NFIP and Floodplain Manager Basics

September 2016

Floodplain Management Section
Indiana Department of Natural Resources, Division of Water

* Overall Context of Floodplain Management	5-10%
* Floodplain Mapping	20-25%
* NFIP Regulatory Standards	20-25%
* Regulatory Administrative Procedures	15-20%
* Flood Insurance	10-15%
* Flood Hazard Mitigation	10-15%
* Natural and Beneficial Functions	10-15%

* CFM Exam
120 Questions

Overall Context of Floodplain Management

* Unified National Program
* Community Sanctions
* History and Background of the NFIP
* Other Federal Programs

Unified National Program for Floodplain Management

* Unified National Program for Floodplain Management

* Created under the National Flood Insurance Act (1968).
* First report published in 1976.
* Prepared by a task force of Federal agencies.
* Submitted by the President to Congress.
* Sets forth a conceptual framework and identifies strategies fundamental to implementing a balanced approach to floodplain management.
* Consists of both general and working principles.

Unified National Program for Floodplain Management

* The Federal Government has a fundamental interest…but the basic responsibility for regulating use of floodplains lies with State and local government.
* The floodplain…must be considered in the context of total community, regional, and national planning and management.
* Floodplains can be managed to achieve acceptable levels of
  - protection and maintenance of natural floodplain values; and,
  - reduction of existing and future flood loss potential.

* Sound floodplain management embodies…
  - Goals and objectives,
  - Shared decision making responsibility,
  - Image of the future,
  - Unique decision constraints,
  - Accounting,
  - Motivation,
  - Coordination, and
  - Evaluation.

* Unified National Program for Floodplain Management

Community Sanctions

Community Sanctions

- **Probation**
  - Non-compliant community
  - $50 surcharge
  - Pressure to correct deficiencies

Community Sanctions

- **Suspension**
  - Either after period of probation or immediately when failure to timely adopt ordinance (new maps).
  - No longer in the NFIP.
  - Subject to sanctions for non-participation.
    - Flood insurance will not be available.
    - No Federal grants or loans.
    - No Federal mortgage insurance.

History of the NFIP

Legislative Cornerstones

* National Flood Insurance Act of 1968
* 1973 Flood Disaster Protection Act
* 1979 FEMA was created
* 1994 National Flood Insurance Reform Act
* Disaster Mitigation Act of 2000
* 2004 National Flood Insurance Reform Act
* *2012 Biggert Waters Reform Act (BW12)*
* *2014 Homeowner Flood Insurance Affordability Act (HFIAA)*

National Flood Insurance Act of 1968

* Congress enacted the National Flood Insurance Program (NFIP);
* Made Federal flood insurance available to communities who adopted floodplain management measures;
* *PROBLEM… no leverage to ensure community participation.*

Flood Disaster Protection Act of 1973

* Significant expansion of provisions and national impact of the NFIP
* Created the mandatory purchase requirement;
* Required notification of communities officially designated as "flood prone";
* Required participation in the NFIP as condition for most types of Federal financial assistance;
* Most communities joined the NFIP after this mandated flood insurance as a condition of a loan;
* *PROBLEM…too many loopholes… no leverage to ensure lender compliance.*

FEMA - created in 1979

* A series of major natural disasters hit the U.S. during the 1960-70s . Over 100 federal agencies were collectively involved in the relief efforts and people often complained about the lack of coordination and poor results. There was a growing recognition of the need for a centralized emergency management system.
* Pressed by state governors, President Jimmy Carter creates FEMA through Executive Order.

Stafford Act - 1988

* Amended the Disaster Relief Act of 1974.
* Established a process for requesting and obtaining a Presidential disaster declaration!
* Defined the type and scope of assistance available and sets the conditions for obtaining the assistance.
* FEMA is tasked with coordinating the response.
* Three categories of disaster assistance:
  - Individual Assistance
  - Public Assistance
  - Hazard Mitigation Assistance

Stafford Act - 1988

* Individual Assistance
  - Aid to individuals, families and business owners.
  - What will it pay for?
* Public Assistance
  - Aid to public (and certain non-profit) entities for certain emergency services and the repair or replacement of disaster damaged public facilities.
  - What will it pay for?
* Hazard Mitigation Assistance
  - Funding for measures designed to reduce losses to public and private property.

National Flood Insurance Reform Act of 1994

- Created a new mitigation insurance benefit.
- Improved compliance with mandatory purchase requirement.
- Created a new mitigation assistance program.
- Increased flood insurance coverage limits.
- Authorized the Community Rating System.
- Increased the flood insurance policy waiting period to 30 days.

Disaster Mitigation Act of 2000

* Amended the Stafford Act.
* New requirements for state mitigation plans.
* New requirements for local mitigation plans.
* Created Pre-Disaster Mitigation Program (PDM).

Flood Insurance Reform Act of 2004

* Bunning-Bereuter-Blumenauer (FIRA 2004)
* Focus on:
  - insurance improvements
  - Agent education
  - Digital flood data
* Mitigation for repetitive loss properties (Severe Repetitive Loss Grant Program; Repetitive Loss Grant Program).
* Expanded use of ICC – allowing a community to determine substantial damage based on it's ordinance; and use coverage for PDM (cost share).

Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12)

- Extended the NFIP for five years, while requiring significant reform.
- Called for phase-out of subsidies and discounts on flood insurance premiums.
- Required an immediate move to property-specific full-risk rates when pre-FIRM properties were sold or new policies issued.
- Was supposed to deal with the “insolvency” of the NFIP.

Homeowners Flood Insurance Affordability Act of 2014 (HFIAA)

* Repealed portions of and modified BW12.
* Delayed the increases in flood insurance premiums that were mandated under BW12.
* Raised the maximum deductible to $10,000.
* Allowed a return to subsidized rates for affected properties and refunds of the difference paid between the subsidized rate and current full-risk rate.
* A new surcharge added to all new and renewed policies – April 1, 2015.

Other Federal Regulations commonly used to Achieve Floodplain Management

Executive Order 11990 (1977)

* Protection of Wetlands – an order given by President Carter to avoid the adverse impacts associated with the destruction or modification of wetlands.

Executive Order 11990 (1977)

* The procedures require the determination of whether or not the proposed project will be in or will affect wetlands. If so, a wetlands assessment must be prepared that describes the alternatives considered. The procedures include a requirement for public review of assessments. The evaluation process follows the same 8 steps as for EO 11988, Floodplain Management.

Executive Order 11988

* President Jimmy Carter
* 1977
* Brings together Federal policies that protect against both flood hazards and natural floodplain degradation.
* Lead by example.
* This order requires federal agencies to avoid, to the extent possible, the long- and short- term adverse impacts associated with the occupancy and modification of floodplains and to avoid the direct or indirect support of floodplain development whenever there is a practicable alternative.

Executive Order 13690 (2015)

* Signed January 30, 2015.
* President Barak Obama.
* *Amends* existing Executive Order 11988.
* Still in the rule making process…
* In comment period currently (Register.gov)
* Would create higher flood standard, but allows agencies to chose from three approaches.
* The Executive Order will not directly affect the NFIP.
* The new Executive Order will affect FEMA grants.

Executive Order 13690 (2015)

* **3 approaches**
  * Use data and methods informed by best-available, actionable climate science.
  * Build 2 feet above the 100-year (1% annual-chance) flood elevation for standard projects; and 3 feet above for critical facilities.
  * Build to 500-year (.2% annual-chance elevation).
* **Programs affected**
  * Hazard Mitigation Assistance (HMA).
  * Public Assistance (PA).
  * NFIP – Building higher will reduce the cost of flood insurance actuarial ratings.

Eight Step Planning Process

* Comply with Executive Orders
  * 11988
  * 11990
  * 13690

Endangered Species Act (ESA)

* Directs Federal Agencies not to undertake or assist projects that would adversely affect endangered species. Also requires an “incidental take” permit when the habitat will be “taken” from an endangered species.

* States may have higher regulatory measures for sewage systems.

* Sewage Disposal System Regulations

Floodplain Mapping

Floodplain Mapping

* Base flood concept.
* Discharges, profiles, floodways.
* Coastal flooding.
* Reading/using maps.
* Revising FEMA maps.

Where do these regulations apply?

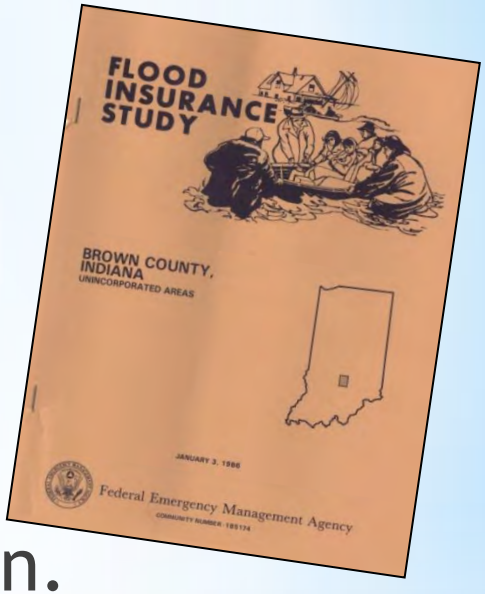
* Special Flood Hazard Area (SFHA).
* One-percent annual chance (100-year) floodplain covered by the base flood.
* Generally identified on FEMA maps as Zone A, AE, AH, AO, A1-A30, V, VE.

Base Flood Elevation

* Base Flood Elevation (BFE) is the elevation of the flood having a one percent probability of being equaled or exceeded in any given year. The "Base Flood" is also known by the term "Regulatory Flood" and "100-year Flood".

* Base Flood Concept

*Flood Insurance Studies



* The technical support for adopting FPM regulations.
* Supports risk assessments with depth, velocity, duration data, and flood history information.
* Used with maps to determine BFE, flood zone, and floodway at specific sites.

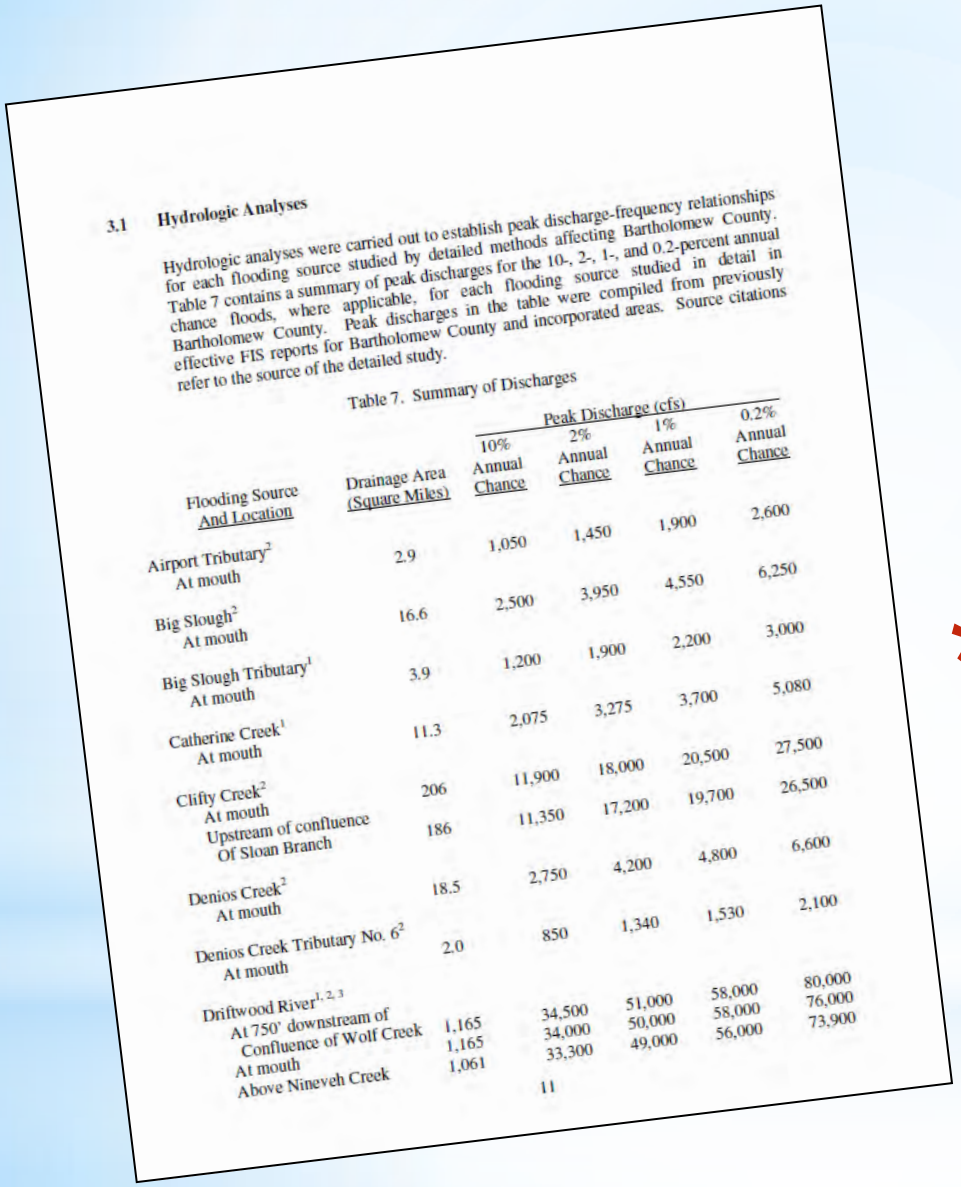
Flood Insurance Studies

Riverine

- Community Map History
- Summary of Discharges
- Floodway Data Tables
- Flood Profiles

Coastal

- Community Map History
- Transect Data
- Summary of Stillwater Elevations
- Parameter Values for Storm Surge Elevations
- Transect Descriptions



3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting Bartholomew County. Table 7 contains a summary of peak discharges for the 10-, 2-, 1-, and 0.2-percent annual chance floods, where applicable, for each flooding source studied in detail in Bartholomew County. Peak discharges in the table were compiled from previously effective FIS reports for Bartholomew County and incorporated areas. Source citations refer to the source of the detailed study.

Table 7. Summary of Discharges

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Airport Tributary[2] At mouth	2.9	1,050	1,450	1,900	2,600
Big Slough[2] At mouth	16.6	2,500	3,950	4,550	6,250
Big Slough Tributary[1] At mouth	3.9	1,200	1,900	2,200	3,000
Catherine Creek[1] At mouth	11.3	2,075	3,275	3,700	5,080
Clifty Creek[2] At mouth	206	11,900	18,000	20,500	27,500
Upstream of confluence Of Sloan Branch	186	11,350	17,200	19,700	26,500
Denios Creek[2] At mouth	18.5	2,750	4,200	4,800	6,600
Denios Creek Tributary No. 6[2] At mouth	2.0	850	1,340	1,530	2,100
Driftwood River[1, 2, 3]					
At 750' downstream of	1,165	34,500	51,000	58,000	80,000
Confluence of Wolf Creek	1,165	34,000	50,000	58,000	76,000
At mouth	1,061	33,300	49,000	56,000	73,900
Above Nineveh Creek					

*Summary of Discharges

FLOODING SOURCE		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET, NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE (FEET)
ENSLEY DITCH								
A	0.25	848	1102	2.3	663.5	661.5[3]	661.6	0.1
B	0.53	785	1408	1.8	664.7	664.7	664.8	0.1
C	1.01	607	1013	2.3	674.0	674.0	674.1	0.1
D	1.52	594	686	3.2	683.8	683.8	683.9	0.1
FLATROCK RIVER								
A	0.37	2510	16,547	1.9	622.7	622.7	622.8	0.1
B	1.16	3339	24,837	1.3	625.5	625.5	625.6	0.1
C	1.50	2532	20,323	1.6	626.0	626.0	626.1	0.1
D	1.80	2732	21,430	1.5	626.5	626.5	626.6	0.1
E	2.56	3590	16,113	2.0	627.7	627.7	627.8	0.1
F	2.89	2551	16,543	1.9	630.0	630.0	630.1	0.1
G	3.91	3257	16,976	1.9	632.2	632.2	632.3	0.1
H	4.85	3089	13,019	2.4	636.2	636.2	636.3	0.1
I	4.89	3221	14,922	2.1	636.7	636.7	636.8	0.1
J	5.70	2759	14,202	2.2	639.8	639.8	639.9	0.1
K	6.50	2939	14,487	2.2	643.8	643.8	643.9	0.1
L	7.20	1200	5994	5.3	647.8	647.8	647.9	0.1
M	7.23	1000	6302	5.0	648.3	648.3	648.4	0.1
N	8.22	2383	16,102	2.0	651.5	651.5	651.6	0.1
O	9.51	4292	12,939	2.4	655.1	655.1	655.2	0.1
P	10.35	1300	5897	5.3	660.1	660.1	660.2	0.1
Q	11.26	1797	12,353	2.6	663.4	663.4	663.5	0.1
R	12.50	2769	12,101	2.6	666.3	666.3	666.4	0.1
S	13.80	1680	7338	4.2	671.2	671.2	671.3	0.1
T	14.73	2780	12,065	2.5	675.1	675.1	675.2	0.1
U	15.42	3053	14,987	2.0	676.6	676.6	676.7	0.1

[1] MILES ABOVE MOUTH
[2] FLOODWAY WIDTH MAY DIFFER FROM DFIRM. SEE DFIRM FOR REGULATORY WIDTH
[3] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM FLATROCK RIVER

