable, or not be representative of the actual flood height?*

1. The **HWM** is not properly located and or is adversely affected by local conditions. Some examples of improper locations are:
  - a. Backwater areas separated from the main stream flow by intervening high ground thus not reflecting the flood water surface from that stream location,
  - b. Shallow sheet flow areas where the sheet flow is moving away from main stream or separated from the main stream (this differs from the backwater above because the water is still moving and not backing upstream),
  - c. Areas upstream of debris accumulation on a bridge pier or piers causing an artificial excessive buildup,
  - d. Inside a tightly closed structure that did not allow the water level inside to equalize with the outside level before the flood peak passed.
2. The **HWM** was not properly identified.
  - a. Of the above situations, a and b would be acceptable if they were explained in accompanying notes.
  - b. The description or permanent marking may not have been detailed or thorough enough to avoid confusion with adjacent nails, fence posts, or power poles, and an elevation was surveyed to the wrong "mark".

*In order of reliability, five types of HWM's are:*

#### 1. Silty Water Lines Inside Buildings

**LOOK** inside buildings where the flood water has relatively free access. Tightly closed buildings may not allow water level to equalize before the peak passes. There are fewer variables with buildings where still water lines can be observed.

**MEASURE** the height above the floor level. Try to establish a more permanent HWM even if it means transferring the line to an outside site (wall, post, tree, etc.). In all cases where the permanent mark is being located away from the actual observable water mark, measure the marks at the same elevation. Use a surveyor's level, builders transit (with level), or a hand level and a surveyor's rod if needed.

## 2. Stage Gage Rod or Board on Streams

**LOOK** for a stage gage rod or board marked with visible units of measurement to the nearest tenth of an inch (.10").

**MEASURE:** Record a reading during the flood (don't rely on memory). Any reading during a flood is useful if the time is also noted, but the reading is most valuable if the flood crest is observed and recorded. This could mean readings every half hour on medium or as frequent as every 15 minutes on smaller creeks to catch the peak.

## 3. Silty Water Lines on Tree Trunk, Power Poles, Fence Posts, Paved Roads or Walls

**LOOK** for trees, power poles, *fence posts*, paved areas, and structure walls where the flood has left a silty water line. Most flood contain varying amounts of which is caked on the surface or a discoloration line. Silty water lines often have a short life before being washed away, so time is of the essence.

**MARK** the lines by driving either hardened nails (for pavements) or doubled headed form nails (vertical wood surfaces) through roofing disks and colored flagging tape. Where permissible, spray paint a circle around the nail and disk to further help identify the mark. If the line is on a concrete wall where a nail is not practical, mark it with duct tape and permanent marker pen or spray paint if allowable.

**MEASURE** to the ground or flat surface if a nail is placed in a vertical surface. Measure and record the type and size of tree, pole, or fence post. If the line is on a concrete foundation wall, measure up to the bottom of siding. If on the siding (where you can't place a nail or spray paint) measure down to the bottom of the siding and to the ground. If necessary to establish a more permanent mark by transferring it, use the procedure identified in Silty Water Lines Inside Buildings, number 1.

## 4 Debris Lines on Paved Roads, Bare Ground, or in Chain Link or Woven Fences

**LOOK** for horizontal strands of debris (leaves, grass, twigs) left on pavements or caught in the openings of fences.

**MARK** debris lines by driving a wood stake into the ground with the top flush with the apparent flood water surface.

**WRITE** the date on a lath stake and drive it next to the wood stakes as a guard and mark with flagging tape.

**MEASURE** from the top of the debris strands in a fence to ground level and (vertical) to the top of the nearest fence post. Measure the horizontal distance and record direction from the mark to the debris line on the pavement or ground.

Debris lines are similar to silty lines except they are not as precise and as with silty lines, they often have a short life before washed away. Again, time is of the essence.

