

INVENTORY REPORT  
ON  
WOOLSEY FLOOD PROTECTION DISTRICT

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ON  
WOOLSEY FLOOD PROTECTION DISTRICT**

**ARIZONA DEPARTMENT OF WATER RESOURCES  
ENGINEERING DIVISION  
FLOOD MANAGEMENT SECTION**

**TECHNICAL REPORT**

**TR 90-1  
March 1990**

INVENTORY REPORT  
ON  
WOOLSEY FLOOD PROTECTION  
DISTRICT  
MARICOPA COUNTY  
ARIZONA

by:  
Arizona Department  
of  
Water Resources  
Flood Management Section

March 1990

TR 90-1

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## Inventory

### Existing Conditions Description

The Woolsey Flood Protection District is shown on Map 1 (pocket envelope). It is also referred as the Little Rainbow Valley Flood Control District. The district is about 25 miles long north-south, from the Buckeye Hills to I-8 east of Gila Bend, and about 11 miles wide east and west from the crest of the Maricopa Mountains to the Gila River. The boundary has several offsets and steps that create slightly irregular boundaries.

The Gila Bend Canal of the Paloma Ranch (Theba Ranch) extends from Gillespie Dam on the north to beyond Gila Bend and is a dominant drainage system factor due to its controlling nature. It's embankment contains 12 siphons and a lift station where upslope storm runoff which accumulates between the siphons is discharged. The discharges at these siphon locations flow to the Gila River through unlined channels enlarged by land owners to facilitate the rapid flow of storm runoff discharges and reduce the extent of flooding of improved and irrigated farm lands.

Old U.S. Highway 80 closely parallels the Gila Bend Canal on the west side down to about Pierpont Road. The dip crossings are subject to occasional flooding. Arizona Highway 85 between Buckeye and Gila Bend is located upstream from the Gila Bend Canal. The box and pipe culverts have a metering and concentration effect on cross-drainage from the variable size drainage areas between the road and the crest of the Maricopa Mountains.

## Perceived Problems

1. The Gila Bend Canal was maintained under a specific cross drainage and operation-maintenance concept during the tenure of Robert Steil, Paloma Ranch Engineer, prior to his retirement. This concept appears to have been to maintain adequate flood water channel capacity to move water along the easterly right-of-way area to the location of siphon crossings or the lift station.

Since the retirement of Mr. Steil, the Paloma Ranch operators apparently have changed operation and maintenance concepts and practices. This has included raising the left canal bank, allowing the former drainage channel to fill with sediment, and placing several pipe culverts through the raised left embankment to allow floodwaters to enter the canal. This is particularly applicable from the vicinity of Woods Road to the lift station. The recent change in ownership of Paloma Ranch may result in further changes in operation and maintenance concepts, policy and execution.

The Ski Lake development which was constructed during 1989 has created a dam across the flood channel by the construction of an access road ramp from the left canal bank road to the elevated mobile home pad embankment. The hydrologic drainage study by Robert Steele of Steele Engineering was not adequate and the drainage study review and county planning and development permit process should have detected and eliminated the deficiencies in the drainage plan. Potential failure of the Gila Bend canal at the vicinity of the Ski Lake will continue to present a hazard.

The raising of the left bank and installing the 30"± diameter pipes into the canal may have been instigated due to the difficulty of trying to maintain the CMP inverted siphon culverts placed under the canal section near the Ski

Lake. These culverts are essentially plugged with sediment and abandoned for functional purposes. The specific location of all of these culverts is not recorded. Note was taken of several of the culverts during the several field examinations by various staff, with photographs which might be considered typical. A hydraulic sluicing method initiated from the outlet end will be more effective than trying to start the cleaning process from the plugged inlet end.

2. Undercutting of Old U.S. 80 at Jitterbug Wash Siphon (Siphon #5) and the degrading drainage channel to the river is a priority (specific and an example of a generic) problem. To control the highway dip undercutting, stabilization of the loam soils at the end of the dip, should be instituted. Wire mesh rock baskets will probably be the most effective and economical means of erosion protection. The initial basket elevation needs to raise the bottom of the channel at the end of the concrete paving-lining to reduce the velocity and scour energy. Downstream grade control sills of rock and wire baskets should be placed at frequent enough intervals across the channel bottom and up both banks, and with enough depth to keep the velocity sufficiently low that scour does not undercut the sill.

3. Channel stabilization of Rainbow (Patterson) Wash below the siphon and paved road crossing is needed to reduce the bank erosion and prevent the channel from shifting into developed land in the northeast 1/4 of Section 7. Several rock filled wire basket deflectors along the left side of the channel would stabilize this channel segment.

4. A source of rock for riprap may be a problem. A good source of material needs to be located in order to start an annual program to install the rock baskets, blankets and sills. This work can be done as the District's resources allow.

5. The absence of quantitative information on the rainfall amount, areal extent and time-intensity distribution presents technical analysis problems. This is accompanied by the absence of actual flood discharge data for sizing various alternative structural features which might be considered.

6. The drainage areas tributary to each siphon on the Gila Bend Canal have varying sizes. The cove character of the alluvial fill below the mountain section of the plain and mountain compartment valleys indicates that the general characteristics and properties of "alluvial fans" is absent. The distributary flow pattern is interpreted to be the surface evidence of the runoff paths created over hundreds of years by storms and storm cells of varying intensities with storm cell centers highly dispersed. These cells have ranged from the Maricopa Mountains as much as 16 miles from Siphon 2 and up to 15 miles for Siphon 4 (Rainbow Wash) to about 2 to 3 miles for Siphons 1 and 2 near Gillespie Dam. The drainage area sizes vary from estimated sizes of about 2 square miles at the north end of the Gila Bend Canal to 45 sm at Rainbow Wash and about 56 sm and 63 sm respectively for the Butterfield Stage Route area (Siphons 9 and 10), and the Bosque Siding Bighorn Mountain area (Siphon 11). The length and sandy bottom characteristics of the distributary flow channels show the tendencies of the washes to cause a significant attenuation of runoff for some ratio of the total number of annual storm events. These watershed characteristics are such that hydrologic and

hydraulic modeling methodology and practice cannot be considered to be highly developed, accurate and satisfactory at this time.

## Previous Studies

The Soil Conservation Service made a short study for the northern part of the district to provide protection to a block of contiguous lands, a significant portion of which now show evidence of no current or recent irrigation. This SCS study did not show economic evidence sufficient to proceed with organized structural measures as a solution for the then perceived problems.

The currently active farmlands are located for the most part below the Gila Bend Canal. These active lands include an acreage belonging to the Paloma Ranch in scattered parcels. The lands below the canal have the localized hazard of storm flows crossing the Gila Bend Canal Siphons. There is a general shifting hazard due to the possibility of an extremely severe thunderstorm cell creating intense runoff rates and volumes which could overtax the drainage way channels previously installed but which at some locations have become impaired with lack of O & M cleaning and modifications, particularly at the Ski Lake. The integrity of the Gila Bend Canal may be overtaxed and repetitions of historic failure of the banks may reoccur, or occur similarly at other locations.

A reported entitled "Final Drainage Study for a Ski Lake Development, Zoning Case Z68-23", by Travis C. Steele (P.E.) dated 9-16-88 with 5 revisions, last dated 3-8-89 was prepared. ADWR review comments on this project are included in a subsequent section of this report. (Appendix A).

## Future Studies

Flood Control District of Maricopa County (FCDMC) is planning to have a flood hydrology study made for the Gila River watershed between Gillespie Dam and Gila Bend. The exact southern watershed boundary may include Bender and Sand Tanks Washes and possibly Quilotosa Wash. This hydrology and hydraulics study will be at the detail level adequate for Flood Insurance base flood elevation, rate zones, and for possible alternative structural measures. This level of detail is required for flood plain management and regulations.

## Watershed Delineation

Delineation of watershed boundaries for the washes spreading from the Maricopa Mountains and Buckeye Hills has been done on 1" = 2000' scale quadrangle sheets. These delineations for the ultimate purpose of quantifying the watershed sizes were developed with the initial guidance from the watershed characteristics and wash flow paths to the Gila Bend Canal Siphon and flooding locations, vegetation and soil characteristics for hydrograph development and routing parameters. The drainage areas have been approximated for the areas above the Gila Bend Canal. One set of quadrangle sheets with the watershed and subarea boundaries has been forwarded to the District.

The following lists the approximate drainage areas tributary to the Siphons along the Gila Bend Canal:

<u>Siphon Location</u>	<u>A Common Topographic Name</u>	<u>Estimated Approximate Drainage Area (sm)</u>
1		2
2		2
3		3
4	Rainbow (Patterson) Wash	45
5	Jitterbug Wash	12
Lift Station	Hazen Tank Basin	20
6	Margies Cove	20
7		14
8		16
9) 10)	Butterfield Stage	56
11	Bosque-Big Horn Mtn.	63
12		16
Approximate Total		269 square miles

The canal length from the Lift Station to Siphon 6 has some overlap in area due to the variable subarea divides. Subarea divides are not precise due to the distributary flow paths which are influenced by the locations of the causative storm cell, its magnitude and intensity and the channel changes and migrations which may have resulted during the storm.

The approximate drainage area above are not detailed sufficient to be used for model design.

## Watershed Characteristics

### Geology

The Maricopa Mountains are granitic. The alluvial soils derived from these materials are generally coarser grained. (Figure 1)

### Soils

The Soil Conservation Service has mapped three soil group associations in the watershed area. This reconnaissance level mapping is being augmented by detailed mapping of the valley lands covered on the Cotton Center NW, Cotton Center and Gila Bend 7 1/2 minutes quadrangle sheets. The field work has been completed and the State Office is presently preparing the report for publication.

The watershed soils as mapped and displayed on Figure 2 are HA - Hyperthermic Arid Soils. These are soils with mean annual soil temperatures of more than 72° F (22° C) and less than 10 inches (25 cm) mean annual precipitation.

Association and Soil names, distribution within the total area wide association and hydrologic soils group are shown below.

HA1      -TORRIFLUVENTS ASSOCIATION: Deep, stratified, coarse to fine-textured, nearly level to gently sloping soils on floodplains and lower alluvial fans.

Geologic Map

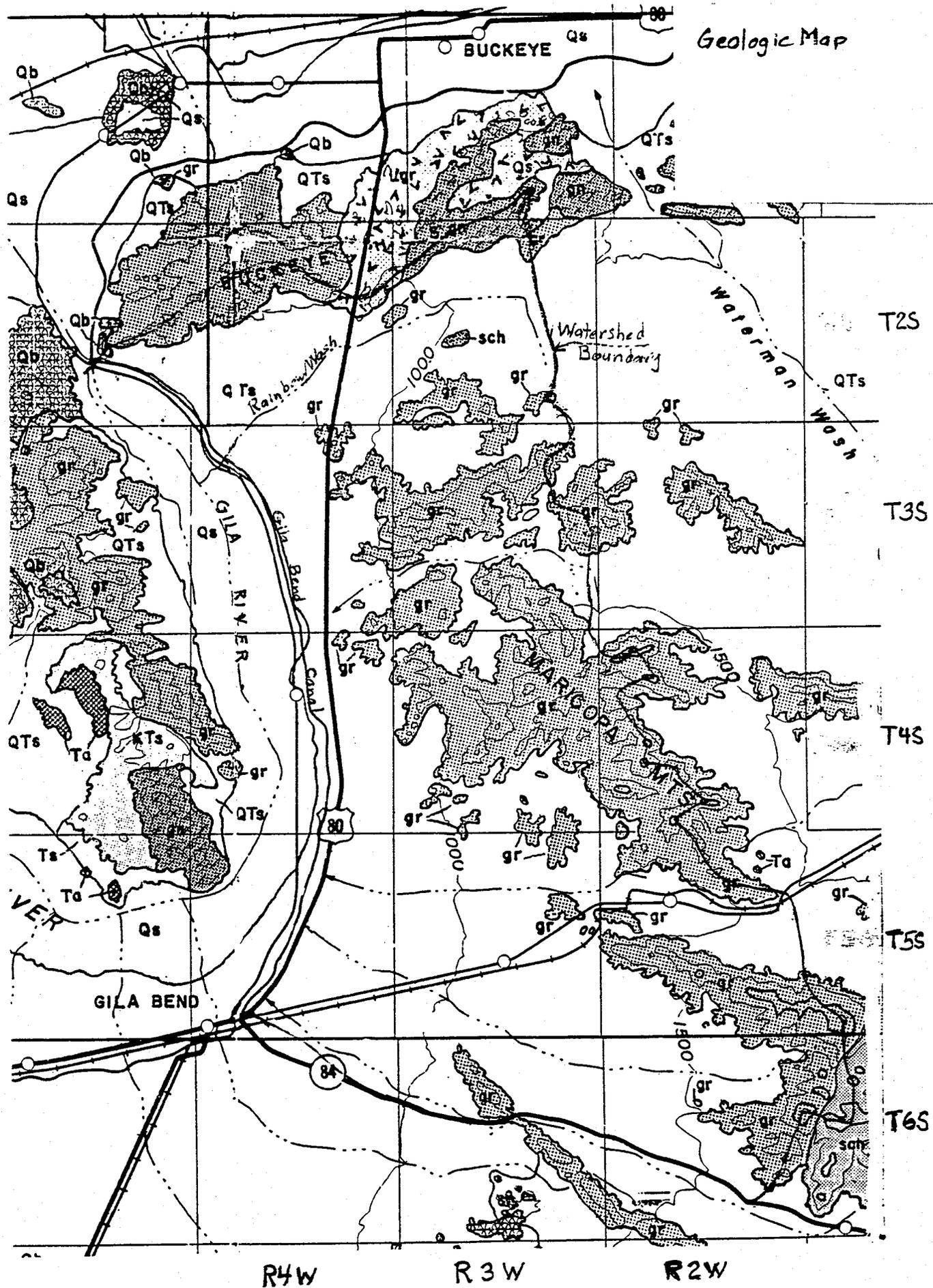
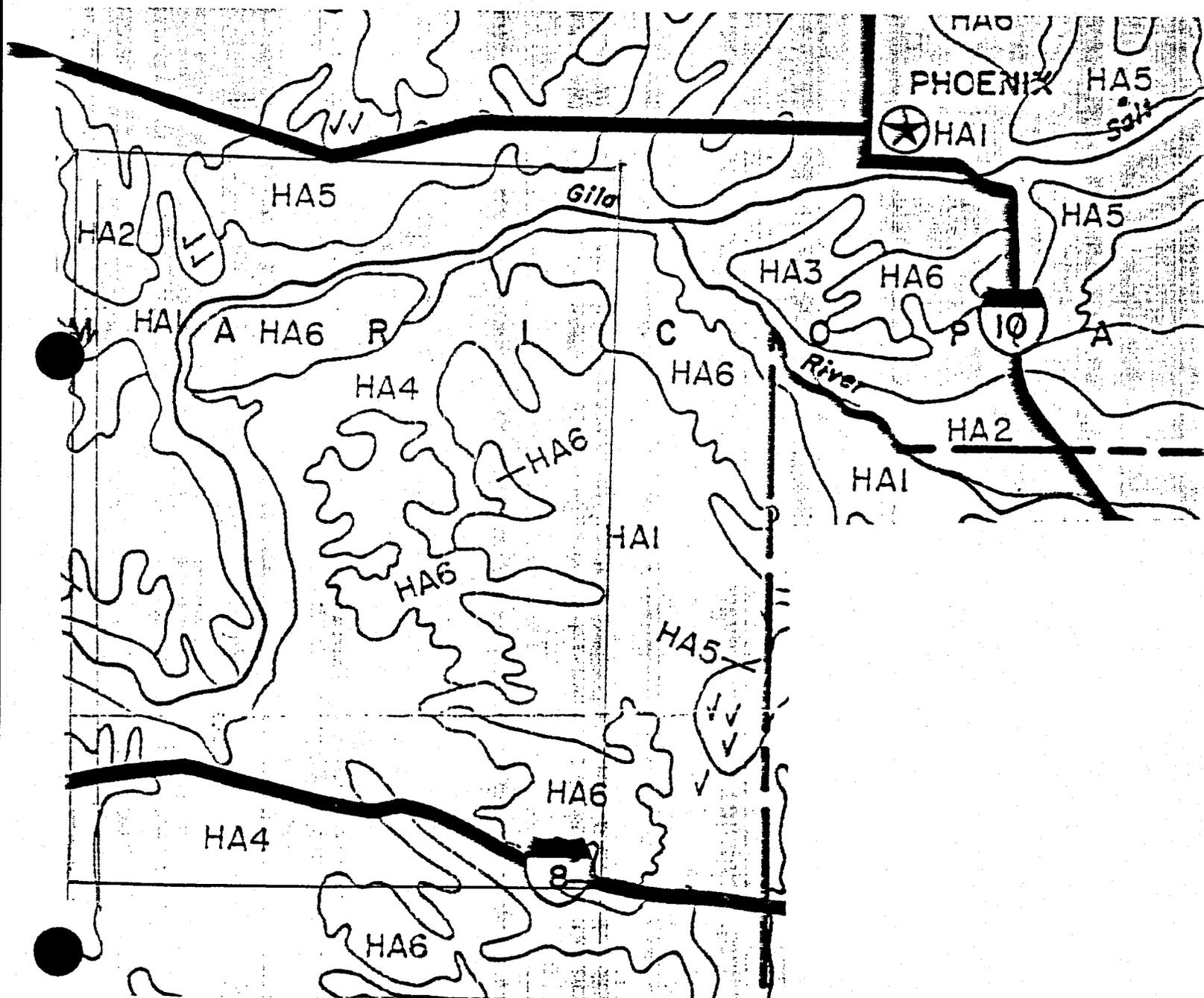


FIGURE NO. 2  
Soil Mapping Associations



Name	Distribution	Representative	Hydrologic Soil	
	%	Profile Textures	Permeability	Group
Gilman	20	loam	Moderate	B
Antho	20	sandy loam & gravelly sandy loam	Moderately rapid	B
Vint	15	loamy fine sand	moderately rapid	B
Valencia	15	sandy loam over sandy clay loam & clay loam	moderately slow	B

HA4 GUNSIGHT-RILLITO-PINAL ASSOCIATION: Deep and shallow, limy, gravelly medium and moderately coarse-textured, nearly level to strongly sloping soils on alluvial surfaces and valley plains.

Gunsight	30	very gravelly loam	moderate	B
Rillito	30	gravelly sandy loam	moderately rapid	B
Pinal	15	gravelly loam over hardpan	moderate	D
Cavelt	10	gravelly loam over hardpan	moderate	D

HA6

LITHIC CAMBORTHIDS-ROCK OUTCROP-LITHIC HAPLARGIDS ASSOCIATION:

Shallow, gravelly and cobbly, moderately coarse to moderately fine-textured, gently sloping to very steep soils and Rock outcrop on hills and mountains.

Lomitas	20	very cobbly loam over bedrock, 12-20"	moderate	D
Cherioni	15	very gravelly sandy loam over hard- pan and bedrock, 6-20"	moderate	D
Rock Outcrop	35	rock	moderate	D
Gachado	15	very cobbly over very gravelly sandy clay loam over bedrock 9-20"	slow	D

## Vegetation

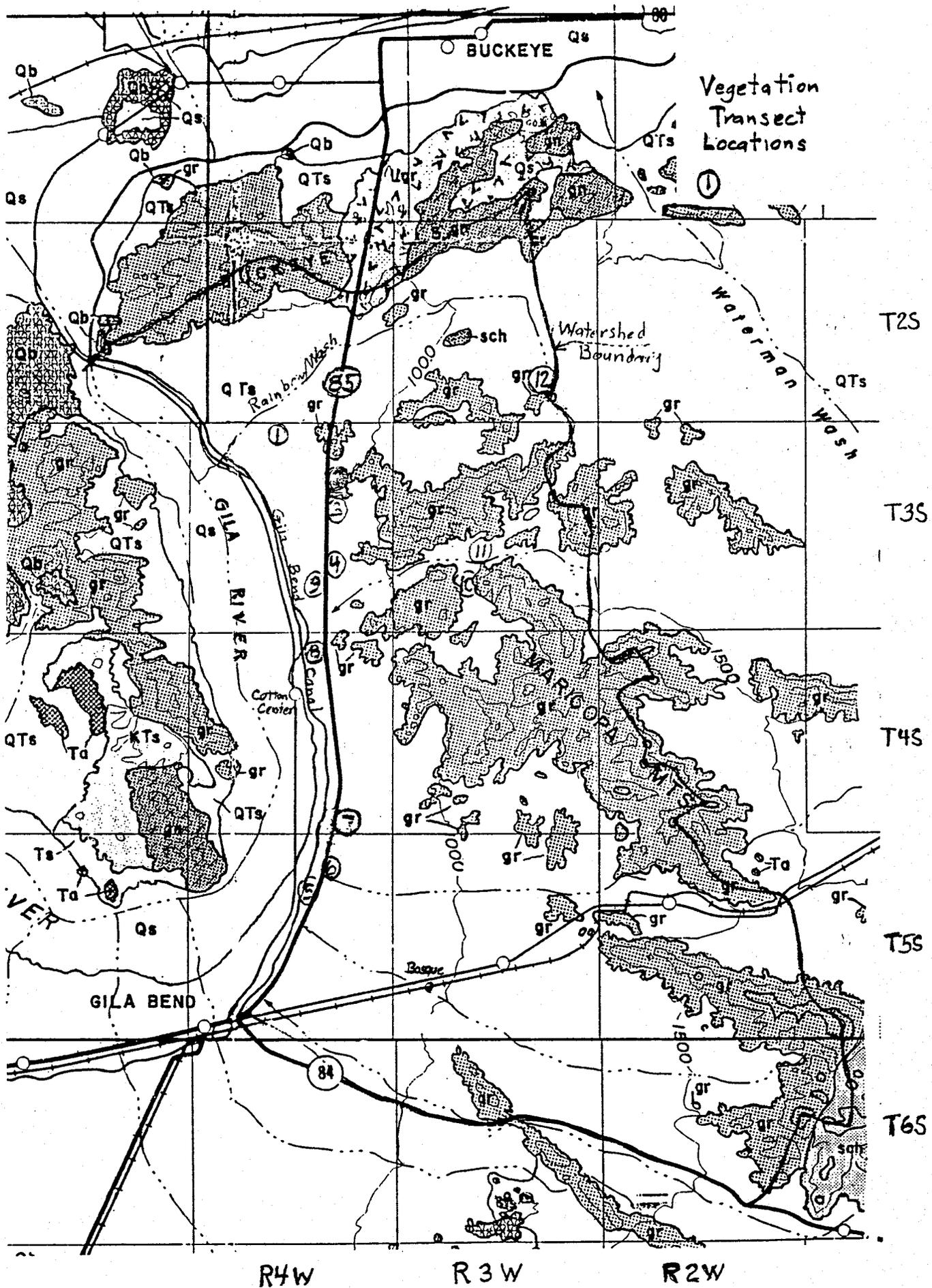
Transects for vegetation density were taken at 12 locations (Figure 3) in the northern portion of the district watershed. Table 1 displays information on the transects. About 20 additional transects should be taken for the Butterfield and Bosque-Big Horn subareas in particular and in selected locations of the mid and upper segments of the first series. Suggested locations are shown on Figure 4 by the alphabetical series.

## Runoff Numbers

Figure 5 as adapted from an earlier SCS estimating diagram is used as a guide chart for assigning Runoff Curve Number values based upon hydrologic soil group and amount of vegetation estimated to be appropriate for the watershed subarea based on field examination and sample transects.

## Channel Percolation Rates

The sandy loam and sandy wash beds have high infiltration rates. The infiltration characteristics displayed by the irrigated soils and wash channels in the developed segments of the district are also found higher in the watershed. The bed material groups (SCS, NEH4-Hydrology, Chapter 19 Transmission Losses) characterized in the following extract from Table 19-1 have been used with other data in Figure No. 6 Applied and Hypothetical Percolation Loss Rates.



Vegetation  
Transect  
Locations

T2S  
T3S  
T4S  
T5S  
T6S

R4W R3W R2W

TABLE NO. 1  
VEGETATION TRANSECTS

No.	Area Tributary to Siphon No.	Location Sect.	T R		Elevation	Vegetation	Soil	Transect Length	Density %
			T	R					
1	4	SWNW3	3S	4W	855	Creosote, scattered saguaro & paloverde	sandy loam	100	20
2	5	SWSW11	3S	4W	895	Creosote, ironwood, saguaro, bursage	sandy loam	100	24
3	5	NWNW14	3S	4W	900	Creosote, paloverde, saguaro, bursage	sandy loam	100	15
4	5	NWNW26	3S	4W	870	Creosote, paloverde, saguaro	sandy loam	100	10
5	10-11	SWSW10	5S	4W	765	Creosote, paloverde, Butterfield Stage rute	sandy loam	100	10.5
6	9	SESE3	4S	4W	770	Creosote, Ironwood, paloverde, saguaro	gravelly sandy loam	100	22.5
7	8	SWSW35	4S	4W	780	Creosote, saguaro, paloverde, bursage	gravelly sandy loam	100	13
8	Lift Station	SESE3	4S	4W	760	Creosote, bursage, ironwood, paloverde	gravelly sandy loam	100	17
9	Lift Station	SESE27	3S	3W	860	Creosote, cholla, paloverde, saguaro, ironwood, bursage calegarous	sandy gravelly hard calcareous loam	100	19.5
10	Lift Station & 6	SENE29	3S	3W	1185	Creosote, paloverde, ironwood, ocotillo, cholla, bursage	sandy gravelly loam	100	17.5
11	Lift Station	NWNW28	3S	3W	1240	Ironwood, paloverde, saguaro, creosote bursage	sandy gravelly loam	100	43.5
12	4	NWNW35	2S	3W	1170	Creosote, ocotillo, saguaro, burroweed	sandy silt loam	100	14.5



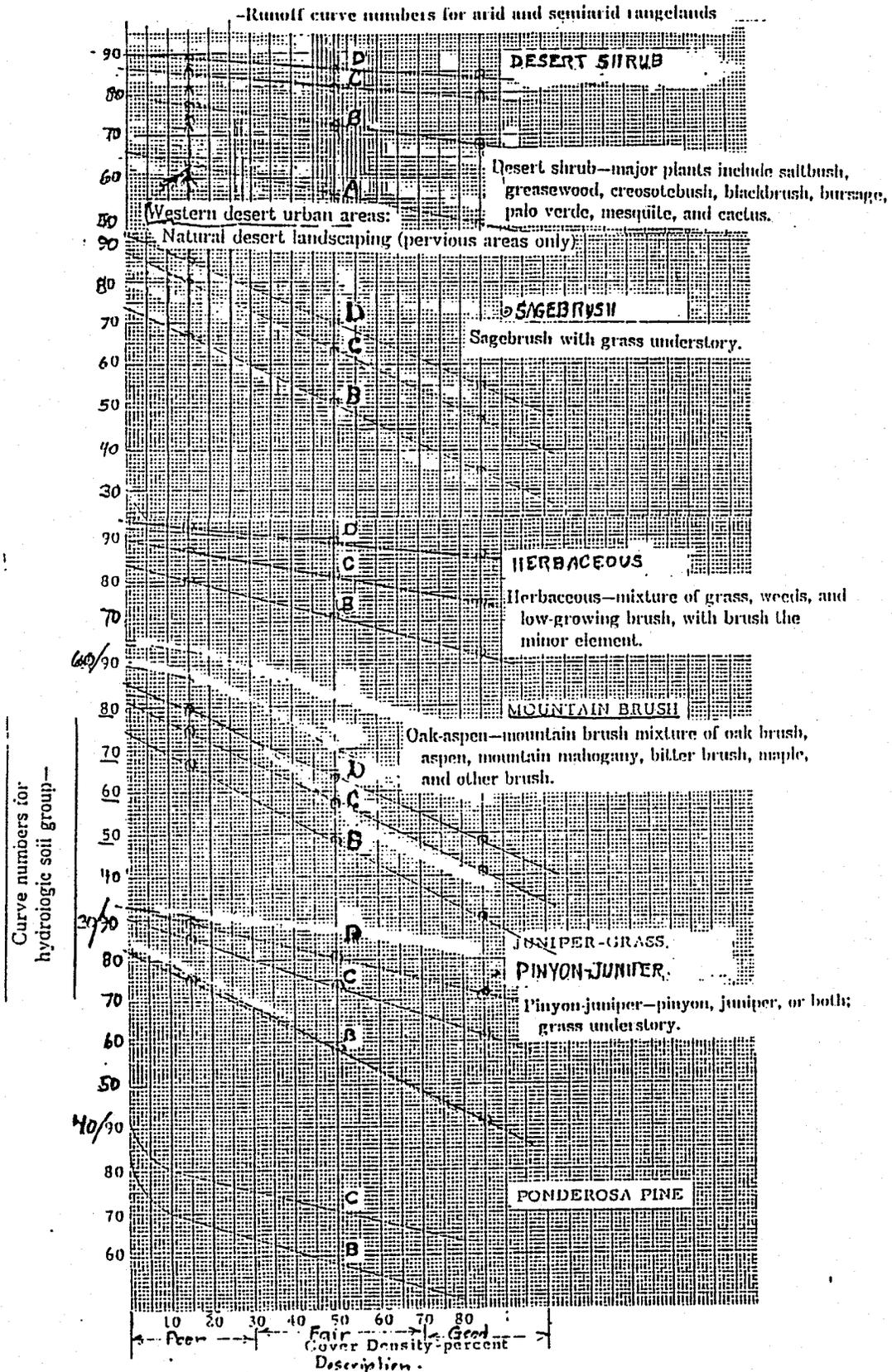


Fig. **REVISED**  
HYDROLOGIC SOIL - COVER COMPLEXES  
AND ASSOCIATED CURVE NUMBERS

Poor: < 30% ground cover (litter, grass, and brush overstory).  
 Fair: 30 to 70% ground cover.  
 Good: > 70% ground cover.