TABLE 9

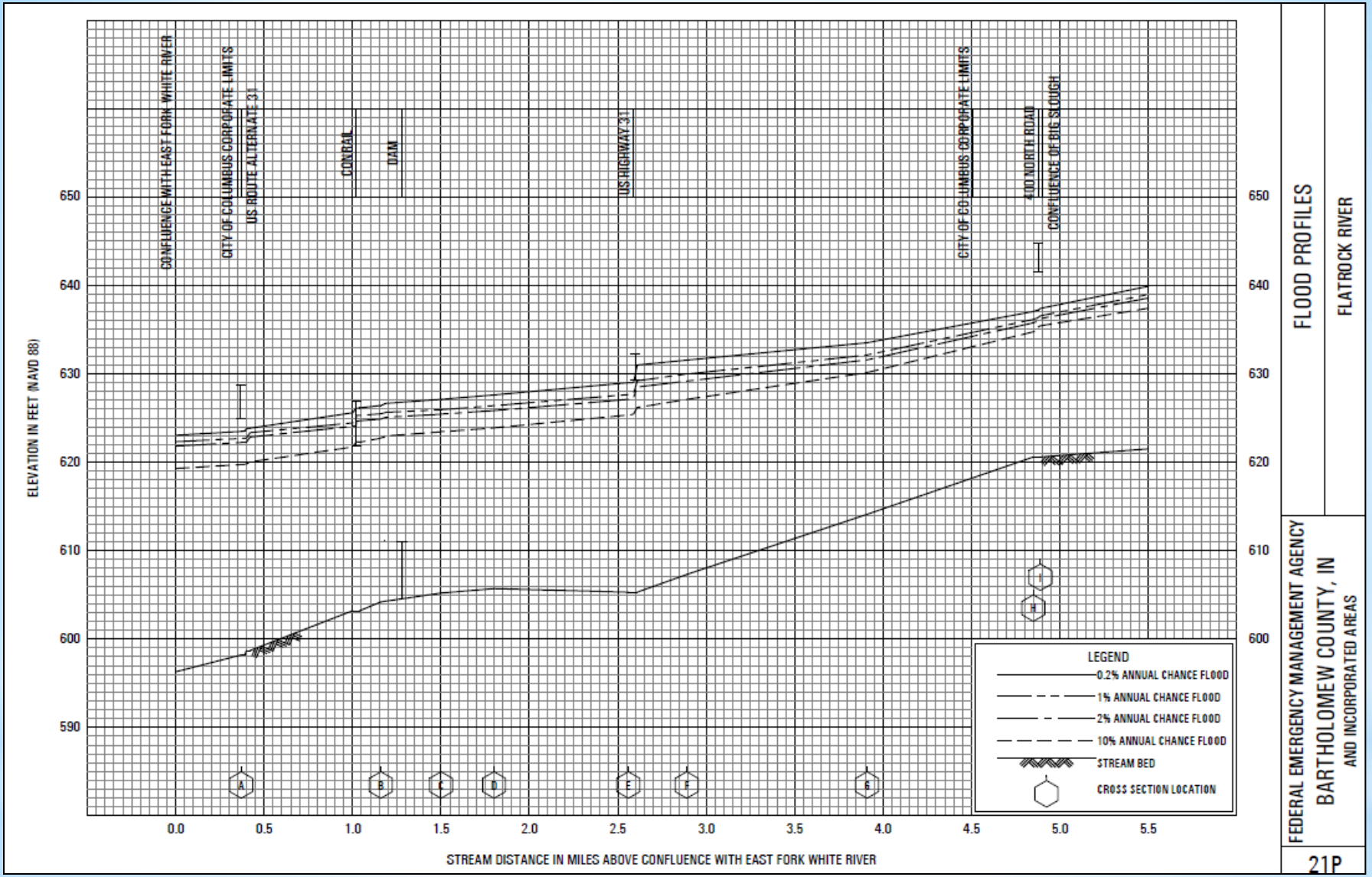
FEDERAL EMERGENCY MANAGEMENT AGENCY

BARTHOLOMEW COUNTY, IN AND INCORPORATED AREAS

FLOODWAY DATA

ENSLEY DITCH - FLATROCK RIVER

*Floodway Data Tables



*Flood Profiles

* Transect Location Map and Transect Locations

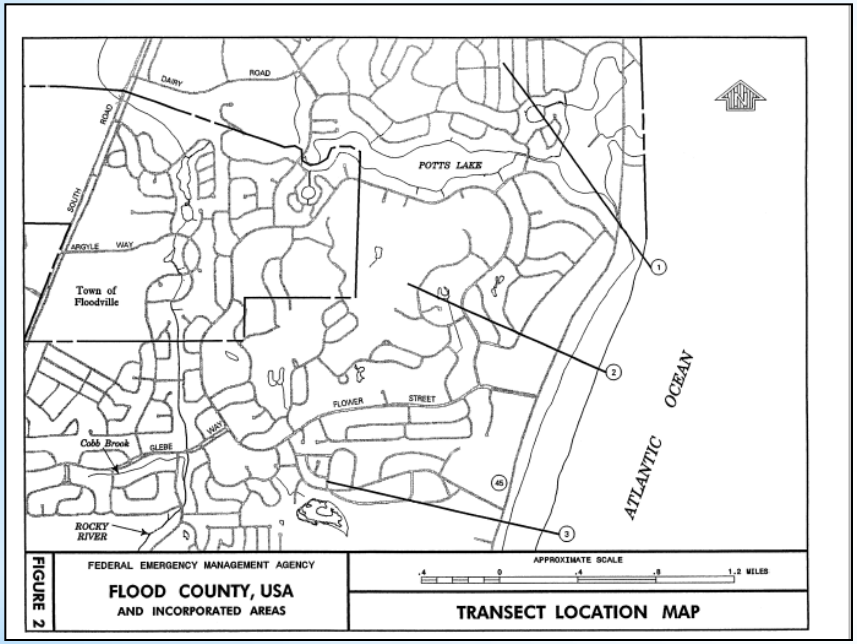


TABLE 4 - TRANSECT DESCRIPTIONS

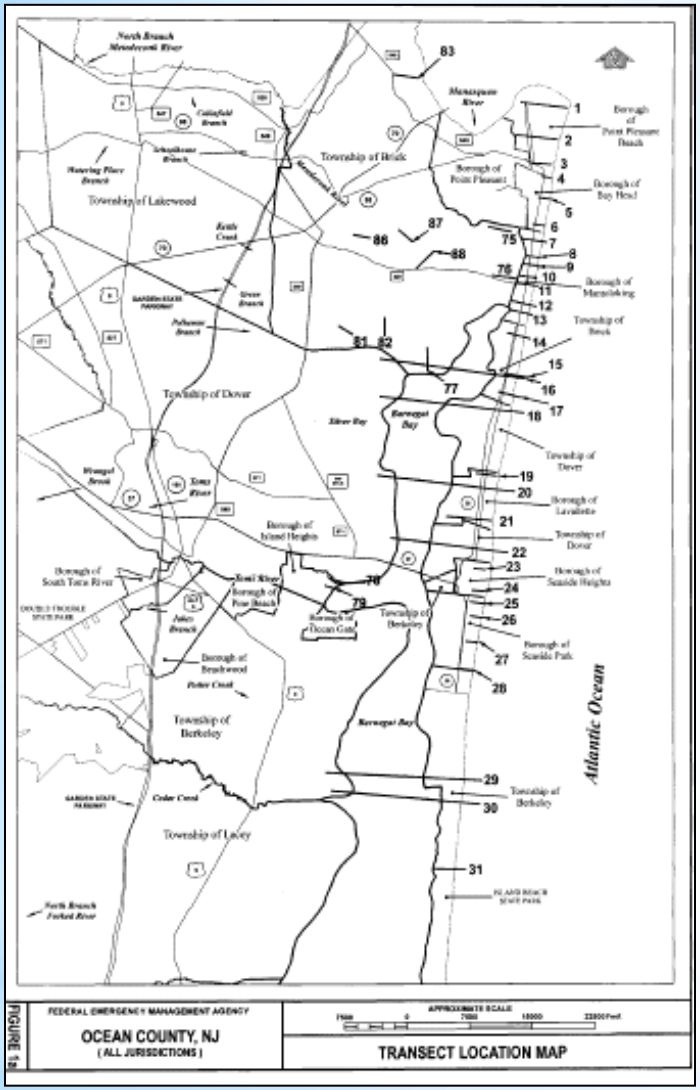
TRANSECT	LOCATION	ELEVATION (feet NGVD) 100-YEAR STILLWATER	ELEVATION (feet NGVD) MAXIMUM 100-YEAR WAVE CREST[2]
1	Shoreline of Flood County, approximately 1,000 feet southeast of the intersection of Tralee Road and McLaughlin Drive, extending inland approximately 5,400 feet to Old Ventura.	10.0[1]	14.2
2	Shoreline of Flood County, between McLaughlin Drive and Flower Street, extending inland approximately 4,300 feet to Palmeri Drive.	10.0[1]	14.2
3	Shoreline of Flood County approximately 300 feet southwest of the intersection of State Route 45 and View Way, extending inland approximately 4,700 feet to Stone Trail.	10.0[1]	14.2

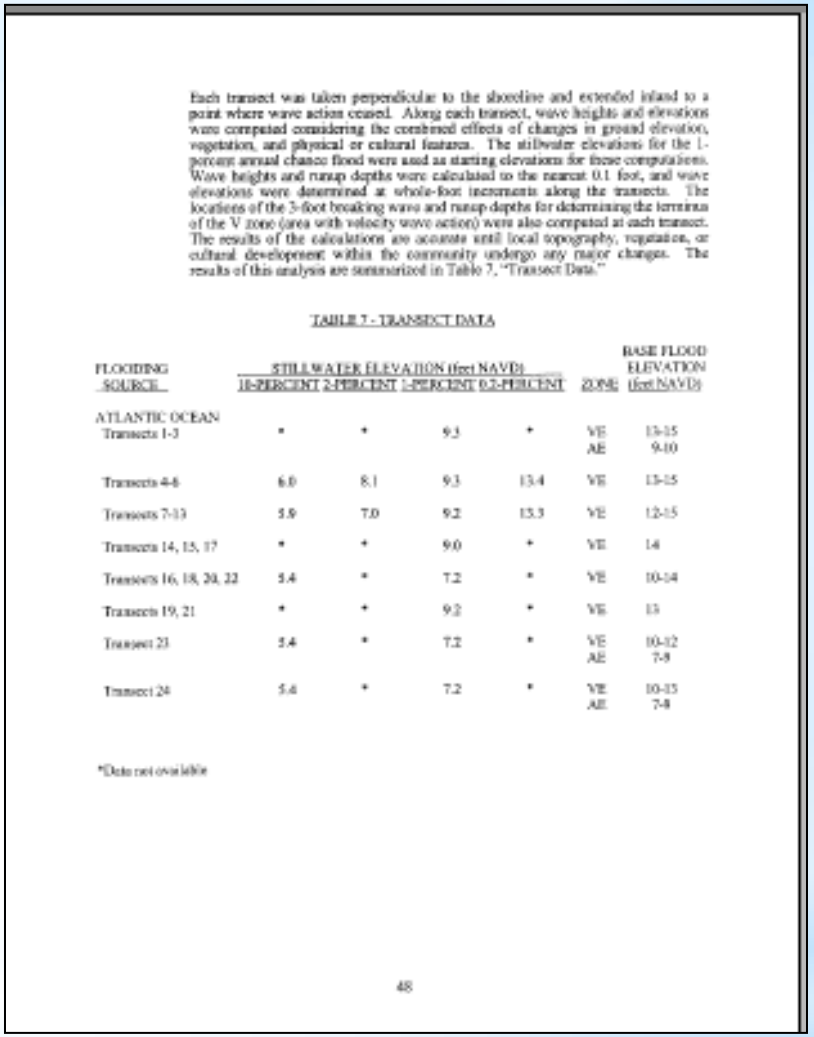
[1] Includes wave setup of 0.5 foot
[2] Because of map scale limitations, the maximum wave elevation may not be shown on the FIRM

Each transect was taken perpendicular to the shoreline and extended inland to a point where wave action ceased. Along each transect, wave heights and elevations were computed considering effects of changes in ground elevation, vegetation, and physical features. The stillwater elevations for the 100-year flood were used as the starting elevations for these computations. Wave heights were calculated to the nearest 0.1 foot, and wave elevations were determined at whole-foot increments along the transects. The location of the 3-foot breaking wave for determining the terminus of the V Zone (area with velocity wave action) was also computed at each transect.

12

A transect is the coastal equivalent of a riverine cross section.





Each transect was taken perpendicular to the shoreline and extended inland to a point where wave action ceased. Along each transect, wave heights and elevations were computed considering the combined effects of changes in ground elevation, vegetation, and physical or cultural features. The stillwater elevations for the 1-percent annual chance flood were used as starting elevations for these computations. Wave heights and runup depths were calculated to the nearest 0.1 foot, and wave elevations were determined at whole-foot increments along the transects. The locations of the 3-foot breaking wave and runup depths for determining the terminus of the V zone (area with velocity wave action) were also computed at each transect. The results of the calculations are accurate until local topography, vegetation, or cultural development within the community undergo any major changes. The results of this analysis are summarized in Table 7, "Transect Data."

TABLE 7 - TRANSECT DATA

FLOODING SOURCE	STILLWATER ELEVATION (feet NAVD) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT	ZONE	BASE FLOOD ELEVATION (feet NAVD)
ATLANTIC OCEAN						
Transects 1-3	*	*	9.3	*	VE AE	13-15 9-10
Transects 4-6	6.0	8.1	9.3	13.4	VE	13-15
Transects 7-13	5.9	7.0	9.2	13.3	VE	12-15
Transects 14, 15, 17	*	*	9.0	*	VE	14
Transects 16, 18, 20, 22	5.4	*	7.2	*	VE	10-14
Transects 19, 21	*	*	9.2	*	VE	13
Transect 23	5.4	*	7.2	*	VE AE	10-12 7-9
Transect 24	5.6	*	7.2	*	VE AE	10-13 7-9

*Data not available

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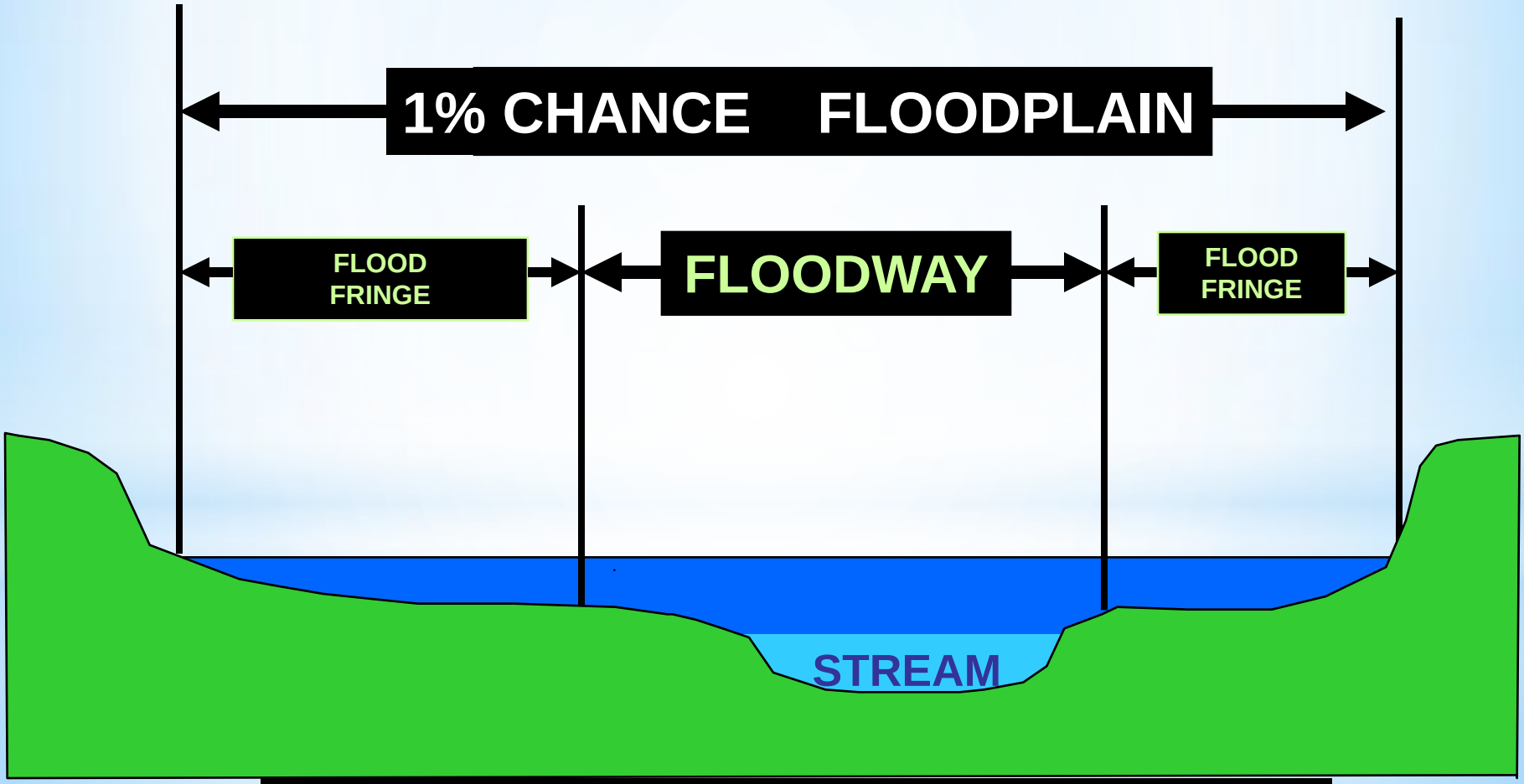
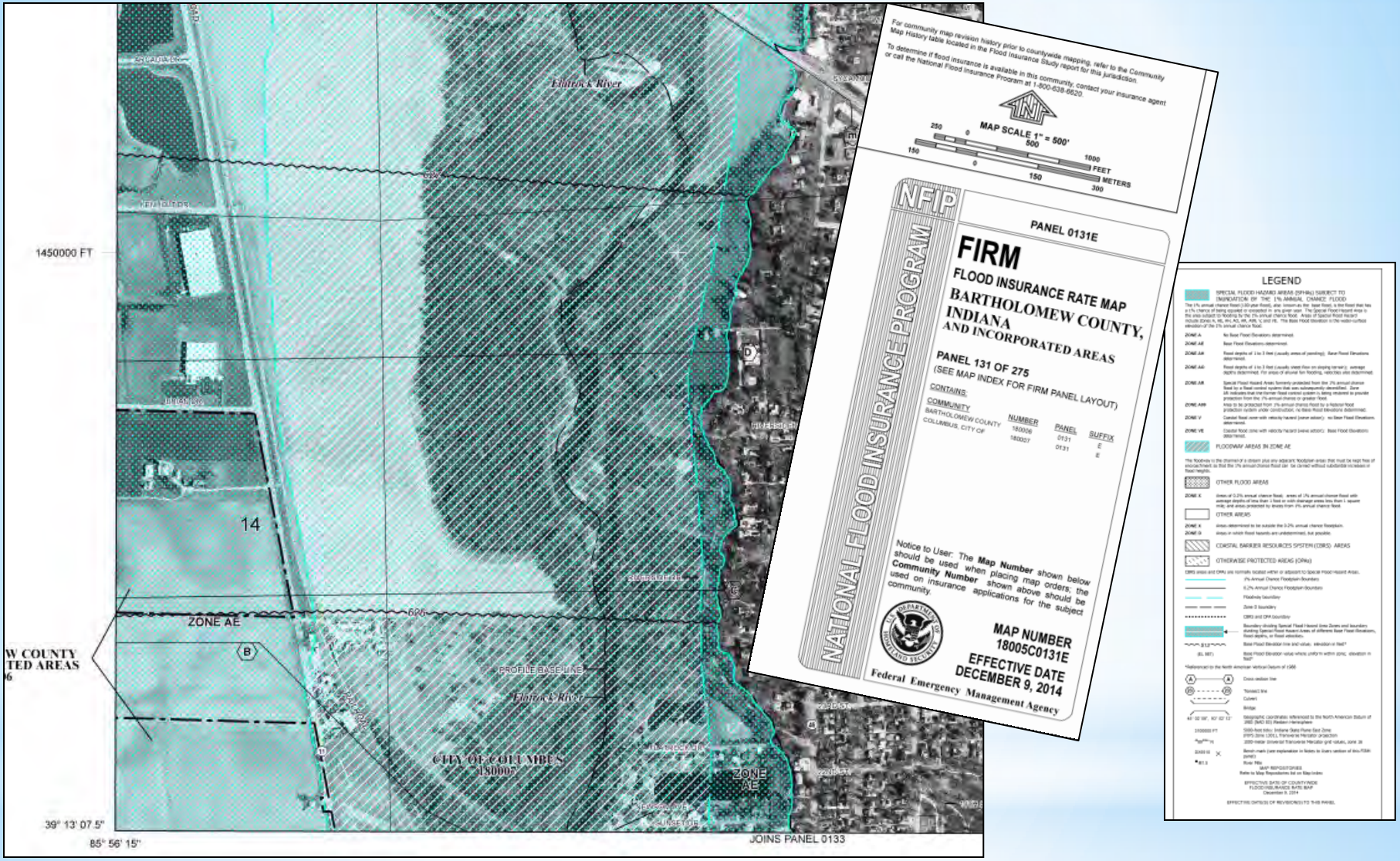
*Transect Location Map and Transect Data