## 5 Debris Lines in Bushes

**LOOK** for debris (leaves, grass, twigs) caught in bushes or grass.

**MARK** same as number 4 above.

**MEASURE** vertical distance to ground and horizontal distance to nearest fixed or more permanent identifiable feature.

### General Suggestions

Set the mark in a location either upstream or downstream from the actual water mark only if a better locations is unfeasible with large, slow moving rivers, stay within 200 feet of the mark. On smaller, faster flowing stream even 50 feet upstream or down stream may be too much. The permanent mark should not be relocated, either upstream or do across a road embankment or bridge from the observed mark.

### Un-numbered A-Zones

Many communities in Oklahoma have flood hazard areas identified, but no accompanying base flood elevations. These areas, known as "un-numbered A-zones", lack the detailed hydraulic study to accurately determine the potential flood risk. Now is the ideal time to mark the flood heights in these areas to be used for permitting. After the HWM's are detected, a survey can be done to determine the actual NGVD elevation. This may be considered best available data and used for regulating purposes. At the very least a local government can measure a depth from the HWM and note this on the flood maps for various locations.

This information would be of great value for future development measuring in the potential risk in these areas. Rather than using the typical default of elevating the furnished floor 2 feet above highest adjacent grade in unnumbered A zones, an actual depth of flooding will be known.

### ***Supplies needed when establishing and recording a high watermark.***

- Surveyors level, builders transit/level, or hand level
- Hammer, hardened galvanized nails, duplex nails
- Roofing disks (1 to 1 1/2 inch diameter)
- 16 and 100 foot tape measures bright colored flagging tape, spray paint colored marking chalk
- 1" x 2" or 2" x 2" wood surveyors stakes
- Wood lath stakes [about 30 to 36 inches long] duct tape, permanent marker, compass waterproof note pad and pen

# RECORDING HIGH WATER MARK - FORM

HIGH WATER MARK FORM NO. \_\_\_\_\_

Name: \_\_\_\_\_

Address of HWM Site: \_\_\_\_\_

Agency (if applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Tax Parcell # \_\_\_\_\_

\_\_\_\_\_

County: \_\_\_\_\_

Telephone: \_\_\_\_\_

City (or Community): \_\_\_\_\_

Date of high water: \_\_\_\_\_

Distance and Direction From: \_\_\_\_\_

Date and Time of Measurement: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Stream: \_\_\_\_\_

Type of measurement:

Location/Description of Measurement

Silty Water Line on:

Be specific. For example the "HWM on South Fork Jones Creek is 50 feet upstream of Smith Road (County Road 625) bridge on the right bank (looking downstream) (or north, south, east, or west bank), a double headed 16 penny nail on the east (riverward) side of a 12 inch maple tree (or power pole number 164005, or a six inch square fence post), about 18 inches above ground level. Lath nailed to pole above nail with marking "HWM September 18, 1996. Please write the HWM form No. near the mark."

Tree Trunk

Power Pole

Fence Post

Pavement

Walls (specify inside or outside)

Other (specify)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Debris Line on:

Pavement

Chain link or woven wire fence

Bushes or grass

Forward watermark measurements and, if possible, a map to accompany the description above, to NFIP State Coordinator, Oklahoma Water Resources Board, 3800 N. Classen Boulevard, Oklahoma City, OK 73118