Revised by  
 Soil Conservation Service  
**TR-55**

from Table 2-21. -Runoff curve numbers for arid and semiarid rangelands

Extract from Table 19-1 - Relationships between bed material characteristics and parameters for a unit channel (average antecedent conditions)

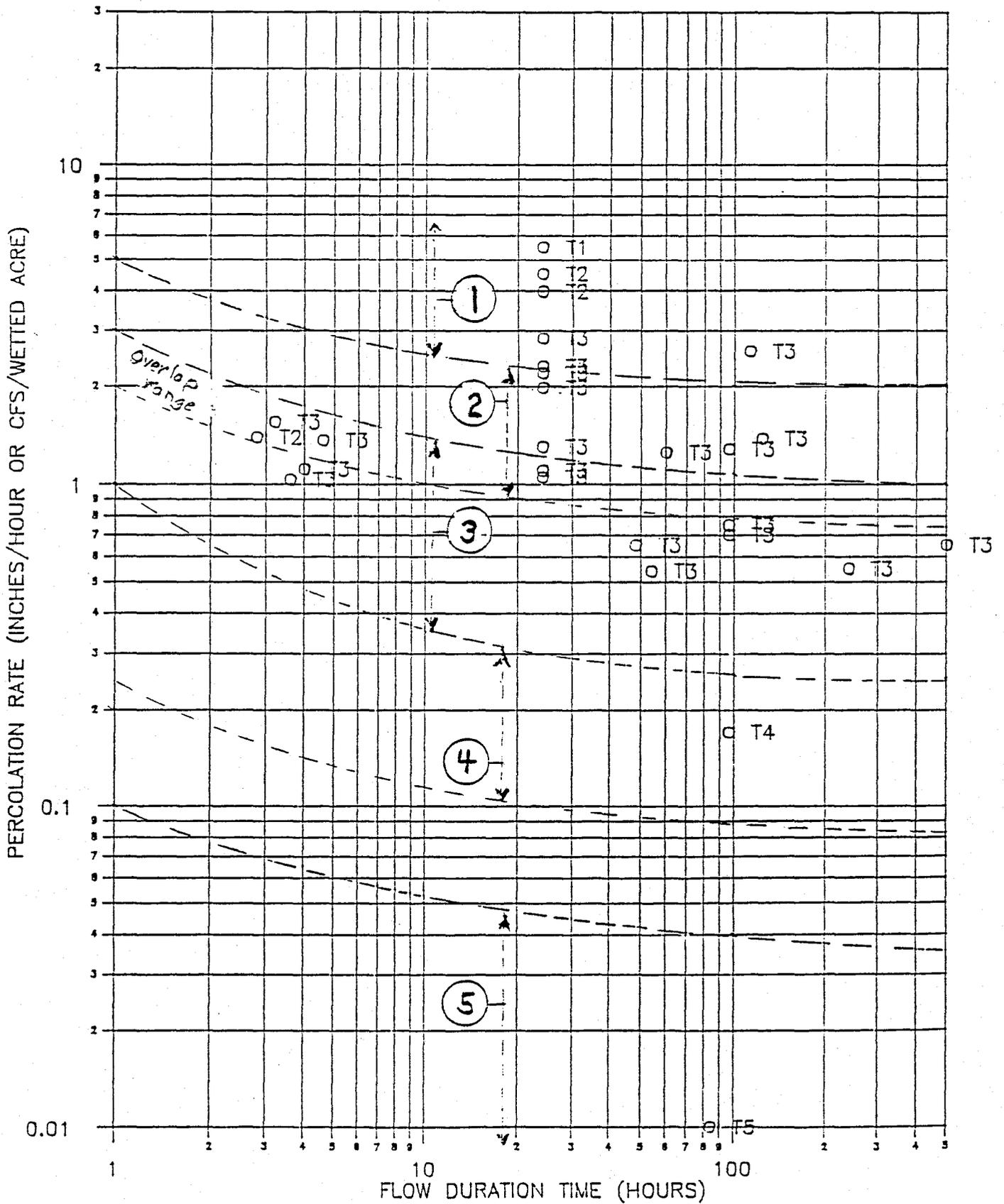
Bed Material group	Bed material characteristics	Effective hydraulic conductivity, K
		in/hr
1 Very high loss rate	Very clean gravel and large sand	5
2 High loss rate	Clean sand and gravel, field conditions	2.0-5.0
3 Moderately high loss rate	Sand and gravel mixture with low silt-clay content	1.0-3.0
4 Moderate loss rate	Sand and gravel mixture with high silt-clay content	0.25-1.0
5 Insignificant to low loss rate	Consolidated bed material; high silt-clay content	0.001-0.10

This Figure is recommended for use in routing storm flow models, particularly for the more frequent statistical occurrences hypothetical rainfall modelling events.

One sample of wash bottom material was taken. The silty coarse sand has a high conductivity indicative of a bed material group 1.

APPLIED AND HYPOTHETICAL PERCOLATION LOSS RATES

Percolation Rate Values  
in Conceptual Regions  
for Bed Material Groups



## Precipitation

The standard hydrologic study procedure for rainfall amount and time sequence distribution is to use the maps in the NOAA Atlas for Arizona which display by isohyetal diagrams, the precipitation amounts for 6 hour and 24 hour durations for frequencies of 2, 5, 10, 25, 50 and 100 years. These charts published in 1973 were based on rainfall data through 1970. Nomograms were included to obtain rainfall values for 1, 2, 3 and 12 hour durations. Adjustment factors for 5, 10, 15 and 30 minute durations as a ratio of the 1 hour precipitation were given. Depth-area curves to convert chart point rainfall to areas ranging up to 150 sm for 30 minutes, 300 sm for 1 hour, 350± sm for 3 hour and 400 sm for 6 and 24 hour periods are included.

State and some county and local public works flood management agencies have made or are contracting for studies to develop their jurisdictional standards. Several studies are currently in progress or programmed to update the 1970 database NOAA Atlas. With oral sources indicating that 2, 2 1/2 to 3 inches during periods ranging from about 45 minutes to 1 1/2 to 2 hours have produced local damaging discharges from summer "Thunderstorms", more current information and documentary observations are very important. Twenty years of additional data including the cyclic appearing 1977-1985 period may provide some modified criteria in a revised NOAA-2 type publication.

Support and documentation are necessary when departures are made from the standards for Flood Insurance Standards (FIS).

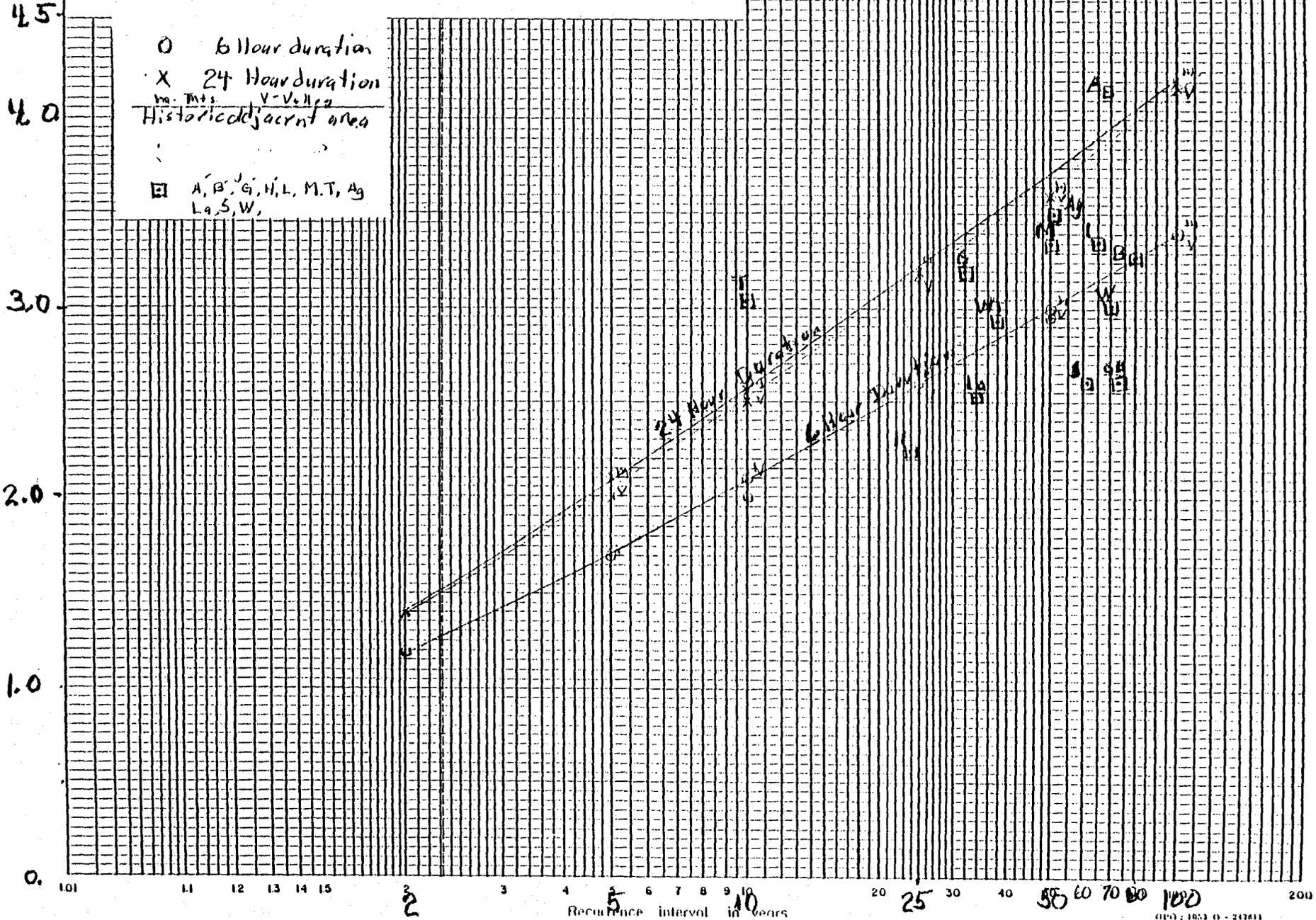
Figure 7 is a diagram showing the 6 hour and 24 hour duration frequency precipitation from the NOAA Atlas for the FPD area. Adjacent area historic day rainfall amounts have been shown on this figure.

Precipitation Woolsey Flood Protection District  
NOAA-ATLAS

Drainage area, \_\_\_\_\_ sq. mi. Period \_\_\_\_\_

O 6 hour duration  
X 24 Hour duration  
V-Volts  
Historical adjacent area  
A, B, G, H, L, M, T, Ag  
La, S, W,

PRECIPITATION - Inches



## Discharge Records

The USGS had two short term partial record crest stage stations in or near the District watersheds as shown below:

Name	Drainage Area SM	Period of Record	Maximum Discharge & Date
Rainbow Wash Tributary	3.45 gross 2.43	1963-1979	1430 cfs 9-3-67 950 9-13-66 810 8-8-70 763 9-13-64
Bender Wash	68.8	1964-1979	2670 8- -71 2290 8- -75 1550 6- -72 1500 8-16-69

Discharges reported from highwater mark, slope-area determinations for Rainbow Wash at Siphon 4 - Rainbow Wash - drainage area approximately 45 square miles are September 3, 1967 - 11,900 cfs, September 13, 1966 - 5,110 cfs. The 1967 event caused damage to the Old U.S. Highway 80 Bridge at this location.

Examination of similar records for gages on watersheds adjacent to and near the Woolsey District for concurrent date discharge annual peaks show that the only concurrent record for 12 adjacent/near stations occurred from the September 25, 1976 major statewide storm which followed the Tropical Storm Kathleen of September 10-14, 1976. Rainfall amounts totaled 2.70" at Buckeye, 2.42 at Gila Bend, and 3.20" at Harquahala Plains.

## District Plan

For a district plan, alternative policies and methods need to be considered.

### Policy

Is the district to undertake program of:

1. Flood Control
2. Flood Management, or
3. A combination of the above.

### Program

A program can be carried forward by using one or more of the following alternative methods:

1. Structural control to:
  - a. prevent damages
  - b. reduce damage to an acceptable level
2. Non-structural control by:
  - a. Guided regulation of land-use of washes and drainageways from developed and underdeveloped land.
  - b. Administered by MCFCD in cooperation with the Woolsey FPD.

3. Do-nothing alternative, which entails no structural work and no shared responsibilities for floodplain management with the Flood Control District of Maricopa County.

Additional Assistance

Assistance for design of the rock grade control structures, spacing between units, elevations and specifications for type of retaining wire mesh and rock size could probably be obtained through the local Resource Conservation and Development District (SCS) as an adopted local measures project.

The Flood Control District of Maricopa County may also provide the Woolsey FPD with technical assistance in design and planning.

## Right-of-Way

For organized district structural alternative measures, right-of-way will need to be obtained. Grants of right-of-way in fee simple, or perpetual easement for improvements and access, may be the most economical.

Right-of-way criteria need to be developed and applied based on the program for structural measures at each specific location.

Where flood flow discharges at siphons have a narrow width, essentially straight channel which by grade control can be reasonably stabilized, a lesser width channel with O&M access on each side should be obtained. Typical locations would be Siphons 5 through 12 and the Lift Station. At Rainbow (Patterson) Wash, Siphon 4, the width and variability of experienced flows from moderate to extremes as in 1967 and 1966 has resulted in continuing bank erosion and channel shifting.

Minimum widths need to be based on the size of the mechanical equipment which may be used for O&M, tractors, trucks and trailers, cranes, graders, concrete ready-mix trucks.

Policies for Floodplain Management

Background information relating to an active floodplain management program with pertinent definitions and a "model" regulation draft are enclosed as Appendix B.

The information will provide details for the tasks and policy concepts attendant upon an effective program of cooperation of floodplain management by the Woolsey Flood Protection District.

APPENDIX A

Field inspections, review memoranda and correspondence.

Enclosed are memoranda dated July 28, 1989 and August 27, 1989 Draft.

APPENDIX A

DEPARTMENT OF WATER RESOURCES  
Engineering Division

M E M O R A N D U M

TO: J. R. Morris, P.E.  
FROM: D. E. Creighton, P.E.  
DATE: July 28, 1989  
SUBJECT: Woolsey FPD Area Effected and Impacted by Ski Lake  
Development - Review (Maricopa County Zoning Case Z 88-  
23)

This memorandum is progressive review notes of information reviewed and developed during review, contact with Robert Steil, retired engineer for Paloma Ranch (1972-1985) and field inspection on June 19, and July 20, 1989.

1. Drainage Area Map in the bound report copy is not complete. A big gap in the topography coverage precludes initial opinion as to adequacy and accuracy. Attached copies of maps and quad sheets illustrate the problems.

2. Precipitation take off compared to NOAA Atlas appears okay for 6-hour and 24-hour points.

3. 2-hour design storm doesn't appear reasonable per se in light of general standards, but is arguable. It is particularly arguable in light of comments by R. Steil and farm operators-owners in the District from historic experience; however, the amount of precipitation should be between the 6-hr. & 24-hr. NOAA values but for a 2 to 3-hr. duration.

4. Time of Concentration Method using the CN Number method is not appropriate for Tc. DA1 = 4308 Ac = 6.73 sm; Tc = 7.76 hrs. DA2 = 7758 Ac = 12.12 sm; Tc = 9.95 hrs.

Travel time gives a velocity of 1.47 to 1.42 fps whereas slope of channel using manning equation will give about 4.5 fps for  $n = 0.04$ ,  $R = 1.0$  or 3.8 fps,  $n = 0.03$ ,  $R = 0.5$ . Tc is too long. This makes Q too small eliminating channel percolation considerations. It is also computed using improper hydrologic network construction and modeling of drainage areas.

5. The ADOT method is not appropriate. Routing of upstream area discharge through a downstream area channel requires a channel routing model. Complete watershed map is needed, and a check using raised canal bank elevation and floodway bottom for extent of interceptions south of Woods Road. See comments on 7-20-89 field trip information.

Ski Lake Development Review:

6. Steele Engineering brought in (7-18-89) a blue line print of their Watershed Drainage Areas. There are serious problems with the study due to the inappropriate watershed subarea delineation and the time of concentration methodology.

7. Further, the changes to the Gila Bend Canal runoff drainage system by the 1989 Ski Lake Development and possibly Paloma Ranch after 1985 has seriously and adversely affected downslope properties. Paloma Ranch prior to 1985 had channelized for drainage, a continuous 2-mile reach from south of Woods Road, to the Lift Station Spillway, (1/2 mile south of the development). The Ski Lake Development, to improve their canal road access, placed embankment fill with no culvert across the drainage channel at the NW corner of Section 3. With an alteration to the pre-existing drainage pathway south of Woods Road at the canal crossing the watershed area has been further reduced from a D.A.4 which should have been included for analysis.

8. Probably due to an unfamiliarity with hydrologic/hydraulic modeling of watersheds, with reach routing and the complexity introduced by alluvial fans distributary flow, the erroneous simplification of approximately splitting the watershed up the middle (using the general valley low elevation between the watershed extreme boundaries) was done to the approximate location of Hazen Tank.

9. The watershed should be modelled with progressive subareas and connecting Reach flow pathways.

10. The one sheet development plan drawing is stamped by MCFCD as approved with initials F.T. and dated 3-15-89. Contact should be made with MCFCD to discuss this situation. The initials are reported to be for Felicia Terry who is supervised by Steven Tucker.

Comments and Field Trip Information for Gila Bend Canal 7-20-89 Field Inspection. Robert Steil, former Paloma Ranch engineer, Tim Casey and David Creighton, DWR.

The inspection trip started by turning off AZ 85 to the Ski Lake Development in Section 3, T4S, R4W, past the well which on 6-19-89 had been pumping in an attempt to fill the lake and saturate the bentonite sealing layer. The pump had been off for probably more than 2 weeks and the caretaker's trailer was gone. The development is reported to be on hold until cooler fall weather when attempts will be restarted to fill the lake and saturate the bentonite seal. The inspection path from the ramp fill and pad embankment, proceeded north on the east bank of the Gila Bend Canal to Woods Road observing the filled in drainage channel and embankment conditions. At Woods Road the route retraced to the Ski Lake, then proceeded southerly along the east bank, crossing at each siphon from the Lift Station and spillway south to Gila

Bend. Conditions and siphons, drainage channel, and east end embankment were observed for siphons 6 through 12 and 14. The route was reversed up old highway 80 to Woods Road, then back on to the east canal bank northerly past siphons 5 through 1 to the El Paso Natural Gas pipeline near Gillespie Dam.

The Gila Bend Canal upstream bank and drainage channel conditions have been altered since 1985 when R. Steil retired. East bank has been raised by 3 to 4<sup>+</sup> feet along most of the canal length. 30" (needs to be checked) diameter steel pipe (not CMP) have been placed at about the elevation of the former (pre-1985) road crest and then the bank has been raised above the level of the pipes. It appears that from Woods Road south to the south side of the Ski Lake, the embankment has been further raised by 3 to 4 feet. The former drainage channel with a minimum depth of 6+ feet which sloped from Woods Road to the Lift Station siphon has been filled and regraded to raise the bottom by possibly 6 feet or more in the vicinity of the culvert under the canal in Section 33 about 1/2 mile north of the Ski Lake NW corner. An access road ramp has been placed across the former drainage channel to form a complete barrier for storm runoff drainage from north of the section line.

The Canal right-of-way is reported to be 100 feet either side of the canal centerline. The drainage channels were cut so the top of the slope and any clearing debris was placed at the east edge of the right of way.

The Ski Lake development embankment and rechannelization has encroached onto the Gila Bend Canal right-of-way. This encroachment is indicated on the development drawing. The west toe slope of the development embankment for the west lake arm and lots Caretaker, and 1 through 10, or the drainage channel filling encroach.

R. Steil referred to rail elevation. This appears to be defined as the elevation of the top of the concrete lining. There appears to be a nominal 1 ft. of concrete above normal waterline and then 1 to 2 ft. of earth bank above the west bank lining at this time

Several questions are brought to mind relative to the adequacy of Maricopa County review, modifications of drainage between 1985 to present and responsibility for possible adverse effects arising from drainage changes.

Woolsey Flood Protection District

#### Questions

1. Who is responsible for the modification to install the 30"Ø steel pipes?

Bend. Conditions and siphons, drainage channel, and east end embankment were observed for siphons 6 through 12 and 14. The route was reversed up old highway 80 to Woods Road, then back on to the east canal bank northerly past siphons 5 through 1 to the El Paso Natural Gas pipeline near Gillespie Dam.

The Gila Bend Canal upstream bank and drainage channel conditions have been altered since 1985 when R. Steil retired. East bank has been raised by 3 to 4<sup>+</sup> feet along most of the canal length. 30" (needs to be checked) diameter steel pipe (not CMP) have been placed at about the elevation of the former (pre-1985) road crest and then the bank has been raised above the level of the pipes. It appears that from Woods Road south to the south side of the Ski Lake, the embankment has been further raised by 3 to 4 feet. The former drainage channel with a minimum depth of 6+ feet which sloped from Woods Road to the Lift Station siphon has been filled and regraded to raise the bottom by possibly 6 feet or more in the vicinity of the culvert under the canal in Section 33 about 1/2 mile north of the Ski Lake NW corner. An access road ramp has been placed across the former drainage channel to form a complete barrier for storm runoff drainage from north of the section line.

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Woolsey Flood Protection District

#### Questions

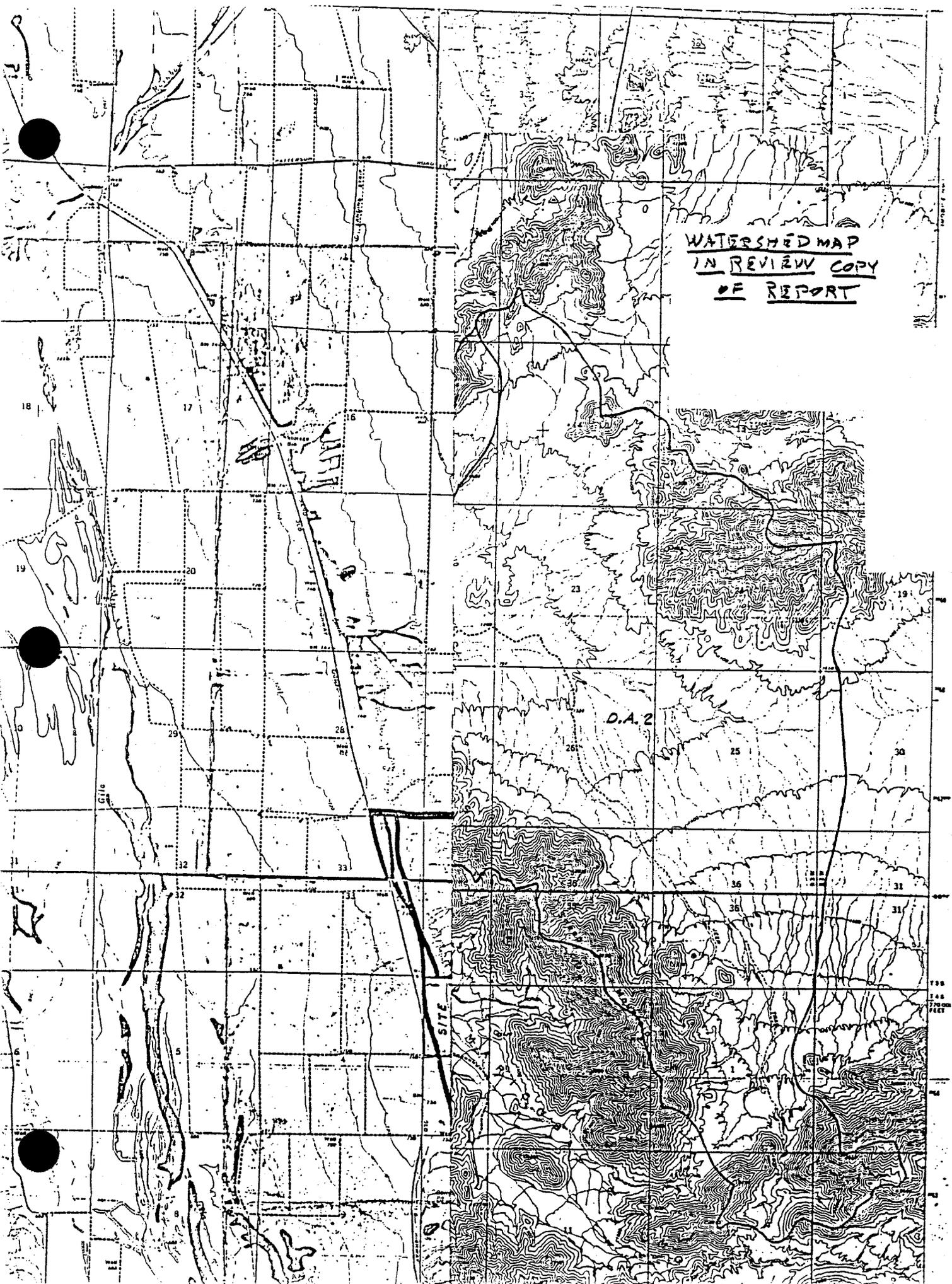
1. Who is responsible for the modification to install the 30"Ø steel pipes?