* Reading /Using Maps

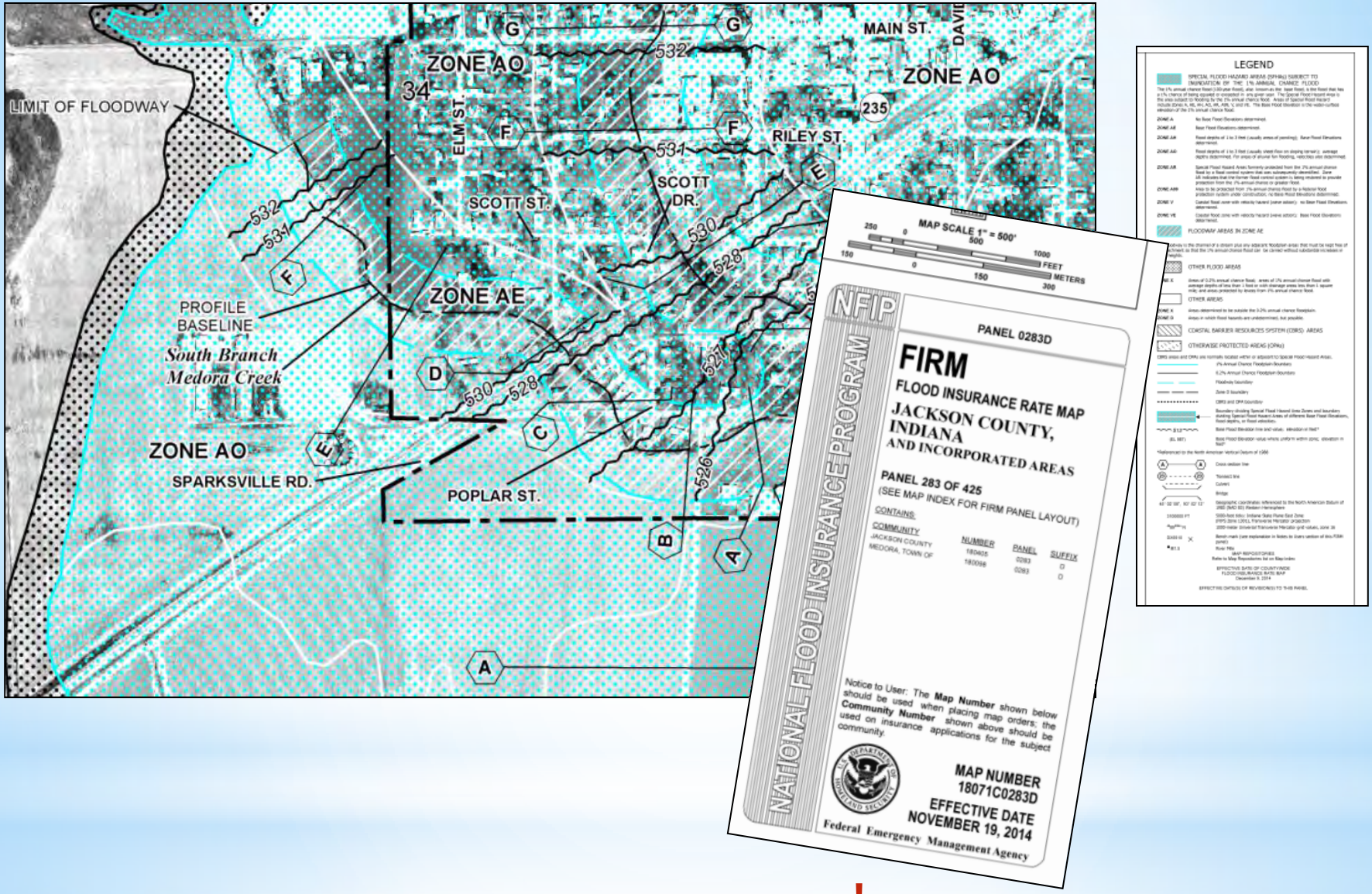
*Floodplain Cross-Section



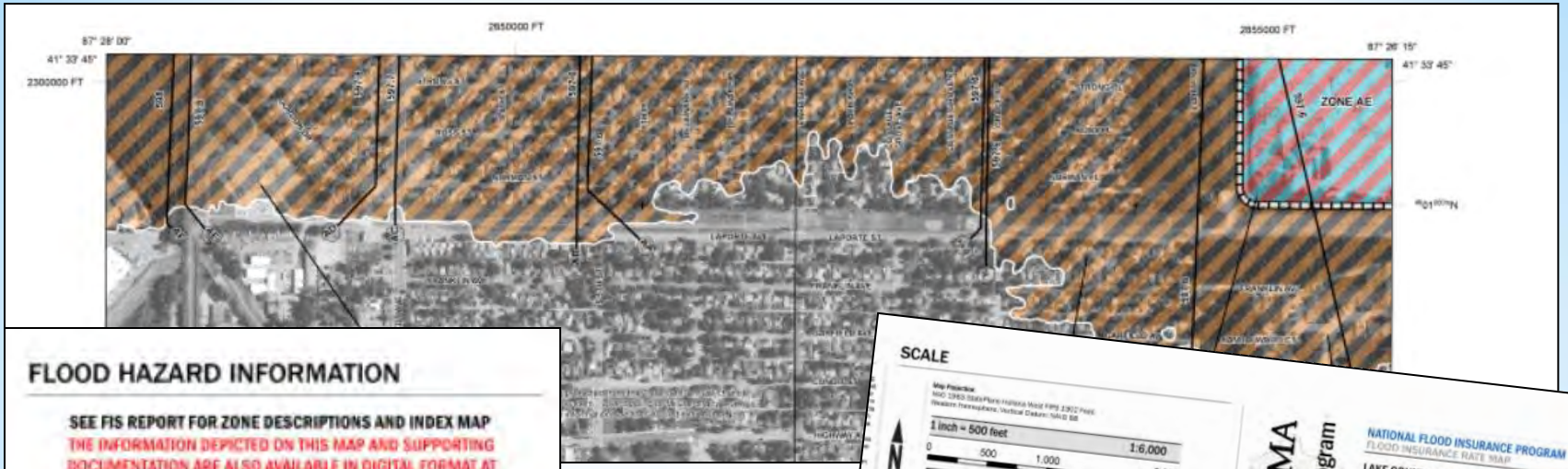
Floodway + Flood Fringe = 1% Chance Floodplain (SFHA)



*Flood Insurance Rate Map


LIMIT OF FLOODWAY
ZONE AO
34
ELM ST.
MAIN ST.
ZONE AO
235
RILEY ST.
SCOTT ST.
SCOTT DR.
532
531
530
528
527
526
ZONE AE
PROFILE BASELINE
South Branch Medora Creek
ZONE AO
SPARKSVILLE RD.
POPLAR ST.
A
B
C
D
E
F
G
MAP SCALE 1" = 500'
FEET
METERS
PANEL 0283D
FIRM
FLOOD INSURANCE RATE MAP
JACKSON COUNTY, INDIANA
AND INCORPORATED AREAS
PANEL 283 OF 425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY
JACKSON COUNTY
MEDORA, TOWN OF
NUMBER
180405
180098
PANEL
0283
0283
SUFFIX
D
D
NATIONAL FLOOD INSURANCE PROGRAM
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.
MAP NUMBER
18071C0283D
EFFECTIVE DATE
NOVEMBER 19, 2014
Federal Emergency Management Agency
LEGEND

*AO Zones



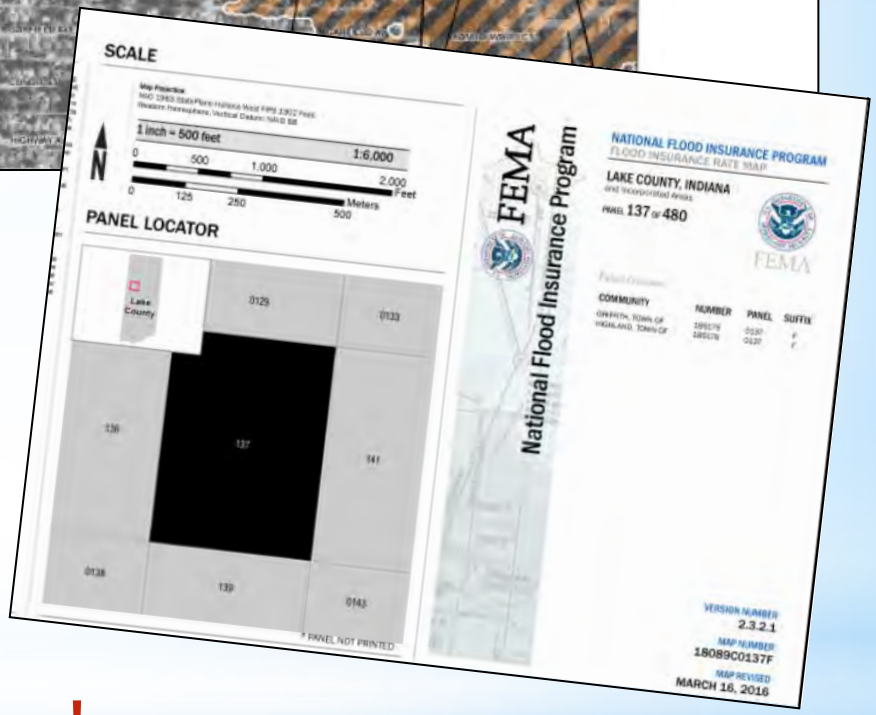
FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

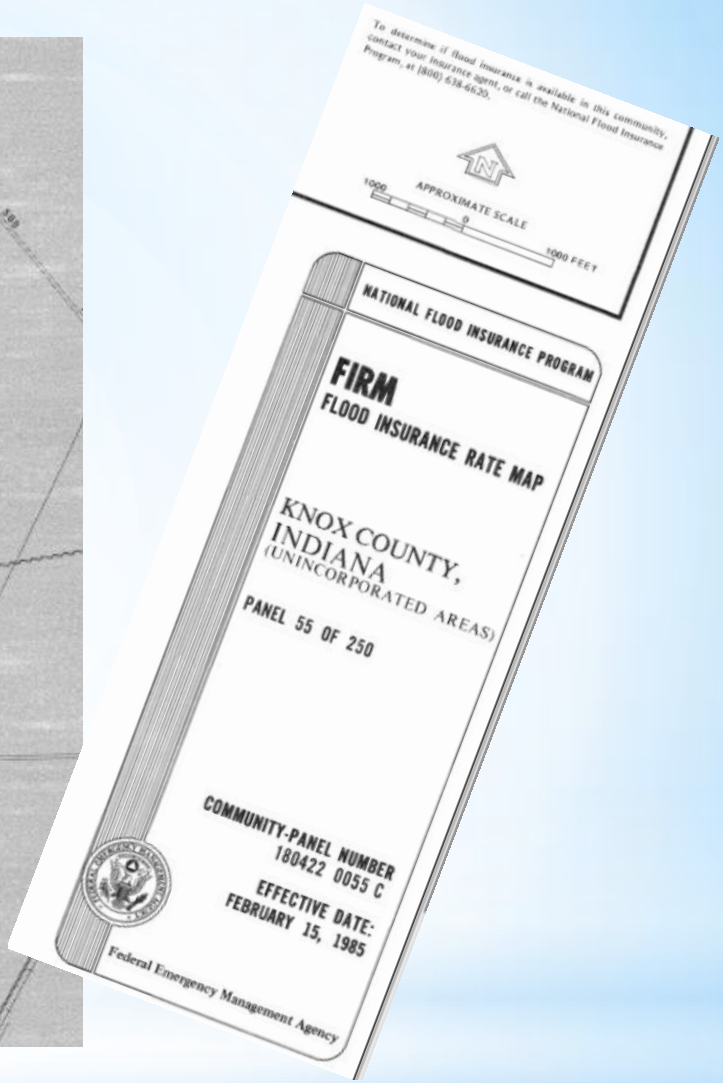
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A,V,A99 With BFE or Depth Zone AE, AO, AH, VE, AR Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levee See Notes. Zone X
OTHER AREAS	NO SCREEN Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Accredited or Provisionally Accredited Levee, Dike, or Floodwall Non-accredited Levee, Dike, or Floodwall
OTHER FEATURES	18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE) Coastal Transect Coastal Transect Baseline Profile Baseline Hydrographic Feature Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary



*Zones Behind Accredited Levees



*Zones Behind Unaccredited Levees

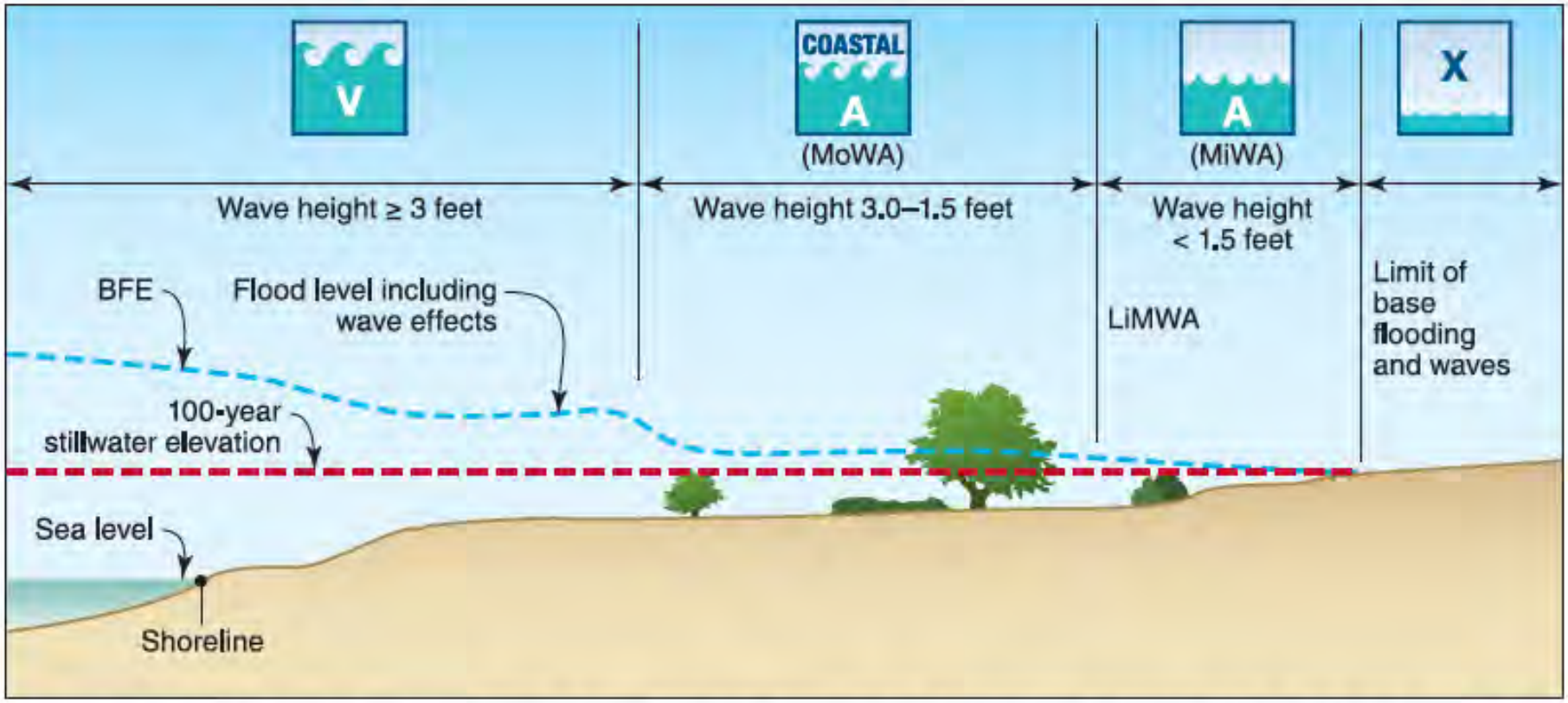


Figure 3-3. Typical transect perpendicular to the shoreline showing the delineations between Zone V, the MoWA area, the LiMWA, Zone A, and the MiWA area.

Limit of Moderate Wave Action (LiMWA)
Moderate Wave Action (MoWA)
Minimal Wave Action (MiWA)

The official BFE is the stillwater elevation plus wave runup, or the wave crest elevation, whichever is greater.

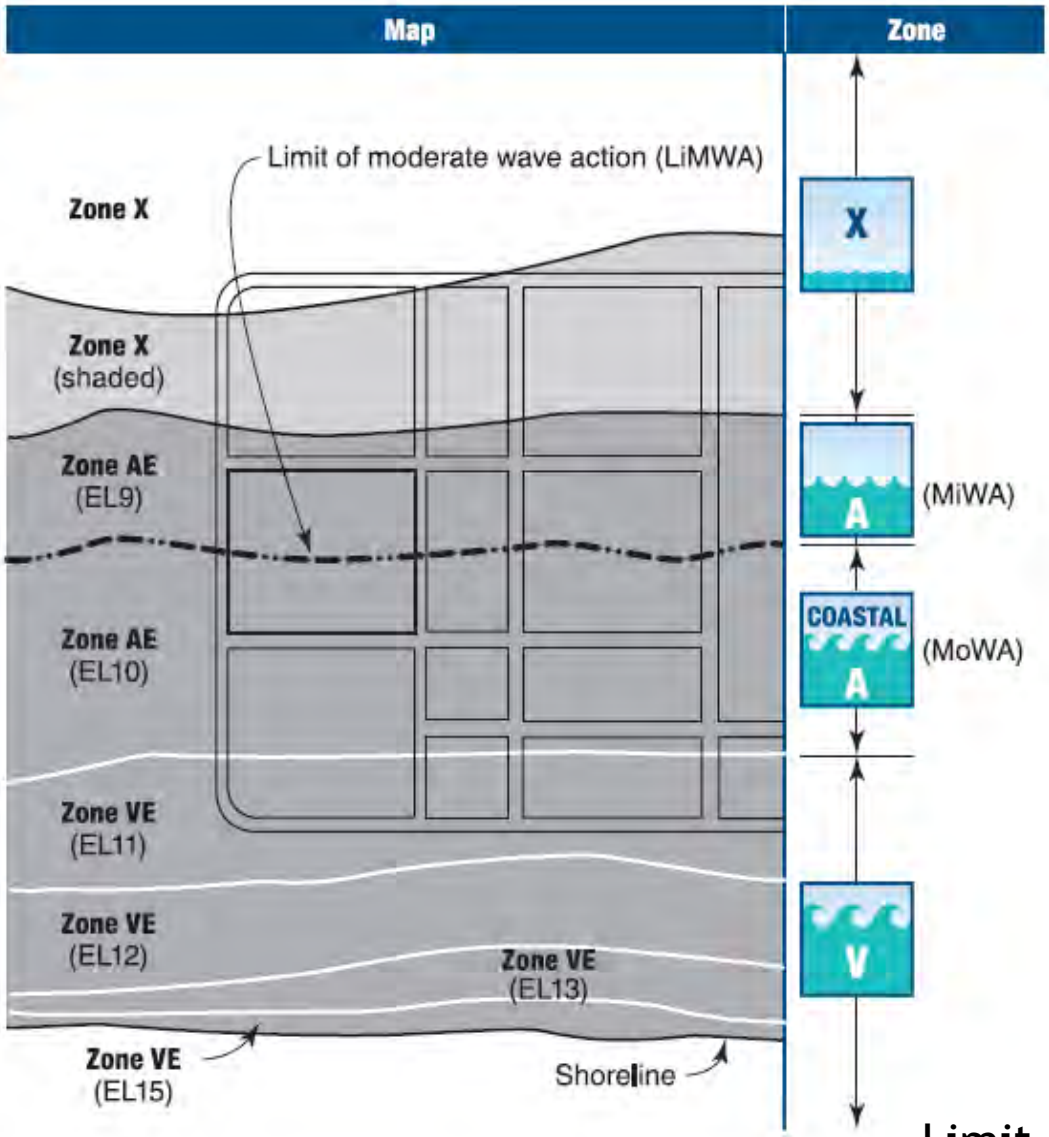


Figure 3-2. Portion of a paper FIRM showing coastal flood insurance rate zones. The icons on the right indicate the associated flood hazard zones for design and construction purposes. The LiMWA is not shown on older FIRMs, but is shown on newer FIRMs.