# Appendix F



## PROFESSIONAL DEVELOPMENT

COMPANION TO CHAPTER 7



<b>11. CHECK THE BOX THAT BEST DESCRIBES THE PERIODS OF YOUR SERVICE:</b> <input type="checkbox"/> 1966-1969 <input type="checkbox"/> 1970-1979 <input type="checkbox"/> 1980-1989 <input type="checkbox"/> 1969-1970 <input type="checkbox"/> 1980-1981 <input type="checkbox"/> 1990-1999 <input type="checkbox"/> 1971-1979 <input type="checkbox"/> 1982-1989 <input type="checkbox"/> 2000-2009 <input type="checkbox"/> 1981-1989 <input type="checkbox"/> 1990-1999 <input type="checkbox"/> 2010-2019 <input type="checkbox"/> 1990-1999 <input type="checkbox"/> 2000-2009 <input type="checkbox"/> 2020-2029 <input type="checkbox"/> 2010-2019 <input type="checkbox"/> 2020-2029 <input type="checkbox"/> OTHER YEAR		<b>12. CHECK THE BOX THAT BEST DESCRIBES YOUR CURRENT PRIMARY RESPONSIBILITY. ALSO CHECK THE BOX AND THE TYPE OF DUTY THAT BEST REPRESENTS THE TYPE OF SERVICE YOU WOULD LIKE TO PERFORM. ALSO ENTER THE NUMBER OF YEARS OF EXPERIENCE.</b> <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none; vertical-align: top;"> <b>PRIMARY RESPONSIBILITY</b>  <input type="checkbox"/> MANAGEMENT  <input type="checkbox"/> TRAINING/EDUCATION  <input type="checkbox"/> IDENTIFICATION/SEARCHING  <input type="checkbox"/> INVESTIGATION  <input type="checkbox"/> FIRE PREVENTION  <input type="checkbox"/> FIRE SUPPRESSION  <input type="checkbox"/> PROTECTIVE DUTY  <input type="checkbox"/> RESCUE  <input type="checkbox"/> PUBLIC WORKS  <input type="checkbox"/> EMERGENCY RESCUE  <input type="checkbox"/> EMERGENCY MEDICAL SERVICE  <input type="checkbox"/> RADIATION CONTROL  <input type="checkbox"/> HAZARDOUS RESPONSE  <input type="checkbox"/> EMERGENCY PREPAREDNESS  <input type="checkbox"/> HAZARDOUS RECOVERY  <input type="checkbox"/> OTHER (Specify _____)            NUMBER OF YEARS OF EXPERIENCE _____         </td> <td style="width:50%; border: none; vertical-align: top;"> <b>TYPE OF SERVICE</b>  <input type="checkbox"/> INCIDENT COMMAND  <input type="checkbox"/> ADMINISTRATIVE/MAINTENANCE  <input type="checkbox"/> SUPERVISOR  <input type="checkbox"/> INCIDENT/ALARMING  <input type="checkbox"/> PROGRAM DEVELOPMENT  <input type="checkbox"/> PROGRAM DELIVERY  <input type="checkbox"/> COORDINATION/ADMIN  <input type="checkbox"/> PUBLIC EDUCATION  <input type="checkbox"/> CODE DEVELOPMENT  <input type="checkbox"/> EQUIPMENT MAINTENANCE  <input type="checkbox"/> MAINTENANCE  <input type="checkbox"/> INSPECTION  <input type="checkbox"/> SUPPORT SERVICES  <input type="checkbox"/> ADMINISTRATIVE MANAGEMENT  <input type="checkbox"/> RESEARCH AND DEVELOPMENT  <input type="checkbox"/> RESEARCH  <input type="checkbox"/> LAW ENFORCEMENT  <input type="checkbox"/> BUDGET AND PLANNING  <input type="checkbox"/> OTHER (Specify _____)         </td> </tr> </table>		<b>PRIMARY RESPONSIBILITY</b> <input type="checkbox"/> MANAGEMENT <input