2. When were the pipes placed; give locations with dates?
3. What backfill and cover was placed to raise the left bank elevation between siphon locations or drainage reaches?
4. What documentation is available to indicate the extent of permission and authority of the Ski Lake development to encroach upon Paloma Ranch R-O-W for Gila Bend Canal?
5. How adversely has Paloma Ranch title to R-O-W been compromised by Ski Lake construction of lot embankment, access road and ramp, and drainage channel?
6. Who has the preconstruction photos and topographic mapping at a scale to discriminate the channel drainage condition?
7. Who has As-Built topographic mapping?
8. What sort of save harmless documentation was obtained by Paloma Ranch from the developers?
9. Did Paloma Ranch accrue any liability to Woolsey FPD by:
  - a. Modifying the drainage characteristics between Woods Road and Lift Station ~~Siphon~~ during the period 1985-1988?  
Sp. 711w 813
  - b. By allowing further modification by Ski Lake between 1988-1989?
10. What is extent of Ski Lake liability for modifications that they have made?
11. Was the drainage channel at NW corner Section 3 actually impaired prior to Ski Lake, as purported by developer people?
12. What is status of Maricopa County Flood Control District and Planning & Zoning Department with respect to adequate technical review and competency?
13. Does Maricopa County have adequate documentation of pre-project conditions?
14. Why does Maricopa County FCD approval appear faulty from the watershed drainage model deficiencies?
15. What is the status/liability of Travis C. Steele, P.E. 7194 (Civil) for competency, hydrologic, hydraulic, survey location, property encroachment?
16. How does statute of limitations relate to modifications by Paloma Ranch since 1985?
17. The ramp embankment across the drainage path and the Gila Bend Canal embankment between Woods Road and the Northwest corner

of Section 3 is an "artificial barrier; including appurtenant works for the impounding or diversion of water. . ." and as such may fall within the purview of a dam as defined for jurisdictional purposes by A.R.S. § 45-1201-1. The technical factors of height and capacity must be ascertained to evaluate the Ski Lake development embankment, ponding detention capacity, and jurisdictional liability.

lh

WATERSHED MAP  
IN REVIEW COPY  
OF REPORT

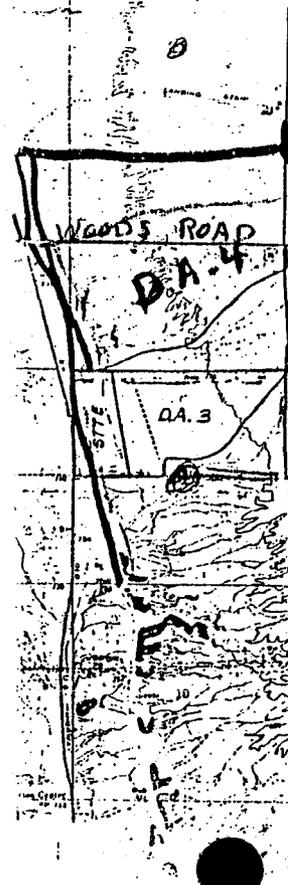


D.A. 2

SITE

100  
200  
300  
FEET

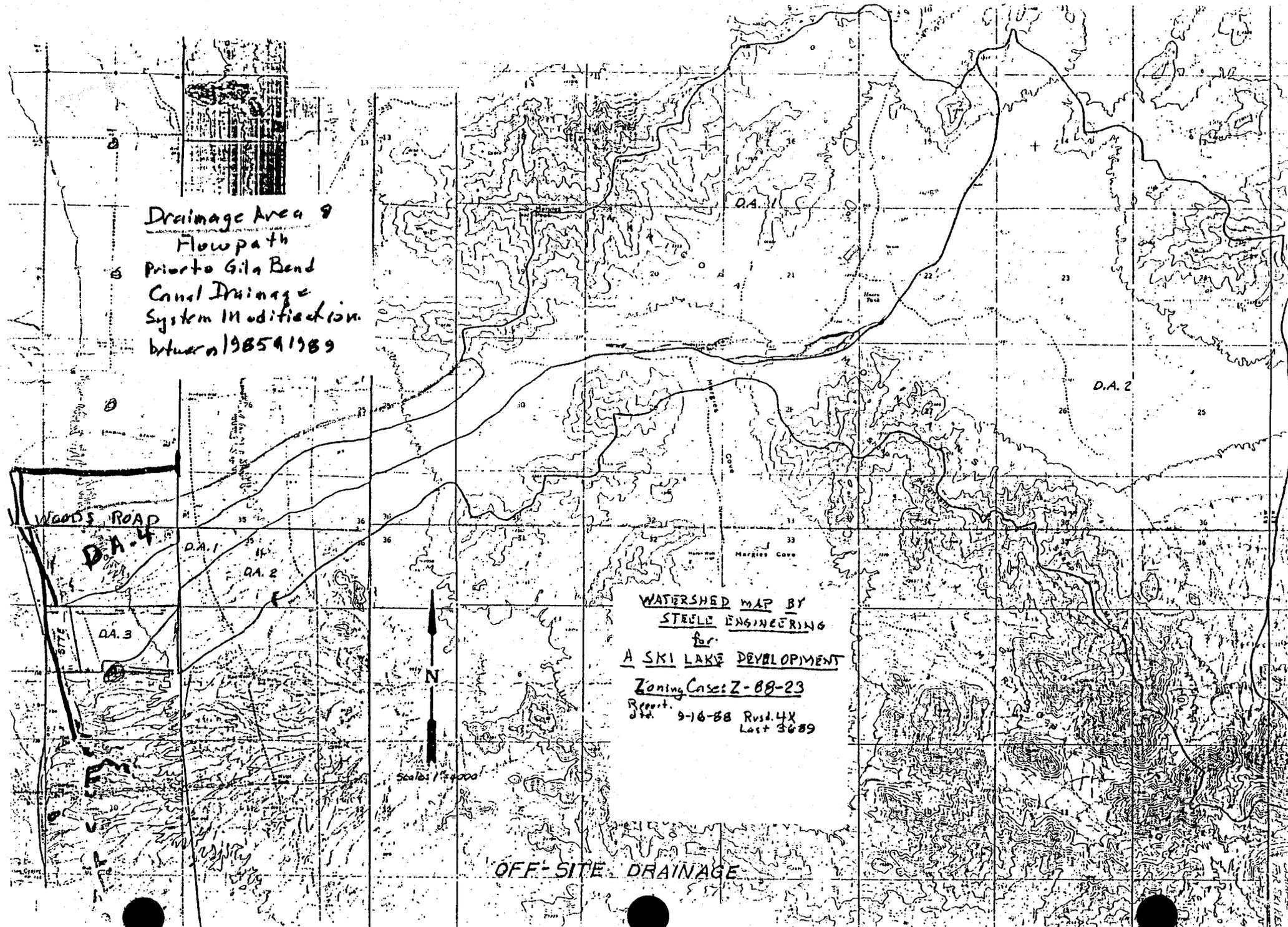
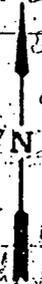
Drainage Area 9  
Flowpath  
Prior to Gila Bend  
Canal Drainage  
System Modification  
between 1985 & 1989



WATERSHED MAP BY  
STEELE ENGINEERING  
for  
A SKI LAKE DEVELOPMENT  
Zoning Case: Z-88-23  
Report  
Dtd. 9-16-88 Rev'd. 4X  
Last 3/6/89

OFF-SITE DRAINAGE

Scale: 1" = 4000'





D R A F T  
M E M O R A N D U M

D R A F T

TO: J. R. Morris, P.E.

FROM: D. E. Creighton, Jr., P.E.

DATE: August 27, 1989

SUBJECT: Ski Lake Development discussion with Maricopa County  
Flood Control District staff members, August 23,  
1989, Woolsey Flood Protection District

Following telephone contact with MCFCD staff about subject development (Maricopa County Zoning Case: Z 88-23), I met with Charles Feuquay, Steven Tucker, and Felicia Terry on August 23, 1989 in the DWR Flood Management Section office to discuss my concerns about the hydrologic modeling adequacy and the watershed drainage alterations which have been created by the development, and to obtain information which they might provide about the subject.

Discussion and Information Exchange

1. Using maps of the watershed and sketches of the 1985 Gila Bend Canal drainageways based on information supplied by Robert Steil, retired Paloma Ranch engineer, I pointed out the hydrologic modeling problems and drainage network impairment identified in my July 28, 1989 memorandum.

2. The MCFCD personnel provided information on activities, review by field site inspection in early 1988, zoning, and county board of supervisors approval of the project over the objections of P&Z and FCD staff recommendations. The supervisors approval apparently was based on the development promoters presentation during which the following elements appear to have played roles of differing magnitudes.

a. The ski lake would use less water than agricultural production of cotton as previously farmed. This allegation based on contacts with DWR (Dick Gessner) with at least one letter and reference to an earlier DWR letter stating that the property was not in an AMA, and that the developers estimate of water use balance appeared reasonable.

b. The development construction would not be considered a jurisdictional dam if kept under 6.75 feet in height. The 6.75' number was referred to twice by Charles Feuquay. DWR Dam Safety engineer Bill Jenkins was said to be the telephone contact regarding jurisdictional size criteria. Experience indicates that dam jurisdictional size criteria is difficult for those not constantly involved to understand, interpret and apply, particularly based on telephone contact only.

c. "The water district (or company)" approved the development. Identification of who constitutes "the water district" could not be ascertained. The MCFCD case file correspondence when quickly reviewed did not include any item which could be identified with "the water district".

d. C. Feuquay said that during a site inspection in the spring of 1988, that the Gila Bend Canal east side drain, as described by R. Steil, was not recognizable (and which is now attributable to wash sediment deposition in the vicinity of the NW corner of Section 3). No photographs were taken during the inspection was the response to my direct question.

e. Prior to approval of completed construction MCFCD is going to require a certificate by a professional soils engineer that he personally witnessed the construction and compaction, and that the embankments shown by supporting documentation of materials testing meet the 95% density requirements (FEMA certification).

#### Analysis and Interpretations

3. The MCFCD personnel left me with the impression that they would appreciate some form of assistance in efforts to clear up this technically inadequate situation.

4. a. The purported impaired drainage path in 1988 as compared to 1985 could be the result of a change in operation and maintenance concepts and procedures by Paloma Ranch/Prudential Insurance. The abandonment of the annual cleaning of the drainage channel from Woods Road to the pump lift, and the CMP culverts under the canal may have been thought by some Ranch/Corporation personnel to be adequately replaced by filling the drainage way, installing 30"+/- pipes emptying directly into the canal, and raising the east canal bank road. Where and when this functional concept may have developed, been possibly reinforced, and possibly partially constructed by the Ski Lake promoters is one course of inquiry in need of resolution.

b. It appears that the steel pipes in the east bank north of the Ski Lake access ramp from the canal bank will be inadequate to handle the drainage which has previously washed out a portion of this section of the canal. Further, the future sediment deposition if not removed will aggravate and increase the hazard of overtopping failure.

5. The impairment of the drainage way (watercourse) resulting from the Ski Lake development appears to fall within the purview of ARS Sect. 48-3613.

6. a. The Ski Lake Development as shown on the Steele Engineering Co. drawing has been created by excavation of the sandy loam alluvial deposit former irrigated farmland, and embankment fill placement to create a perched reservoir and

subsidiary perched detention basin above the historic drainage channel along the east side of the Gila Bend Canal. This complex includes operation as a flood control and detention structure through diversion and storage routing of flood flows.

b. The height of the stepped embankment above the Gila Bend Canal drainage channel to the primary perched reservoir is about 7.9+/- feet to the spillway crest elevation. The partial reservoir capacity computed for the two trapezoidal minimum lake arm sections is about 92 acre-feet before increasing adjustments for the 4 turn-around bays, interconnecting channel and widening of the west arm by some 50 feet for about 1/2 the arm length. With refining computations based on actual as-built measurements and checking of an estimated (by one MCFCD staff member) depth closer to 11 feet than the proposed 5 to 6 feet, a volume of about 100 acre-feet may be a closer approximation to the full capacity. See attached Figure Nos. 1 & 2.

c. On the east side of the reservoir the plans call for 9 storm flow inlet channels each rated at 65 cfs, from the perimeter flood channel, for a total of 583 cfs at zero freeboard. Velocity of 3.6 fps would undoubtedly be erosive and degrading back to the source channel. No provision is indicated for soil cement stabilization of the 9 inlet channels. The perimeter channel will intercept and collect sheet flow from the property to the east. No apparent provision is included for sediment, or for prevention of gullying and headcutting to the east from the channel.

The east perimeter interception and transfer channel shown on the plat plan, with Sec. F-F, and Sec. A-A, has a steeper channel slope and greater channel velocity and discharge capacity than is shown in the design computations on page 17. The differences between design and construction plans are:

<u>Item</u>	<u>Construction</u>	<u>Design</u>	<u>% Difference</u>
	<u>Plans</u>		
Channel slope (s)	0.001081	0.00081	133.5
Q discharge (cfs)	400	346	115.5
Velocity (fps)	3.61	3.12	115.7

This error in channel slope and channel capacity is a moot item because the basic design discharge target is erroneous due to the initial hydrologic modeling error. It is however, an indicator of quality, accuracy and general competence.

The configuration of the east perimeter channel has a 2:1 side slope in the sandy loam soils of the site and property east of the "property line". The channel velocity of 3.6+/- fps is greater than the threshold scour velocities for these non-cohesive soils, therefore gullying and headcutting erosion can be expected to proceed upslope and easterly from the property, with accelerated sediment deposition into the development lake, retention basin and channel. The expedient plastic ditch lining for erosion reduction attempted by the developer in his early initial attempt to fill the lake to retain the moisture in the bentonite bottom lining installed for seepage control illustrates the adequacy of slope lining considered. This initial filling attempt was abandoned when it became apparent that filling could

not be accomplished with the pump capacity during the summer heat of June-July and later. The lack of measures for erosion control of the perimeter channel and other areas as interpreted from the plan of development drawing provides additional cause for questioning the adequacy of the development plan.

The further limiting of the perimeter channel to the 10-year, 2-hour runoff (pg 13 - qp=360 cfs) and Sec F-F of drawing and page 17. Design Q = 360 cfs, and implied capability for routing greater flows to a magnitude of the 100-year 916 cfs is subject to question because the 3 ft. depth at Lot #11 brings the 10-year discharge up to elevation 756.25 (753.25+3) which is the pad elevation for Lots #11 thru #20. Therefore there is ZERO freeboard for the 10-year level and no provision for the 100-year flood flow of qp=916cfs. An additional 24 sq ft of road space would add about 94 cfs capacity before overtopping the pad elevation.

Additionally, the 916 cfs is not a competent hydrologic analysis value to begin with.

d. The diversion and flowpaths from the channels between lots 11 through 20 and along the east and south sides of the development create a continuous and cascade flow path from the initial diversion, channelization and control elements to the ultimate discharge at the base of the embankment and the continuation of the historic drainage flow path from Woods Road along the east side of the Gila Bend Canal to the pump lift station outlet channel, and which is now blocked by embankment.

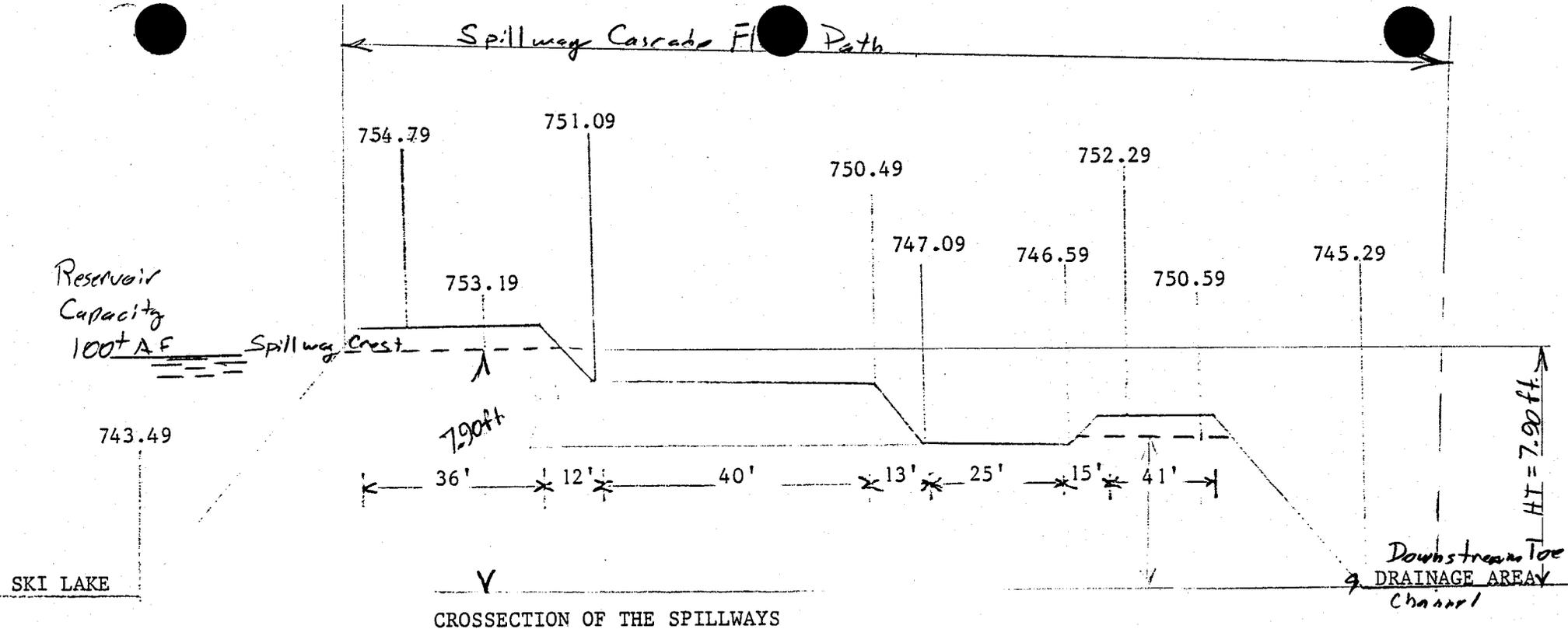
7. The purported 1988 absence of a drainage path due to sediment deposit does not negate or void the historic flowpath within the R-O-W of the Gila Bend Canal. Impairment due to lack of maintenance does not negate history. Neglect might be construed to be a violation of ARS Sec. 48-3616.

8. The elements of 100 acre-feet of storage capacity and structure height for 8 feet for the reservoir storage discharge to original ground level appear to place the Ski Lake development in the jurisdictional size category, and in apparent non-compliance violation status of ARS Sec. 45-1201. See attached Definition Diagram-Jurisdictional Dams-Size Criteria.

9. It appears that Steele Engineering has mixed an erroneous 100-year, 2-hour storm concept with a 10-year, 2-hour runoff in developing the east channel. No HEC-2 runs have been made to support any level of flow or water surface elevation at the north or east side of the property. To get FEMA and DWR clearance, HEC-2 water surface elevations for evaluating pad elevations and freeboard will be required. The Q 100 used will have to be supported by a competent HEC-1 model results with tributary channel infiltration losses (RL card) included.

The 1969 ADOT drainage manual used by Steele has been voided by ADOT as to procedure and methodology.

Enclosures: Figures



26'

43'

Height of Dam from Spillway Crest 753.19  
 to Downstream Toe 745.29  
 is 7.90 Feet

Ski Lake Development, Mariagee County.  
 N.W 1/4, T4S, R4W, GSR 29m.

on. Unnamed washes and Alluvial Fan Slope  
 Upstream and Adjacent to Gila Bend Canal.

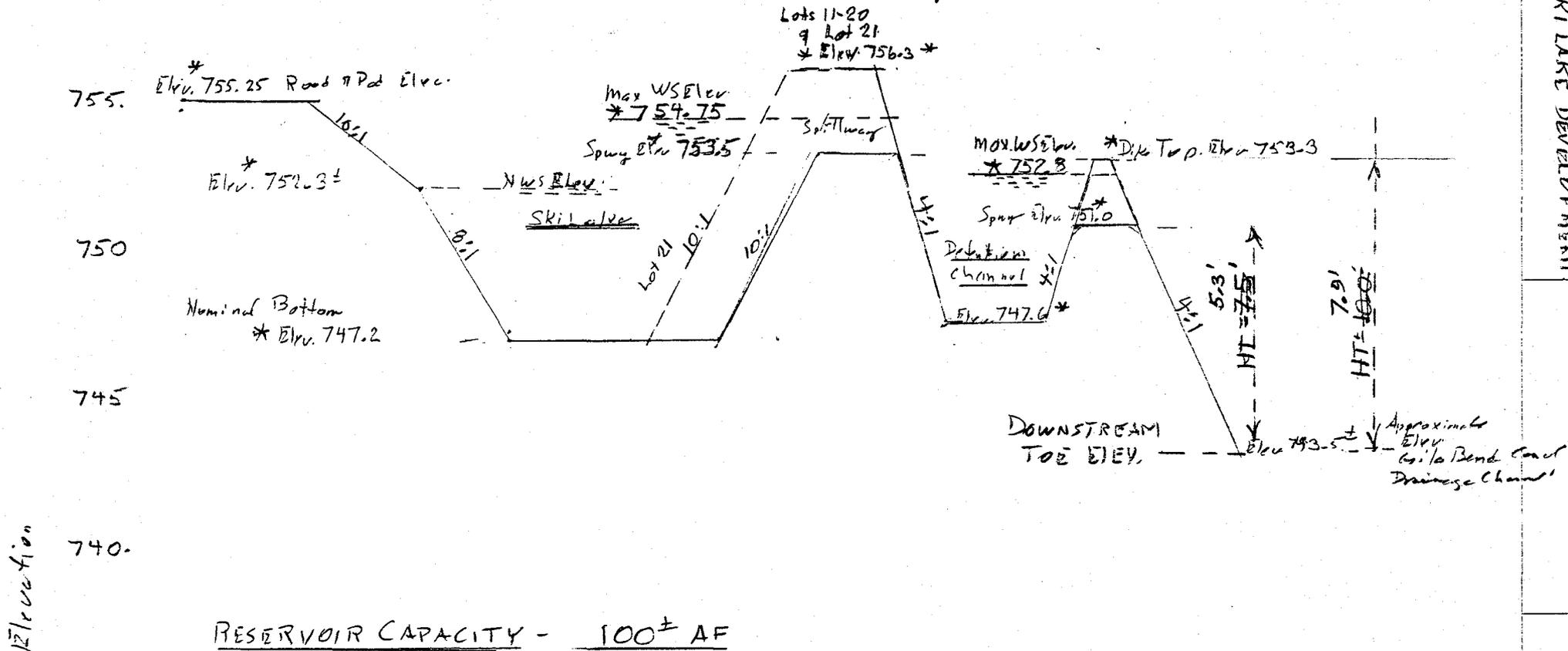
Survey Elevations by  
 Tim Casey - DWR.  
 Ron Russell -  
 8-28-89



42.391 10 SHEETS 5 SQUARE  
 42.392 100 SHEETS 5 SQUARE  
 42.393 100 SHEETS 5 SQUARE  
 42.394 100 SHEETS 5 SQUARE

SKI LAKE DEVELOPMENT

Profile from Lake across Spillway Crests to Drainage Channel



\* See Survey Notes by Tracy for revising elevations

FIGURE No. 1

SKI LAKE DEVELOPMENT

N.A.G. Spec. 220  
900 L.F. of Plain Rip-Rap Approx.  
8" Least Dimension Stone.  
At Least 2/3 of Stones  
to be larger than  
Smallest.



Witness Cor.  
Fd. G.L.O.  
Brass Cap

Transition  
to Exist. Road  
in 200± feet

N.W. Sec. 3  
in Canal

Cons  
Date

**FIGURE No. 2**

Flood Routing  
&  
Cascade Path  
through  
Storage  
and  
Over Impounding  
Structure

**Note:**  
This channel will  
result in headcutting  
and gullying of the  
Property to the  
east which fronts  
the channel with  
sheet flows.

Extend existing 24" dia.  
culvert through New  
Berm to allow drainage  
into canal.

RETENTION  
BASIN

Construct Berm Per  
Section EE With Top El.  
3.3. Permission to  
Obtain from Owners  
of Gila Bend Canal.

A  
N 0° 32' 41" W  
2625.73'

Top of Road  
@ Lake  
Elev. = 755.25  
Top of Dike  
@ Retention  
Basin  
Elev. = 753.30  
175' @ Lake  
2.3' @ Retention Basin.

N H-H  
Spillway  
Varies  
8" Thick Soil  
Cement

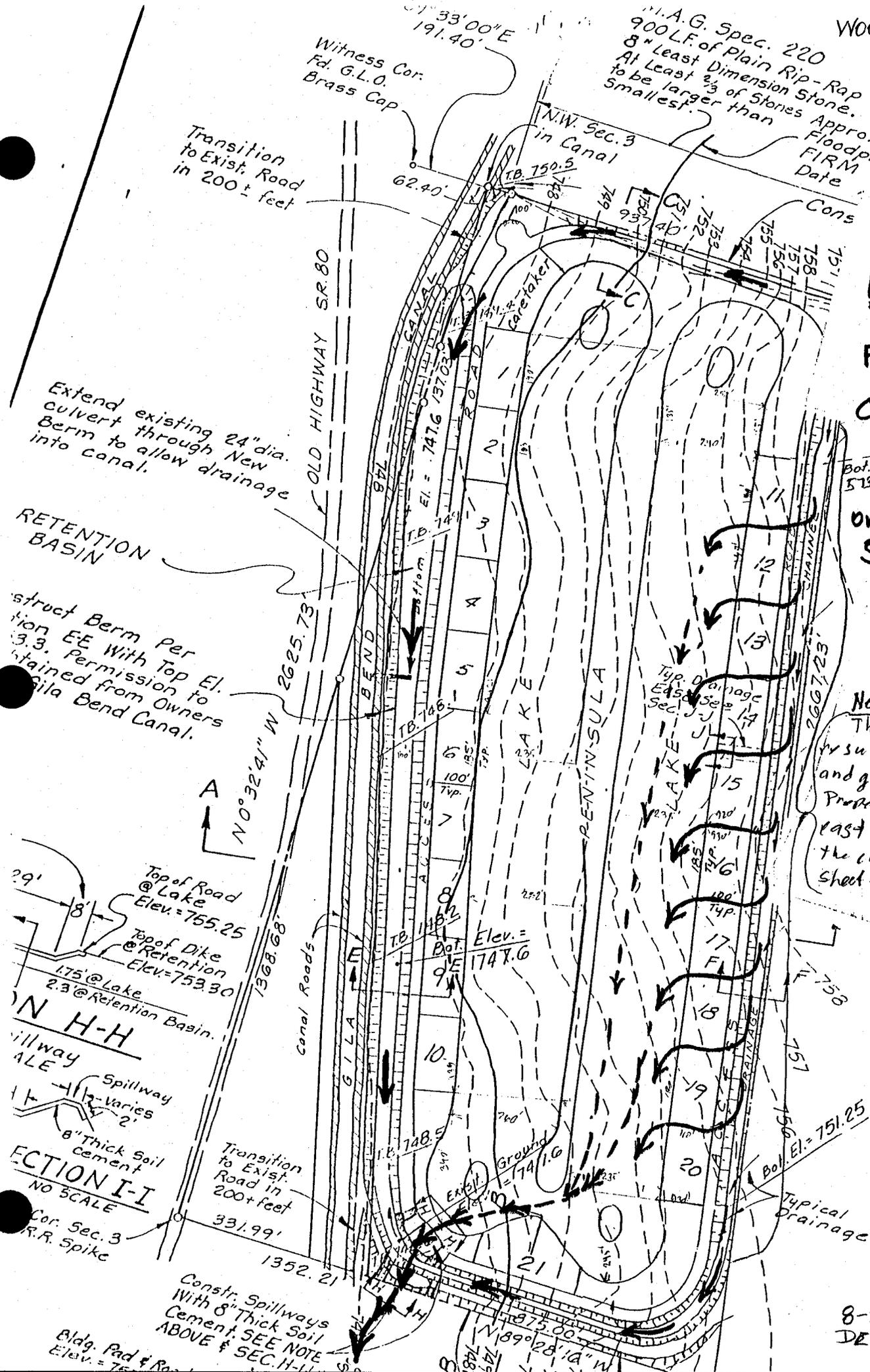
SECTION I-I  
NO SCALE

Cor. Sec. 3  
R.R. Spike

Transition  
to Exist.  
Road in  
200+ feet

Constr. Spillways  
With 8" Thick Soil  
Cement. SEE NOTE  
ABOVE & SEC. H-H

8-26-89  
DEC Jr.  
G



STATE OF ARIZONA  
 OFFICE OF STATE WATER ENGINEER  
 SUPERVISION OF SAFETY OF DAMS

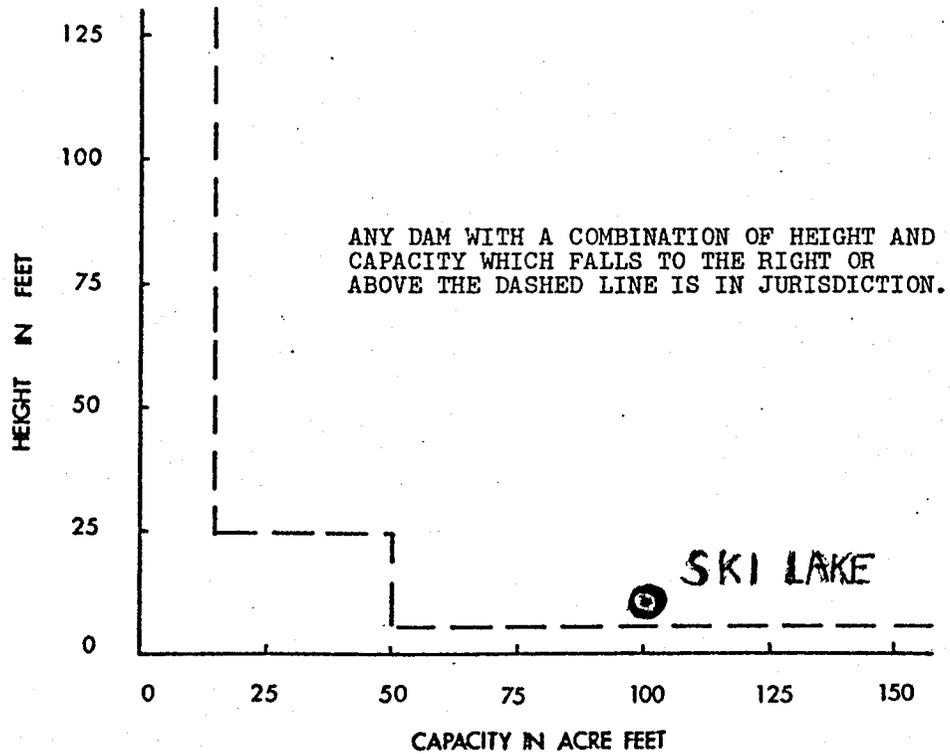
JURISDICTIONAL DAMS - SIZE CRITERIA

DEFINITIONS

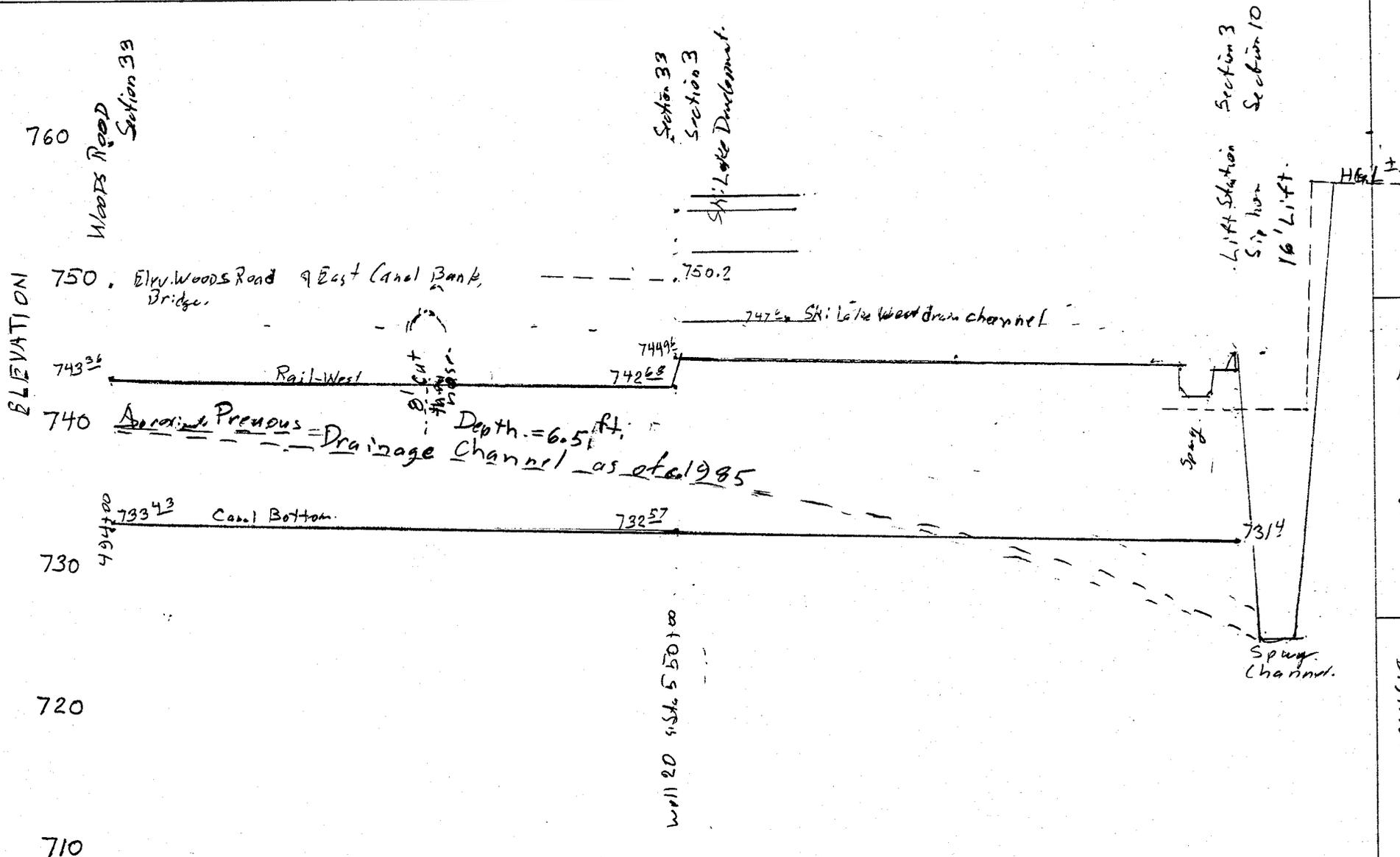
A JURISDICTIONAL DAM is either twenty-five feet or more in height or stores more than fifty acre-feet. If it is less than six feet in height regardless of storage capacity or does not store more than fifteen acre-feet regardless of height; it is not in jurisdiction.