Limit of Moderate Wave Action (LiMWA)
Moderate Wave Action (MoWA)
Minimal Wave Action (MiWA)

Coastal Barrier Resources Act

Part of an initiative to minimize loss of human life by discouraging development in high-risk areas, , reduce wasteful expenditures of Federal resources, and preserve the ecological integrity.

Coastal Barrier Resources System (CBRS) areas

Eligibility under the 1982 Act for a building in a CBRS area requires:

- Legally valid building permit issued prior to October 1, 1983; and
- Building built (walled and roofed) prior to October 1, 1983; and
- Building not substantially improved or substantially damaged on or after October 1, 1983.

Coastal Barrier Resources System (CBRS) areas

Eligibility under the 1990 Act for a building in a CBRS area requires:

- For CBRS areas:
- Legally valid building permit for the construction of the building issued prior to November 16, 1990; and
- Actual start of construction of building prior to November 16, 1990; and
- Building not substantially improved or substantially damaged on or after November 16, 1990.

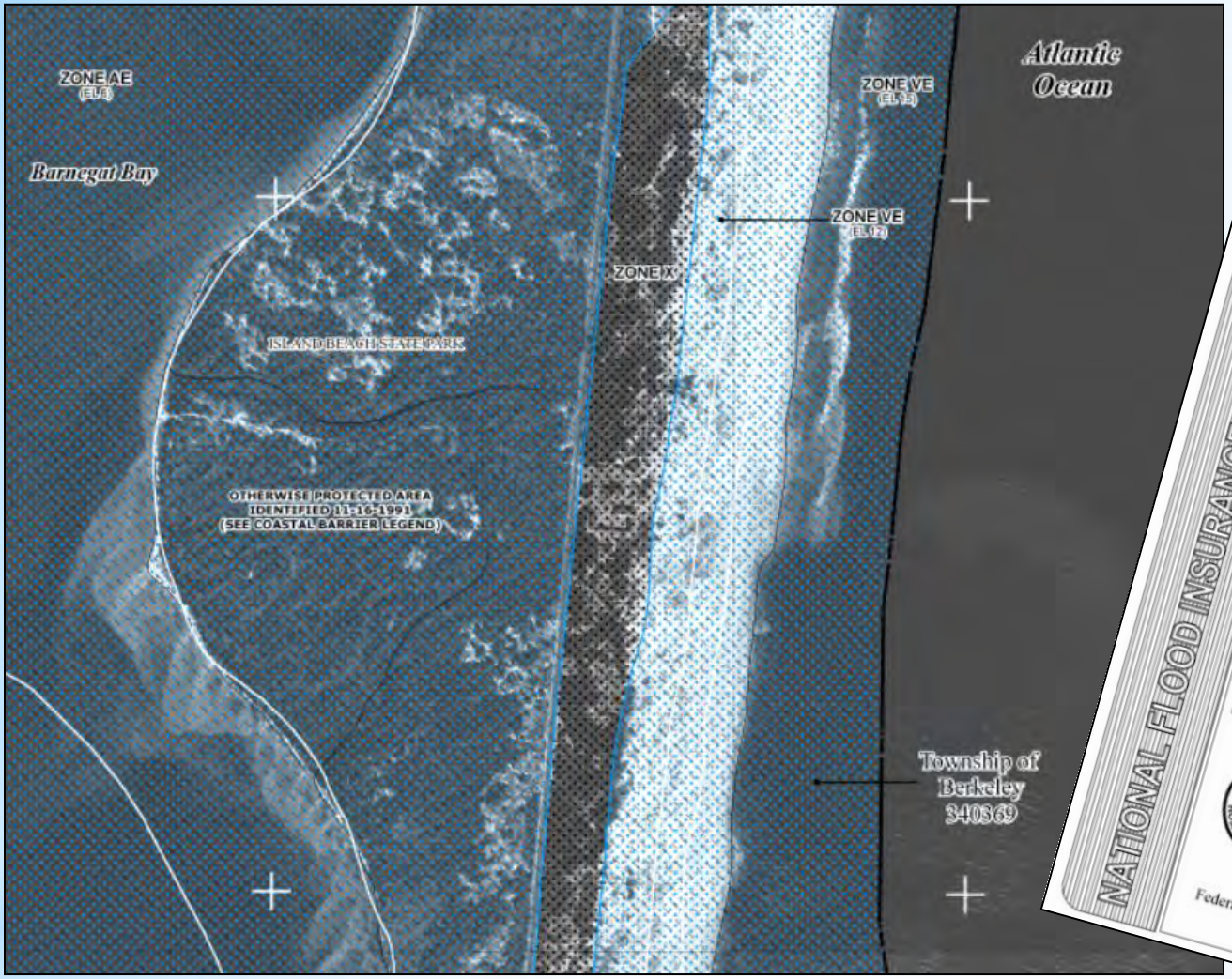
Coastal Barrier Resources System (CBRS) areas

Eligibility under the 1990 Act for a building in a CBRS area requires:

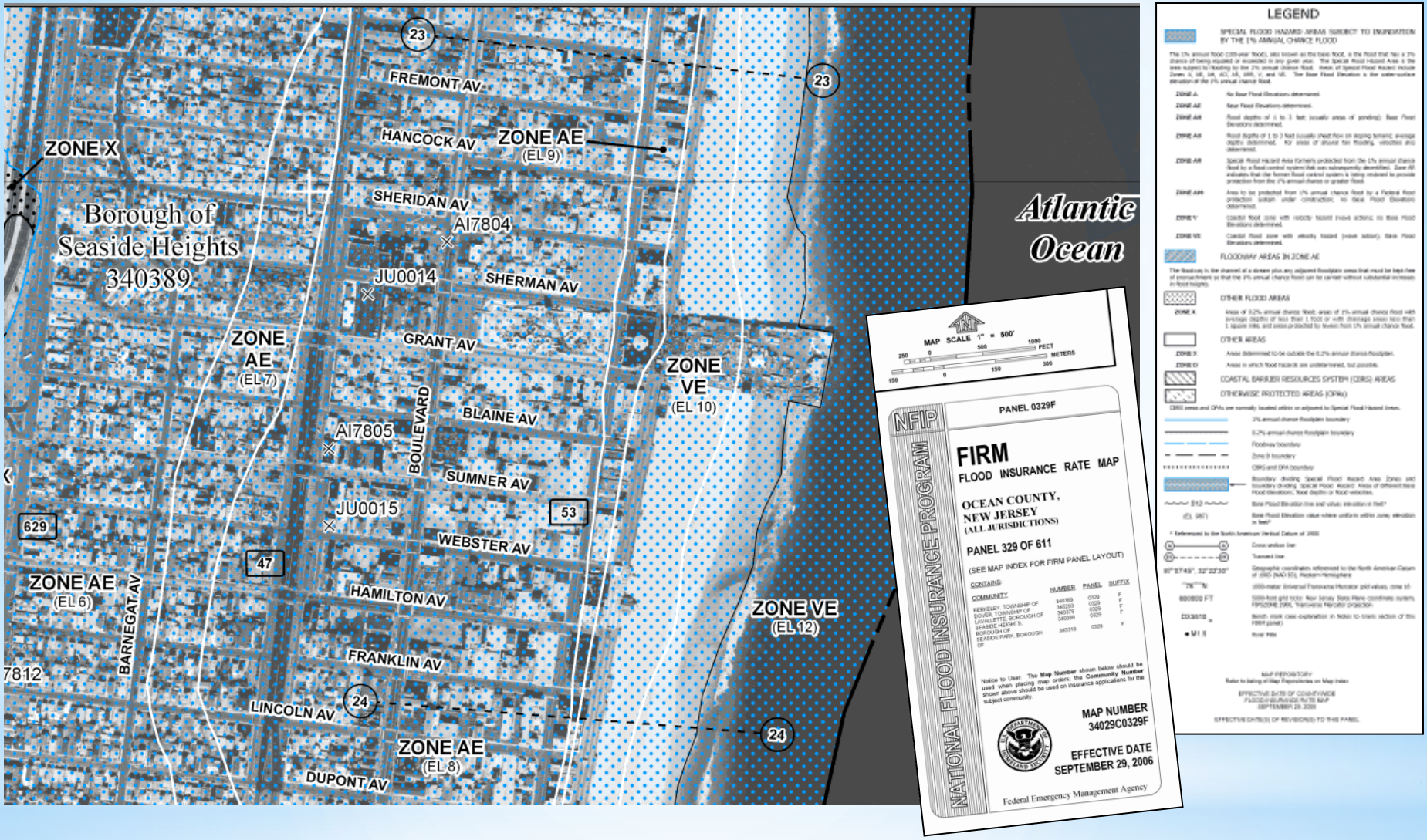
- For Otherwise Protected AREAs (OPAs) areas:
- Legally valid building permit for the construction of the building issued prior to November 16, 1991; and
- Actual start of construction of building prior to November 16, 1991; and
- Building not substantially improved or substantially damaged on or after November 16, 1991.

OR

- Building used in manner consistent with the purpose in which the area is protected.



*Otherwise Protected Area



*Flood Insurance Rate Map

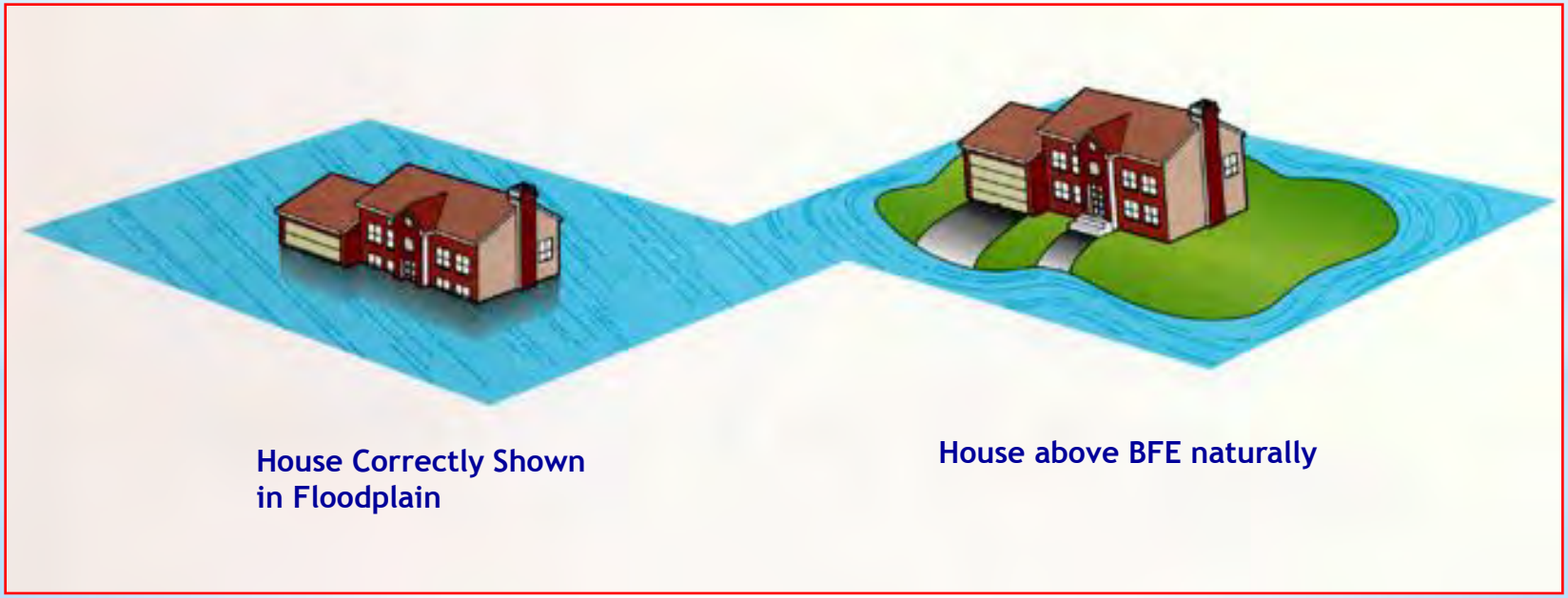
Revising FEMA Maps

Letters of Map Change

* Letter of Map Amendment (LOMA)
* Letter of Map Amendment Out-as-Shown (LOMA-OAS)
* Letter of Map Revision based on Fill (LOMR-F)
* Letter of Map Revision (LOMR)
* Letter of Map Revision in the Floodway (LOMR-FW)
* Conditional Letter of Map Amendment (CLOMA)
* Conditional Letter of Map Revision based on Fill (CLOMR-F)
* Conditional Letter of Map Revision (CLOMR)

*LOMA Visual

* The NFIP Regulations require that the lowest ground touching the structure be equal to or higher than the BFE for a LOMA removal