type="checkbox"/> TRAINING/EDUCATION <input type="checkbox"/> IDENTIFICATION/SEARCHING <input type="checkbox"/> INVESTIGATION <input type="checkbox"/> FIRE PREVENTION <input type="checkbox"/> FIRE SUPPRESSION <input type="checkbox"/> PROTECTIVE DUTY <input type="checkbox"/> RESCUE <input type="checkbox"/> PUBLIC WORKS <input type="checkbox"/> EMERGENCY RESCUE <input type="checkbox"/> EMERGENCY MEDICAL SERVICE <input type="checkbox"/> RADIATION CONTROL <input type="checkbox"/> HAZARDOUS RESPONSE <input type="checkbox"/> EMERGENCY PREPAREDNESS <input type="checkbox"/> HAZARDOUS RECOVERY <input type="checkbox"/> OTHER (Specify _____) NUMBER OF YEARS OF EXPERIENCE _____	<b>TYPE OF SERVICE</b> <input type="checkbox"/> INCIDENT COMMAND <input type="checkbox"/> ADMINISTRATIVE/MAINTENANCE <input type="checkbox"/> SUPERVISOR <input type="checkbox"/> INCIDENT/ALARMING <input type="checkbox"/> PROGRAM DEVELOPMENT <input type="checkbox"/> PROGRAM DELIVERY <input type="checkbox"/> COORDINATION/ADMIN <input type="checkbox"/> PUBLIC EDUCATION <input type="checkbox"/> CODE DEVELOPMENT <input type="checkbox"/> EQUIPMENT MAINTENANCE <input type="checkbox"/> MAINTENANCE <input type="checkbox"/> INSPECTION <input type="checkbox"/> SUPPORT SERVICES <input type="checkbox"/> ADMINISTRATIVE MANAGEMENT <input type="checkbox"/> RESEARCH AND DEVELOPMENT <input type="checkbox"/> RESEARCH <input type="checkbox"/> LAW ENFORCEMENT <input type="checkbox"/> BUDGET AND PLANNING <input type="checkbox"/> OTHER (Specify _____)
<b>PRIMARY RESPONSIBILITY</b> <input type="checkbox"/> MANAGEMENT <input type="checkbox"/> TRAINING/EDUCATION <input type="checkbox"/> IDENTIFICATION/SEARCHING <input type="checkbox"/> INVESTIGATION <input type="checkbox"/> FIRE PREVENTION <input type="checkbox"/> FIRE SUPPRESSION <input type="checkbox"/> PROTECTIVE DUTY <input type="checkbox"/> RESCUE <input type="checkbox"/> PUBLIC WORKS <input type="checkbox"/> EMERGENCY RESCUE <input type="checkbox"/> EMERGENCY MEDICAL SERVICE <input type="checkbox"/> RADIATION CONTROL <input type="checkbox"/> HAZARDOUS RESPONSE <input type="checkbox"/> EMERGENCY PREPAREDNESS <input type="checkbox"/> HAZARDOUS RECOVERY <input type="checkbox"/> OTHER (Specify _____) NUMBER OF YEARS OF EXPERIENCE _____	<b>TYPE OF SERVICE</b> <input type="checkbox"/> INCIDENT COMMAND <input type="checkbox"/> ADMINISTRATIVE/MAINTENANCE <input type="checkbox"/> SUPERVISOR <input type="checkbox"/> INCIDENT/ALARMING <input type="checkbox"/> PROGRAM DEVELOPMENT <input type="checkbox"/> PROGRAM DELIVERY <input type="checkbox"/> COORDINATION/ADMIN <input type="checkbox"/> PUBLIC EDUCATION <input type="checkbox"/> CODE DEVELOPMENT <input type="checkbox"/> EQUIPMENT MAINTENANCE <input type="checkbox"/> MAINTENANCE <input type="checkbox"/> INSPECTION <input type="checkbox"/> SUPPORT SERVICES <input type="checkbox"/> ADMINISTRATIVE MANAGEMENT <input type="checkbox"/> RESEARCH AND DEVELOPMENT <input type="checkbox"/> RESEARCH <input type="checkbox"/> LAW ENFORCEMENT <input type="checkbox"/> BUDGET AND PLANNING <input type="checkbox"/> OTHER (Specify _____)				