THE HEIGHT is the vertical distance from the lowest elevation of the outside limit of the dam at its intersection with the natural ground surface to the spillway crest elevation.

THE CAPACITY is the maximum storage, in acre feet which can be impounded by the dam when there is no discharge of water.

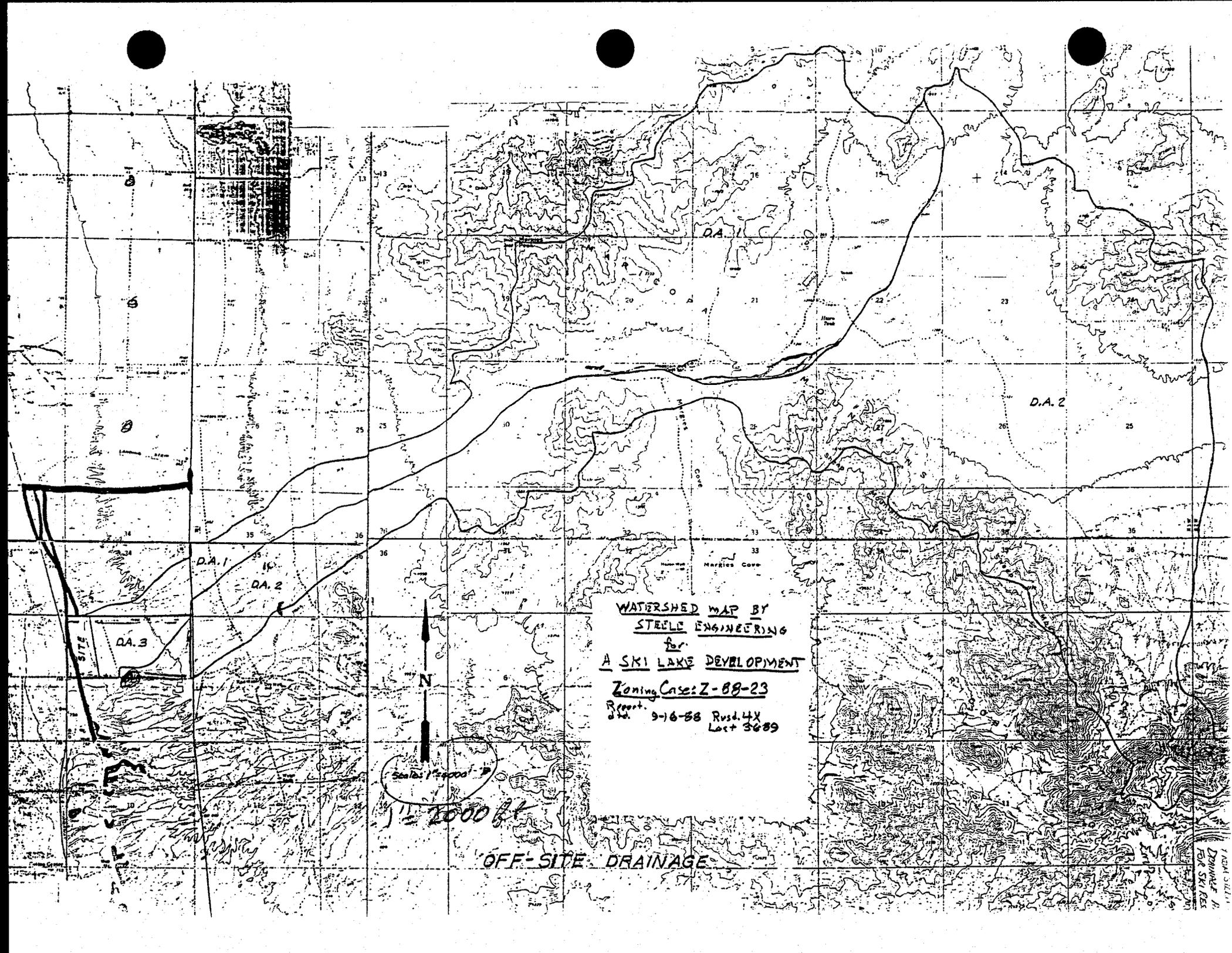




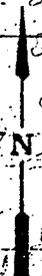


Ski Lake Department

Madison Hand Protection District



WATERSHED MAP BY  
STEELE ENGINEERING  
for  
A SKI LAKE DEVELOPMENT  
Zoning Case: Z-88-23  
Report  
Dtd. 9-16-88 Rvd. 4X  
Lot 3689



Scale: 1" = 2000'

1" = 2000 FT

OFF-SITE DRAINAGE

DRAWN BY  
FOR SKI RES

Appendices

B. Unusual Precipitation/Flooding Evaluations

C. Model Regulation

D. NFIP (Regulations)

APPENDIX B

Precipitation

Unusual Precipitation Flooding Events -  
Report Forms received - (Blank sample enclosed).

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Reported by</u>
1. 7-20-79	1100	Gila Bend Canal So. of Woods Road Sect. 32, T35, R46	R. Steil
2. Not given		S 10,15,22 T45 R4W S 27,30 T45 R4W S 3 T55 R4W	R. Steil
3. April 1978		S 20, 19, 18, T55 R4W Large General Storm Siphon #11	Getzweiler & R. Steil
4. August 1981		Normally Quiet Watershed	R. Steil
5. 1971-78 Yearly		Siphon #5, Jitterbug Wash-Channel Thru Layton's report, Badley, Paloma agreement	R. Steil R. Steil
6. 7-20-89	1130	Sand Tank & Bender Wash-Gila Bend w/ photos	R. Steil
7. 1978 to date		Siphon 4 - Patterson (Little Rain- Wash) Precipitation varied.	R. Steil
8.		Turners Swamp - 536, T25, R4W	R. Steil

Date    Time Location

Reported by:

9. Annual since                      Siphon #3, Channel to River  
1977, Monsoon                      Precipitation 1" to 3" Varied  
Season

R. Steil

10. Yearly                              Siphon #7, 8 S3 T55 R4@  
Siphon #9,10 S27, T4S R4W - S7

Oral 1" to 3" in 45 minutes to 1 1/2 ± hrs. - no dates.

DEPARTMENT OF WATER RESOURCES  
ENGINEERING DIVISION  
FLOOD MANAGEMENT SECTION

FILE: Unusual Precipitation-Flooding Events

Location: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Precipitation Amount: \_\_\_\_\_ in. Duration \_\_\_\_\_ min/hrs.  
Stream: \_\_\_\_\_ Discharge \_\_\_\_\_ cfs.

Flooding: \_\_\_\_\_

Damages: People: \_\_\_\_\_  
Property: \_\_\_\_\_  
Land: \_\_\_\_\_

Watershed, Drainage Area: \_\_\_\_\_ sm. Watershed Length: \_\_\_\_\_ ft.  
Elevation, Top: \_\_\_\_\_, Bottom: \_\_\_\_\_ Slope: \_\_\_\_\_  
Soil Hydrologic Groups (s): \_\_\_\_\_

Vegetation type: \_\_\_\_\_ Density: \_\_\_\_\_

Information source: \_\_\_\_\_

Name: \_\_\_\_\_ Newspaper: \_\_\_\_\_  
Address: \_\_\_\_\_ Date: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Telephone: \_\_\_\_\_

Attachments: \_\_\_\_\_

Articles: ( ): \_\_\_\_\_ Clippings ( ): \_\_\_\_\_ Map ( ): \_\_\_\_\_

Return to Arizona Department of Water Resources, Flood Management  
Section, 15 South 15th Avenue, Phoenix, Arizona 85007.

Project Area: None: \_\_\_\_\_, Name: \_\_\_\_\_

ARIZONA DEPARTMENT OF WATER RESOURCES, Flood Management Section

HISTORICAL FLOODING INFORMATION

A. When did it happen?

Year \_\_\_\_\_, Month \_\_\_\_\_, Date \_\_\_\_\_

B. How much did it rain at \_\_\_\_\_(place)?

Rainfall amount: \_\_\_\_\_(Inches), Duration \_\_\_\_\_min/hrs/days

Was it a general storm? \_\_\_yes, \_\_\_no, or concentrated over  
a \_\_\_large, or \_\_\_small area? \_\_\_\_\_(Name)

C. Where and what type of flooding was there?

Stream: \_\_\_\_\_(name) Discharge: \_\_\_\_\_(cfs)

Width: \_\_\_\_\_(ft/miles) Depth: \_\_\_\_\_(feet)

Channel flooding from \_\_\_\_\_(upper reference) to  
\_\_\_\_\_ (lower reference). \_\_\_\_\_ (miles)

How far did the flood water reach? \_\_\_\_\_

D. Was there damages to:

	<u>Yes</u>	<u>No</u>	<u>Description</u>
People:	___	___	
Animals:	___	___	
Property:	___	___	
Crops:	___	___	
Land:	___	___	
Roads:	___	___	

E. Who provided the information:

Name: \_\_\_\_\_ Newspaper: \_\_\_\_\_

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

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

F. Attachments:

Articles (\_\_\_\_); Clippings (\_\_\_\_); Map (\_\_\_\_).

G. Who filled out this report:

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

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

H. Other information or comments: \_\_\_\_\_

Thank you for your help.

Complete as many of the items as possible, and where you have information.

Return to Arizona Department of Water Resources, Engineering Division, 15 South 15th Avenue, Phoenix, Arizona 85007

## APPENDIX C

### 9. AN IN-DEPTH LOOK AT A "MODEL" REGULATION

A number of model regulations have been developed to assist communities in formulating a regulation which will allow the community to manage its floodplains according to its own aims and capability. Regulations in effect in Arizona vary widely in development standards and administrative detail. The model regulation examined herein was developed by the Arizona Department of Water Resources, patterned largely after a model developed by the Region IX staff of the Federal Emergency Management Agency (FEMA).

The model is intended to meet the minimum requirements of the Arizona Revised Statutes (ARS) and the National Flood Insurance Act of 1968 as amended (NFIA). References will also be made to other regulations in effect in Arizona communities.

This model reflects the 1984 statutory changes, the 1985 renumbering of the Statutes, and the NFIP rules as they were revised effective October 1, 1986. It has alternate sections where the wording is different for counties and for cities and towns.

Definitional changes made since 1986 are also included.

MODEL ORDINANCE

MODEL ORDINANCE

FLOOD DAMAGE PREVENTION ORDINANCE

SECTION 1.0

STATUTORY AUTHORIZATION, FINDINGS OF FACT,

PURPOSE AND METHODS

1.1 **STATUTORY AUTHORIZATION.** The Legislature of the State of Arizona has in A.R.S. § 48-3601 through 48-3627 delegated the responsibility to each county flood control district unit to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the Flood Control District, (Board of Directors) of \_\_\_\_\_ County, Arizona, does ordain as follows:

1.1 **STATUTORY AUTHORIZATION.** The Legislature of the State of Arizona has in A.R.S. § 48-3610 enabled the (City or Town) to adopt regulations in conformance with A.R.S. § 48-3603 designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the (City Council, Town Council) of \_\_\_\_\_, Arizona, does ordain as follows:

1.2 **FINDINGS OF FACT**

A. 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, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

B. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

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**1.3 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:

- A. To protect human life and health;
- B. To minimize expenditure of public money for costly flood control projects;
- C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- D. To minimize prolonged business interruptions;
- E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;
- F. To help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas;
- G. To insure that potential buyers are notified that property is in an area of special flood hazard;
- H. To insure that those who occupy the areas of special flood hazard assume responsibility for their actions and
- I. To maintain eligibility for State disaster relief.

**1.4 METHODS OF REDUCING FLOOD LOSSES.** In order to accomplish its purposes, this ordinance includes methods and provisions for:

- A. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- D. Controlling filling, grading, dredging, and other development which may increase flood damage; and,

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E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

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### SECTION 2.0

#### DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as 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.

"Appeal" means a request for a review of the Floodplain Administrator's interpretation of any provision of this ordinance or a request for a variance.

"Area of shallow flooding" means a designated A0 Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident.

"Area of special flood hazard" means the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. This area is designated as Zone A, A0, AH, and A1-30 on the FIRM and other areas determined by the criteria adopted by the Director of Water Resources.

"Base flood" means the flood having a one percent chance of being equalled or exceeded in any given year.

"Breakaway Wall" means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building supporting foundation system.

"Critical Feature" means an integral and readily identifiable part of a flood protection system without which the flood protection provided by the entire system

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would be compromised.

**"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, and storage of materials and equipment located within the area of special flood hazard.

**"Financial assistance"** means any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance, other than general or special revenue sharing or formula grants made to States.

**"Flood or flooding"** means a general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of flood waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, and/or (3) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in this definition.

**"Flood Boundary Floodway Map"** means the official map on which the Federal Insurance Administration has delineated both the areas of flood hazard and the floodway.

**"Flood Insurance Rate Map (FIRM)"** means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

**"Flood Insurance Study"** means the official report provided by the Federal Insurance Administration that includes flood profiles, the FIRM, the Flood Boundary Floodway Map, and the water surface elevation of the base flood.

**"Floodplain or flood-prone area"** means any land area susceptible to being inundated by water from any source (see definition of "flooding").

**"Floodplain administrator"** means the \_\_\_\_\_ of \_\_\_\_\_ who is hereby

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authorized by the Floodplain Board to administer the provisions of this ordinance.

"Floodplain Board" means the Board of Directors of the Flood Control District of \_\_\_\_\_ County at such times as they are engaged in the enforcement of this ordinance.

"Floodplain Board" means the (City, Town) Council of \_\_\_\_\_ at such times as they are engaged in the enforcement of this ordinance.

"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 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 area within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes 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 non-structural 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.

"Flood-related erosion" means the collapse or subsidence of land along the shore of a lake or other body of water as a result of undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe

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storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas necessary in order to discharge the one hundred-year flood without cumulatively increasing the water surface elevation.

"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

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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 requirements of this ordinance.

"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 attached 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 sale or rent.

"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 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

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community and includes any subsequent improvements to such structures.

"Person" means an individual or his agent, firm, partnership, association or corporation, or agent of the aforementioned groups, or this state or its agencies or political subdivisions.

"Program" means the National Flood Insurance Program authorized by 42 U.S.C. 4001-4128.

"Program deficiency" means a defect in a community's floodplain management regulations or administrative procedures that impairs effective implementation of those floodplain management regulations or of the NFIP standards.

"Recreational vehicle" means a vehicle which is:

- (a) built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projection;
- (c) designed to be self-propelled or permanently towable by a light duty truck; and
- (d) designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel or seasonal use.

"Regulatory flood elevation" means an elevation one foot above the base flood elevation.

"Remedy a violation" means to bring the structure or other development into compliance with State or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of the ordinance or otherwise deterring future similar violations, or reducing Federal financial exposure with regard to the structure or other development.

"Riverine" means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

"Special flood hazard area" means an area having special flood or flood-related erosion hazards, and shown on an FFBM or FIRM as Zone A, A0, A1-30, AE, A99 or AH.

"Start of Construction" includes substantial improvement, and means the date

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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 a 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 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

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structure".

"Variance" means a grant of relief from the requirements of this ordinance which permits construction in a manner that would otherwise be prohibited by this ordinance.

"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 this ordinance is presumed to be in violation until such time as that documentation is provided.

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SECTION 3.0

GENERAL PROVISIONS

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES. This ordinance shall apply to all areas of special flood hazards within the boundaries of \_\_\_\_\_ County except those incorporated cities and town which have adopted a resolution in accordance with A.R.S. 48-3610.

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES. This ordinance shall apply to all areas of special flood hazards within the corporate limits of \_\_\_\_\_.

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD. The areas of special flood hazard identified by the Federal Insurance Administration in Flood Insurance Studies for all areas as specified by Subsection 3.1 above with accompanying Flood Insurance Rate Maps are hereby adopted by reference and declared to be a part of this ordinance. These Flood Insurance Studies are on file at \_\_\_\_\_. The Flood Insurance Study is the minimum area of applicability of this ordinance and may be supplemented by studies for other areas which allow implementation of this ordinance and which are recommended to the Floodplain Board by the Floodplain Administrator.

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD. The area of special flood hazard identified by the Federal Insurance Administration (FIA) in a scientific and engineering report entitled "The Flood Insurance Study for \_\_\_\_\_" with an accompanying Flood Insurance Rate Map is hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study is on file at \_\_\_\_\_. The Flood Insurance Study is the minimum area of applicability of this ordinance and may be supplemented by studies for other areas which allow implementation of this ordinance and which are recommended to the Floodplain Board by the Floodplain Administrator.

3.3 COMPLIANCE. No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations.

3.4 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 ordinance, easement,

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covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

**3.5 INTERPRETATION.** In the interpretation and application of this ordinance, all provisions shall be:

- A. Considered as minimum requirements;
- B. Liberally construed in favor of the governing body; and,
- C. Deemed neither to limit nor repeal any other powers granted under state statutes.

**3.6 WARNING AND DISCLAIMER OF LIABILITY.** The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. 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 \_\_\_\_\_, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

### **3.7 STATUTORY EXEMPTIONS**

- A. In accordance with A.R.S. 48-3609, nothing in this ordinance shall:
  - 1. Affect existing uses of property or the right to continuation of the use under conditions which existed on the effective date of this ordinance.
  - 2. Affect repair or alteration of property for the purposes for which such property was used on the effective date of this ordinance; providing such repair or alteration does not exceed 50 percent of the value of the property prior to the repair or alteration; and provided the repair or alteration does not decrease the carrying capacity of the watercourse.
  - 3. Affect or apply to facilities constructed or installed pursuant to a certificate of environmental compatibility issued under the authority of Title 40, chapter 2, article 6.2.
- B. In accordance with A.R.S. § 48-3613, written authorization shall not

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be required, nor shall the Floodplain Board prohibit:

1. The construction of bridges, culverts, dikes and other structures necessary to the construction of public highways, roads and streets intersecting a watercourse.
  2. The construction of storage dams for watering livestock or wildlife, structures on banks of a creek, stream, river, wash, arroyo, or other watercourse to prevent erosion of or damage to adjoining land, or dams for the conservation of flood waters as permitted by Title 48, Chapter 21.
  3. Construction of tailing dams and waste disposal areas for use in connection with mining and metallurgical operations. This paragraph does not exempt those sand and gravel operations which will divert, retard or obstruct the flow of waters in any watercourse.
  4. Any flood control district, or other political subdivision, from exercising powers granted to it under A.R.S. Title 45, Chapter 10.
- C. Before any construction authorized by Subsection 2 of this Section may begin, the responsible person must submit plans for the construction to the Board for review and comment.
- D. These exemptions do not preclude any person from liability if that person's actions increase flood hazards to any other person or property.

**3.8 DECLARATION OF PUBLIC NUISANCE.** Every new structure, building, fill, excavation or development located or maintained within any area of special flood hazard after August 8, 1973 in violation of this ordinance is a public nuisance *per se*.

**3.9 ABATEMENT OF VIOLATIONS.** Within 30 days of discovery of a violation of this ordinance, the Floodplain Administrator shall submit a report to the Floodplain Board which shall include all information available to the Floodplain Administrator which is pertinent to said violation. Within 30 days of receipt of this report, the Floodplain Board shall either:

- A. Take any necessary action to effect the abatement of such violation;
- or
- B. Issue a variance to this ordinance in accordance with the provisions of Section 6.0 herein; or

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C. Order the owner of the property upon which the violation exists to provide whatever additional information may be required for their determination. Such information must be provided to the Floodplain Administrator within 30 days of such order, and he shall submit an amended report to the Floodplain Board within 20 days. At their next regularly scheduled public meeting, the Floodplain Board shall either order the abatement of said violation or they shall grant a variance in accordance with the provisions of Section 6.0 herein.

D. Submit to the Administrator of Federal Insurance Administration a declaration for denial of insurance, stating that the property is in violation of a cited State or local law, regulation or ordinance, pursuant to section 1316 of the National Flood Insurance Act of 1968 as amended.

### **3.10 UNLAWFUL ACTS.**

A. It is unlawful for any person to divert, retard or obstruct the flow of waters in any watercourse whenever it creates a hazard to life or property without securing the written authorization of the Floodplain Board.

B. Any person violating the provisions of this section shall be guilty of a class 2 misdemeanor.

**3.11 SEVERABILITY.** This ordinance and the various parts thereof are hereby declared to be severable. Should any section of this ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole, or any portion thereof other than the section so declared to be unconstitutional or invalid.

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SECTION 4.0

ADMINISTRATION

4.1 ESTABLISHMENT OF DEVELOPMENT PERMIT. A Development Permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.2. Application for a Development Permit shall be made on forms furnished by the Floodplain Administrator and may include, but not be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevation of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities; and the location of the foregoing. Specifically, the following information is required:

- A. Proposed elevation in relation to mean sea level, of the lowest habitable floor (including basement) of all structures; in Zone A0, elevation of existing grade and proposed elevation of lowest habitable floor of all structures.
- B. Proposed elevation in relation to mean sea level to which any structure will be floodproofed;
- C. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 5.1.C.3; and,
- D. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

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4.2 DUTIES AND RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR. Duties of the Floodplain Administrator shall include, but not be limited to:

- A. Review all development permits to determine that:
  - 1. The permit requirements of this ordinance have been satisfied;
  - 2. All other required state and federal permits have been obtained;
  - 3. The site is reasonably safe from flooding.
  - 4. The proposed development does not adversely affect the carrying capacity of the floodway. For purposes of this ordinance, "adversely affects" means 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.
- B. Use of Other Base Flood Data. When base flood elevation data has not been provided in accordance with Section 3.2., the Floodplain Administrator shall obtain, review, and reasonably utilize any base flood elevation data available from a Federal, State or other source, in order to administer Section 5.0. Any such information shall be submitted to the Floodplain Board for adoption.
- C. Obtain and maintain for public inspection and make available as needed for Flood Insurance Policies:
  - 1. the certified elevation required in Section 5.1.C.1;
  - 2. the certification required in Section 5.1.C.2;
  - 3. the floodproofing certification required in Section 5.1.C.3; and
  - 4. the certified elevation required in Section 5.4.B.
- D. Whenever a watercourse is to be altered or relocated:
  - 1. Notify adjacent communities and the Arizona Department of Water Resources prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;
  - 2. Require that the flood carrying capacity of the altered or relocated portion of said watercourse is maintained.
- E. Within one hundred twenty days after completion of construction of any flood control protective works which changes the rate of flow during the flood or the configuration of the floodplain upstream or downstream from or adjacent to the project, the person or agency responsible for installation of the project shall provide to the

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governing bodies of all jurisdictions affected by the project a new delineation of all floodplains affected by the project. The new delineation shall be done according to the criteria adopted by the director of water resources.

F. Advise any city or town which has assumed jurisdiction over its floodplains in accordance with A.R.S. 48-3610 in writing and provide a copy of any development plan of any application for a floodplains use permit or variance to develop land in a floodplain or floodway within one mile of the corporate limits of such city or town. The District shall also advise such city or town in writing and provide a copy of any development plan of any major development proposed within a floodplain or floodway which could affect floodplains, floodways, or watercourses within such city's or town's area of jurisdiction. Written notice and a copy of the plan of development shall be sent to such city or town no later than three working days after having been received by the District.

F. Advise the Flood Control District of \_\_\_\_\_ County and any adjunct jurisdiction having responsibility for floodplain management in writing and provide a copy of development plan of all applications for floodplain use permits or variances to develop land in a floodplain or floodway within one mile of the corporate limits of the (City, Town) of \_\_\_\_\_. Also, advise the Flood Control District of \_\_\_\_\_ County in writing and provide a copy of any development plan of any major development proposed within a floodplain or floodway which could affect floodplains, floodways or watercourses within the District's area of jurisdiction. Written notice and a copy of the plan of development shall be sent to the District no later than three working days after having been received by (City, Town).

G. Make interpretations where 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 person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 6.0.

H. Take actions on violations of this ordinance as required in Section 3.9 herein.

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SECTION 5.0

PROVISIONS FOR FLOOD HAZARD REDUCTION

5.1 STANDARDS OF CONSTRUCTION. In all areas of special flood hazards the following standards are required:

A. Anchoring

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

2. All manufactured homes shall meet the anchoring standards of Section 5.5.A.

B. Construction Materials and Methods

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

C. Elevation and Floodproofing

1. New construction and substantial improvement of any structure shall have the lowest floor, including basement, elevated to or above the regulatory flood elevation. Nonresidential structures may meet the standards in Section 5.1.C.3. Upon the completion of the structure the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator.

2. New construction and substantial improvement of any structure in Zone A0 shall have the lowest floor, including basement, higher than the highest adjacent grade at least one foot higher than the depth number on the FIRM, or at least two feet if no depth number is specified. Nonresidential structures may meet the standards in Section 5.1.C. Upon completion of the structure a registered professional engineer shall certify to the Floodplain Administrator that the elevation of the structure meets this standard.

3. Nonresidential construction shall either be elevated in conformance with Section 5.1.C.1. or 2. or together with attendant utility and sanitary facilities:

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- a. be floodproofed so that below the regulatory flood level the structure is watertight with walls substantially impermeable to the passage of water;
  - b. have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
  - c. be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Such certifications shall be provided to the Floodplain Administrator.
4. Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that 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 to meet or exceed the following minimum criteria: A minimum of two openings have 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.
5. Within zones AH and AO, adequate drainage paths around structures on slopes shall be required to guide floodwaters around and away from proposed structures.
6. Manufactured homes shall meet the above standards and also the standards in Section 5.5.

### **5.2 STANDARDS FOR STORAGE OF MATERIALS AND EQUIPMENT**

- A. The storage or processing of materials that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal or plant life is prohibited.
- B. Storage of other material or equipment may be allowed if not subject to major damage by floods and if firmly anchored to prevent flotation or if readily removable from the area within the time available after flood warning.

**5.3 STANDARDS FOR UTILITIES**

- A. All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.
- B. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- C. Waste disposal systems shall not be installed wholly or partially in a floodway.

**5.4 STANDARDS FOR SUBDIVISIONS.**

- A. All preliminary subdivision proposals shall identify the flood hazard area and the elevation of the base flood.
- B. All final subdivision plans will provide the elevation of proposed structure(s) and pads. If the site is filled above the base flood, the final pad elevation shall be certified by a registered professional engineer or surveyor and provided to the Floodplain Administrator.
- C. All subdivision proposals shall be consistent with the need to minimize flood damage. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage. All subdivisions shall provide adequate drainage to reduce exposure to flood hazards.

**5.5 STANDARDS FOR MANUFACTURED HOMES.** All new and replacement manufactured homes, additions to manufactured homes and recreational vehicles which are left on site for more than 180 days or are not licensed and ready for highway use shall:

- A. Be elevated so that the bottom of the structural frame or the lowest point of any attached appliances, whichever is lower, is at the regulatory flood elevation; and
- B. Be securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement.