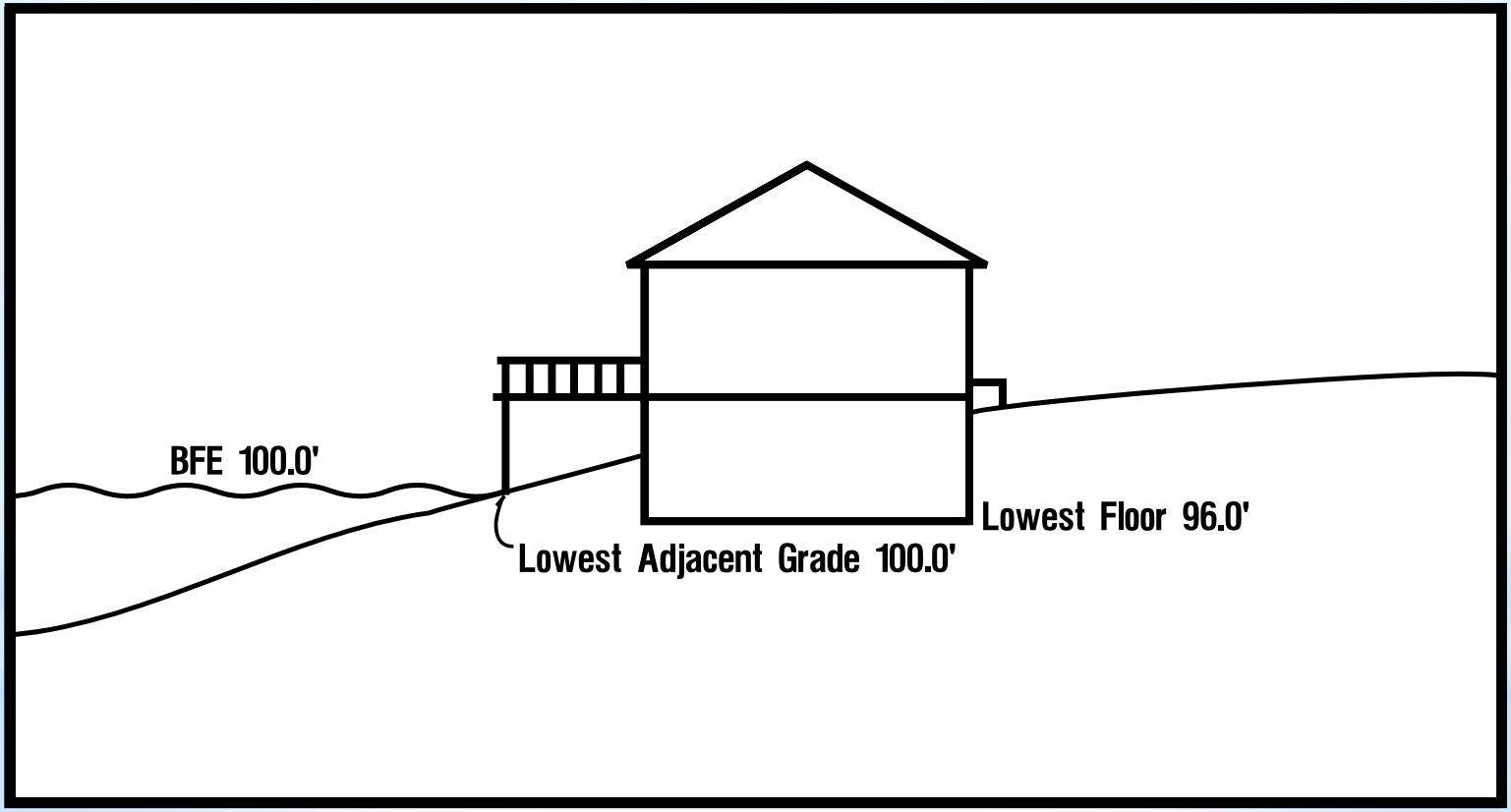


*LOMR-F

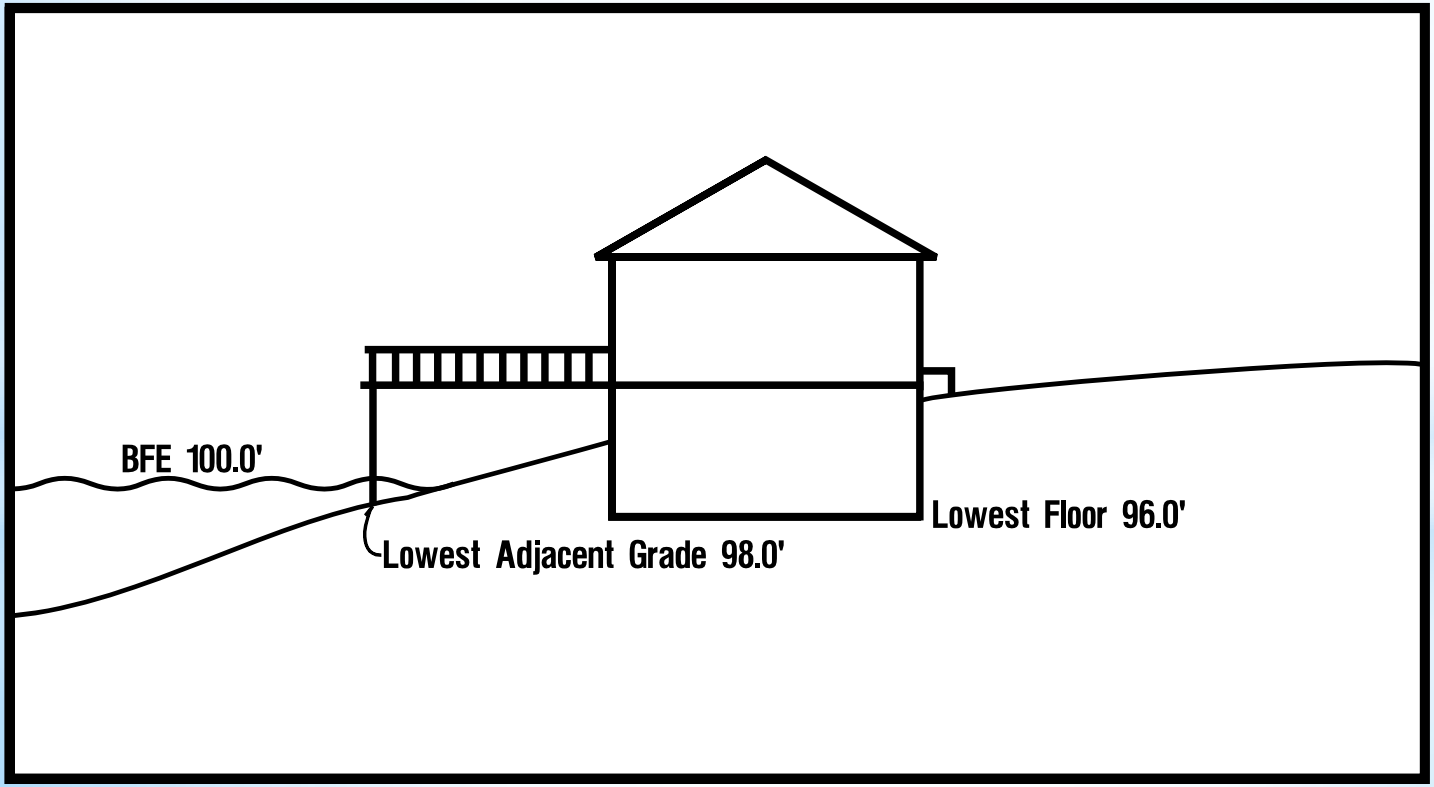
* NFIP Regulations require that the lowest ground touching the structure is equal to or higher than the BFE and that the structure is “reasonably safe from flooding” for a LOMR-F removal.

FEMA Technical Bulletin 10-01

*Cross-Sectional View of a LOMA Removal



* Cross-Sectional View of a LOMA Denial/LOMR-F Violation

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NFIP Regulatory and Non-Regulatory Standards

NFIP Regulatory and Non-Regulatory Standards

* "Development" requirements for a permit
* Encroachment rules
* Building protection standards
* V Zone rules
* Substantial improvement/damage
* Floodproofing and retrofitting

NFIP Maps and Data

- **Basic Rule #1** Check to be sure to have the latest flood maps and data published by FEMA.
- A community must adopt and enforce floodplain management regulations based on data provided by FEMA. This includes the floodplain boundaries, base flood elevations, FIRM Zones and floodway boundaries shown on the current FIRM, FBFM and/or FIS.
- This requirement does not prevent a community from adopting and enforcing more restrictive regulations.

* **Basic Rule #2** A permit is required for all development in the SFHA shown on the FIRM.

* Development Requirements

"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."

*44 CFR 60.3 Requirements

* **Basic Rule #3** Development must not increase the flood hazard on other properties.

> ***44 CFR 60.3(d)(3):*** *[In the regulatory floodway, communities must] Prohibit encroachments, 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.*

* Encroachment Rules

Encroachment Rules

- Objective – to ensure that the floodway is reserved to do its natural job: carrying floodwater. The preferred approach is to avoid all development there.
- Each project proposed in the floodway must receive an encroachment review to determine if the project will increase flood heights.
- A “no-rise” certification may be required to ensure that the encroachment review is done right.

* If your community proposes to permit an encroachment in the floodway or floodplain that will cause increases in the BFE in excess of the allowable level, you're required to apply for a CLOMR.

44 CFR 60.3(d)(4) *Notwithstanding any other provisions of § 60.3, 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, fulfills the requirements for such revisions as established under the provisions of § 65.12, and receives the approval of the Administrator.*

* Encroachment Rules

New Buildings in A Zones

- **Basic rule #4**: New, substantially improved or substantially damaged buildings must be protected from damage by the base flood.
- The term “building” or “structure” does not include open pavilions , bleachers, carports and similar structures that do not have at least two rigid walls and a roof.

> ***44 CFR 59.1*** *Definitions: "Structure" means, for flood plain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.*

New Buildings in A Zones

* Residential and non-residential buildings are treated differently.
  - Residential must be elevated above the BFE.
  - Nonresidential may be elevated or floodproofed (made watertight below the BFE).

New Buildings in A Zones

* Elevation can be done in one of three ways:
  - Elevation on fill.
  - Elevation on piles, posts, piers or columns.
  - Elevation on walls or a crawlspace.

* Compaction
* Not cause flooding onto neighboring properties
* Proper slope
* Erosion control

* Elevation on Fill

Constructing on Fill

- Placed in layers no greater than one foot deep before compacting to 95% of the maximum density obtainable with the Standard Proctor Test method

Constructing on Fill

- Fill must be protected from erosion and scour
- Fill must not adversely affect the flow of drainage from or onto neighboring properties
- Top of the lowest floor including basements, must be at or above the BFE

Constructing on Fill

- Elevation Certificate is needed to verify “as-built” elevation
- All electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters are to be located and/or protected to/above the BFE

Appropriate where there is deeper flooding, fill is not feasible or not allowed, or for areas with high velocity flooding.

*Elevation on Piers

Constructed with walls parallel to the flow of water. The other sides are kept open. This minimizes the obstruction of floodwaters and lessens pressure on the foundation.

*Elevation on Parallel Walls

* Anchored to resist flotation
* Flood resistant materials below the BFE
* Electrical, heating, ventilation, plumbing, air conditioning equipment, utility meters, and other service facilities located/protected at/above the BFE
* Top of lowest floor at/above the BFE (lowest horizontal member in V zones)
* V zones have additional requirements (see Basic rule #5)

Appropriate where flood waters are not so deep and lower velocity flooding.

Floor of the crawlspace must be at or above the lowest adjacent grade to the building to minimize hydrostatic pressures against the walls and to minimize ponding within the crawl space after a flood.

Must be engineered openings or meet non-engineered minimums of 1 square inch of net opening for every 1 square foot of enclosed area subject to flooding.

*Elevation on Crawlspace with Openings

Elevating continued...

- Net openings of one inch for every square foot of enclosed area (2 minimum)
- Bottom of all openings shall be no higher than one foot above adjacent grade
- Any enclosure below the elevated floor must only be used for building access, storage, and parking of vehicles
- All areas below the BFE must be constructed of materials resistant to flood damage

44 CFR 60.3(c)(5) *[Communities must] Require, for all new construction and substantial improvements, that 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 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. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.*

*Flood Openings

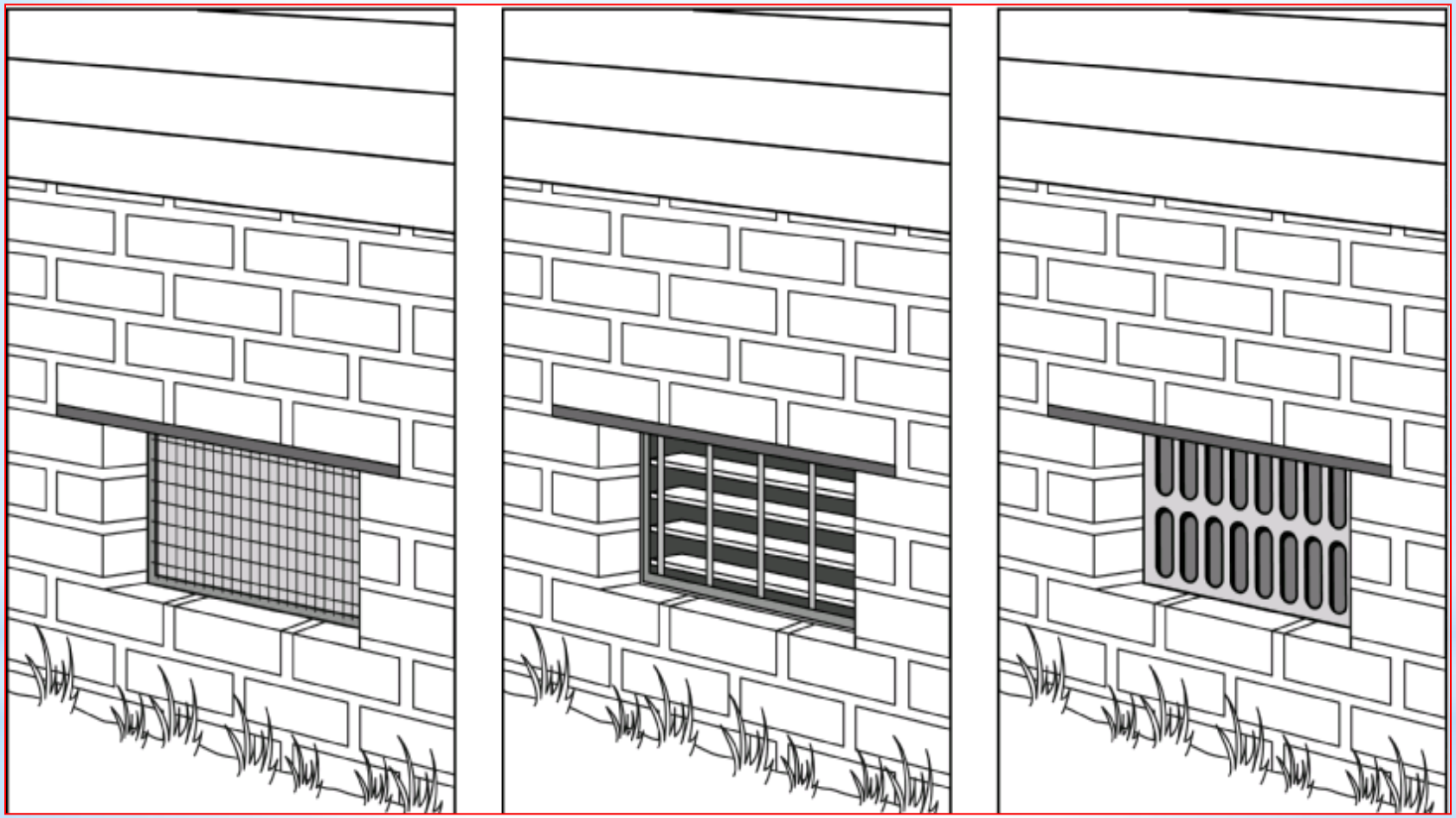
Flood Vent Examples

A standard crawlspace vent for block walls is 8” x 16” or 128 square inches.

1,280 square foot house = 10 10 vents needed
128 square inches/vent

2,000 square foot house = 15.62 16 vents needed
128 square inches/vent

Screening Louver Grate



Net area must be calculated.

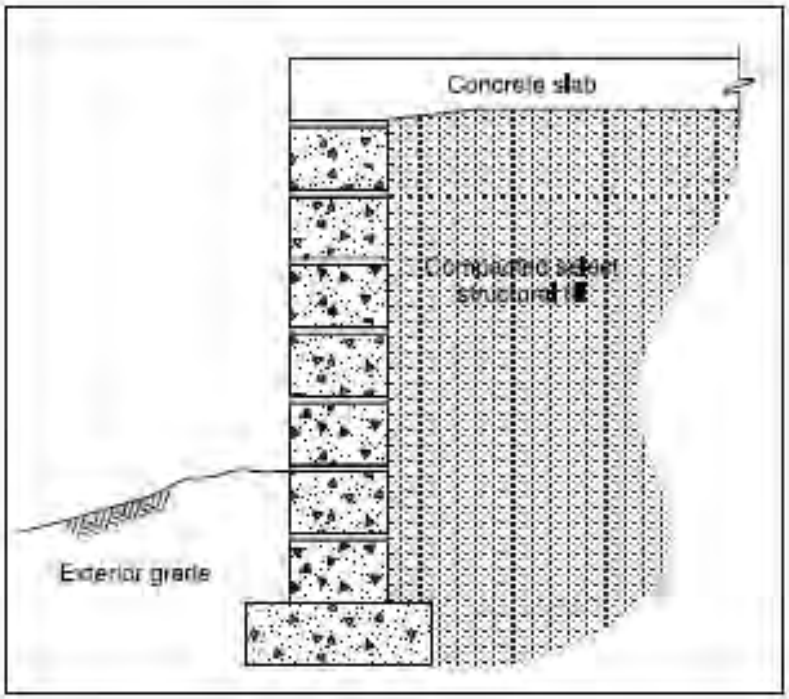


Figure 6: Back-filled stem wall foundation (openings not required)

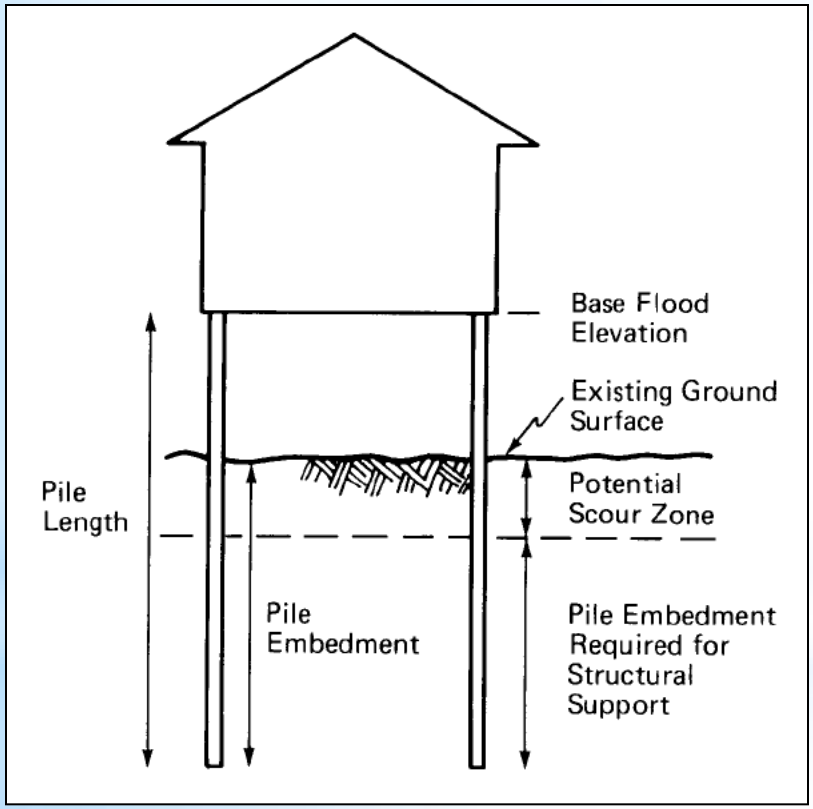
Appropriate where flood waters are not so deep and lower velocity flooding.

Flood openings not required.

*Stem Wall Foundations - Backfilled

*V Zone Rules

* **Basic rule #5**: Due to wave impacts, V Zones have special building protection standards in addition to the requirements for A Zones.



Piles must be embedded well below the scour depth.
FEMA 480

V Zone Rules

- New or substantially improved buildings must be located landward of mean high tide.
- They cannot be located over water.
- Human alteration of sand dunes and mangrove stands within V Zones is prohibited unless it can be demonstrated that such alterations will not increase potential flood damage.
- All new construction and substantial improvements to buildings must be elevated on pilings, posts, piers or columns.
- Fill is not allowed for structural support.

*V Zone Rules

* Designing and constructing a V-zone building requires the involvement of a design professional to ensure that the building will withstand the combined forces of wind and wave impact.
* A registered professional engineer or architect must development or review the structural design, specifications and plans for the construction and certify the design and planned methods of construction.
* Area below the elevated floor:
  - Preferred -free of obstruction
  - Allowed - enclosed using breakaway walls, used solely for parking of vehicles, building access or storage, and be constructed of flood resistant material, limited to less than 300 square feet

Coastal AE Zones

* Same requirements apply to both coastal AE zones and riverine AE zones.
* FEMA has concluded that AE Zone standards may not provide adequate protection in coastal AE zones due to wave effects, velocity flows, erosion, scour, or combinations of these forces.
* Communities encouraged to apply VE zone standards in coastal AE areas.

44 CFR 59.1. *Definitions: "Substantial improvement" means any reconstruction, rehabilitation, addition or other improvement to a structure, the total cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement.*

44 CFR 59.1. *Definitions: "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/Damage

All structural elements

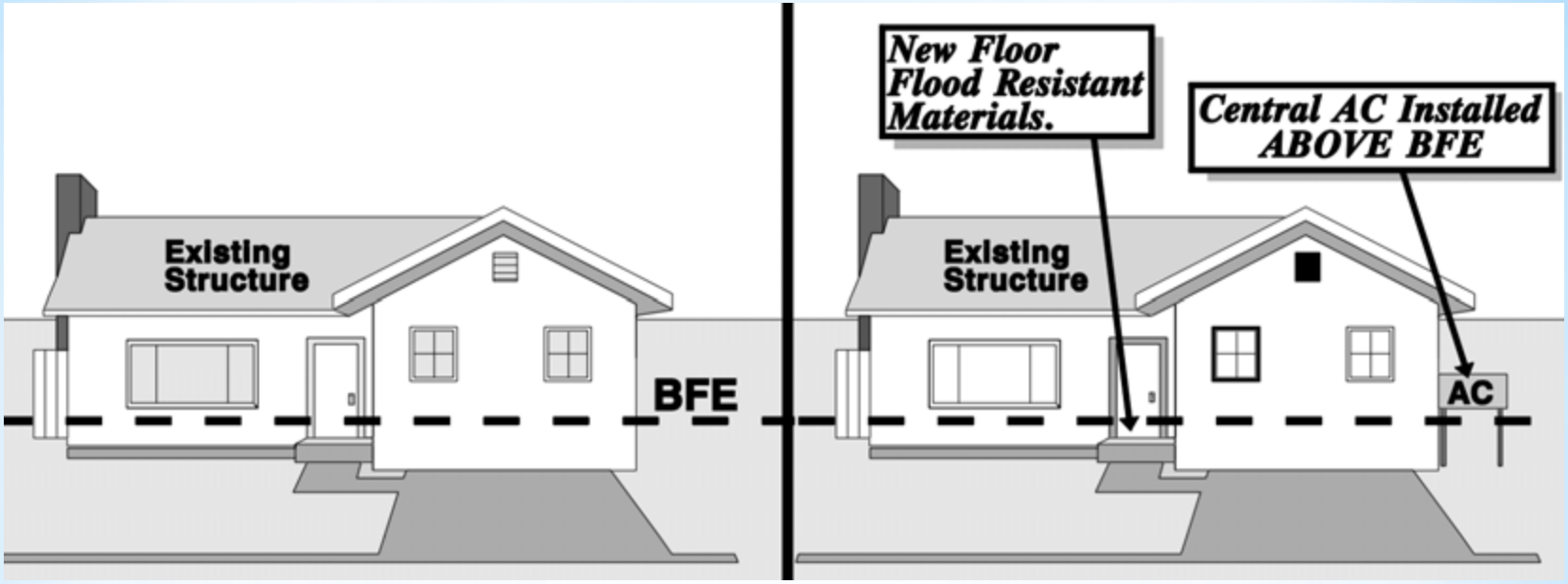
* Spread or continuous foundation footings and pilings
* Monolithic or other types of concrete slabs
* Bearing walls, tie beams and trusses
* Floors and ceilings
* Attached decks and porches
* Interior partition walls
* Exterior wall finishes (brick, stucco, siding) including painting and moldings
* Windows and doors
* Re-shingling or retiling a roof
* All interior finishing elements, including: tiling, linoleum, stone, or carpet over subflooring
* Bathroom tiling and fixtures
* Wall finishes (drywall, painting, stucco, plaster, paneling, marble, etc.)
* Kitchen, utility and bathroom cabinets
* Hardware
* All utility and service equipment
* Cost to demo storm-damaged building components
* Overhead and profits

*What's included in the cost?