<b>SECTION 11 - EMPLOYABLE AND EMPLOYMENT</b>					
<p>11. a. I hereby declare the information provided on this application is true. I agree to abide by the rules, policies, and regulations of the National Emergency Training Center of the United States. Provisions of information submitted in violation of a court order and subject to 18 U.S.C. 1001.</p> <p>b. I hereby certify the date of issue and all information remaining unexpired in this year in order to still allow to draw, redesign, or re-issuance. All requests for information shall be using the most current information changes.</p> <p>c. Failure to cooperate to the National Emergency Training Center would constitute a ground to void a health insurance to status. I warrant appropriate insurance as indicated here.</p>					
SIGNATURE OF APPLICANT _____			DATE		
11. Approved by the Head of the Issuing Organization _____			DATE		
TITLE _____			PHONE NO.		
11. APPROVED SIGNATURES BY APPLICANT AND ISSUING ORGANIZATION _____			DATE		
SIGNATURE OF APPLICANT _____			DATE		
<b>14. SUBMISSION OF APPLICATION</b> <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none; vertical-align: top;"> <b>1. THE APPLICATIONS DELIVERED BY EMERGENCY AND RESCUE APPLICATION TO:</b>             NATIONAL EMERGENCY TRAINING CENTER            OFFICE OF ADMINISTRATION            1400 SOUTH WYOMING AVENUE            CHARLOTTE, NC 28203         </td> <td style="width:50%; border: none; vertical-align: top;"> <b>2. FOR THE COURSE IN CHARLOTTE, NC, SUBMIT THE APPLICATION THROUGH THE APPROPRIATE STATE EMERGENCY MANAGEMENT ORGANIZATION AND FILL IN THE DATE OF USE.</b>   <b>3. FOR FIELD PROGRAM COURSES, SUBMIT APPLICATION TO APPROPRIATE OFFICES.</b> </td> </tr> </table>				<b>1. THE APPLICATIONS DELIVERED BY EMERGENCY AND RESCUE APPLICATION TO:</b>  NATIONAL EMERGENCY TRAINING CENTER OFFICE OF ADMINISTRATION 1400 SOUTH WYOMING AVENUE CHARLOTTE, NC 28203	<b>2. FOR THE COURSE IN CHARLOTTE, NC, SUBMIT THE APPLICATION THROUGH THE APPROPRIATE STATE EMERGENCY MANAGEMENT ORGANIZATION AND FILL IN THE DATE OF USE.</b>  <b>3. FOR FIELD PROGRAM COURSES, SUBMIT APPLICATION TO APPROPRIATE OFFICES.</b>
<b>1. THE APPLICATIONS DELIVERED BY EMERGENCY AND RESCUE APPLICATION TO:</b>  NATIONAL EMERGENCY TRAINING CENTER OFFICE OF ADMINISTRATION 1400 SOUTH WYOMING AVENUE CHARLOTTE, NC 28203	<b>2. FOR THE COURSE IN CHARLOTTE, NC, SUBMIT THE APPLICATION THROUGH THE APPROPRIATE STATE EMERGENCY MANAGEMENT ORGANIZATION AND FILL IN THE DATE OF USE.</b>  <b>3. FOR FIELD PROGRAM COURSES, SUBMIT APPLICATION TO APPROPRIATE OFFICES.</b>				
14.1. APPROVED BY _____		14.2. DATE OF USE _____			
<input type="checkbox"/> APPROVED <input type="checkbox"/> DENIED		DATE			