**5.6 FLOODWAYS.** Located within areas of special flood hazard established in Section 3.2 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 apply:

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- A. Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- B. If Sections 5.6 is satisfied, all new construction and substantial improvements shall comply with all other applicable flood hazard reduction provisions of Section 5.

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SECTION 6.0

VARIANCE PROCEDURE

6.1 APPEAL BOARD

- A. The Floodplain Board of \_\_\_\_\_ shall hear and decide appeals and requests for variances from the requirements of this ordinance.
- B. The Floodplain Board shall hear and decide appeals 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.
- C. In passing upon such applications, the Floodplain Board shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and:
1. the danger that materials may be swept onto other lands to the injury of others;
  2. the danger of life and property due to flooding or erosion damage;
  3. the susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
  4. the importance of the services provided by the proposed facility to the community;
  5. the necessity to the facility of a waterfront location, where applicable;
  6. the availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
  7. the compatibility of the proposed use with existing and anticipated development;
  8. the relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
  9. the safety of access to the property in time of flood for ordinary and emergency vehicles;
  10. the expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site; and,
  11. the costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water

system, and streets and bridges.

D. Generally, 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 items 6.1.D.1. through 11 have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.

E. Upon consideration of the factors of Section 6.1-4 and the purposes of this ordinance, the Floodplain Board may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

F. The Floodplain Administrator shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

## 6.2 CONDITIONS FOR VARIANCES

A. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed in 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 section.

B. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

C. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

D. Variances shall only be issued upon:

1. a showing of good and sufficient cause;
2. a determination that failure to grant the variance would result in exceptional hardship to the applicant; and
3. a showing that the use cannot perform its intended purpose unless it is located or carried out in close proximity to water. This includes only facilities defined in Section 2.0 of this ordinance in the definition of "Functionally Dependent Use."
4. a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety,

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extraordinary public expense, create nuisances, cause fraud on or victimization of, the public, or conflict with existing local laws or ordinances.

E. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the regulatory flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation. Such notice will also state that the land upon which the variance is granted shall be ineligible for exchange of State land pursuant to the flood relocation and land exchange program provided for by A.R.S. Title 26, Chapter 2, Article 2. A copy of the notice shall be recorded by the Floodplain Board in the office of the \_\_\_\_\_ County Recorder and shall be recorded in a manner so that it appears in the chain of title of the affected parcel of land.

APPENDIX D

FEDERAL EMERGENCY MANAGEMENT AGENCY

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Revised as of October 1, 1988

**National Flood Insurance Program**  
**(Regulations for Floodplain Management**  
**and Flood Hazard Identification)**



FEDERAL REGISTER/VOL. 54, No. 156/TUESDAY, AUGUST 15, 1989  
RULES AND REGULATIONS

FEDERAL EMERGENCY MANAGEMENT AGENCY

44 CFR Parts 59, 60 and 65

RIN 3067-AB32

National Flood Insurance Program

AGENCY: Federal Insurance Administration (FIA), Federal Emergency Management Agency (FEMA).

ACTION: Final Rule.

SUMMARY: This final rule revises the National Flood Insurance Program (NFIP) definitions of "substantial improvement", "new construction", and "development"; revises regulations dealing with variances, enclosed areas below the lowest floor, and wind loading values in coastal high hazard areas; and creates definitions for "alluvial fan", "apex" (as it pertains to alluvial fans), "historic structure" and "substantial damage". The final rule also clarifies NFIP regulations pertaining to procedures for map revisions and amendments and establishes standards and procedures for the types of supporting data needed when map changes are requested involving Special Flood Hazard Areas (SFHAs) on alluvial fans.

EFFECTIVE DATE: October 1, 1989.

PART 59 - GENERAL PROVISIONS

1. The authority citation for Part 59 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

§59.1 [Amended]

2. §59.1 is amended as follows:

a. By adding alphabetically, a definition of "Alluvial Fan" to read as follows:

\* \* \* \* \*

"Alluvial Fan" means a geomorphologic feature characterized by a cone or fan-shaped deposit of boulders, gravel, and fine sediments that have been eroded from mountain slopes, transported by flood flows, and then deposited on the valley

floors, and which is subject to flash flooding, high velocity flows, debris flows, erosion, sediment movement and deposition, and channel migration.

\* \* \* \* \*

b. By adding, alphabetically, a definition of "Apex" to read as follows:

\* \* \* \* \*

"Apex" means the point of highest elevation on an alluvial fan, which on undisturbed fans is generally the point where the major stream that formed the fan emerges from the mountain front.

\* \* \* \* \*

c. By adding to the definition of "development" after the word "operations" the words "or storage of equipment or materials."

d. By adding, alphabetically, a definition of "Historic structure" to read as follows:

\* \* \* \* \*

"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 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.

\* \* \* \* \*

e. By revising the definition of "New Construction" to read as follows:

\* \* \* \* \*

"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 flood plain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a flood plain management regulation adopted by a community and includes any subsequent improvements to such structures.

f. By adding to the definition of "start of construction" after the word "reconstruction," the words "rehabilitation, addition", and by adding the following sentence at the end of the definition: "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."

g. By adding, alphabetically, a definition of "Substantial Damage" to read as follows:

\* \* \* \* \*

"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.

\* \* \* \* \*

h. By revising the definition of "Substantial Improvement" to read as follows:

\* \* \* \* \*

"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 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".

**PART 60 - CRITERIA FOR LAND USE MANAGEMENT AND USE**

3. The authority citation for Part 60 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

**§60.3 [Amended]**

4. §60.3 is amended as follows:

a. By adding in paragraph (c)(5) between the words "that" and "are" the phrase "are usable solely for parking of vehicles, building access or storage in an area other than a basement and which".

b. By removing the sentence in paragraph (e)(4) that begins with the word "Wind" and adding in its place "Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable State or local building standards."

c. By removing the sentence in paragraph (e)(5) that begins with the word "Maximum" and adding in its place "Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable State or local building standards."

\* \* \* \* \*

**§60.6 [Amended]**

5. §60.6 is amended by removing in paragraph (a) the sentence "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 or a State Inventory of Historic Places, without regard to the procedures set forth in this section", and adding in its place "Variances may be issued for the repair or rehabilitation of historic structures upon a determination that (i) the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and (ii) the variance is the minimum necessary to preserve the historic

character and design of the structure."

**PART 65 - IDENTIFICATION AND MAPPING OF SPECIAL HAZARD AREAS**

6. The authority citation for Part 65 continues to read as follows:

**Authority:** 42 U.S.C. 4001, et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

**§65.6 [Amended]**

7. §65.6 is amended by revising paragraph (a)(6) to read as follows:

\* \* \* \* \*

(a) \* \* \*

(6) In order for an alternative hydraulic or hydrologic methodology to be accepted, any computer program used must meet all of the following criteria:

- (i) it must be reviewed and approved for general use by a Federal agency responsible for water resources activities, such as the U.S. Army Corps of Engineers, U.S. Geological Survey, USDA Soil Conservation Service, Tennessee Valley Authority, or Bureau of Reclamation; or by a notable scientific body such as the National Academy of Sciences. Reviews or acceptance by Federal agencies that do not have water resources responsibilities, by non-Federal agencies, or by individual universities and colleges, are not admissible.
- (ii) it must be well documented including source codes and user's manual.
- (iii) it must be available to the general user, i.e. it must be in the public domain and nonproprietary. If the program is not generally available from a Federal agency, but the source code can be sent to FEMA free of charge with fully documented permission from the owner that FEMA may release the code and the user's manual to whomever requests it, with only nominal charges to cover FEMA's cost of reproducing these materials, then FEMA will consider the program to be in the public domain.

\* \* \* \* \*

**§65.13 [Amended]**

8. Part 65 is amended by the redesignation of §65.13 as 65.14 and the addition of a new §65.13 to read as follows:

**§65.13 Mapping and Revision of Alluvial Fan Special Flood Hazard Areas**

This section describes the procedures to be followed and the types of information FEMA needs to recognize that a flood control measure is effective in removing or reducing the size of a Special Flood Hazard Area (SFHA) located on an alluvial fan. This information must be supplied to FEMA by the community or other party seeking recognition of such a flood control measure at the time a flood risk study or restudy is conducted, when a map revision under the provisions of Part 65 of this subchapter is sought, and upon request by the Administrator during the review of previously recognized flood control measures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by FEMA as to how the flood control measure or system will perform in a flood event.

(a) The applicable provisions of §§65.2, 65.3, 65.4, 65.6, and 65.8 shall also apply to FIRM revisions involving alluvial fans.

(b) The provisions of §65.5 regarding map revisions based on fill or other topographic alterations and the provisions of Part 70 regarding inadvertent inclusion of properties within a SFHA shall not apply to FIRM revisions involving alluvial fans. In general, topographic alterations alone, by fill or other means, will not serve as a basis for removing SFHA designations from alluvial fans.

(c) FEMA will consider for map revision purposes major flood control measures whose design and construction are supported by sound engineering analyses which demonstrate that the measures will effectively eliminate all alluvial fan flood hazard from the area protected by such measures. The provided analyses must include, but are not necessarily limited to the following:

(1) Engineering analyses that quantify the design discharges and volumes of water flow, debris flow, and sediment movement associated with the flood that has a one-percent probability of being equaled or exceeded in any year at the apex of the fan under current watershed conditions and under potential adverse conditions (e.g., deforestation of the watershed by fire). The potential for debris flow and sediment movement must be assessed using an engineering method acceptable to FEMA. The assessment should consider the characteristics and availability of sediment in the drainage basin above the apex and on the alluvial fan.

(2) Engineering analyses showing that the project elements will accommodate the estimated peak discharge and volumes of water, debris, and sediment, as determined in accordance with (c)(1) above, and their associated hydrodynamic and hydrostatic forces.

(3) Engineering analyses showing that the project elements have been designed against the erosion and scour forces present.

(4) Engineering analyses or evidence showing that the project elements will provide protection from potential lateral migration and sudden relocation of flows from other parts of the fan.

(5) Engineering analysis that assesses the method of disposal of concentrated flood water and associated sediment load on adjacent properties.

(6) Engineering analyses demonstrating that flooding from local runoff, or sources other than the fan apex, is insignificant or has otherwise been accommodated by the appropriate flood control or drainage measures.

(d) Coordination. FEMA will recognize projects that are adequately designed and constructed provided that:

(1) Evidence is submitted to show that the impact of the project on flood hazards in all areas of the fan, (including those not protected by the project) and the design and maintenance requirements of the different elements of the project were reviewed and approved by the community, State or local agency that has jurisdiction over flood control activities in the community.

(2) The community provides assurance to FEMA that appropriate easements have been secured from owners of property on which flood waters have been directed.

(e) Operation and Maintenance Plans and Criteria. The requirements for operation and maintenance of flood control measures on alluvial fans shall be those specified under §65.10(c) and (d) when applicable.

(f) Certification Requirements. Data submitted to support that a given flood mitigation measure complies with the requirements set forth in paragraphs (c)(1) through (6) of this section must be certified by a registered professional engineer. Also, certified as-built plans of the flood mitigation measures must be submitted. Certifications are subject to the definition given at §65.2 of this subchapter.

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

44 CFR Parts 59 and 60  
RIN 3067-AB32

**National Flood Insurance Program; Elevation Requirements for  
Manufactured Homes in Existing Manufactured Home Parks and  
Subdivisions; Final Rule**

**AGENCY:** Federal Emergency Management Agency (FEMA).

**ACTION:** Final Rule.

**SUMMARY:** This final rule revises the National Flood Insurance Program (NFIP) floodplain management criteria that are applicable to the placement or substantial improvement of manufactured homes in existing manufactured home parks and subdivisions in flood hazard areas and also the requirements applicable to recreational vehicles. The final rule replaces provisions that became effective on October 1, 1986, but that were suspended by a notice published in the Federal Register on June 30, 1987 (52 FR 24370). That suspension is extended through October 31, 1989 elsewhere in this issue to be consistent with the effective date of this final rule.

**EFFECTIVE DATE:** November 1, 1989.

**PART 59 - GENERAL PROVISIONS**

1. The authority citation for Part 59 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

**§59.1 [Amended]**

2. Section 59.1 is amended as follows:

a. By adding alphabetically, a definition of "Existing manufactured home park or subdivision" to read as follows:

\* \* \* \* \*

"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.

\* \* \* \* \*

b. By adding alphabetically, a definition of "Expansion to an existing manufactured home park or subdivision" to read as follows:

\* \* \* \* \*

"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).

\* \* \* \* \*

c. By revising the definition of "Manufactured home" to read as follows:

\* \* \* \* \*

"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 attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle".

\* \* \* \* \*

d. By adding, alphabetically, a definition of "New manufactured home park or subdivision" to read as follows:

\* \* \* \* \*

"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.

\* \* \* \* \*

e. By adding, alphabetically, a definition of "Recreational vehicle" to read as follows:

\* \* \* \* \*

"Recreational vehicle" means a vehicle which is:

- (a) built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projections;
- (c) designed to be self-propelled or permanently towable by a light duty truck; and
- (d) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

\* \* \* \* \*

PART 60 - CRITERIA FOR LAND USE MANAGEMENT AND USE

3. The authority citation for Part 60 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

§60.3 [Amended]

4. Section 60.3 is amended as follows:

- a. By adding in paragraph (b)(4) between the phrases "(c)(5)" and "(c)(12)" the phrase "(c)(6)" and between the phrases "(c)(12)" and "(d)(2)" the phrase "(c)(14)".

\* \* \* \* \*

b. By revising paragraph (c)(6) to read as follows:

\* \* \* \* \*

(c) \* \* \*

- (6) 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 the 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 floatation collapse and lateral movement.

\* \* \* \* \*

c. By revising paragraph (c)(12) to read as follows:

\* \* \* \* \*

(c) \* \* \*  
(12) Require that manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision within Zones A-1-30, AH, and AE on the community's FIRM that are not subject to the provisions of paragraph (c)(6) 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 floatation, collapse, and lateral movement.

\* \* \* \* \*

d. By adding paragraph (c)(14) to read as follows:

\* \* \* \* \*

(c) \* \* \*  
(14) 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 licenced and ready for highway use, or (iii) meet the permit requirements of paragraph (b)(1) of this section and the elevation and anchoring requirements for "manufactured homes" in paragraph (c)(6) 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.

\* \* \* \* \*

e. By removing in paragraph (d)(1) the phrase "(c)(13)" and replacing it with "(c)(14)".

f. By removing in paragraph (e)(1) the phrase "(c)(13)" and replacing it with "(c)(14)".

g. By adding paragraph (e)(8) to read as follows:

\* \* \* \* \*

(e) \* \* \*

(8) Require that manufactured homes placed or substantially improved within Zones V1-30, V, and VE 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 the result of a flood, meet the standards of paragraphs (e)(2) through (7) of this section and that manufactured homes placed or substantially improved on other sites in an existing manufactured home park or subdivision within Zones V1-30, V, and VE on the community's FIRM meet the requirements of paragraph (c)(12) of this section.

\* \* \* \* \*

h. By adding paragraph (e)(9) to read as follows:

(e) \* \* \*

(9) Require that recreational vehicles placed on sites within Zones V1-30, V, and VE on the community's FIRM either i) be on the site for fewer than 180 consecutive days, ii) be fully licenced and ready for highway use, or (iii) meet the requirements in paragraphs (b)(1) and (e)(2) through (7) 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.

#### §60.22 (Amended)

4. Section 60.22 is amended by adding paragraph (c)(19) to read as follows:

(c) \* \* \*

(19) Requirement that a plan for evacuating residents of all manufactured home parks or subdivisions located within flood prone areas be developed and filed with and approved by appropriate community emergency management authorities.

\* \* \* \* \*

Dated: \_\_\_\_\_, 1989.

Harold T. Duryee,  
Federal Insurance Administrator.  
BILLING CODE 6718-05-M

## SUBCHAPTER B—INSURANCE AND HAZARD MITIGATION

EDITORIAL NOTE: Nomenclature changes to Subchapter B appear at 44 FR 31177, May 31, 1979 and 44 FR 62517, October 31, 1979.

### PARTS 50–54 [RESERVED]

### NATIONAL INSURANCE DEVELOPMENT PROGRAM

### PARTS 55–58 [RESERVED]

### NATIONAL FLOOD INSURANCE PROGRAM

### PART 59—GENERAL PROVISIONS

#### Subpart A—General

Sec.

- 59.1 Definitions.
- 59.2 Description of program.
- 59.3 Emergency program.
- 59.4 References.

#### Subpart B—Eligibility Requirements

- 59.21 Purpose of subpart.
- 59.22 Prerequisites for the sale of flood insurance.
- 59.23 Priorities for the sale of flood insurance under the regular program.
- 59.24 Suspension of community eligibility.

AUTHORITY: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

#### Subpart A—General

##### § 59.1 Definitions.

As used in this subchapter—

“*Act*” means the statutes authorizing the National Flood Insurance Program that are incorporated in 42 U.S.C. 4001–4128.

“*Actuarial rates*”—see “risk premium rates.”

“*Administrator*” means the Federal Insurance Administrator.

“*Agency*” means the Federal Emergency Management Agency, Washington DC.

“*Applicant*” means a community which indicates a desire to participate in the Program.

“*Appurtenant structure*” means a structure which is on the same parcel of property as the principal structure to be insured and the use of which is

incidental to the use of the principal structure.

“*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 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-related erosion hazard*” is the land within a community which is most likely to be subject to severe flood-related erosion losses. The area may be designated as Zone E on the Flood Hazard Boundary Map (FHBM). After the detailed evaluation of the special flood-related erosion hazard area in preparation for publication of the FIRM, Zone E may be further refined.

“*Area of special flood hazard*” is the land in the flood plain 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 FHBM. After detailed ratemaking has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AO, AH, A1–30, AE, A99, VO, or V1–30, VE, or V.

“*Area of special mudslide (i.e., mud-flow) hazard*” is the land within a community most likely to be subject to severe mudslides (i.e., mudflows). The area may be designated as Zone M on the FHBM. After the detailed evaluation of the special mudslide (i.e., mud-flow) hazard area in preparation for publication of the FIRM, Zone M may be further refined.

“*Associate Director*” means the Associate Director, State and Local Programs, and Support.

“*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.

"*Breakaway wall*" means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

"*Building*"—see "structure."

"*Chargeable rates*" mean the rates established by the Administrator pursuant to section 1308 of the Act for first layer limits of flood insurance on existing structures.

"*Chief Executive Officer*" of the community ("CEO") means the official of the community who is charged with the authority to implement and administer laws, ordinances and regulations for that community.

"*Coastal high hazard area*" means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources.

"*Community*" means any State or area or political subdivision thereof, or any Indian tribe or authorized tribal organization, or Alaska Native village or authorized native organization, which has authority to adopt and enforce flood plain management regulations for the areas within its jurisdiction.

"*Contents coverage*" is the insurance on personal property within an enclosed structure, including the cost of debris removal, and the reasonable cost of removal of contents to minimize damage. Personal property may be household goods usual or incidental to residential occupancy, or merchandise, furniture, fixtures, machinery, equipment and supplies usual to other than residential occupancies.

"*Criteria*" means the comprehensive criteria for land management and use for flood-prone areas developed under 42 U.S.C. 4102 for the purposes set forth in Part 60 of this subchapter.

"*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.

"*Curvilinear Line*" means the border on either a FHBM or FIRM that delineates the special flood, mudslide (i.e., mudflow) and/or flood-related erosion hazard areas and consists of a curved or contour line that follows the topography.

"*Deductible*" means the fixed amount or percentage of any loss covered by insurance which is borne by the insured prior to the insurer's liability.

"*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.

"*Director*" means the Director of the Federal Emergency Management Agency.

"*Eligible community*" or "*participating community*" means a community for which the Administrator has authorized the sale of flood insurance under the National Flood Insurance Program.

"*Elevated building*" means a non-basement building (i) built, in the case of a building in Zones A1-30, AE, A, A99, A0, AH, B, C, X, or 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 flow 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, A0, AH, B, C, X, or 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 § 60.3(e)(5).

"*Emergency Flood Insurance Program*" or "*emergency program*" means the Program as implemented on an emergency basis in accordance with section 1336 of the Act. It is intended as a program to provide a first layer amount of insurance on all insurable structures before the effective date of the initial FIRM.

"*Erosion*" means the process of the gradual wearing away of land masses. This peril is not per se covered under the Program.

"*Exception*" means a waiver from the provisions of Part 60 of this subchapter directed to a community which relieves it from the requirements of a rule, regulation, order or other determination made or issued pursuant to the Act.

"*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 for which the construction of facilities for servicing the lot on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) are completed before the effective date of floodplain management regulations adopted by a community.

"*Existing structures*" see "*existing construction*."

"*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, either final site grading or pouring of concrete pads, or the construction of streets).

"*Federal agency*" means any department, agency, corporation, or other entity or instrumentality of the executive branch of the Federal Govern-

ment, and includes the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation.

"*Federal instrumentality responsible for the supervision, approval, regulation, or insuring of banks, savings and loan associations, or similar institutions*" means the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Comptroller of the Currency, the Federal Home Loan Bank Board, the Federal Savings and Loan Insurance Corporation, and the National Credit Union Administration.

"*Financial assistance*" means any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance, other than general or special revenue sharing or formula grants made to States.

"*Financial assistance for acquisition or construction purposes*" means any form of financial assistance which is intended in whole or in part for the acquisition, construction, reconstruction, repair, or improvement of any publicly or privately owned building or mobile home, and for any machinery, equipment, fixtures, and furnishings contained or to be contained therein, and shall include the purchase or subsidization of mortgages or mortgage loans but shall exclude assistance pursuant to the Disaster Relief Act of 1974 other than assistance under such Act in connection with a flood. It includes only financial assistance insurable under the Standard Flood Insurance Policy.

"*First-layer coverage*" is the maximum amount of structural and contents insurance coverage available under the Emergency Program.

"*Flood*" or "*Flooding*" means:

(a) 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.

(3) Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (a)(2) of this def-

inition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

(b) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph (a)(1) of this definition.

*"Flood elevation determination"* means a determination by the Administrator of the water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year.

*"Flood elevation study"* means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards.

*"Flood Hazard Boundary Map"* (FHBM) means an official map of a community, issued by the Administrator, where the boundaries of the flood, mudslide (i.e., mudflow) related erosion areas having special hazards have been designated as Zones A, M, and/or E.

*"Flood insurance"* means the insurance coverage provided under the Program.

*"Flood Insurance Rate Map"* (FIRM) means an official map of a community, on which the Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community.

*"Flood Insurance Study"* see *"flood elevation study."*

*"Flood plain"* or *"flood-prone area"* means any land area susceptible to being inundated by water from any source (see definition of "flooding").

*"Flood plain 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 flood plain management regulations.

*"Flood plain management regulations"* means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a flood plain 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 area 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 non-structural 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.

*"Flood-related erosion"* means the collapse or subsidence of land along the shore of a lake or other body of water as a result of undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding.

*"Flood-related erosion area"* or *"flood-related erosion prone area"*

means a land area adjoining the shore of a lake or other body of water, which due to the composition of the shoreline or bank and high water levels or wind-driven currents, is likely to suffer flood-related erosion damage.

*"Flood-related erosion area management"* means the operation of an overall program of corrective and preventive measures for reducing flood-related erosion damage, including but not limited to emergency preparedness plans, flood-related erosion control works, and flood plain management regulations.

*"Floodway"*—see *"regulatory floodway."*

*"Floodway encroachment lines"* mean the lines marking the limits of floodways on Federal, State and local flood plain maps.

*"Freeboard"* means a factor of safety usually expressed in feet above a flood level for purposes of flood plain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization of the watershed.

*"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.

*"General Counsel"* means the General Counsel of the Federal Emergency Management Agency.

*"Highest adjacent grade"* means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

*"Independent scientific body"* means a non-federal technical or scientific organization involved in the study of land use planning, flood plain management, hydrology, geology, geography, or any other related field of study concerned with flooding.

*"Insurance adjustment organization"* means any organization or person engaged in the business of adjusting loss claims arising under the Standard Flood Insurance Policy.

*"Insurance company"* or *"insurer"* means any person or organization authorized to engage in the insurance business under the laws of any State.

*"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 requirements of § 60.3.

*"Mangrove stand"* means an assemblage of mangrove trees which are mostly low trees noted for a copious development of interlacing adventitious roots above the ground and which contain one or more of the following species: Black mangrove (*Avicennia Nitida*); red mangrove (*Rhizophora Mangle*); white mangrove (*Laguncularia Racemosa*); and buttonwood (*Conocarpus Erecta*).

*"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. For flood plain management purposes the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days. For insurance purposes the term "manufactured

home" does not include park trailers, travel trailers, and other similar vehicles.

"*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.

"*Map*" means the Flood Hazard Boundary Map (FHBM) or the Flood Insurance Rate Map (FIRM) for a community issued by the Agency.

"*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.

"*Mudslide*" (i.e., *mudflow*) describes a condition where there is a river, flow or inundation of liquid mud down a hillside usually as a result of a dual condition of loss of brush cover, and the subsequent accumulation of water on the ground preceded by a period of unusually heavy or sustained rain. A mudslide (i.e., mudflow) may occur as a distinct phenomenon while a landslide is in progress, and will be recognized as such by the Administrator only if the mudflow, and not the landslide, is the proximate cause of damage that occurs.

"*Mudslide (i.e., mudflow) area management*" means the operation of an overall program of corrective and preventive measures for reducing mudslide (i.e., mudflow) damage, including but not limited to emergency preparedness plans, mudslide control works, and flood plain management regulations.

"*Mudslide (i.e., mudflow) prone area*" means an area with land surfaces and slopes of unconsolidated material where the history, geology and climate indicate a potential for mudflow.

"*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. For flood plain management purposes, "new construction" means structures for which the "start of construction" commenced on

or after the effective date of a flood plain management regulation adopted by a community.

"*100-year flood*" see "base flood."

"*Participating community*," also known as an "eligible community," means a community in which the Administrator has authorized the sale of flood insurance.

"*Person*" includes any individual or group of individuals, corporation, partnership, association, or any other entity, including State and local governments and agencies.

"*Policy*" means the Standard Flood Insurance Policy.

"*Premium*" means the total premium payable by the insured for the coverage or coverages provided under the policy. The calculation of the premium may be based upon either chargeable rates or risk premium rates, or a combination of both.

"*Primary frontal dune*" means a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

"*Principally above ground*" means that at least 51 percent of the actual cash value of the structure, less land value, is above ground.

"*Program*" means the National Flood Insurance Program authorized by 42 U.S.C. 4001-4128.

"*Program deficiency*" means a defect in a community's flood plain management regulations or administrative procedures that impairs effective implementation of those flood plain management regulations or of the standards in §§ 60.3, 60.4, 60.5, or 60.6.

"*Project cost*" means the total financial cost of a flood protection system (including design, land acquisition, construction, fees, overhead, and profits), unless the Federal Insurance Administrator determines a given "cost" not to be a part of such project cost.

"*Reference feature*" is the receding edge of a bluff or eroding frontal

dune, or if such a feature is not present, the normal high-water line or the seaward line of permanent vegetation if a high-water line cannot be identified.

"*Regular Program*" means the Program authorized by the Act under which risk premium rates are required for the first half of available coverage (also known as "first layer" coverage) for all new construction and substantial improvements started on or after the effective date of the FIRM, or after December 31, 1974, for FIRM's effective on or before that date. All buildings, the construction of which started before the effective date of the FIRM, or before January 1, 1975, for FIRM's effective before that date, are eligible for first layer coverage at either subsidized rates or risk premium rates, whichever are lower. Regardless of date of construction, risk premium rates are always required for the second layer coverage and such coverage is offered only after the Administrator has completed a risk study for the community.

"*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.

"*Remedy a violation*" means to bring the structure or other development into compliance with State or local flood plain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of the ordinance or otherwise deterring future similar violations, or reducing Federal financial exposure with regard to the structure or other development.

"*Risk premium rates*" mean those rates established by the Administrator pursuant to individual community studies and investigations which are undertaken to provide flood insurance in accordance with section 1307 of the Act and the accepted actuarial principles. "Risk premium rates" include

provisions for operating costs and allowances.

"*Riverine*" means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

"*Sand dunes*" mean naturally occurring accumulations of sand in ridges or mounds landward of the beach.

"*Scientifically incorrect*." The methodology(ies) and/or assumptions which have been utilized are inappropriate for the physical processes being evaluated or are otherwise erroneous.

"*Second layer coverage*" means an additional limit of coverage equal to the amounts made available under the Emergency Program, and made available under the Regular Program.

"*Servicing company*" means a corporation, partnership, association, or any other organized entity which contracts with the Federal Insurance Administration to service insurance policies under the National Flood Insurance Program for a particular area.

"*Sheet flow area*"—see "area of shallow flooding."

"*60-year setback*" means a distance equal to 60 times the average annual long term recession rate at a site, measured from the reference feature.

"*Special hazard area*" means an area having special flood, mudslide (i.e., mudflow) and/or flood-related erosion hazards, and shown on an FHBM or FIRM as Zone A, AO, A1-30, AE, A99, AH, VO, V1-30, VE, V, M or E.

"*Standard Flood Insurance Policy*" means the flood insurance policy issued by the Federal Insurance Administrator, or an insurer pursuant to an arrangement with the Administrator pursuant to Federal statutes and regulations.