Items to be excluded

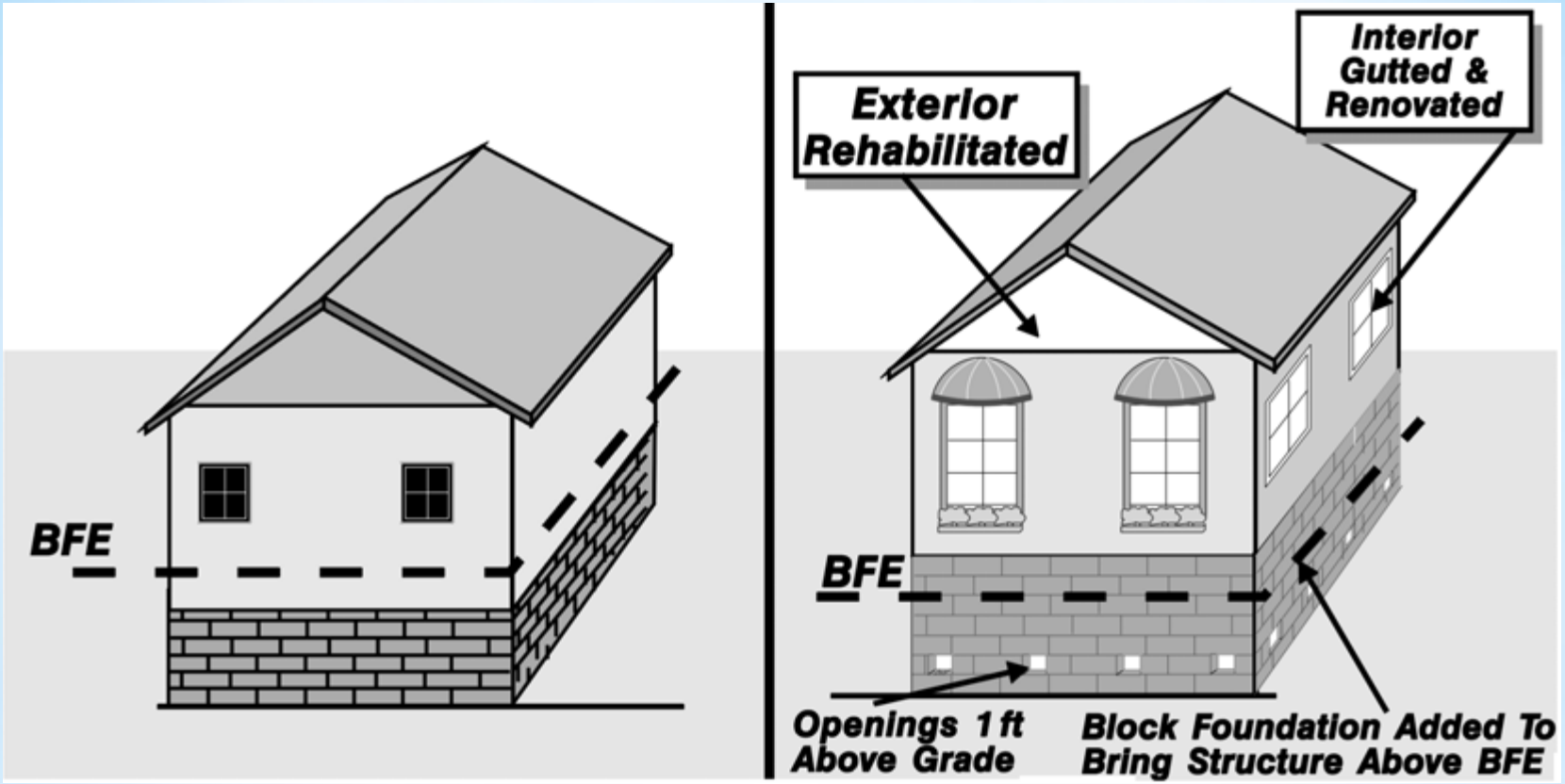
* Plans and specifications
* Survey costs
* Permit fees
* Post-storm debris removal and clean up

* Outside improvements including:
  * Landscaping
  * Sidewalks
  * Fences
  * Yard lights
  * Swimming pools
  * Screened pool enclosures
  * Detached structures (including garages, sheds, and gazebos)
  * Landscape irrigation systems



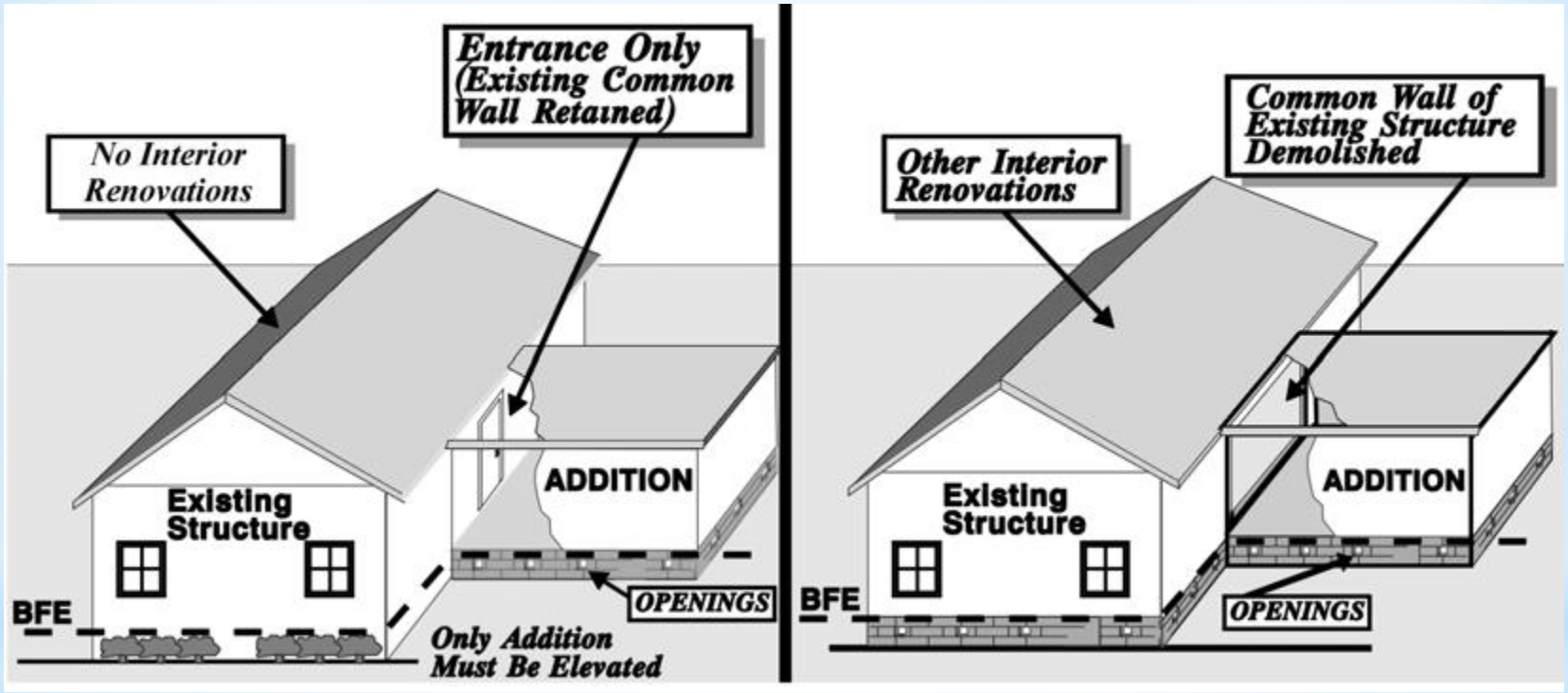
Residence with small rehabilitation project. Central air and electrical system upgrade. The value of the building before the project was $60,000. The value of the project was $12,000. The project costs less than 50% of the $60,000 building, so this is not a substantial improvement.

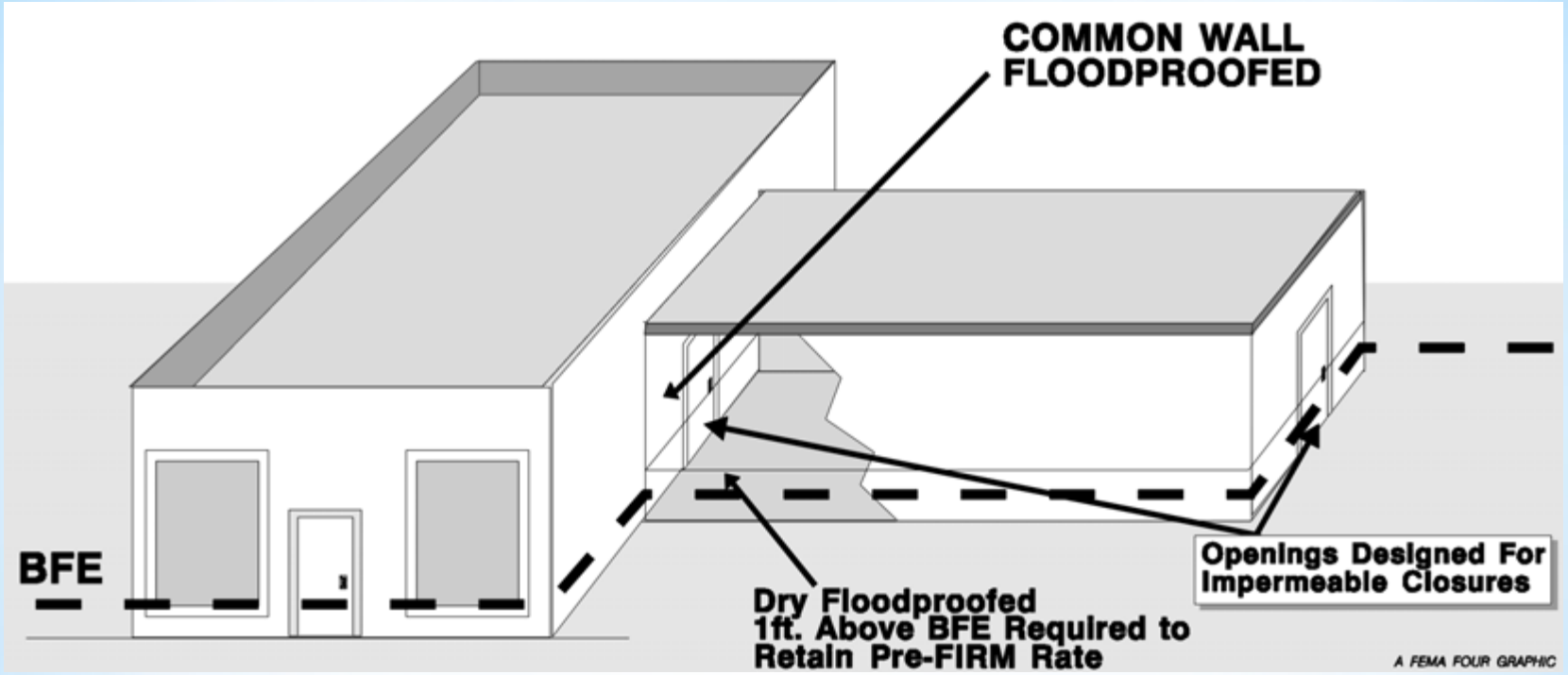
Rated as a pre-FIRM structure before… now???



Building that has been allowed to run down. Market value is $35,000. To rehab will require gutting the interior and replacing all wallboard, built-in cabinets, bathroom fixtures and furnace. The interior doors and flooring will be repaired. The house will get new siding and a new roof. The cost will be $25,000. Because the total cost is greater than 50%, this rehab is a substantial improvement.

This building will benefit from post-FIRM rates when rehab is completed.


Entrance Only
(Existing Common
Wall Retained)
No Interior
Renovations
ADDITION
Existing
Structure
BFE
OPENINGS
Only Addition
Must Be Elevated
Common Wall of
Existing Structure
Demolished
Other Interior
Renovations
ADDITION
Existing
Structure
BFE
OPENINGS



A substantial improvement addition to a nonresidential building may be either elevated or floodproofed.

If floodproofed, the builder must ensure that the wall between the addition and the original building is floodproofed. Floodproofing is not allowed as a construction measure in V Zones.

* Floodproofing and Retrofitting

Floodproofing

* The design and methods of construction must be certified as **DRY FLOODPROOFED** *by a registered professional engineer or architect*.
* "As-built" compliance must be verified with a Floodproofing Certificate.
* Floodproofing Certificate is signed *by a registered professional engineer or architect*.
* This option is only allowed for NON-RESIDENTIAL buildings.
* Floodproofing is not permitted in Coastal High Hazard Areas (Zone V, VE, or V1-30).
* Freeboard of 1' needed to receive full credit for flood insurance rating.

Retrofitting

* Retrofitting means making changes to an existing building to protect it from flooding or other hazards such as high winds and earthquakes.

Elevation – Raising a home so that the lowest floor or lowest horizontal member is at or above the regulated flood level.

Relocation - Moving a home to higher ground where it will reduce the exposure to flooding.

Demolition – Tearing down a damaged home and either rebuilding on the same property or buying or building a home elsewhere.

Wet Floodproofing – Making portions of a home resistant to flood damage and allowing water to enter during flooding.

Dry Floodproofing – Sealing a home to present floodwaters from entering.

Barrier Systems – Building a floodwall or levee around your home to restrain floodwaters.

Regulatory Administrative Procedures

Regulatory Administrative Procedures

* Permit process and inspections
* Elevation records
* NFIP Regulations
* Enforcement
* Variance rules

Permit Process and Inspections

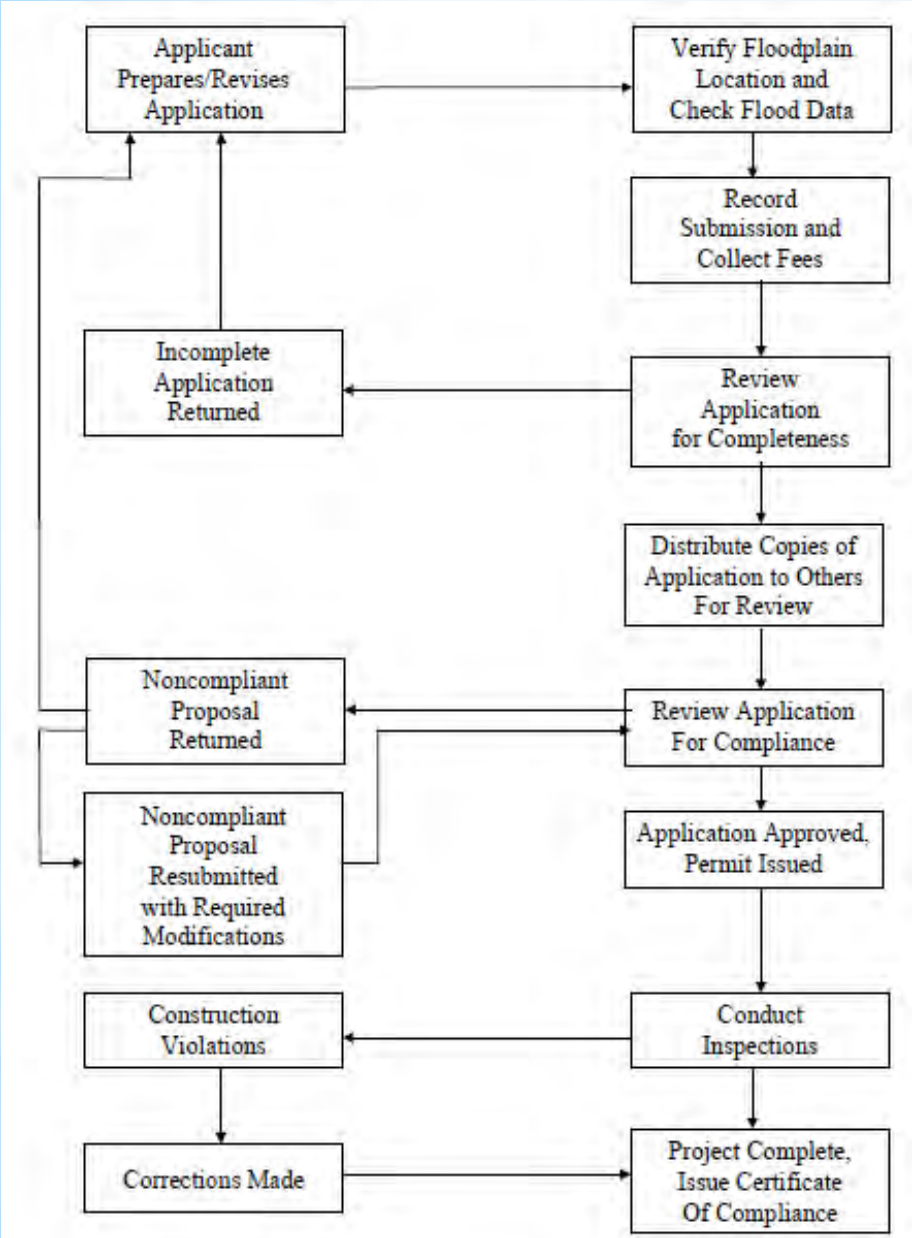


Figure 7-2. Permit process flow chart

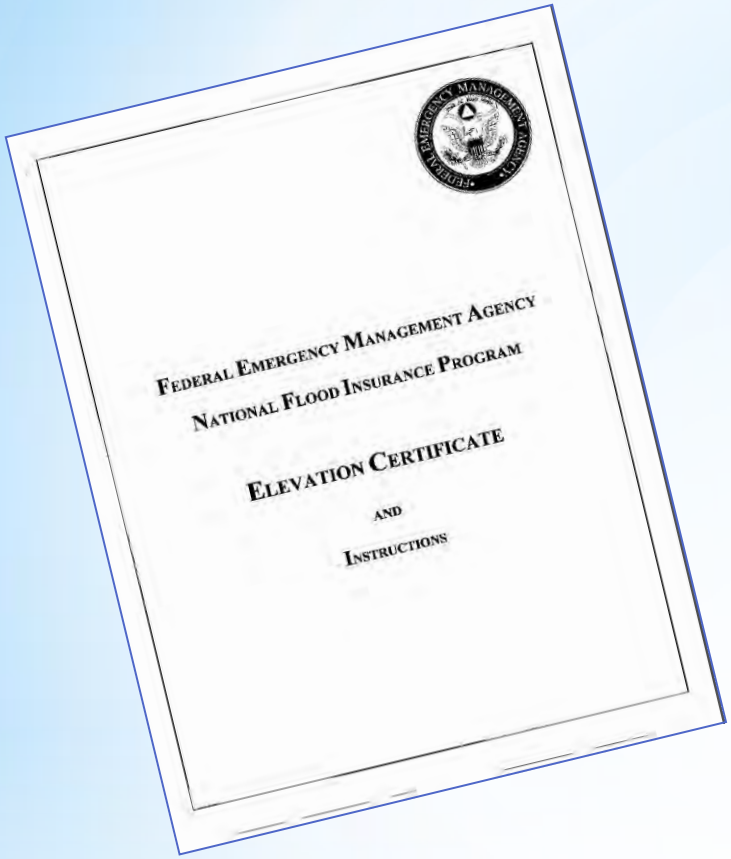
*Permit Process Flow Chart

Inspections

- The most effective way to ensure compliance is to inspect the site frequently during inspection
- Recommended – three inspections, especially for buildings
  - 1st - before ground is broken
  - 2nd – just before installation of lowest floor
  - 3rd and last – obtain “as-built”

Exemptions

* Statutory authority may limit a community's ability to regulate some development.
* The most common limitation is over activities by federal agencies, tribal lands, state agencies, other local governments, and public utilities.
* If State actions are exempt from local permit authority, the state should have adopted floodplain management requirements that are comparable to the local floodplain ordinance.
* A floodplain administrator (community) cannot exempt activities by its own community government.