# APPENDIX F-2

## APPLICATION FOR OFMA MEMBERSHIP

**APPLICATION:**

Name: \_\_\_\_\_

Organization: \_\_\_\_\_

Title: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
 \_\_\_\_\_

Office Telephone: (\_\_\_\_\_) \_\_\_\_\_

Category Affiliation(s)

New Member \_\_\_\_\_ Renewal \_\_\_\_\_

**REGION**

- [ ] **Region 1.** = Canadian, Cleveland, Garvin, Grady, Kingfisher, Lincoln, Logan, McClain, Oklahoma, Pottawatomie
- [ ] **Region 2.** = Adair, Cherokee, Craig, Creek, Delaware, Kay, Mayes, Muskogee, Noble, Nowata, Okmulgee, Okfuskee, Osage, Ottawa, Pawnee, Payne, Rogers, Sequoyah, Tulsa, Wagoner, Washington
- [ ] **Region 3.** = Atoka, Bryan, Choctaw, Coal, Haskell, Hughes, Johnston, Latimer, LeFlore, Marshall, McCurtain, McIntosh, Pittsburg, Pontotoc, Pushmataha, Seminole
- [ ] **Region 4.** = Beckham, Caddo, Carter, Comanche, Cotton, Greer, Harmon, Jackson, Jefferson, Kiowa, Love, Murray, Stephens, Tillman, Washita
- [ ] **Region 5.** = Alfalfa, Beaver, Blaine, Cimarron, Custer, Dewey, Ellis, Garfield, Grant, Harper, Major, Roger Mills, Texas, Woods, Woodward

**DUES SCHEDULE:**

First-year dues are prorated depending on the quarter during which you join. Fiscal year is July 1 - June 30.

	<b>July-Sept (1)</b>	<b>Oct-Dec (2)</b>	<b>Jan-Mar (3)</b>	<b>Apr-June (4)</b>
Full Membership	\$20.00	\$15.00	\$10.00	\$5.00
Student Member	10.00	7.50	5.00	2.50
Associate Membership	15.00	11.25	7.50	3.75
Agency Membership*	50.00	37.50	25.00	12.50
Corporate Sponsor	100.00	75.00	50.00	25.00

*\*Plus \$10.00 per employee designated by the agency*

**ASSOCIATE CATEGORIES:**

- A. Mitigation
- B. Floodplain Regulations
- C. Flood Insurance
- D. Mapping & Engineering
- E. Flood Proofing
- F. Stormwater Management
- G. Reserach

# APPENDIX F-3 FLOODPLAIN ADMINISTRATORS' WORKSHOPS OKLAHOMA WATER RESOURCES BOARD

## TYPICAL WORKSHOP AGENDA

9:00 am	Registration	
9:30 am	Welcome & Introduction	OWRB
9:45 am	Notes from State Coordinator	OWRB
10:15 am	Your Flood Damage Prevention Ordinance	FEMA
11:00 am	BREAK	
11:15 am	The Application Review Process	OWRB
12:15 pm	LUNCH	ON YOUR OWN
1:00 pm	State Hazard Mitigation, FMA	Emergency Management
2:00 pm	How to Determine the Base Flood Elevation	OWRB
2:45 pm	BREAK	
3:00 pm	Exercises	OWRB
4:30 pm	OFMA Certification Program & Exam	OWRB
5:00 pm	EVALUATION	
	ADJOURN	

# APPENDIX F-4

## OFMA CERTIFIED FLOODPLAIN MANAGER PROGRAM

In September 1997, the Oklahoma Floodplain Management Association (OFMA) adopted a program for the certification of floodplain managers. The program is designed to certify competency with the basic principals of sound floodplain management as mandated by the National Flood Insurance Program.

Applicants wishing to obtain the initial designation as a **Certified Floodplain Manager** must meet the following requirements:

- \* Be an active member of OFMA
- \* Minimum of 2 years experience or completion of FEMA accredited Floodplain Administrator training course (offer in Oklahoma)
- \* Minimum education of High School Diploma or GED
- \* Submit completed application packet
- \* Pay application fee
- \* Obtain passing score on Certification exam

Once an individual obtains certification, it will be necessary to annually perform the following activities for re-certification:

- \* Continue OFMA membership
- \* Submit a 'short form' application
- \* Submit 5 sample questions for possible inclusion in the exam
- \* Submit documentation of Continuing Education Credits (16 CECs in a 2 year period)
- \* Payment of renewal fee

Recommended preparatory study materials for the initial exam include the 'Guidebook for Local Floodplain Ordinance Administrators', published by the Oklahoma Water Resources Board, CFR 44 parts 60.3 A-D, Flood Insurance Rate Map definitions and terms and OFMA/OWRB sponsored training. To receive a certification packet, send request to OFMA, P.O. Box 8101, Tulsa, OK 74101-8101.