"*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, 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 instal-

lation 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, 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.

"State" means any State, the District of Columbia, the territories and possessions of the United States, the Commonwealth of Puerto Rico, and the Trust Territory of the Pacific Islands.

"State coordinating agency" means the agency of the state government, or other office designated by the Governor of the state or by state statute at the request of the Administrator to assist in the implementation of the National Flood Insurance Program in that state.

"Storm cellar" means a space below grade used to accommodate occupants of the structure and emergency supplies as a means of temporary shelter against severe tornado or similar wind storm activity.

"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. "Structure" for insurance coverage purposes, means a walled and roofed building, other than a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a manufactured home on a permanent foundation. For the latter purpose, the term includes a building while in the course of construction, alteration or repair, but does not include building materials or supplies intended for use in such construction, alteration or repair, unless such materials or supplies are within an enclosed building on the premises.

"Subsidized rates" mean the rates established by the Administrator in-

volving in the aggregate a subsidization by the Federal Government.

"Substantial improvement" means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either, (a) before the improvement or repair is started, or (b) if the structure has been damaged, and is being restored, before the damage occurred. For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

"30-year setback" means a distance equal to 30 times the average annual long term recession rate at a site, measured from the reference feature.

"Technically incorrect". The methodology(ies) utilized has been erroneously applied due to mathematical or measurement error, changed physical conditions, or insufficient quantity or quality of input data.

"V Zone"—see "coastal high hazard area."

"Variance" means a grant of relief by a community from the terms of a flood plain management regulation.

"Violation" means the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in § 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 speci-

fied) of floods of various magnitudes and frequencies in the flood plains of coastal or riverine areas.

"Zone of imminent collapse" means an area subject to erosion adjacent to the shoreline of an ocean, bay, or lake and within a distance equal to 10 feet plus 5 times the average annual long-term erosion rate for the site, measured from the reference feature.

[41 FR 46968, Oct. 26, 1976]

EDITORIAL NOTE: FOR FEDERAL REGISTER citations affecting § 59.1, see the List of Sections Affected in the Finding Aids section of this volume.

EFFECTIVE DATE NOTE: At 52 FR 25372, June 30, 1987, the definitions for "Existing manufactured home park or subdivision" and "Expansion to an existing manufactured home park or subdivision" were added to § 59.1, effective from June 30, 1987 until March 31, 1988. At 52 FR 33411, Sept. 3, 1987 these amendments were extended through September 30, 1988, and at 53 FR 25332, July 6, 1988 were again extended through July 31, 1989.

#### § 59.2 Description of program.

(a) The National Flood Insurance Act of 1968 was enacted by Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448, August 1, 1968) to provide previously unavailable flood insurance protection to property owners in flood-prone areas. Mudslide (as defined in § 59.1) protection was added to the Program by the Housing and Urban Development Act of 1969 (Pub. L. 91-152, December 24, 1969). Flood-related erosion (as defined in § 59.1) protection was added to the Program by the Flood Disaster Protection Act of 1973 (Pub. L. 93-234, December 31, 1973). The Flood Disaster Protection Act of 1973 requires the purchase of flood insurance on and after March 2, 1974, as a condition of receiving any form of Federal or federally-related financial assistance for acquisition or construction purposes with respect to insurable buildings and mobile homes within an identified special flood, mudslide (i.e., mudflow), or flood-related erosion hazard area that is located within any community participating in the Program. The Act also requires that on and after July 1, 1975, or one year after a community has been formally

notified by the Administrator of its identification as community containing one or more special flood, mudslide (i.e., mudflow), or flood-related erosion hazard areas, no such Federal financial assistance, shall be provided within such an area unless the community in which the area is located is then participating in the Program, subject to certain exceptions. See FIA published Guidelines at § 59.4(c).

(b) To qualify for the sale of federally-subsidized flood insurance a community must adopt and submit to the Administrator as part of its application, flood plain management regulations, satisfying at a minimum the criteria set forth at Part 60 of this subchapter, designed to reduce or avoid future flood, mudslide (i.e., mudflow) or flood-related erosion damages. These regulations must include effective enforcement provisions.

(c) Minimum requirements for adequate flood plain management regulations are set forth in § 60.3 for flood-prone areas, in § 60.4 for mudslide (i.e., mudflow) areas and in § 60.5 for flood-related erosion areas. Those applicable requirements and standards are based on the amount of technical information available to the community.

[41 FR 46968, Oct. 26, 1976, as amended at 43 FR 7140, Feb. 17, 1978. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 59.3 Emergency program.

The 1968 Act required a risk study to be undertaken for each community before it could become eligible for the sale of flood insurance. Since this requirement resulted in a delay in providing insurance, the Congress, in section 408 of the Housing and Urban Development Act of 1969 (Pub. L. 91-152, December 24, 1969), established an Emergency Flood Insurance Program as a new section 1336 of the National Flood Insurance Act (42 U.S.C. 4056) to permit the early sale of insurance in flood-prone communities. The emergency program does not affect the requirement that a community must adopt adequate flood plain management regulations pursuant to Part 60 of this subchapter but permits insur-

ance to be sold before a study is conducted to determine risk premium rates for the community. The program still requires upon the effective date of a FIRM the charging of risk premium rates for all new construction and substantial improvements and for higher limits of coverage for existing structures.

[43 FR 7140, Feb. 17, 1978. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44543, Sept. 29, 1983]

#### § 59.4 References.

(a) The following are statutory references for the National Flood Insurance Program, under which these regulations are issued:

(1) National Flood Insurance Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968), Pub. L. 90-448, approved August 1, 1968, 42 U.S.C. 4001 et seq.

(2) Housing and Urban Development Act of 1969 (Pub. L. 91-152, approved December 24, 1969).

(3) Flood Disaster Protection Act of 1973 (87 Stat. 980), Pub. L. 93-234, approved December 31, 1973.

(4) Section 816 of the Housing and Community Development Act of 1974 (87 Stat. 975), Pub. L. 93-383, approved August 22, 1974.

(5) Pub. L. 5-128 (effective October 12, 1977).

(6) The above statutes are included in 42 U.S.C. 4001 et seq.

(b) The following are references relevant to the National Flood Insurance Program:

(1) Executive Order 11988 (Floodplain Management, dated May 24, 1977 (42 FR 26951, May 25, 1977)).

(2) The Flood Control Act of 1960 (Pub. L. 86-645).

(3) Title II, section 314 of Title III and section 406 of Title IV of the Disaster Relief Act of 1974 (Pub. L. 93-288).

(4) Coastal Zone Management Act (Pub. L. 92-583), as amended Pub. L. 94-370.

(5) Water Resources Planning Act (Pub. L. 89-90), as amended Pub. L. 94-112 (October 16, 1975).

(6) Title I, National Environmental Policy Act (Pub. L. 91-190).

(7) Land and Water Conservation Fund Act (Pub. L. 89-578), and subsequent amendments thereto.

(8) Water Resources Council, Principles and Standards for Planning, Water and Related Land Resources (38 FR 24778-24869, September 10, 1973).

(9) Executive Order 11593 (Protection and Enhancement of the Cultural Environment), dated May 13, 1971 (36 FR 8921, May 15, 1971).

(10) 89th Cong., 2nd Session, H.D. 465.

(11) Required land use element for comprehensive planning assistance under section 701 of the Housing Act of 1954, as amended by the Housing and Community Development Act of 1974 (24 CFR 600.72).

(12) Executive Order 11990 (Protection of Wetlands, dated May 24, 1977 (42 FR 26951, May 25, 1977)).

(13) Water Resources Council (Guidance for Floodplain Management) (42 FR 52590, September 30, 1977).

(14) Unified National Program for Floodplain Management of the United States Water Resources Council, July 1976.

(c) The following reference guidelines represent the views of the Federal Insurance Administration with respect to the mandatory purchase of flood insurance under section 102 of the Flood Disaster Protection Act of 1973: Mandatory Purchase of Flood Insurance Guidelines (39 FR 26186-26193, July 17, 1974; 40 FR 16710, April 14, 1975; 40 FR 54277-54278, November 21, 1975; and 41 FR 2426, January 16, 1976).

[41 FR 46968, Oct. 26, 1976, as amended at 43 FR 7140, Feb. 17, 1978. Redesignated at 44 FR 31177, May 31, 1979]

#### Subpart B—Eligibility Requirements

##### § 59.21 Purpose of subpart.

This subpart lists actions that must be taken by a community to become eligible and to remain eligible for the Program.

[41 FR 46968, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979]

##### § 59.22 Prerequisites for the sale of flood insurance.

(a) To qualify for flood insurance availability a community shall apply for the entire area within its jurisdiction, and shall submit:

(1) Copies of legislative and executive actions indicating a local need for flood insurance and an explicit desire to participate in the National Flood Insurance Program;

(2) Citations to State and local statutes and ordinances authorizing actions regulating land use and copies of the local laws and regulations cited;

(3) A copy of the flood plain management regulations the community has adopted to meet the requirements of §§ 60.3, 60.4 and/or § 60.5 of this subchapter. This submission shall include copies of any zoning, building, and subdivision regulations, health codes, special purpose ordinances (such as a flood plain ordinance, grading ordinance, or flood-related erosion control ordinance), and any other corrective and preventive measures enacted to reduce or prevent flood, mudslide (i.e., mudflow) or flood-related erosion damage;

(4) A list of the incorporated communities within the applicant's boundaries;

(5) Estimates relating to the community as a whole and to the flood, mudslide (i.e., mudflow) and flood-related erosion prone areas concerning:

(i) Population;

(ii) Number of one to four family residences;

(iii) Number of small businesses; and

(iv) Number of all other structures.

(6) Address of a local repository, such as a municipal building, where the Flood Hazard Boundary Maps (FHBM's) and Flood Insurance Rate Maps (FIRM's) will be made available for public inspection;

(7) A summary of any State or Federal activities with respect to flood plain, mudslide (i.e., mudflow) or flood-related erosion area management within the community, such as federally-funded flood control projects and State-administered flood plain management regulations;

(8) A commitment to recognize and duly evaluate flood, mudslide (i.e., mudflow) and/or flood-related erosion

hazards in all official actions in the areas having special flood, mudslide (i.e., mudflow) and/or flood-related erosion hazards and to take such other official action reasonably necessary to carry out the objectives of the program; and

(9) A commitment to:

(i) Assist the Administrator at his/her request, in his/her delineation of the limits of the areas having special flood, mudslide (i.e., mudflow) or flood-related erosion hazards;

(ii) Provide such information concerning present uses and occupancy of the flood plain, mudslide (i.e., mudflow) or flood-related erosion areas as the Administrator may request;

(iii) Maintain for public inspection and furnish upon request, for the determination of applicable flood insurance risk premium rates within all areas having special flood hazards identified on a FHBM or FIRM, any certificates of floodproofing, and information on the elevation (in relation to mean sea level) of the level of the lowest floor (including basement) of all new or substantially improved structures, and include whether or not such structures contain a basement, and if the structure has been floodproofed, the elevation (in relation to mean sea level) to which the structure was floodproofed;

(iv) Cooperate with Federal, State, and local agencies and private firms which undertake to study, survey, map, and identify flood plain, mudslide (i.e., mudflow) or flood-related erosion areas, and cooperate with neighboring communities with respect to the management of adjoining flood plain, mudslide (i.e., mudflow) and/or flood-related erosion areas in order to prevent aggravation of existing hazards;

(v) Upon occurrence, notify the Administrator in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed or no longer has authority to adopt and enforce flood plain management regulations for a particular area. In order that all FHBM's and FIRM's accurately represent the community's boundaries, include within such notification a copy of a map of the community

suitable for reproduction, clearly delineating the new corporate limits or new area for which the community has assumed or relinquished flood plain management regulatory authority.

(b) An applicant shall legislatively:

(1) Appoint or designate the agency or official with the responsibility, authority, and means to implement the commitments made in paragraph (a) of this section, and

(2) Designate the official responsible to submit a report to the Administrator concerning the community participation in the Program, including, but not limited to the development and implementation of flood plain management regulations. This report shall be submitted annually or biennially as determined by the Administrator.

(c) The documents required by paragraph (a) of this section and evidence of the actions required by paragraph (b) of this section shall be submitted to the Federal Emergency Management Agency, Washington DC 20472.

[41 FR 46968, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979 and amended at 48 FR 29318, June 24, 1983; 48 FR 44543 and 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 33656, Aug. 24, 1984; 50 FR 36023, Sept. 4, 1985]

#### § 59.23 Priorities for the sale of flood insurance under the regular program.

Flood-prone, mudslide (i.e., mudflow) and flood-related erosion prone communities are placed on a register of areas eligible for ratemaking studies and then selected from this register for ratemaking studies on the basis of the following considerations—

(a) Recommendations of State officials;

(b) Location of community and urgency of need for flood insurance;

(c) Population of community and intensity of existing or proposed development of the flood plain, the mudslide (i.e., mudflow) and the flood-related erosion area;

(d) Availability of information on the community with respect to its flood, mudslide (i.e., mudflow) and flood-related erosion characteristics and previous losses;

(e) Extent of State and local progress in flood plain, mudslide (i.e.,

mudflow) area and flood-related erosion area management, including adoption of flood plain management regulations consistent with related ongoing programs in the area.

[41 FR 46968, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979]

#### § 59.24 Suspension of community eligibility.

(a) A community eligible for the sale of flood insurance shall be subject to suspension from the Program for failing to submit copies of adequate flood plain management regulations meeting the minimum requirements of paragraphs (b), (c), (d) or (e) of § 60.3 or paragraph (b) of § 60.4 or § 60.5, within six months from the date the Administrator provides the data upon which the flood plain regulations for the applicable paragraph shall be based. Where there has not been any submission by the community, the Administrator shall notify the community that 90 days remain in the six month period in order to submit adequate flood plain management regulations. Where there has been an inadequate submission, the Administrator shall notify the community of the specific deficiencies in its submitted flood plain management regulations and inform the community of the amount of time remaining within the six month period. If, subsequently, copies of adequate flood plain management regulations are not received by the Administrator, he shall, no later than 30 days before the expiration of the original six month period, provide written notice to the community and to the state and assure publication in the **FEDERAL REGISTER** under Part 64 of this subchapter, of the community's loss of eligibility for the sale of flood insurance, such suspension to become effective upon the expiration of the six month period. Should the community remedy the defect and the Administrator receive copies of adequate flood plain management regulations within the notice period, the suspension notice shall be rescinded by the Administrator. If the Administrator receives notice from the State that it has enacted adequate flood plain management regulations for the communi-

ty within the notice period, the suspension notice shall be rescinded by the Administrator. The community's eligibility shall remain terminated after suspension until copies of adequate flood plain management regulations have been received and approved by the Administrator.

(b) A community eligible for the sale of flood insurance which fails to adequately enforce flood plain management regulations meeting the minimum requirements set forth in §§ 60.3, 60.4 and/or 60.5 shall be subject to probation. Probation shall represent formal notification to the community that the Administrator regards the community's flood plain management program as not compliant with NFIP criteria. Prior to imposing probation, the Administrator (1) shall inform the community upon 90 days prior written notice of the impending probation and of the specific program deficiencies and violations relative to the failure to enforce, (2) shall, at least 60 days before probation is to begin, issue a press release to local media explaining the reasons for and the effects of probation, and (3) when the probation is to begin on or after October 1, 1986, shall, at least 90 days before probation is to begin, advise all policyholders in the community of the impending probation and the additional premium that will be charged, as provided in this paragraph, on policies sold or renewed during the period of probation. During this 90-day period the community shall have the opportunity to avoid probation by demonstrating compliance with Program requirements, or by correcting Program deficiencies and remedying all violations to the maximum extent possible. If, at the end of the 90-day period, the Administrator determines that the community has failed to do so, the probation shall go into effect. Probation may be continued for up to one year after the community corrects all Program deficiencies and remedies all violations to the maximum extent possible. Flood insurance may be sold or renewed in the community while it is on probation. Where a policy covers property located in a community placed on probation on or after October 1, 1986, an additional premium of \$25.00 shall

be charged on each such policy initially issued, based upon the submission by the applicant of an application for flood insurance, or renewed, based upon the policyholder's response to a turn-around renewal premium notice or policyholder application notice, during the one-year period beginning on the date the community is placed on probation and during any successive one year periods during which the community remains on probation for any part thereof.

(c) A community eligible for the sale of flood insurance which fails to adequately enforce its flood plain management regulations meeting the minimum requirements set forth in §§ 60.3, 60.4 and/or 60.5 and does not correct its Program deficiencies and remedy all violations to the maximum extent possible in accordance with compliance deadlines established during a period of probation shall be subject to suspension of its Program eligibility. Under such circumstances, the Administrator shall grant the community 30 days in which to show cause why it should not be suspended. The Administrator may conduct a hearing, written or oral, before commencing suspensive action. If a community is to be suspended, the Administrator shall inform it upon 30 days prior written notice and upon publication in the **FEDERAL REGISTER** under Part 64 of this subchapter of its loss of eligibility for the sale of flood insurance. In the event of impending suspension, the Administrator shall issue a press release to the local media explaining the reasons and effects of the suspension. The community's eligibility shall only be reinstated by the Administrator upon his receipt of a local legislative or executive measure reaffirming the community's formal intent to adequately enforce the flood plain management requirements of this subpart, together with evidence of action taken by the community to correct Program deficiencies and remedy to the maximum extent possible those violations which caused the suspension. In certain cases, the Administrator, in order to evaluate the community's performance under the terms of its submission, may withhold reinstatement for a period not to exceed one year from

the date of his receipt of the satisfactory submission or place the community on probation as provided for in paragraph (b) of this section.

(d) A community eligible for the sale of flood insurance which repeals its flood plain management regulations, allows its regulations to lapse, or amends its regulations so that they no longer meet the minimum requirements set forth in §§ 60.3, 60.4 and/or 60.5 shall be suspended from the Program. If a community is to be suspended, the Administrator shall inform it upon 30 days prior written notice and upon publication in the FEDERAL REGISTER under Part 64 of this subchapter of its loss of eligibility for the sale of flood insurance. The community eligibility shall remain terminated after suspension until copies of adequate flood plain management regulations have been received and approved by the Administrator.

(e) A community eligible for the sale of flood insurance may withdraw from the Program by submitting to the Administrator a copy of a legislative action that explicitly states its desire to withdraw from the National Flood Insurance Program. Upon receipt of a certified copy of a final legislative action, the Administrator shall withdraw the community from the Program and publish in the FEDERAL REGISTER under Part 64 of this subchapter its loss of eligibility for the sale of flood insurance. A community that has withdrawn from the Program may be reinstated if it submits the application materials specified in § 59.22(a).

(f) If during a period of ineligibility under paragraphs (a), (d), or (e) of this section, a community has permitted actions to take place that have aggravated existing flood plain, mudslide (i.e., mudflow) and/or flood related erosion hazards, the Administrator may withhold reinstatement until the community submits evidence that it has taken action to remedy to the maximum extent possible the increased hazards. The Administrator may also place the reinstated community on probation as provided for in paragraph (b) of this section.

(g) The Administrator shall promptly notify the servicing company and any insurers issuing flood insurance

pursuant to an arrangement with the Administrator of those communities whose eligibility has been suspended or which have withdrawn from the program. Flood insurance shall not be sold or renewed in those communities. Policies sold or renewed within a community during a period of ineligibility are deemed to be voidable by the Administrator whether or not the parties to sale or renewal had actual notice of the ineligibility.

[41 FR 46968, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44543 and 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36023, Sept. 4, 1985]

## PART 60—CRITERIA FOR LAND MANAGEMENT AND USE

### Subpart A—Requirements for Flood Plain Management Regulations

#### Sec.

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- 60.2 Minimum compliance with flood plain management criteria.
- 60.3 Flood plain management criteria for flood-prone areas.
- 60.4 Flood plain management criteria for mudslide (i.e., mudflow)-prone areas.
- 60.5 Flood plain management criteria for flood-related erosion-prone areas.
- 60.6 Variances and exceptions.
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- 60.8 Definitions.

### Subpart B—Requirements for State Flood Plain Management Regulations

- 60.11 Purpose of this subpart.
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- 60.21 Purpose of this subpart.
- 60.22 Planning considerations for flood-prone areas.
- 60.23 Planning considerations for mudslide (i.e., mudflow)-prone areas.
- 60.24 Planning considerations for flood-related erosion-prone areas.
- 60.25 Designation, duties, and responsibilities of State Coordinating Agencies.
- 60.26 Local coordination.

AUTHORITY: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

SOURCE: 41 FR 46975, Oct. 26, 1976, unless otherwise noted. Redesignated at 44 FR 31177, May 31, 1979.

### Subpart A—Requirements for Flood Plain Management Regulations

#### § 60.1 Purpose of subpart.

(a) The Act provides that flood insurance shall not be sold or renewed under the program within a community, unless the community has adopted adequate flood plain management regulations consistent with Federal criteria. Responsibility for establishing such criteria is delegated to the Administrator.

(b) This subpart sets forth the criteria developed in accordance with the Act by which the Administrator will determine the adequacy of a community's flood plain management regulations. These regulations must be legally-enforceable, applied uniformly throughout the community to all privately and publicly owned land within flood-prone, mudslide (i.e., mudflow) or flood-related erosion areas, and the community must provide that the regulations take precedence over any less restrictive conflicting local laws, ordinances or codes. Except as otherwise provided in § 60.6, the adequacy of such regulations shall be determined on the basis of the standards set forth in § 60.3 for flood-prone areas, § 60.4 for mudslide areas and § 60.5 for flood-related erosion areas.

(c) Nothing in this subpart shall be construed as modifying or replacing the general requirement that all eligible communities must take into account flood, mudslide (i.e., mudflow) and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use.

(d) The criteria set forth in this subpart are minimum standards for the adoption of flood plain management regulations by flood-prone, mudslide (i.e., mudflow)-prone and flood-related erosion-prone communities. Any community may exceed the minimum criteria under this part by adopting more comprehensive flood plain management regulations utilizing the stand-

ards such as contained in Subpart C of this part. In some instances, community officials may have access to information or knowledge of conditions that require, particularly for human safety, higher standards than the minimum criteria set forth in Subpart A of this part. Therefore, any flood plain management regulations adopted by a State or a community which are more restrictive than the criteria set forth in this part are encouraged and shall take precedence.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 60.2 Minimum compliance with flood plain management criteria.

(a) A flood-prone community applying for flood insurance eligibility shall meet the standards of § 60.3(a) in order to become eligible if a FHBM has not been issued for the community at the time of application. Thereafter, the community will be given a period of six months from the date the Administrator provides the data set forth in § 60.3 (b), (c), (d), or (e) in which to meet the requirements of the applicable paragraph. If a community has received a FHBM, but has not yet applied for Program eligibility, the community shall apply for eligibility directly under the standards set forth in § 60.3(b). Thereafter, the community will be given a period of six months from the date the Administrator provides the data set forth in § 60.3 (c), (d), or (e) in which to meet the requirements of the applicable paragraph.

(b) A mudslide (i.e., mudflow)-prone community applying for flood insurance eligibility shall meet the standards of § 60.4(a) to become eligible. Thereafter, the community will be given a period of six months from the date the mudslide (i.e., mudflow) areas having special mudslide hazards are delineated in which to meet the requirements of § 60.4(b).

(c) A flood-related erosion-prone community applying for flood insurance eligibility shall meet the standards of § 60.5(a) to become eligible. Thereafter, the community will be

given a period of six months from the date the flood-related erosion areas having special erosion hazards are delineated in which to meet the requirements of § 60.5(b).

(d) Communities identified in Part 65 of this subchapter as containing more than one type of hazard (e.g., any combination of special flood, mudslide (i.e., mudflow), and flood-related erosion hazard areas) shall adopt flood plain management regulations for each type of hazard consistent with the requirements of §§ 60.3, 60.4 and 60.5.

(e) Local flood plain management regulations may be submitted to the State Coordinating Agency designated pursuant to § 60.25 for its advice and concurrence. The submission to the State shall clearly describe proposed enforcement procedures.

(f) The community official responsible for submitting annual or biennial reports to the Administrator pursuant to § 59.22(b)(2) of this subchapter shall also submit copies of each annual or biennial report to any State Coordinating Agency.

(g) A community shall assure that its comprehensive plan is consistent with the flood plain management objectives of this part.

(h) The community shall adopt and enforce flood plain management regulations based on data provided by the Administrator. Without prior approval of the Administrator, the community shall not adopt and enforce flood plain management regulations based upon modified data reflecting natural or man-made physical changes.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 29318, June 24, 1983; 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36024, Sept. 4, 1985]

#### § 60.3 Flood plain management criteria for flood-prone areas.

The Administrator will provide the data upon which flood plain management regulations shall be based. If the Administrator has not provided sufficient data to furnish a basis for these regulations in a particular community, the community shall obtain, review and reasonably utilize data available from other Federal, State or other

sources pending receipt of data from the Administrator. However, when special flood hazard area designations and water surface elevations have been furnished by the Administrator, they shall apply. The symbols defining such special flood hazard designations are set forth in § 64.3 of this subchapter. In all cases the minimum requirements governing the adequacy of the flood plain management regulations for flood-prone areas adopted by a particular community depend on the amount of technical data formally provided to the community by the Administrator. Minimum standards for communities are as follows:

(a) When the Administrator has not defined the special flood hazard areas within a community, has not provided water surface elevation data, and has not provided sufficient data to identify the floodway or coastal high hazard area, but the community has indicated the presence of such hazards by submitting an application to participate in the Program, the community shall:

(1) Require permits for all proposed construction or other development in the community, including the placement of manufactured homes, so that it may determine whether such construction or other development is proposed within flood-prone areas;

(2) Review proposed development to assure that all necessary permits have been received from those governmental agencies from 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;

(3) Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all new construction and substantial improvements shall (i) 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, (ii) be constructed with materials resistant to flood damage, (iii) be constructed by methods and practices that minimize flood damages, and (iv) 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.

(4) Review subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, to determine whether such proposals will be reasonably safe from flooding. If a subdivision proposal or other proposed new development is in a flood-prone area, any such proposals shall be reviewed to assure that (i) all such proposals are consistent with the need to minimize flood damage within the flood-prone area, (ii) all public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and (iii) adequate drainage is provided to reduce exposure to flood hazards;

(5) Require within flood-prone areas new and replacement water supply systems to be designed to minimize or eliminate infiltration of flood waters into the systems; and

(6) Require within flood-prone areas (i) new and replacement sanitary sewage systems to be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters and (ii) onsite waste disposal systems to be located to avoid impairment to them or contamination from them during flooding.

(b) When the Administrator has designated areas of special flood hazards (A zones) by the publication of a community's FHBM or FIRM, but has neither produced water surface elevation data nor identified a floodway or coastal high hazard area, the community shall:

(1) Require permits for all proposed construction and other developments including the placement of manufactured homes, within Zone A on the community's FHBM or FIRM;

(2) Require the application of the standards in paragraphs (a) (2), (3), (4), (5) and (6) of this section to development within Zone A on the community's FHBM or FIRM;

(3) Require that all new subdivision proposals and other proposed developments (including proposals for manufactured home parks and subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, include within such proposals base flood elevation data;

(4) Obtain, review and reasonably utilize any base flood elevation and floodway data available from a Federal, State, or other source, including data developed pursuant to paragraph (b)(3) of this section, as criteria for requiring that new construction, substantial improvements, or other development in Zone A on the community's FHBM or FIRM meet the standards in paragraphs (c)(2), (c)(3), (c)(5), (c)(12), (d)(2) and (d)(3) of this section;

(5) Where base flood elevation data are utilized, within Zone A on the community's FHBM or FIRM:

(i) Obtain the elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures, and

(ii) Obtain, if the structure has been floodproofed in accordance with paragraph (c)(3)(ii) of this section, the elevation (in relation to mean sea level) to which the structure was flood proofed, and

(iii) Maintain a record of all such information with the official designated by the community under § 59.22 (a)(9)(iii);

(6) Notify, in riverine situations, adjacent communities and the State Coordinating Office prior to any alteration or relocation of a watercourse, and submit copies of such notifications to the Administrator;

(7) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained;

(8) 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 to be 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.

(c) When the Administrator has provided a notice of final flood elevations for one or more special flood hazard areas on the community's FIRM and, if appropriate, has designated other special flood hazard areas without base flood elevations on the community's FIRM, but has not identified a regulatory floodway or coastal high hazard area, the community shall:

(1) Require the standards of paragraph (b) of this section within all A1-30 zones, AE zones, A zones, AH zones, and AO zones, on the community's FIRM;

(2) Require that all new construction and substantial improvements of residential structures within Zones A1-30, AE and AH zones on the community's FIRM have the lowest floor (including basement) elevated to or above the base flood level, unless the community is granted an exception by the Administrator for the allowance of basements in accordance with § 60.6 (b) or (c);

(3) Require that all new construction and substantial improvements of non-residential structures within Zones A1-30, AE and AH zones on the community's firm (i) have the lowest floor (including basement) elevated to or above the base flood level 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 and effects of buoyancy;

(4) Provide that where a non-residential structure is intended to be made watertight below the base flood level, (i) 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 paragraph (c)(3)(ii) or (c)(8)(ii) of this section, and (ii) a record of such certificates which includes the specific elevation (in rela-

tion to mean sea level) to which such structures are floodproofed shall be maintained with the official designated by the community under § 59.22(a)(9)(iii);

(5) Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that 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.