*Elevation Records

Elevation Certificates

* Serve as record of lowest floor elevation
* Necessary to obtain actuarial insurance rating
* Support map revisions and amendments
* CRS credit

When surveyed elevations are required for (Section C), the certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information.

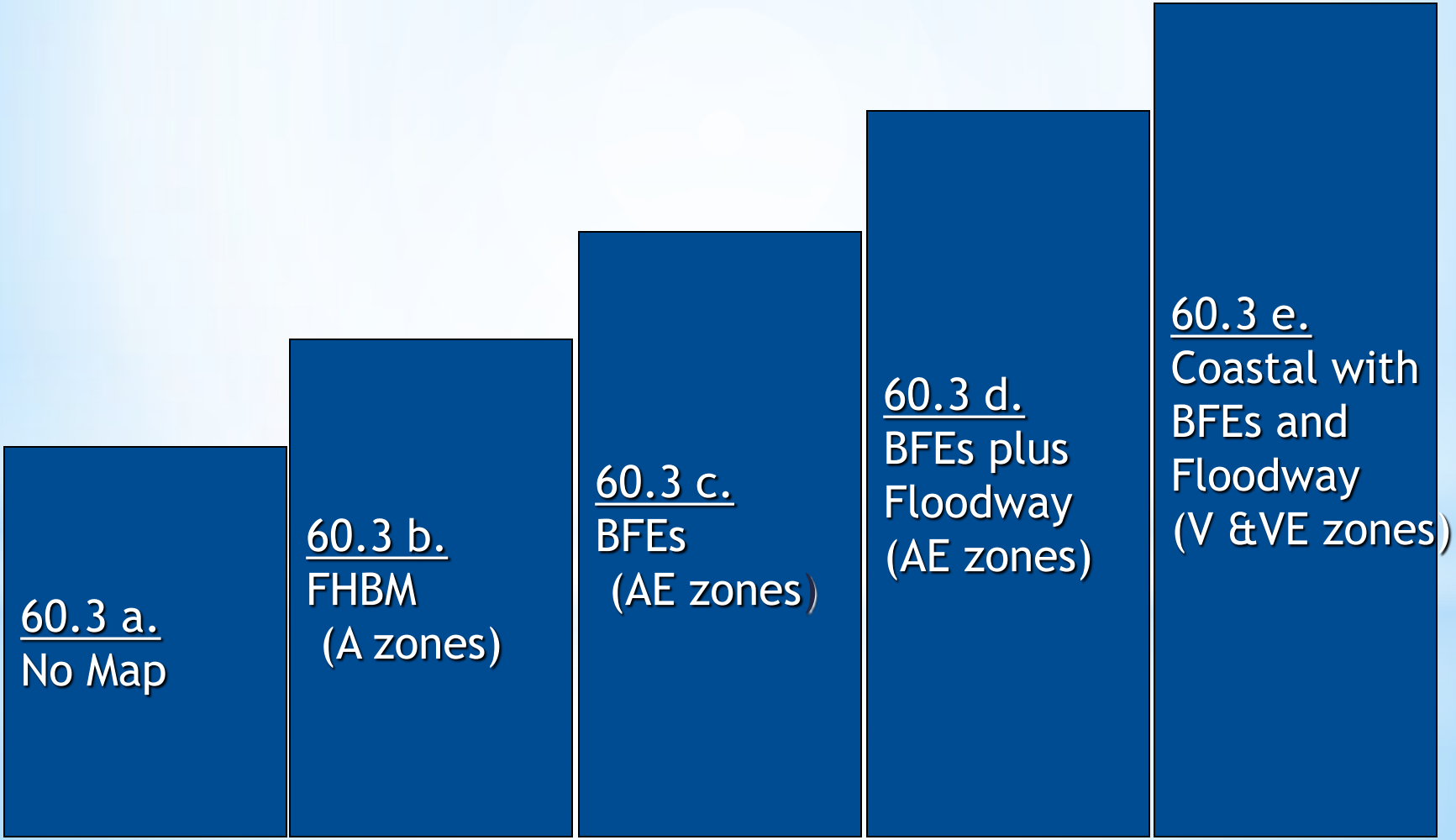
When a survey is not required for building elevation information (Section E), the certification may be signed by the property owner or owner's authorized representative who completes Section A, B, and E.

An Important Fact

* Elevating a structure on posts, piers, pilings or extended walls does not remove a building from the SFHA. If the ground around the supporting posts, piers, pilings or extended walls is within the floodplain, the building is still at risk.

*NFIP Regulations

* NFIP Regulations (44 CFR 60.3)



*No Map

- Ensure all necessary permits are obtained
- All development reviewed by community official to be “reasonably safe” from flooding

60.3 a.
No Map

*Additional Considerations

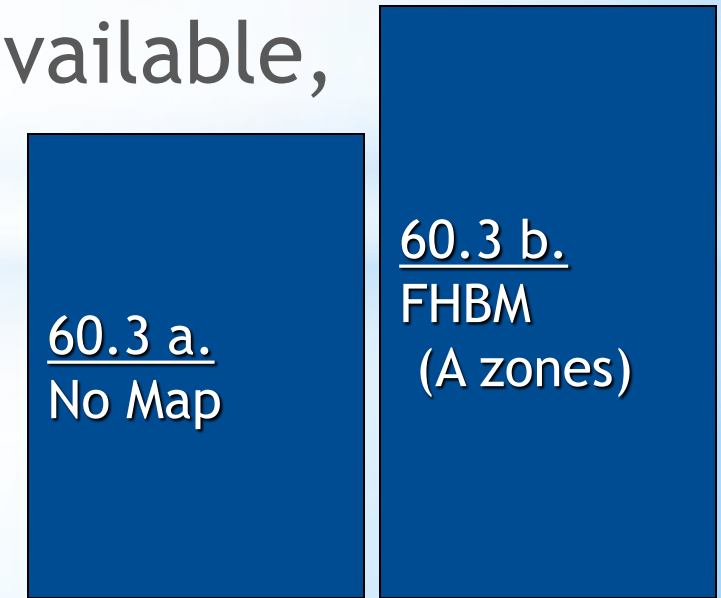
Environmental Protection Measures

Federal Regulations:

- National Environmental Policy Act
- EO 11988
- Clean Water Act
- Endangered Species Act
- Sewage Disposal System Regulations
- Haz Mat Facilities site restrictions

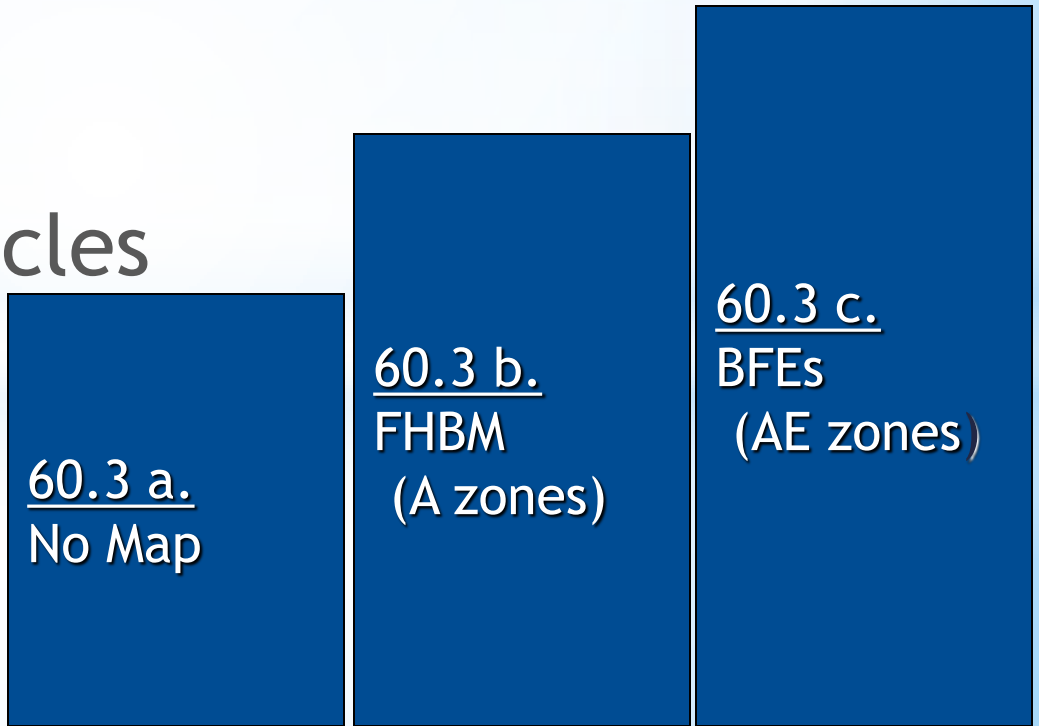
* Approximate Zone A Only

- Permits required in Zone A
- Obtain, review, and reasonably use BFE and floodway data
- BFE data required for developments > 50 lots or 5 acres, whichever is less
- If BFEs or floodways are available, follow the appropriate regulations



* BFEs but no Floodways or V Zones

- Lowest floor at or above BFE
- Keep records of lowest floor elevations
- Manufactured Home rules
- Areas beneath the lowest floor
- Openings, vents
- AO Zone rules
- Recreational Vehicles
- Drainage paths in AO and AH
- CLOMR for BFEs > 1’



Opening (Flood Vent) Requirements

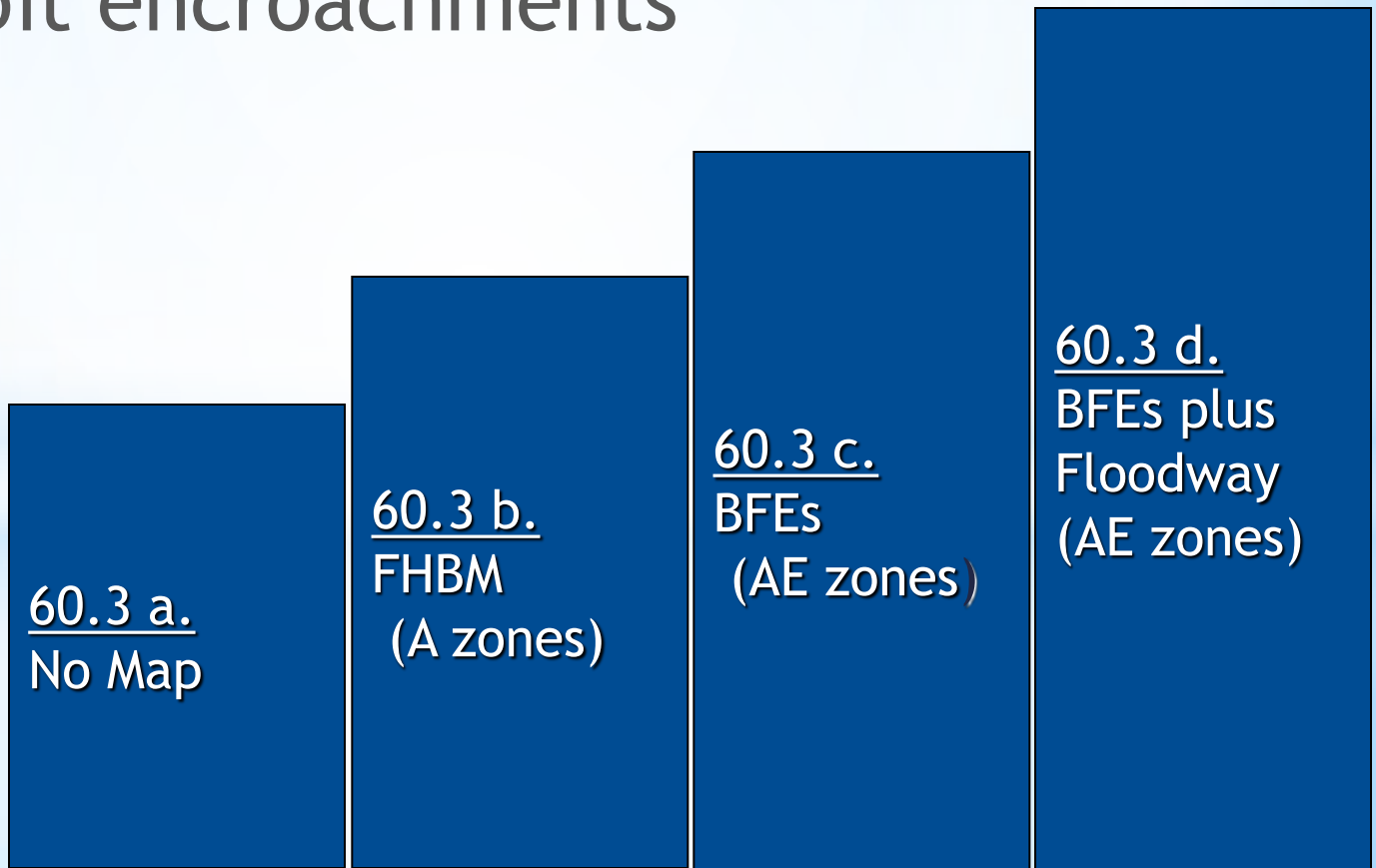
* Certificate from an engineer; OR
* Minimum of 2, bottom no higher than 1’ above grade, and net area of not < 1 square inch for every square foot of enclosed area, and covering must allow auto-entry/exit of flood waters

Recreational Vehicles

- On site fewer than 180 consecutive days; AND fully licensed and ready for highway use; OR
- Meet the permit requirements for manufactured homes

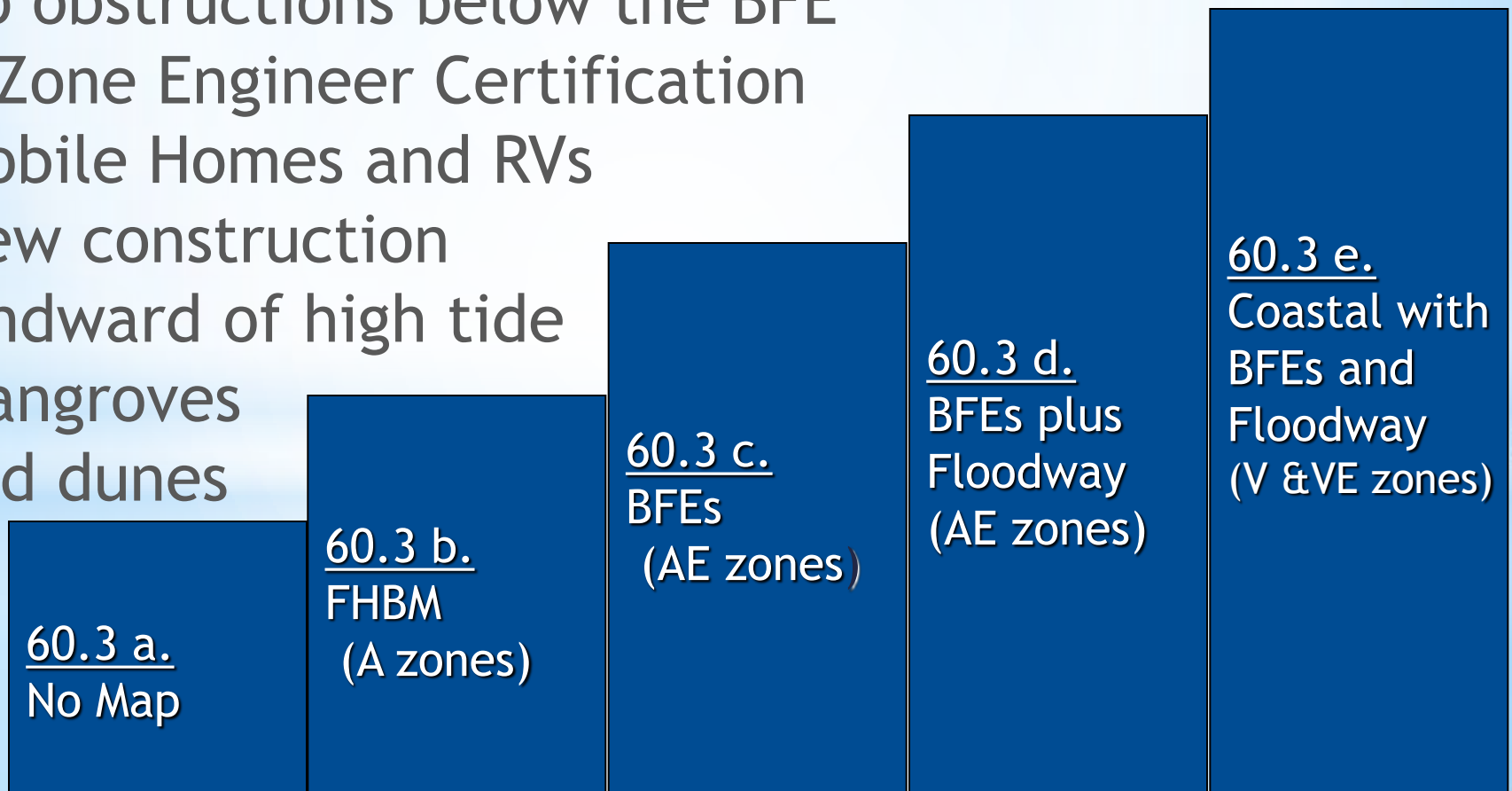
* BFEs and Floodways but no V Zones

- Select and adopt a regulatory floodway
- Prohibit encroachments



* NFIP Communities with V Zones

- Bottom of the lowest horizontal structural member at or above BFE
- No fill for structural support
- No obstructions below the BFE
- V Zone Engineer Certification
- Mobile Homes and RVs
- New construction landward of high tide
- Mangroves and dunes



The NFIP regulations allow for enforcement of complimentary and more stringent floodplain management regulations.