(6) Require that all manufactured homes to be placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation; and be securely anchored to an adequately anchored foundation system in accordance with the provisions of paragraph (b)(8) of this section.

(7) Require within any AO zone on the community's FIRM that 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);

(8) Require within any AO zone on the community's FIRM that all new construction and substantial improvements of nonresidential 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 completely floodproofed to that level to meet the floodproofing standard specified in § 60.3(c)(3)(ii);

(9) Require within any A99 zones on a community's FIRM the standards of paragraphs (a)(1) through (a)(4)(i) and (b)(5) through (b)(9) of this section;

(10) Require until a regulatory floodway is designated, 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.

(11) Require within Zones AH and AO, adequate drainage paths around structures on slopes, to guide floodwaters around and away from proposed structures.

(12) Require that all manufactured homes to be placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation; and be securely anchored to an adequately anchored foundation system in accordance with the provisions of paragraph (b)(8) of this section. This paragraph applies to manufactured homes to be placed or substantially improved in an expansion to an existing manufactured home park or subdivision. This paragraph does not apply to manufactured homes to be placed or substantially improved in an existing manufactured home park or subdivision except where the repair, reconstruction, or improvement of the streets, utilities and pads equals or exceeds 50 percent of the value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced.

(13) Notwithstanding any other provisions of § 60.3, a community may approve certain development in Zones

A1-30, AE, and AH, on the community's FIRM which increase the water surface elevation of the base flood by more than one foot, provided that the community first applies for a conditional FIRM revision, fulfills the requirements for such a revision as established under the provisions of § 65.12, and receives the approval of the Administrator.

(d) When the Administrator has provided a notice of final base flood elevations within Zones A1-30 and/or AE on the community's FIRM and, if appropriate, has designated AO zones, AH zones, A99 zones, and A zones on the community's FIRM, and has provided data from which the community shall designate its regulatory floodway, the community shall:

(1) Meet the requirements of paragraphs (c) (1) through (13) of this section;

(2) Select and adopt a regulatory floodway 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;

(3) 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;

(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.

(e) When the Administrator has provided a notice of final base flood elevations within Zones A1-30 and/or AE on the community's FIRM and, if ap-

propriate, has designated AH zones, AO zones, A99 zones, and A zones on the community's FIRM, and has identified on the community's FIRM coastal high hazard areas by designating Zones V1-30, VE, and/or V, the community shall:

(1) Meet the requirements of paragraphs (c)(1) through (13) of this section;

(2) Within Zones V1-30, VE, and V on a community's FIRM, (i) obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures, and whether or not such structures contain a basement, and (ii) maintain a record of all such information with the official designated by the community under § 59.22(a)(9)(iii);

(3) Provide that all new construction within Zones V1-30, VE, and V on the community's FIRM is located landward of the reach of mean high tide;

(4) Provide that all new construction and substantial improvements in Zones V1-30 and VE, and also Zone V if base flood elevation data is available, on the community's FIRM, are elevated on pilings and columns so that (i) the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level; and (ii) the pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equalled or exceeded in any given year (100-year mean recurrence interval). A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of paragraphs (e)(4)(i) and (ii) of this section.

(5) Provide that all new construction and substantial improvements within Zones V1-30, VE, and V on the com-

munity's FIRM have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purposes of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or State codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

(i) Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and,

(ii) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water loading values to be used in this determination shall each have one percent chance of being equalled or exceeded in any given year (100-year mean recurrence interval).

Such enclosed space shall be useable solely for parking of vehicles, building access, or storage.

(6) Prohibit the use of fill for structural support of buildings within Zones V1-30, VE, and V on the community's FIRM;

(7) Prohibit man-made alteration of sand dunes and mangrove stands within Zones V1-30, VE, and V on the community's FIRM which would increase potential flood damage.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 46 FR 1274, Jan. 6, 1981; 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 33656, Aug. 24, 1984; 50 FR 36024, Sept. 4, 1985; 51 FR 30307, Aug. 25, 1986; 52 FR

24372, June 30, 1987; 52 FR 33411, Sept. 3, 1987; 53 FR 16276, May 6, 1988]

EDITORIAL NOTE: At 52 FR 24372, June 30, 1987, § 60.3 was amended by suspending paragraph (c)(6) and adding paragraph (c)(12), effective from June 30, 1987 until March 31, 1988. At 52 FR 33411, Sept. 3, 1987 these amendments were extended through September 30, 1988, and at 53 FR 25332, July 6, 1988 were further extended until July 31, 1989.

#### § 60.4 Flood plain management criteria for mudslide (i.e., mudflow)-prone areas.

The Administrator will provide the data upon which flood plain management regulations shall be based. If the Administrator has not provided sufficient data to furnish a basis for these regulations in a particular community, the community shall obtain, review, and reasonably utilize data available from other Federal, State or other sources pending receipt of data from the Administrator. However, when special mudslide (i.e., mudflow) hazard area designations have been furnished by the Administrator, they shall apply. The symbols defining such special mudslide (i.e., mudflow) hazard designations are set forth in § 64.3 of this subchapter. In all cases, the minimum requirements for mudslide (i.e., mudflow)-prone areas adopted by a particular community depend on the amount of technical data provided to the community by the Administrator. Minimum standards for communities are as follows:

(a) When the Administrator has not yet identified any area within the community as an area having special mudslide (i.e., mudflow) hazards, but the community has indicated the presence of such hazards by submitting an application to participate in the Program, the community shall

(1) Require permits for all proposed construction or other development in the community so that it may determine whether development is proposed within mudslide (i.e., mudflow)-prone areas;

(2) Require review of each permit application to determine whether the proposed site and improvements will be reasonably safe from mudslides (i.e., mudflows). Factors to be considered in making such a determination

should include but not be limited to (i) the type and quality of soils, (ii) any evidence of ground water or surface water problems, (iii) the depth and quality of any fill, (iv) the overall slope of the site, and (v) the weight that any proposed structure will impose on the slope;

(3) Require, if a proposed site and improvements are in a location that may have mudslide (i.e., mudflow) hazards, that (i) a site investigation and further review be made by persons qualified in geology and soils engineering, (ii) the proposed grading, excavations, new construction, and substantial improvements are adequately designed and protected against mudslide (i.e., mudflow) damages, (iii) the proposed grading, excavations, new construction and substantial improvements do not aggravate the existing hazard by creating either on-site or off-site disturbances, and (iv) drainage, planting, watering, and maintenance be such as not to endanger slope stability.

(b) When the Administrator has delineated Zone M on the community's FIRM, the community shall:

(1) Meet the requirements of paragraph (a) of this section; and

(2) Adopt and enforce a grading ordinance or regulation in accordance with data supplied by the Administrator which (i) regulates the location of foundation systems and utility systems of new construction and substantial improvements, (ii) regulates the location, drainage and maintenance of all excavations, cuts and fills and planted slopes, (iii) provides special requirements for protective measures including but not necessarily limited to retaining walls, buttress fills, sub-drains, diverter terraces, benchings, etc., and (iv) requires engineering drawings and specifications to be submitted for all corrective measures, accompanied by supporting soils engineering and geology reports. Guidance may be obtained from the provisions of the 1973 edition and any subsequent edition of the Uniform Building Code, sections 7001 through 7006, and 7008 through 7015. The Uniform Building Code is published by the International Conference of Building

Officials, 50 South Los Robles, Pasadena, California 91101.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 60.5 Flood plain management criteria for flood-related erosion-prone areas.

The Administrator will provide the data upon which flood plain management regulations for flood-related erosion-prone areas shall be based. If the Administrator has not provided sufficient data to furnish a basis for these regulations in a particular community, the community shall obtain, review, and reasonably utilize data available from other Federal, State or other sources, pending receipt of data from the Administrator. However, when special flood-related erosion hazard area designations have been furnished by the Administrator they shall apply. The symbols defining such special flood-related erosion hazard designations are set forth in § 64.3 of this subchapter. In all cases the minimum requirements governing the adequacy of the flood plain management regulations for flood-related erosion-prone areas adopted by a particular community depend on the amount of technical data provided to the community by the Administrator. Minimum standards for communities are as follows:

(a) When the Administrator has not yet identified any area within the community as having special flood-related erosion hazards, but the community has indicated the presence of such hazards by submitting an application to participate in the Program, the community shall

(1) Require the issuance of a permit for all proposed construction, or other development in the area of flood-related erosion hazard, as it is known to the community;

(2) Require review of each permit application to determine whether the proposed site alterations and improvements will be reasonably safe from flood-related erosion and will not cause flood-related erosion hazards or otherwise aggravate the existing flood-related erosion hazard; and

(3) If a proposed improvement is found to be in the path of flood-relat-

ed erosion or to increase the erosion hazard, require the improvement to be relocated or adequate protective measures to be taken which will not aggravate the existing erosion hazard.

(b) When the Administrator has delineated Zone E on the community's FIRMS, the community shall

(1) Meet the requirements of paragraph (a) of this section; and

(2) Require a setback for all new development from the ocean, lake, bay, riverfront or other body of water, to create a safety buffer consisting of a natural vegetative or contour strip. This buffer will be designated by the Administrator according to the flood-related erosion hazard and erosion rate, in conjunction with the anticipated "useful life" of structures, and depending upon the geologic, hydrologic, topographic and climatic characteristics of the community's land. The buffer may be used for suitable open space purposes, such as for agricultural, forestry, outdoor recreation and wildlife habitat areas, and for other activities using temporary and portable structures only.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 60.6 Variances and exceptions.

(a) The Administrator does not set forth absolute criteria for granting variances from the criteria set forth in §§ 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 Administrator 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, the Administrator may take appropriate action under § 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 or biennial report submitted to the Administrator.

(7) 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 of paragraphs (a)(1) through (a)(4) of this section 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.

(b)(1) The requirement that each flood-prone, mudslide (i.e., mudflow)-prone, and flood-related erosion prone community must adopt and submit adequate flood plain management regulations as a condition of initial and continued flood insurance eligibility is statutory and cannot be waived, and such regulations shall be adopted by a community within the time periods specified in §§ 60.3, 60.4 or § 60.5. However, certain exceptions from the standards contained in this subpart may be permitted where the Administrator recognizes that, because of extraordinary circumstances, local conditions may render the application of certain standards the cause for severe hardship and gross inequity for a particular community. Consequently, a community proposing the adoption of flood plain management regulations which vary from the standards set forth in §§ 60.3, 60.4, or § 60.5, shall explain in writing to the Administrator the nature and extent of and the reasons for the exception request and shall include sufficient supporting economic, environmental, topographic, hydrologic, and other scientific and technical data, and data with respect to the impact on public safety and the environment.

(2) The Administrator shall prepare a Special Environmental Clearance to determine whether the proposal for an exception under paragraph (b)(1) of this section will have significant

impact on the human environment. The decision whether an Environmental Impact Statement or other environmental document will be prepared, will be made in accordance with the procedures set out in 44 CFR Part 10. Ninety or more days may be required for an environmental quality clearance if the proposed exception will have significant impact on the human environment thereby requiring an EIS.

(c) A community may propose flood plain management measures which adopt standards for floodproofed residential basements below the base flood level in zones A1-30, AH, AO, and AE which are not subject to tidal flooding. Notwithstanding the requirements of paragraph (b) of this section the Administrator may approve the proposal provided that:

(1) The community has demonstrated that areas of special flood hazard in which basements will be permitted are subject to shallow and low velocity flooding and that there is adequate flood warning time to ensure that all residents are notified of impending floods. For the purposes of this paragraph flood characteristics must include:

(i) Flood depths that are five feet or less for developable lots that are contiguous to land above the base flood level and three feet or less for other lots;

(ii) Flood velocities that are five feet per second or less; and

(iii) Flood warning times that are 12 hours or greater. Flood warning times of two hours or greater may be approved if the community demonstrates that it has a flood warning system and emergency plan in operation that is adequate to ensure safe evacuation of flood plain residents.

(2) The community has adopted flood plain management measures that require that new construction and substantial improvements of residential structures with basements in zones A1-30, AH, AO, and AE shall:

(i) Be designed and built so that any basement area, together with attendant utilities and sanitary facilities below the floodproofed design level, is watertight with walls that are impermeable to the passage of water without human intervention. Basement

walls shall be built with the capacity to resist hydrostatic and hydrodynamic loads and the effects of buoyancy resulting from flooding to the floodproofed design level, and shall be designed so that minimal damage will occur from floods that exceed that level. The floodproofed design level shall be an elevation one foot above the level of the base flood where the difference between the base flood and the 500-year flood is three feet or less and two feet above the level of the base flood where the difference is greater than three feet.

(ii) Have the top of the floor of any basement area no lower than five feet below the elevation of the base flood;

(iii) Have the area surrounding the structure on all sides filled to or above the elevation of the base flood. Fill must be compacted with slopes protected by vegetative cover;

(iv) Have a registered professional engineer or architect develop or review the building's structural design, specifications, and plans, including consideration of the depth, velocity, and duration of flooding and type and permeability of soils at the building site, and certify that the basement design and methods of construction proposed are in accordance with accepted standards of practice for meeting the provisions of this paragraph;

(v) Be inspected by the building inspector or other authorized representative of the community to verify that the structure is built according to its design and those provisions of this section which are verifiable.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44543 and 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36025, Sept. 4, 1985; 51 FR 30308, Aug. 25, 1986]

#### § 60.7 Revisions of criteria for flood plain management regulations.

From time to time Part 60 may be revised as experience is acquired under the Program and new information becomes available. Communities will be given six months from the effective date of any new regulation to revise their flood plain management regulations to comply with any such changes.

#### § 60.8 Definitions.

The definitions set forth in Part 59 of this subchapter are applicable to this part.

#### Subpart B—Requirements for State Flood Plain Management Regulations

##### § 60.11 Purpose of this subpart.

(a) A State is considered a "community" pursuant to § 59.1 of this subchapter; and, accordingly, the Act provides that flood insurance shall not be sold or renewed under the Program unless a community has adopted adequate flood plain management regulations consistent with criteria established by the Administrator.

(b) This subpart sets forth the flood plain management criteria required for State-owned properties located within special hazard areas identified by the Administrator. A State shall satisfy such criteria as a condition to the purchase of a Standard Flood Insurance Policy for a State-owned structure or its contents, or as a condition to the approval by the Administrator, pursuant to Part 75 of this subchapter, of its plan of self-insurance.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

##### § 60.12 Flood plain management criteria for State-owned properties in special hazard areas.

(a) The State shall comply with the minimum flood plain management criteria set forth in §§ 60.3, 60.4, and 60.5. A State either shall:

(1) Comply with the flood plain management requirements of all local communities participating in the program in which State-owned properties are located; or

(2) Establish and enforce flood plain management regulations which, at a minimum, satisfy the criteria set forth in §§ 60.3, 60.4, and 60.5.

(b) The procedures by which a state government adopts and administers flood plain management regulations satisfying the criteria set forth in §§ 60.3, 60.4 and 60.5 may vary from the procedures by which local governments satisfy the criteria.

(c) If any State-owned property is located in a non-participating local community, then the State shall comply with the requirements of paragraph (a)(2) of this section for the property.

##### § 60.13 Noncompliance.

If a State fails to submit adequate flood plain management regulations applicable to State-owned properties pursuant to § 60.12 within six months of the effective date of this regulation, or fails to adequately enforce such regulations, the State shall be subject to suspensive action pursuant to § 59.24. Where the State fails to adequately enforce its flood plain management regulations, the Administrator shall conduct a hearing before initiating such suspensive action.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### Subpart C—Additional Considerations in Managing Flood-Prone, Mudslide (i.e., Mudflow)-Prone and Flood-Related Erosion-Prone Areas

##### § 60.21 Purpose of this subpart.

The purpose of this subpart is to encourage the formation and adoption of overall comprehensive management plans for flood-prone, mudslide (i.e., mudflow)-prone and flood-related erosion-prone areas. While adoption by a community of the standards in this subpart is not mandatory, the community shall completely evaluate these standards.

##### § 60.22 Planning considerations for flood-prone areas.

(a) The flood plain management regulations adopted by a community for flood-prone areas should:

(1) 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;

(2) 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—

(1) Preservation of the flood-prone areas for open space purposes;

(2) Relocation of occupants away from flood-prone areas;

(3) Acquisition of land or land development rights for public purposes consistent with a policy of minimization of future property losses;

(4) Acquisition of frequently flood-damaged structures;

(c) In formulating community development goals and in adopting flood plain management regulations, each community shall consider at least the following factors—

(1) Human safety;

(2) Diversion of development to areas safe from flooding in light of the need to reduce flood damages and in light of the need to prevent environmentally incompatible flood plain use;

(3) 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;

(4) Adverse effects of flood plain development on existing development;

(5) Encouragement of floodproofing to reduce flood damage;

(6) Flood warning and emergency preparedness plans;

(7) Provision for alternative vehicular access and escape routes when normal routes are blocked or destroyed by flooding;

(8) Establishment of minimum floodproofing and access requirements for schools, hospitals, nursing homes, orphanages, penal institutions, fire stations, police stations, communications 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 to facilitate emergency operations;

(9) Improvement of local drainage to control increased runoff that might increase the danger of flooding to other properties;

(10) Coordination of plans with neighboring community's flood plain management programs;

(11) 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 ten year period;

(12) For riverine areas, requiring subdividers to furnish delineations for floodways before approving a subdivision;

(13) 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;

(14) Requirement of setbacks for new construction within Zones V1-30, VE, and V on a community's FIRM;

(15) Requirement of additional elevation above the base flood level for all new construction and substantial improvements within Zones A1-30, AE, V1-30, and VE 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;

(16) Requirement of consistency between state, regional and local comprehensive plans and flood plain management programs;

(17) Requirement of pilings or columns rather than fill, for the elevation of structures within flood-prone areas, in order to maintain the storage capacity of the flood plain and to minimize the potential for negative impacts to sensitive ecological areas;

(18) Prohibition, within any floodway or coastal high hazard area, of plants or facilities in which hazardous substances are manufactured.

[41 FR 46975, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 50 FR 36025, Sept. 4, 1985]

§ 60.23 Planning considerations for mudslide (i.e., mudflow)-prone areas.

The planning process for communities identified under Part 65 of this subchapter as containing Zone M, or which indicate in their applications for flood insurance pursuant to § 59.22 of this subchapter that they have mudslide (i.e., mudflow) areas, should include—

(a) The existence and extent of the hazard;

(b) The potential effects of inappropriate hillside development, including

(1) Loss of life and personal injuries, and

(2) Public and private property losses, costs, liabilities, and exposures resulting from potential mudslide (i.e., mudflow) hazards;

(c) The means of avoiding the hazard including the (1) availability of land which is not mudslide (i.e., mudflow)-prone and the feasibility of developing such land instead of further encroaching upon mudslide (i.e., mudflow) areas, (2) possibility of public acquisition of land, easements, and development rights to assure the proper development of hillsides, and (3) advisability of preserving mudslide (i.e., mudflow) areas as open space;

(d) The means of adjusting to the hazard, including the (1) establishment by ordinance of site exploration, investigation, design, grading, construction, filing, compacting, foundation, sewerage, drainage, subdrainage, planting, inspection and maintenance standards and requirements that promote proper land use, and (2) provision for proper drainage and subdrainage on public property and the location of public utilities and service facilities, such as sewer, water, gas and electrical systems and streets in a manner designed to minimize exposure to mudslide (i.e., mudflow) hazards and prevent their aggravation;

(e) Coordination of land use, sewer, and drainage regulations and ordinances with fire prevention, flood plain, mudslide (i.e., mudflow), soil, land, and water regulation in neighboring communities;

(f) Planning subdivisions and other developments in such a manner as to avoid exposure to mudslide (i.e., mudflow) hazards and the control of public facility and utility extension to discourage inappropriate development;

(g) Public facility location and design requirements with higher site stability and access standards for schools, hospitals, nursing homes, orphanages, correctional and other residential institutions, fire and police stations, communication centers, electric power transformers and substations, water and sewer pumping stations and any other public or quasi-public institutions located in the mudslide (i.e., mudflow) area to enable them to withstand mudslide (i.e., mudflow) damage and to facilitate emergency operations; and

(h) Provision for emergencies, including:

(1) Warning, evacuation, abatement, and access procedures in the event of mudslide (i.e., mudflow),

(2) Enactment of public measures and initiation of private procedures to limit danger and damage from continued or future mudslides (i.e., mudflow),

(3) Fire prevention procedures in the event of the rupture of gas or electrical distribution systems by mudslides,

(4) Provisions to avoid contamination of water conduits or deterioration of slope stability by the rupture of such systems,

(5) Similar provisions for sewers which in the event of rupture pose both health and site stability hazards and

(6) Provisions for alternative vehicular access and escape routes when normal routes are blocked or destroyed by mudslides (i.e., mudflow);

(i) The means for assuring consistency between state, areawide, and local comprehensive plans with the plans developed for mudslide (i.e., mudflow)-prone areas;

(j) Deterring the nonessential installation of public utilities and public facilities in mudslide (i.e., mudflow)-prone areas.

**§ 60.24 Planning considerations for flood-related erosion-prone areas.**

The planning process for communities identified under Part 65 of this subchapter as containing Zone E or which indicate in their applications for flood insurance coverage pursuant to § 59.22 of this subchapter that they have flood-related erosion areas should include—

- (a) The importance of directing future developments to areas not exposed to flood-related erosion;
- (b) The possibility of reserving flood-related erosion-prone areas for open space purposes;
- (c) The coordination of all planning for the flood-related erosion-prone areas with planning at the State and Regional levels, and with planning at the level of neighboring communities;
- (d) Preventive action in E zones, including setbacks, shore protection works, relocating structures in the path of flood-related erosion, and community acquisition of flood-related erosion-prone properties for public purposes;
- (e) Consistency of plans for flood-related erosion-prone areas with comprehensive plans at the state, regional and local levels.

**§ 60.25 Designation, duties, and responsibilities of State Coordinating Agencies.**

(a) States are encouraged to demonstrate a commitment to the minimum flood plain management criteria set forth in §§ 60.3, 60.4, and 60.5 as evidenced by the designation of an agency of State government to be responsible for coordinating the Program aspects of flood plain management in the State.

(b) State participation in furthering the objectives of this part shall include maintaining capability to perform the appropriate duties and responsibilities as follows:

- (1) Enact, whenever necessary, legislation enabling counties and municipalities to regulate development within flood-prone areas;
- (2) Encourage and assist communities in qualifying for participation in the Program;
- (3) Guide and assist county and municipal public bodies and agencies in developing, implementing, and main-

taining local flood plain management regulations;

(4) Provide local governments and the general public with Program information on the coordination of local activities with Federal and State requirements for managing flood-prone areas;

(5) Assist communities in disseminating information on minimum elevation requirements for development within flood-prone areas;

(6) Assist in the delineation of riverine and coastal flood-prone areas, whenever possible, and provide all relevant technical information to the Administrator;

(7) Recommend priorities for Federal flood plain management activities in relation to the needs of county and municipal localities within the State;

(8) Provide notification to the Administrator in the event of apparent irreconcilable differences between a community's local flood plain management program and the minimum requirements of the Program;

(9) Establish minimum State flood plain management regulatory standards consistent with those established in this part and in conformance with other Federal and State environmental and water pollution standards for the prevention of pollution during periods of flooding;

(10) Assure coordination and consistency of flood plain management activities with other State, areawide, and local planning and enforcement agencies;

(11) Assist in the identification and implementation of flood hazard mitigation recommendations which are consistent with the minimum flood plain management criteria for the Program;

(12) Participate in flood plain management training opportunities and other flood hazard preparedness programs whenever practicable.

(c) Other duties and responsibilities, which may be deemed appropriate by the State and which are to be officially designated as being conducted in the capacity of the State Coordinating Agency for the Program, may be carried out with prior notification of the Administrator.

(d) For States which have demonstrated a commitment to and experi-

ence in application of the minimum flood plain management criteria set forth in §§ 60.3, 60.4, and 60.5 as evidenced by the establishment and implementation of programs which substantially encompass the activities described in paragraphs (a), (b), and (c) of this section, the Administrator shall take the foregoing into account when:

(1) Considering State recommendations prior to implementing Program activities affecting State communities;

(2) Considering State approval or certifications of local flood plain management regulations as meeting the requirements of this part.

[51 FR 30309, Aug. 25, 1986]

**§ 60.26 Local coordination.**

(a) Local flood plain, mudslide (i.e., mudflow) and flood-related erosion area management, forecasting, emergency preparedness, and damage abatement programs should be coordinated with relevant Federal, State, and regional programs;

(b) A community adopting flood plain management regulations pursuant to these criteria should coordinate with the appropriate State agency to promote public acceptance and use of effective flood plain, mudslide, (i.e., mudflow) and flood-related erosion regulations;

(c) A community should notify adjacent communities prior to substantial commercial developments and large subdivisions to be undertaken in areas having special flood, mudslide (i.e., mudflow) and/or flood-related erosion hazards.

will use for identifying the hazard areas on maps.

(b) 42 U.S.C. 4056 authorizes an emergency implementation of the National Flood Insurance Program whereby the Administrator may make subsidized coverage available to eligible communities prior to the completion of detailed risk studies for such areas. This part also describes procedures under the emergency program and lists communities which become eligible under the NFIP.

[48 FR 28278, June 21, 1983, as amended at 49 FR 4751, Feb. 8, 1984; 49 FR 33879, Aug. 27, 1984]

#### § 64.2 Definitions.

The definitions set forth in Part 59 of this subchapter are applicable to this part.

[41 FR 46986, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979]

#### § 64.3 Flood Insurance Maps.

(a) The following maps may be prepared by the Administrator for use in connection with the sale of flood insurance:

(1) **Flood Insurance Rate Map (FIRM):** This map is prepared after the risk study for the community has been completed and the risk premium rates have been established. It indicates the risk premium rate zones applicable in the community and when those rates are effective. The symbols used to designate those zones are as follows:

Zone symbol	
A.....	Area of special flood hazard without water surface elevations determined.
A1-30, AE.....	Area of special flood hazard with water surface elevations determined.
A0.....	Area of special flood hazards having shallow water depths and/or unpredictable flow paths between (1) and (3) ft.
A99.....	Area of special flood hazard where enough progress has been made on a protective system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes.

Zone symbol	
AH.....	Areas of special flood hazards having shallow water depths and/or unpredictable flow paths between (1) and (3) feet, and with water surface elevations determined.
V.....	Area of special flood hazards without water surface elevations determined, and with velocity, that is inundated by tidal floods (coastal high hazard area).
V1-30, VE.....	Area of special flood hazards, with water surface elevations determined and with velocity, that is inundated by tidal floods (coastal high hazard area).
V0.....	Area of special flood hazards having shallow water depths and/or unpredictable flow paths between (1) and (3) ft. and with velocity.
B, X.....	Area of moderate flood hazards.
C, X.....	Area of minimal hazards.
D.....	Area of undetermined but possible, flood hazards.
M.....	Area of special mudslide (i.e., mudflow) hazards.
N.....	Area of moderate mudslide (i.e., mudflow) hazards.
P.....	Area of undetermined, but possible, mudslide hazards.
E.....	Area of special flood-related erosion hazards.

Areas identified as subject to more than one hazard (flood, mudslide (i.e., mudflow), flood-related erosion) will be designated by use of the proper symbols in combination.

(2) **Flood Hazard Boundary Map (FHBM).** This map is issued by the Administrator delineating Zones A, M, and E within a community.

(b) Notice of the issuance of new or revised FHBMs or FIRMs is given in Part 65 of this subchapter. The mandatory purchase of insurance is required within designated Zones A, A1-30, AE, A99, A0, V1-30, VE, V, V0, M, and E.

(c) The FHBM or FIRM shall be maintained for public inspection at the following locations:

(1) The information office of the State agency or agencies designated by statute or the respective Governors to cooperate with the Administrator in implementing the Program whenever a community becomes eligible for Program participation and the sale of insurance pursuant to this section or is identified as flood prone.

(2) One or more official locations within the community in which flood insurance is offered.

(3) [Reserved]

(4) The official record copy of each official map shall be maintained in FEMA files in Washington, D.C.

[41 FR 46986, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 46 FR 1274, Jan. 6, 1981; 48 FR 28278, June 21, 1983; 48 FR 44544 and 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36028, Sept. 4, 1985]

#### § 64.4 Effect on community eligibility resulting from boundary changes, governmental reorganization, etc.

(a) When a community not participating in the Program acquires by means of annexation, incorporation, or otherwise, an area within another community participating in the Program, no new flood insurance shall be made available as of the effective date of annexation until the newly acquiring community participates in the Program. Until the effective date of participation, existing flood insurance policies remain in effect until the policy's date of expiration, but shall not be renewed.