"Any State or local floodplain management standard that is more restrictive than the minimum NFIP criteria is encouraged and shall take precedence." (44CFR 60.1 (d))

The NFIP recommends that communities adopt additional, more restrictive regulatory standards.

- Freeboard
- Compensatory storage
- More restrictive floodway criteria
- Limiting development
- Prohibiting fill
- Setbacks
- Specific construction standards

Adequate, uniform and fair enforcement means two things:

* All development in a floodplain must have a permit.
* All development with a permit must be built according to the approved plans.

* Enforcement

Enforcing the Local Ordinance

- **Voluntary Compliance**
  - Explain the flood hazard.
  - Explain how the rules protect the property from the hazard.
- **Administrative Steps**
  - Contact the property owner or contractor in person or by telephone to explain concerns.
  - Notify the owner in writing of the violations and what to do to correct them.
  - Post a violation notice on the property.
  - Issue stop-work order.
  - Withhold certificate of occupancy.

Enforcing the Local Ordinance

* Legal Recourses
  * Discuss next steps with community's attorney.
  * Provide complete records of correspondence and meetings with person accused.
* Identify what sections of ordinance have been violated.
* Fines.
* Record violation in property deed records.
* Injunction.
* Housing Court.

Enforcing the Local Ordinance

- Section 1316
  - Authorizes FEMA to deny flood insurance to a property declared by a State or community to be in violation of their floodplain regulations
  - Used when all other legal means to remedy the violation have been exhausted and the structure is still non-compliant
- If invoked under Section 1316, denying flood insurance means:
- Property may be difficult or impossible to sell.
- Market value of property may fall.
- Lending institutions hold the property's mortgage may threaten to foreclose.
- Any permanent reconstruction will be denied disaster assistance.

After an elevated building has received a certificate of use or occupancy, a periodic check should be made to see if it is compliant with the requirements of the floodplain ordinance.

*The Job is Never Quite Done

*Variance Rules

- The granting of a variance must not:
  - Increase flood heights
  - Create additional threats to public safety
  - Cause additional expense
  - Create nuisances
  - Cause fraud or victimization of the public
  - Conflict with existing laws

Variances or exceptions to the building protection standards may be granted only when a new structure is to be located on a lot of one-half acre or less in size, surrounded by lots with existing structures constructed below the base flood elevation.

A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water may be considered a functionally dependent use. A variance may be allowed for a functionally dependent use.

- Docking facilities
- Ship building and repair facilities

Exceptional Hardship…

Must be exceptional, unusual, and peculiar to the property involved.

Inconvenience, aesthetic considerations, physical handicaps, person preferences, the disapproval of neighbors, or homeowners association restrictions cannot, as a rule, qualify as exceptional hardships.

Variance or exception may be granted for the reconstruction or restoration of any structure individually listed on the National Register of Historic Places.

Also…

All variances must give…

- minimum relief necessary
- maximum practical flood protection

Community must provide written notice…

- increased risks to life and property
- increased flood insurance premiums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Flood Insurance

Flood Insurance

- Coverage
- Rating
- Mandatory purchase requirements
- NFIP grandfather rules
- ICC
- CRS
- Section 1316

Key to availability…

…participation in the
National Flood Insurance Program

BUILDING COVERAGE	EMERGENCY PROGRAM	REGULAR PROGRAM		
		Basic Insurance Limits	Additional Insurance Limits	Total Insurance Limits
Single-Family Dwelling	$ 35,000[2]	$ 60,000	$190,000	$250,000
2–4 Family Dwelling	$ 35,000[2]	$ 60,000	$190,000	$250,000
Other Residential	$100,000[3]	$175,000	$325,000	$500,000
Non-Residential	$100,000[3]	$175,000	$325,000	$500,000
CONTENTS COVERAGE				
Residential	$ 10,000	$ 25,000	$ 75,000	$100,000
Non-Residential	$100,000	$150,000	$350,000	$500,000

1 These limits apply to all single condominium units and all other buildings not in a condominium form of ownership, including cooperatives and timeshares. Refer to the Condominiums section of this manual for basic insurance limits and maximum amount of insurance available under the RCBAP.

2 In Alaska, Guam, Hawaii, and U.S. Virgin Islands, the amount available is $50,000.

3 In Alaska, Guam, Hawaii, and U.S. Virgin Islands, the amount available is $150,000.

*Coverage

*Rating

Rating Pre-FIRM Buildings

* Pre-FIRM buildings have been rated using "subsidized" rates, significantly less than actuarial rates that fully reflect their risk of flooding. They are designed to help people afford flood insurance even though their buildings were not built with flood protection in mind and were an incentive for communities to join the NFIP.
* With recent reforms, subsidized rates are steadily increasing.
* Eventually all policies will be rated at full-risk.

Pre-FIRM Improvements

* If a Pre-FIRM building has been substantially damaged or substantially improved, it then is considered Post-FIRM for flood insurance purposes and is rated using Post-FIRM rates.

* Some Pre-FIRM buildings that have lateral additions that that are substantial improvements may continue being rated as Pre-FIRM if certain conditions are satisfied.

Rating New Buildings

* The flood insurance premium rates for Post-FIRM construction are actuarial, meaning that they are based on a building's risk of flooding.
* Post-FIRM rates are determined based on the elevation of the lowest floor in relation to the BFE.

*Rates are per $100 coverage

I. AMOUNT OF INSURANCE AVAILABLE[1]

BUILDING COVERAGE	EMERGENCY PROGRAM	REGULAR PROGRAM		
		Basic Insurance Limits	Additional Insurance Limits	Total Insurance Limits
Single-Family Dwelling	$ 35,000[2]	$ 60,000	$190,000	$250,000
2–4 Family Dwelling	$ 35,000[2]	$ 60,000	$190,000	$250,000
Other Residential	$100,000[3]	$175,000	$325,000	$500,000
Non-Residential	$100,000[3]	$175,000	$325,000	$500,000
CONTENTS COVERAGE				
Residential	$ 10,000	$ 25,000	$ 75,000	$100,000
Non-Residential	$100,000	$150,000	$350,000	$500,000

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3 In Alaska, Guam, Hawaii, and U.S. Virgin Islands, the amount available is $150,000.

*Basics

Mandatory Flood Insurance Requirement

* Only when all seven tripwires are in place is flood insurance a federal requirement.

1. A lender makes, renews, extends or increases a loan;
2. The lender is regulated or insured by the federal government or a government-sponsored enterprise;
3. The loan is secured by improved real estate (building or its contents);
4. The collateral is located or will be located in the SFHA;
5. The collateral is insurable under a SFIP;
6. The community where the collateral is located participates in the NFIP;
7. The loan is for $5,000 or more with a payback term of one year or more.

*Flood Insurance is *required* when…

Important Note:

* Lenders *may* require flood insurance outside Special Flood Hazard Areas. However, this instance is a matter of private banking policy and not federal law.

Normally a 30-day waiting period before flood insurance goes into effect; Three exceptions:

- Initial purchase -- effective at the time of the purchase/loan
- Initial purchase made in the 13-month period following revision or update of FIRM for the community (1-day waiting period)
- Property affected by flooding on Federal land caused or exacerbated by wildfire (no waiting period, eligibility is determined after loss)

NFIP Grandfather Rules

* When flood map changes occur, the NFIP provides a lower-cost flood insurance rating option known as “grandfathering.”

Grandfathering is available for property owners who:

* Already have flood insurance policies in effect when the new flood maps become effective and then maintain continuous coverage; or
* Have built in compliance with the FIRM in effect at the time of construction.

Flood.

A general and temporary condition of partial or complete inundation of

* 2 or more acres of normally dry land area or of 2 or more properties (at least 1 of which is the policyholder's property) from overflow of inland or tidal waters;
* Unusual and rapid accumulation or runoff of surface waters from any source; *or*
* Mudflow; *or*
* Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.

* Definition of "Flood"

* Increased Cost of Compliance (ICC)

* Rider to Standard Flood Insurance Policy
* Provides up to $30,000
* Substantially flood-damaged structures
* Repetitive flood-damaged structures
* **F**loodproofing
* **R**elocating
* **E**levating
* **D**emolishing

* Repetitive Loss Structure Definition

* **Repetitive Loss Structure.**

An NFIP-insured structure that has had at least 2 paid flood losses of more than $1,000 each in any 10-year period since 1978.

* Severe Repetitive Loss (SRL)

The SRL group consists of any NFIP-insured residential property that has met **at least 1** of the following paid flood loss criteria since 1978, regardless of ownership:

* 4 or more separate claim payments of more than $5,000 each (including building and contents payments); ***or***
* 2 or more separate claim payments (building payments only) where the total of the payments exceeds the current value of the property.

In either case, 2 of the claim payments must have occurred within 10 years of each other.

Community Rating System (CRS)

* The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements.

Community Rating System (CRS)

- Flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:
- Reduce flood damage to insurable property;
- Strengthen and support the insurance aspects of the NFIP, and
- Encourage a comprehensive approach to floodplain management.

Community Rating System (CRS)

* A community accrues points to improve it's CRS Class rating a receive increasingly higher discounts. Points are awarded in any of 19 creditable activities under four activities:
  - Public information
  - Mapping and regulations
  - Flood damage reduction
  - Warning and response

Section 1316

- There are circumstances where a community may request FEMAs help in bringing a building into compliance.
- FEMA can deny flood insurance coverage on a building. The community would need to request a Denial of Flood Insurance (Section 1316).
- This method is only used as a last resort when all other avenues have been exhausted.

Flood Hazard Mitigation

Flood Hazard Mitigation

* Disaster assistance procedures
* Mitigation planning (DMA 2000)
* Funding sources
* Wind, earthquake, fire, erosion and other hazards
* HAZUS

The Major Disaster Process

- The **Stafford Act (§401)** requires that: "All requests for a declaration by the President that a major disaster exists shall be made by the Governor of the affected State." A State also includes the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. The Marshall Islands and the Federated States of Micronesia are also eligible to request a declaration and receive assistance.
- Some declarations will provide only **individual assistance** or only **public assistance**. **Hazard mitigation** opportunities are assessed in most situations.

The Major Disaster Process

* **Local Government Responds**, supplemented by neighboring communities and volunteer agencies. If overwhelmed, turn to state for assistance;
* **The State Responds** with state resources, such as the National Guard and state agencies;
* **Damage Assessments** by local, state, federal, and volunteer organization determines losses and recovery needs;
* **A Major Disaster Declaration** is requested by the governor, based on the damage assessment, and an agreement to commit state funds and resources to the long-term recovery;
* **FEMA Evaluates** the request and recommends action to the White House based on the disaster, the local community and the state's ability to recover;
* **The President Approves** the request or FEMA informs the governor it has been denied. This decision could take a few hours or several weeks depending on the nature of the disaster.

Mitigation Planning (DMA 2000)

* Disaster Mitigation Act of 2000 (DMA 2000) modified the Stafford Act to establish new mitigation planning requirements.
* Continues the requirements for a State Hazard Mitigation Plan as a condition of Disaster Assistance.
* Provides for States to receive increased HMGP funding if they have in effect a FEMA approved Enhanced State Mitigation Plan.
* Establishes new local mitigation planning requirements.
* After November 1, 2004, communities must have FEMA approved mitigation plan in place if they want to receive HMGP funding or funding for projects under new PDM program.

Prerequisites for Grant Funding

* State mitigation plan
* Local mitigation plan
* Up to 7 percent of HMGP funds available to a State for development of State, local, and Indian Tribal mitigation plans

Programs	Mitigation Activity (Percent of Federal/Non-Federal Share)	Recipient Management Costs (Percent of Federal/Non-Federal Share)	Subrecipient Management Costs (Percent of Federal/Non-Federal Share)
HMGP	75/25	100/0	–/–[1]
PDM	75/25	75/25	75/25
PDM – subrecipient is small and impoverished community	90/10	75/25	90/10
PDM – Tribal Recipient/subrecipient is small and impoverished	90/10	90/10	90/10
FMA – insured properties and planning grants	75/25	75/25	75/25
FMA – repetitive loss property[2]	90/10	90/10	90/10
FMA – severe repetitive loss property[2]	100/0	100/0	100/0

*Cost Share…

*Funding Sources

Individuals and Households Program (IHP)

- Presidential Declaration of Disaster must be activated/open
- Housing Assistance (100% federal funds)
- Temporary Housing
- Repair and replacement (to repair damage from the disaster that is not covered by insurance)
- Permanent housing construction (unusual)

Individuals and Households Program (IHP)

- Other Needs Assistance
  - Personal Property (personal and necessary items such as furniture, clothing, kitchen furnishings, appliances)
  - Transportation (vehicle repair/replace)
  - Medical and Dental Expenses (occurred as result of disaster)
  - Funeral and Burial Costs (occurred as result of disaster)
  - Other Expenses (fuel, moving and storage expenses related to the disaster, clean-up items, cost of NFIP Group Flood Policy)

* Disaster Legal Services
* Disaster Unemployment Assistance
* Crisis Counseling Assistance
* Immediate Services
* Regular Services

FEMA

* Individuals and Households Program (IHP)

*Risk Assessment and Identification

Risk Assessment and Identification

* Based on past experience, forecasting, experience, forecasting, expert judgment, and available resources, identify a list of the threats and hazards of concern to the community.
* Using the list of threat and hazard context, identify impacts to the community through the lens of the core capabilities described in the Goal.
* Looking across the estimated impacts to the community, in the context of each core capability and coupled with a jurisdiction's desired outcomes, set capability targets.
* Plan the ability to deliver the targeted level of capability with either community assets or through mutual aid, identify mitigation opportunities, and drive preparedness activities.

HAZUS - MH

* Hazards US – Multi-Hazard (Hazards- MH) is a powerful risk assessment software program for analyzing potential losses from floods, hurricane winds and earthquakes.
* In Hazus-MH, current scientific and engineering knowledge is coupled with the latest geographic Information systems (GIS) technology to produce estimates of hazard related damage before, or after, a disaster occurs.

Natural and Beneficial Functions

Natural and Beneficial Functions

- Wetlands
- Multi-objective management
- NAI
- Stream Corridor Restoration
- Water quality (NEPA, NPDES, MS4s)

*Wetlands

What are wetlands?

- Swamps, marshes, bogs, fens, sloughs, and bottomlands - we have many names for wetlands.
- But what makes a wetland a wetland?

In general, wetlands are areas where water covers the soil, or is present either at or near the surface of the soil for part or all of the year, including the growing season for plants.

Wetlands are in-between places, which lie between deep water in lakes and streams and dry land. Wetlands support an array of plants and animals which have adapted to life in saturated or flooded conditions.

Wetlands have soils which differ from soils in dry areas, exhibiting characteristics that show the soil developed in saturated conditions.

Wetlands can be identified by these basic indicators: vegetation, hydrology and soils.

All three characteristics must be present during some portion of the growing season for an area to be a jurisdictional wetland - a wetland protected by the Clean Water Act.

* Protection of Wetlands – an order given by President Carter to avoid the adverse impacts associated with the destruction or modification of wetlands.

* Executive Order 11990 (1977)

*Wetland Protection

Wetland protection is sometimes separated from floodplain management…

* USACE responsible for wetland permitting: Section 404 of the Clean Water Act

* States are responsible for Water Quality Certification: Section 401 of the Clean Water Act

* Many states have their own more restrictive wetland regulations

Section 404 Dredge and Fill Permit

* Regulates the discharge of dredged or fill material into the waters of the US, including wetlands
* Basic premise is that no discharge of dredged or fill material may be permitted if a practicable alternative exists that would be less damaging to the aquatic environment or the nation's waters would be significantly degraded.

Section 401 Water Quality Certification (WQC)

* Projects that impact a wetland, stream, river, or lake or other Water of the US, must obtain a Section 401 WQC.
* If the Corps of Engineers determines that a proposed project will require a Section 404 Dredge and Fill permit, then the applicant must also apply for and obtain a Section 401 WQC.
* Designed to ensure that permitted activities maintain the chemical, physical, and biological integrity of the waters

Multi-objective Management

* AKA = MOM
* Looks at entire watershed affecting the flood problems.
* Brings all parties' interests to the table.
* Capitalizes on the expertise of many parties.
* Solves problems by linking to other community concerns – "broad thinking."

No Adverse Impact (NAI)

* NAI Floodplain Management takes place when the actions of one property owner are not allowed to adversely affect the rights of other property owners.
* The NAI approach will result in reduced flood damage.
* Local initiative
* Promotes local accountability

* The U.S. has 3.5 million miles of rivers.
* The 1992 National Water Quality Inventory of 642,881 miles of rivers stated that only 56% full supported multiple uses, including drinking water supply, fish and wildlife habitat, recreation, and agriculture, as well as flood prevention and erosion control.
* In the remaining 44 % of stream miles inventoried, sedimentation and excess nutrients were the most significant causes of degradation.
* Sediment problems result from soil erosion from watersheds and stream banks.

* Stream Corridor Restoration

Fig. 2.01 – A stream corridor in motion. Processes, characteristics, and functions shape stream corridor and make them look the way they do.
In Stream Corridor Restoration: Principles, Processes, and Practices (10/98).
Interagency Stream Restoration Working Group (15 federal agencies)(FISRWG).

* Interest in stream restoration is expanding nationally and internationally.
* Stream corridors are increasingly recognized as critical ecosystems supporting interdependent uses and values

* Stream Corridor Restoration

Requires doing Environmental Impact Statements in certain areas

*National Environmental Policy Act (NEPA)

Clean Water Act

* Section 404 of the Clean Water Act regulates the discharge of dredged or fill materials in US waterways, and also has regulations regarding buffer strips.
* Section 401 of the Clean Water Act requires water quality certification (or waiver) from the state in which a discharge (into US waterways) originates before conducting the activity.

NPDES / MS4s

* National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.
  * Introduced in 1972
  * Administered by authorized States
  * Governed by EPA
  * Responsible for significant improvements in the nation's water quality
  * In place since 1990
  * Regulates discharges from municipal separate storm sewer systems (MS4s), construction activities, industrial activities, and those designated by EPA due to water quality impacts.

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Good Luck on your exam!!