(b) When a community participating in the Program acquires by means of annexation, incorporation, or otherwise, another area which was previously located in a community either participating or not participating in the Program, the community shall have six months from the date of acquisition to formally amend its flood plain management regulations in order to include all flood-prone areas within the newly acquired area. The amended regulations shall satisfy the applicable requirements in § 60.3 of this subchapter based on the data previously provided by the Administrator. In the event that the newly acquired area was previously located in a community participating in the Program, the provisions of this section shall only apply if the community, upon acquisition, and pending formal adoption of the amendment to its flood plain management regulations, certifies in writing over the signature of a community official that within the newly acquired area the flood plain management requirements previously applicable in

## PART 64—COMMUNITIES ELIGIBLE FOR THE SALE OF INSURANCE

### Sec.

- 64.1 Purpose of part.  
64.2 Definitions.  
64.3 Flood Insurance Maps.  
64.4 Effect on community eligibility resulting from boundary changes, governmental reorganization, etc.  
64.5 Relationship of rates to zone designations.  
64.6 List of eligible communities.

**AUTHORITY:** 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978, E.O. 12127.

#### § 64.1 Purpose of part.

(a) 42 U.S.C. 4012(c), 4022 and 4102 require that flood insurance in the maximum limits of coverage under the regular program shall be offered in communities only after the Administrator has: (1) Identified the areas of special flood, mudslide (i.e., mudflow) or flood-related erosion hazards within the community; and/or (2) completed a risk study for the applicant community. The priorities for conducting such risk studies are set forth in §§ 59.23 and 60.25 of this subchapter. The purpose of this part is to define the types of zones which the Agency

the area remain in force. In the event that the newly-acquired area was previously located in a community not participating in the Program, the provisions of the section shall only apply if the community, upon acquisition, and pending formal adoption of the amendments to its flood plain management regulations, certifies in writing over the signature of a community official that it shall enforce within the newly-month period, existing flood insurance policies shall remain in effect until their date of expiration may be renewed, and new policies may be issued. Failure to satisfy the applicable requirements in § 60.3 shall result in the community's suspension from Program participation pursuant to § 59.24 of this subchapter.

(c) When an area previously a part of a community participating in the Program becomes autonomous or becomes a portion of a newly autonomous community resulting from boundary changes, governmental reorganization, changes in state statutes or constitution, or otherwise, such new community shall be given six months from the date of its independence, to adopt flood plain management regulations within the special hazard areas subject to its jurisdiction and to submit its application for participation as a separate community in order to retain eligibility for the sale of flood insurance. The regulations adopted by such new community shall satisfy the applicable requirements in § 60.3 of this subchapter based on the data previously provided by the Administrator. The provisions of this section shall only apply where the new community upon the date of its independence certifies in writing over the signature of a community official that, pending formal adoption of flood plain management regulations, the flood plain management requirements previously applicable in that area remain in effect. During the six month period, existing flood insurance policies shall remain in effect until their dates of expiration may be renewed, and new policies may be issued. Failure to satisfy the applicable requirements in § 60.3 of this subchapter shall result in the community's suspension from Pro-

gram participation pursuant to § 59.24 of this subchapter.

(d) Where any community or any area within a community had in effect a FHBM or FIRM, but all or a portion of that community has been acquired by another community, or becomes autonomous, that map shall remain in effect until it is superseded by the Administrator, whether by republication as part of the map of the acquiring community, or otherwise.

(e) When a community described in paragraph (a), (b), (c), or (d) of this section has flood elevations in effect, no new appeal period under Parts 66, 67, and 68 of this subchapter will begin except as new scientific and technical data are available.

[41 FR 46986, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 64.5 Relationship of rates to zone designations.

(a) In order to expedite a community's qualification for flood insurance under the emergency program, the Administrator may authorize the sale of such insurance without designating any Zones A, M, or E within a community, provided the community has previously adopted flood plain management regulations meeting the requirements of § 60.3(a), § 60.4(a) or § 60.5(a) of this subchapter. When the Administrator has obtained sufficient technical information to delineate Zones A, M, or E, he/she shall delineate the tentative boundaries on a FHBM.

(b) Upon the effective date of the FIRM, flood insurance will continue to be available throughout the entire community at chargeable rates (i.e., subsidized) for first layer coverage of existing structures, but will be only available at risk premium rates for all new construction and substantial improvements. Upon the effective date of a FIRM, second layer coverage is available only at risk premium rates for all structures.

(c) Detailed insurance information may be obtained from the servicing companies. See Part 62 of this subchapter.

[41 FR 46986, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44552, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 64.6 List of eligible communities.

The sale of flood insurance pursuant to the National Flood Insurance Program (42 U.S.C. 4001-4128) is authorized for the communities set forth under this section. Previous listings under this part continue in effect until revised.

[41 FR 46986, Oct. 25, 1976]

EDITORIAL NOTE: For references to FR pages showing lists of eligible communities, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

### PART 65—IDENTIFICATION AND MAPPING OF SPECIAL HAZARD AREAS

#### Sec.

- 65.1 Purpose of part.
- 65.2 Definitions.
- 65.3 Requirement to submit new technical data.
- 65.4 Right to submit new technical data.
- 65.5 Revision to special hazard area boundaries with no change to base flood elevation determinations.
- 65.6 Revision of base flood elevation determinations.
- 65.7 Floodway revisions.
- 65.8 Review of proposed projects.
- 65.9 Review and response by the Administrator.
- 65.10 Mapping of areas protected by levee systems.
- 65.11 Evaluation of sand dunes in mapping coastal flood hazard areas.
- 65.12 Revision of flood insurance rate maps to reflect base flood elevations caused by proposed encroachments.
- 65.13 List of communities submitting new technical data.

AUTHORITY: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978; E.O. 12127.

#### § 65.1 Purpose of part.

42 U.S.C. 4104 authorizes the Director to identify and publish information with respect to all areas within the United States having special flood, mudslide (i.e., mudflow) and flood-related erosion hazards. The purpose of this part is to outline the steps a community needs to take in order to assist the Agency's effort in providing up-to-

date identification and publication, in the form of the maps described in Part 64, on special flood, mudslide (i.e., mudflow) and flood-related erosion hazards.

[48 FR 28278, June 21, 1983]

#### § 65.2 Definitions.

(a) Except as otherwise provided in this part, the definitions set forth in Part 59 of this subchapter are applicable to this part.

(b) For the purpose of this part, a certification by a registered professional engineer or other party does not constitute a warranty or guarantee of performance, expressed or implied. Certification of data is a statement that the data is accurate to the best of the certifier's knowledge. Certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering practices. Certification of structural works is a statement that the works are designed in accordance with sound engineering practices to provide protection from the base flood. Certification of "as built" conditions is a statement that the structure(s) has been built according to the plans being certified, is in place, and is fully functioning.

[51 FR 30313, Aug. 25, 1986]

#### § 65.3 Requirement to submit new technical data.

A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Administrator of the changes by submitting technical or scientific data in accordance with this part. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and flood plain management requirements will be based upon current data.

[51 FR 30313, Aug. 25, 1986]

## § 65.4 Right to submit new technical data.

(a) A community has a right to request changes to any of the information shown on an effective map that does not impact flood plain or floodway delineations or base flood elevations, such as community boundary changes, labeling, or planimetric details. Such a submission shall include appropriate supporting documentation in accordance with this part and may be submitted at any time.

(b) All requests for changes to effective maps, other than those initiated by FEMA, must be made in writing by the Chief Executive Officer of the community (CEO) or an official designated by the CEO. Should the CEO refuse to submit such a request on behalf of another party, FEMA will agree to review it only if written evidence is provided indicating the CEO or designee has been requested to do so.

[51 FR 30313, Aug. 25, 1986]

## § 65.5 Revision to special hazard area boundaries with no change to base flood elevation determinations.

(a) *Data requirements for topographic changes.* In many areas of special flood hazard (excluding V zones and floodways) it may be feasible to elevate areas with earth fill above the base flood elevation. Scientific and technical information to support a request to gain exclusion from an area of special flood hazard of a structure or parcel of land that has been elevated by the placement of fill shall include the following:

(1) A copy of the recorded deed indicating the legal description of the property and the official recordation information (deed book volume and page number) and bearing the seal of the appropriate recordation official (e.g., County Clerk or Recorder of Deeds).

(2) If the property is recorded on a plat map, a copy of the recorded plat indicating both the location of the property and the official recordation information (plat book volume and page number) and bearing the seal of the appropriate recordation official. If the property is not recorded on a plat map, copies of the tax map or other

suitable maps are required to aid FEMA in accurately locating the property.

(3) If a legally defined parcel of land is involved, a topographic map indicating present ground elevations and date of fill. FEMA's determination as to whether a legally defined parcel of land is to be excluded from the area of special flood hazard shall be based upon a comparison of the ground elevations of the parcel with the elevations of the base flood. If the ground elevations of the entire legally defined parcel of land are at or above the elevations of the base flood, the parcel may be excluded from the area of special flood hazard.

(4) If a structure is involved, a topographic map indicating structure location and ground elevations including the elevations of the lowest floor (including basement) and the lowest adjacent grade to the structure. FEMA's determination as to whether a structure is to be excluded from the area of special flood hazard shall be based upon a comparison of the elevation of the lowest floor (including basement) and the elevation of the lowest adjacent grade with the elevation of the base flood. If the entire structure and the lowest adjacent grade are at or above the elevation of the base flood, the structure may be excluded from the area of special flood hazard.

(5) Data to substantiate the base flood elevation. If FEMA has completed a Flood Insurance Study (FIS), that data will be used to substantiate the base flood. Otherwise, data provided by an authoritative source, such as the U.S. Army Corps of Engineers, U.S. Geological Survey, U.S. Soil Conservation Service, state and local water resource departments, or technical data prepared and certified by a registered professional engineer may be submitted. If base flood elevations have not previously been established, hydraulic calculations may also be requested.

(6) Where fill has been placed to raise the ground surface to or above the base flood elevation and the request to gain exclusion from an area of special flood hazard includes more than a single structure or a single lot, it must be demonstrated that fill will

not settle below the elevation of the base flood, and that the fill is adequately protected from the forces of erosion, scour, or differential settlement as described below:

(i) Fill must be compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test method issued by the American Society for Testing and Materials (ASTM Standard D-698). This requirement applies to fill pads prepared for residential or commercial structure foundations and does not apply to filled areas intended for other uses.

(ii) Fill slopes for granular materials are not steeper than one vertical on one-and-one-half horizontal unless substantiating data justifying steeper slopes is submitted.

(iii) Adequate protection is provided fill slopes exposed to flood waters with expected velocities during the occurrence of the base flood of five feet per second or less by covering them with grass, vines, weeds, or similar vegetation undergrowth.

(iv) Adequate protection is provided fill slopes exposed to flood waters with velocities during the occurrence of the base flood of greater than five feet per second by armoring them with stone or rock slope protection.

(7) A revision of flood plain delineations based on fill must demonstrate that any such fill has not resulted in a floodway encroachment.

(b) *New topographic data.* The procedures described in paragraphs (a) (1) through (5) of this section may be also followed to request a map revision when no physical changes have occurred in the area of special flood hazard, when no fill has been placed, and when the natural ground elevations, as evidenced by new topographic maps, more detailed or more accurate than those used to prepare the map to be revised, are shown to be above the elevation of the base flood.

(c) *Certification requirements.* The items required in paragraphs (a) (3) and (4) and (b) of this section shall be certified by a registered professional engineer or licensed land surveyor. Items required in paragraph (a)(6) of this section shall be certified by the community's NFIP permit official, a registered professional engineer, or an

accredited soils engineer. Such certifications are subject to the provisions of § 65.2 of this subchapter.

(d) *Submission procedures.* All requests shall be submitted to the appropriate FEMA Regional Office servicing the community's geographic area.

[51 FR 30313, Aug. 25, 1986]

## § 65.6 Revision of base flood elevation determinations.

(a) *General conditions and data requirements.* (1) The supporting data must include all the information FEMA needs to review and evaluate the request. This may involve the requestor's performing new hydrologic and hydraulic analysis and delineation of new flood plain boundaries and floodways, as necessary.

(2) To avoid discontinuities between the revised and unrevised flood data, the necessary hydrologic and hydraulic analyses submitted by the map revision requestor must be extensive enough to ensure that a logical transition can be shown between the revised flood elevations, flood plain boundaries, and floodways and those developed previously for areas not affected by the revision. Unless it is demonstrated that it would not be appropriate, the revised and unrevised base flood elevations must match within one-half foot where such transitions occur.

(3) Revisions cannot be made based on the effects of proposed projects or future conditions. Section 65.8 of this subchapter contains provisions for obtaining conditional approval of proposed projects that may effect map changes when they are completed.

(4) The datum and date of releveling of benchmarks, if any, to which the elevations are referenced must be indicated.

(5) Maps will not be revised when discharges change as a result of the use of an alternative methodology or data for computing flood discharges unless the change is statistically significant as measured by a confidence limits analysis of the new discharge estimates.

(6) In order for an alternative hydraulic or hydrologic methodology to be accepted, any computer program

used must be accepted for general use by a governmental agency or notable scientific body, must be well documented including a user's and programmer's manual, and must be available to the general user.

(7) A revised hydrologic analysis for flooding sources with established base flood elevations must include evaluation of the same recurrence interval(s) studied in the effective FIS, such as the 10-, 50-, 100-, and 500-year flood discharges.

(8) A revised hydraulic analysis for a flooding source with established base flood elevations must include evaluation of the same recurrence interval(s) studied in the effective FIS, such as the 10-, 50-, 100-, and 500-year flood elevations, and of the floodway. Unless the basis of the request is the use of an alternative hydraulic methodology or the requestor can demonstrate that the data of the original hydraulic computer model is unavailable or its use is inappropriate, the analysis shall be made using the same hydraulic computer model used to develop the base flood elevations shown on the effective Flood Insurance Rate Map and updated to show present conditions in the flood plain. Copies of the input and output data from the original and revised hydraulic analyses shall be submitted.

(9) A hydrologic or hydraulic analysis for a flooding source without established base flood elevations may be performed for only the 100-year flood.

(10) A revision of flood plain delineations based on topographic changes must demonstrate that any topographic changes have not resulted in a floodway encroachment.

(11) Delineations of flood plain boundaries for a flooding source with established base flood elevations must provide both the 100- and 500-year flood plain boundaries. For flooding sources without established base flood elevations, only 100-year flood plain boundaries need be submitted. These boundaries should be shown on a topographic map of suitable scale and contour interval.

(12) If a community or other party seeks recognition from FEMA, on its FIRM or FIRM, that an altered or relocated portion of a watercourse pro-

vides protection from, or mitigates potential hazards of, the base flood, the Administrator may request specific documentation from the community certifying that, and describing how, the provisions of § 60.3(b)(7) of this subchapter will be met for the particular watercourse involved. This documentation, which may be in the form of a written statement from the Community Chief Executive Officer, an ordinance, or other legislative action, shall describe the nature of the maintenance activities to be performed, the frequency with which they will be performed, and the title of the local community official who will be responsible for assuring that the maintenance activities are accomplished.

(13) Notwithstanding any other provisions of § 65.6, a community may submit, in lieu of the documentation specified in § 65.6(a)(12), certification by a registered professional engineer that the project has been designed to retain its flood carrying capacity without periodic maintenance.

(b) *Data requirements for correcting map errors.* To correct errors in the original flood analysis, technical data submissions shall include the following:

(1) Data identifying mathematical errors.

(2) Data identifying measurement errors and providing correct measurements.

(c) *Data requirements for changed physical conditions.* Revisions based on the effects of physical changes that have occurred in the flood plain shall include:

(1) *Changes affecting hydrologic conditions.* The following data must be submitted:

(i) General description of the changes (e.g., dam, diversion channel, or detention basin).

(ii) Construction plans for as-built conditions, if applicable.

(iii) New hydrologic analysis accounting for the effects of the changes.

(iv) New hydraulic analysis and profiles using the new flood discharge values resulting from the hydrologic analysis.

(v) Revised delineations of the flood plain boundaries and floodway.

(2) *Changes affecting hydraulic conditions.* The following data shall be submitted:

(i) General description of the changes (e.g., channelization or new bridge, culvert, or levee).

(ii) Construction plans for as-built conditions.

(iii) New hydraulic analysis and flood elevation profiles accounting for the effects of the changes and using the original flood discharge values upon which the original map is based.

(iv) Revised delineations of the flood plain boundaries and floodway.

(3) *Changes involving topographic conditions.* The following data shall be submitted:

(i) General description of the changes (e.g., grading or filling).

(ii) New topographic information, such as spot elevations, cross sections grading plans, or contour maps.

(iii) Revised delineations of the flood plain boundaries and, if necessary, floodway.

(d) *Data requirements for incorporating improved data.* Requests for revisions based on the use of improved hydrologic, hydraulic, or topographic data shall include the following data:

(1) Data that are believed to be better than those used in the original analysis (such as additional years of stream gage data).

(2) Documentation of the source of the data.

(3) Explanation as to why the use of the new data will improve the results of the original analysis.

(4) Revised hydrologic analysis where hydrologic data are being incorporated.

(5) Revised hydraulic analysis and flood elevation profiles where new hydrologic or hydraulic data are being incorporated.

(6) Revised delineations of the flood plain boundaries and floodway where new hydrologic, hydraulic, or topographic data are being incorporated.

(e) *Data requirements for incorporating improved methods.* Requests for revisions based on the use of improved hydrologic or hydraulic methodology shall include the following data:

(1) New hydrologic analysis when an alternative hydrologic methodology is being proposed.

(2) New hydraulic analysis and flood elevation profiles when an alternative hydrologic or hydraulic methodology is being proposed.

(3) Explanation as to why the alternative methodologies are superior to the original methodologies.

(4) Revised delineations of the flood plain boundaries and floodway based on the new analysis(es).

(f) *Certification requirements.* All analysis and data submitted by the requester shall be certified by a registered professional engineer or licensed land surveyor, as appropriate, subject to the definition of "certification" given at § 65.2 of this subchapter.

(g) *Submission procedures.* All requests shall be submitted to the appropriate FEMA Regional Office servicing the community's geographic area.

[51 FR 30314, Aug. 25, 1986, as amended at 53 FR 16279, May 6, 1988]

#### § 65.7 Floodway revisions.

(a) *General.* Floodway data is developed as part of FEMA Flood Insurance Studies and is utilized by communities to select and adopt floodways as part of the flood plain management program required by § 60.3 of this subchapter. When it has been determined by a community that no practicable alternatives exist to revising the boundaries of its previously adopted floodway, the procedures below shall be followed.

(b) *Data requirements when base flood elevation changes are requested.* When a floodway revision is requested in association with a change to base flood elevations, the data requirements of § 65.6 shall also be applicable. In addition, the following documentation shall be submitted:

(1) Copy of a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions.

(2) Copy of a letter notifying the appropriate State agency of the floodway revision when the State has juris-

diction over the floodway or its adoption by communities participating in the NFIP.

(3) Documentation of the approval of the revised floodway by the appropriate State agency (for communities where the State has jurisdiction over the floodway or its adoption by communities participating in the NFIP).

(4) Engineering analysis for the revised floodway, as described below:

(i) The floodway analysis must be performed using the hydraulic computer model used to determine the proposed base flood elevations.

(ii) The floodway limits must be set so that neither the effective base flood elevations nor the proposed base flood elevations if less than the effective base flood elevations, are increased by more than the amount specified under § 60.3 (d)(2). Copies of the input and output data from the original and modified computer models must be submitted.

(5) Delineation of the revised floodway on the same topographic map used for the delineation of the revised flood boundaries.

(c) *Data requirements for changes not associated with base flood elevation changes.* The following data shall be submitted:

(1) Items described in paragraphs (b) (1) through (3) of this section must be submitted.

(2) Engineering analysis for the revised floodway, as described below:

(i) The original hydraulic computer model used to develop the established base flood elevations must be modified to include all encroachments that have occurred in the flood plain since the existing floodway was developed. If the original hydraulic computer model is not available, an alternate hydraulic computer model may be used provided the alternate model has been calibrated so as to reproduce the original water surface profile of the original hydraulic computer model. The alternate model must be then modified to include all encroachments that have occurred since the existing floodway was developed.

(ii) The floodway analysis must be performed with the modified computer model using the desired floodway limits.

(iii) The floodway limits must be set so that combined effects of the past encroachments and the new floodway limits do not increase the effective base flood elevations by more than the amount specified in § 60.3(d)(2). Copies of the input and output data from the original and modified computer models must be submitted.

(3) Delineation of the revised floodway on a copy of the effective NFIP map and a suitable topographic map.

(d) *Certification requirements.* All analyses submitted shall be certified by a registered professional engineer. All topographic data shall be certified by a registered professional engineer or licensed land surveyor. Certifications are subject to the definition given at § 65.2 of this subchapter.

(e) *Submission procedures.* All requests that involve changes to floodways shall be submitted to the appropriate FEMA Regional Office servicing the community's geographic area.

[51 FR 30315, Aug. 25, 1986]

#### § 65.8 Review of proposed projects.

A community, or individual through the community, wishing FEMA's comments on whether a proposed project, if built as proposed, would justify a map revision may request a Conditional Letter of Map Amendment or Revision in accordance with Part 72 of this subchapter. The data required to support such requests are the same as those required to support requests for revisions in accordance with §§ 65.5, 65.6, and 65.7, except as-built certification is not required.

[51 FR 30315, Aug. 25, 1986]

#### § 65.9 Review and response by the Administrator.

If any questions or problems arise during review, FEMA will consult the Chief Executive Officer of the community (CEO), the community official designated by the CEO, and/or the requester for resolution. Upon receipt of a revision request, the Administrator shall mail an acknowledgment of receipt of such request to the CEO. Within 90 days of receiving the request with all necessary information,

the Administrator shall notify the CEO of one or more of the following:

(a) The effective map(s) shall not be modified;

(b) The base flood elevations on the effective FIRM shall be modified and new base flood elevations shall be established under the provisions of Part 67 of this subchapter;

(c) The changes requested are approved and the map(s) amended by Letter of Map Revision (LOMR);

(d) The changes requested are approved and a revised map(s) will be printed and distributed;

(e) The changes requested are not of such a significant nature as to warrant a reissuance or revision of the flood insurance study or maps and will be deferred until such time as a significant change occurs;

(f) An additional 90 days is required to evaluate the scientific or technical data submitted; or

(g) Additional data are required to support the revision request.

[51 FR 30315, Aug. 25, 1986]

#### § 65.10 Mapping of areas protected by levee systems.

(a) *General.* For purposes of the NFIP, FEMA will only recognize in its flood hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive flood plain management criteria established by § 60.3 of this subchapter. Accordingly, this section describes the types of information FEMA needs to recognize, on NFIP maps, that a levee system provides protection from the base flood. This information must be supplied to FEMA by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revision under the provisions of Part 65 of this subchapter is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a

determination by FEMA as to how a structure or system will perform in a flood event.

(b) *Design criteria.* For levees to be recognized by FEMA, evidence that adequate design and operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood exists must be provided. The following requirements must be met:

(1) *Freeboard.* (i) Riverine levees must provide a minimum freeboard of three feet above the water-surface level of the base flood. An additional one foot above the minimum is required within 100 feet in either side of structures (such as bridges) riverward of the levee or wherever the flow is constricted. An additional one-half foot above the minimum at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee, is also required.

(ii) Occasionally, exceptions to the minimum riverine freeboard requirement described in paragraph (b)(1)(i) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood elevation profile and include, but not necessarily be limited to an assessment of statistical confidence limits of the 100-year discharge; changes in stage-discharge relationships; and the sources, potential, and magnitude of debris, sediment, and ice accumulation. It must be also shown that the levee will remain structurally stable during the base flood when such additional loading considerations are imposed. Under no circumstances will freeboard of less than two feet be accepted.

(iii) For coastal levees, the freeboard must be established at one foot above the height of the one percent wave or the maximum wave runup (whichever is greater) associated with the 100-year stillwater surge elevation at the site.

(iv) Occasionally, exceptions to the minimum coastal levee freeboard requirement described in paragraph

(b)(1)(iii) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood loading conditions. Particular emphasis must be placed on the effects of wave attack and overtopping on the stability of the levee. Under no circumstances, however, will a freeboard of less than two feet above the 100-year stillwater surge elevation be accepted.

(2) *Closures.* All openings must be provided with closure devices that are structural parts of the system during operation and design according to sound engineering practice.

(3) *Embankment protection.* Engineering analyses must be submitted that demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood, as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability. The factors to be addressed in such analyses include, but are not limited to: Expected flow velocities (especially in constricted areas); expected wind and wave action; ice loading; impact of debris; slope protection techniques; duration of flooding at various stages and velocities; embankment and foundation materials; levee alignment, bends, and transitions; and levee side slopes.

(4) *Embankment and foundation stability.* Engineering analyses that evaluate levee embankment stability must be submitted. The analyses provided shall evaluate expected seepage during loading conditions associated with the base flood and shall demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability. An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in the U.S. Army Corps of Engineers (COE) manual, "Design and Construction of Levees" (EM

1110-2-1913, Chapter 6, Section II), may be used. The factors that shall be addressed in the analyses include: Depth of flooding, duration of flooding, embankment geometry and length of seepage path at critical locations, embankment and foundation materials, embankment compaction, penetrations, other design factors affecting seepage (such as drainage layers), and other design factors affecting embankment and foundation stability (such as berms).

(5) *Settlement.* Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained within the minimum standards set forth in paragraph (b)(1) of this section. This analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, detailed settlement analysis using procedures such as those described in the COE manual, "Soil Mechanics Design—Settlement Analysis" (EM 1100-2-1904) must be submitted.

(6) *Interior drainage.* An analysis must be submitted that identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than one foot, the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters.

(7) *Other design criteria.* In unique situations, such as those where the levee system has relatively high vulnerability, FEMA may require that other design criteria and analyses be submitted to show that the levees provide adequate protection. In such situations, sound engineering practice will be the standard on which FEMA will base its determinations. FEMA will also provide the rationale for requiring this additional information.

(c) *Operation plans and criteria.* For a levee system to be recognized, the operational criteria must be as described below. All closure devices or

mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual, a copy of which must be provided to FEMA by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.

(1) *Closures.* Operation plans for closures must include the following:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provisions for periodic operation, at not less than one-year intervals, of the closure structure for testing and training purposes.

(2) *Interior drainage systems.* Interior drainage systems associated with levee systems usually include storage areas, gravity outlets, pumping stations, or a combination thereof. These drainage systems will be recognized by FEMA on NFIP maps for flood protection purposes only if the following minimum criteria are included in the operation plan:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provision for manual backup for the activation of automatic systems.

(iv) Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes. No more than one year shall elapse between either the inspections or the operations.

(3) *Other operation plans and criteria.* Other operating plans and criteria may be required by FEMA to ensure that adequate protection is provided in specific situations. In such cases, sound emergency management practice will be the standard upon which FEMA determinations will be based.

(d) *Maintenance plans and criteria.* For levee systems to be recognized as providing protection from the base flood, the maintenance criteria must be as described herein. Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA by the owner of the levee system when recognition is being sought or when the plan for a previously recognized system is revised in any manner. All maintenance activities must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance. This plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained. At a minimum, maintenance plans shall specify the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.

(e) *Certification requirements.* Data submitted to support that a given levee system complies with the structural requirements set forth in paragraphs (b)(1) through (7) of this section must be certified by a registered professional engineer. Also, certified as-built plans of the levee must be submitted. Certifications are subject to the definition given at § 65.2 of this subchapter. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequate-

ly designed and constructed to provide protection against the base flood.

[51 FR 30316, Aug. 25, 1986]

**§ 65.11 Evaluation of sand dunes in mapping coastal flood hazard areas.**

(a) *General conditions.* For purposes of the NFIP, FEMA will consider storm-induced dune erosion potential in its determination of coastal flood hazards and risk mapping efforts. The criterion to be used in the evaluation of dune erosion will apply to primary frontal dunes as defined in § 59.1, but does not apply to artificially designed and constructed dunes that are not well-established with long-standing vegetative cover, such as the placement of sand materials in a dune-like formation.

(b) *Evaluation criterion.* Primary frontal dunes will not be considered as effective barriers to base flood storm surges and associated wave action where the cross-sectional area of the primary frontal dune, as measured perpendicular to the shoreline and above the 100-year stillwater flood elevation and seaward of the dune crest, is equal to, or less than, 540 square feet.

(c) *Exceptions.* Exceptions to the evaluation criterion may be granted where it can be demonstrated through authoritative historical documentation that the primary frontal dunes at a specific site withstood previous base flood storm surges and associated wave action.

[53 FR 16279, May 6, 1988]

**§ 65.12 Revision of flood insurance rate maps to reflect base flood elevations caused by proposed encroachments.**

(a) When a community proposes to permit encroachments upon the flood plain when a regulatory floodway has not been adopted or to permit encroachments upon an adopted regulatory floodway which will cause base flood elevation increases in excess of those permitted under paragraphs (c)(10) or (d)(3) of § 60.3 of this subchapter, the community shall apply to the Administrator for conditional approval of such action prior to permitting the encroachments to occur and

shall submit the following as part of its application:

(1) A request for conditional approval of map change and the appropriate initial fee as specified by § 72.3 of this subchapter or a request for exemption from fees as specified by § 72.5 of this subchapter, whichever is appropriate;

(2) An evaluation of alternatives which would not result in a base flood elevation increase above that permitted under paragraphs (c)(10) or (d)(3) of § 60.3 of this subchapter demonstrating why these alternatives are not feasible;

(3) Documentation of individual legal notice to all impacted property owners within and outside of the community, explaining the impact of the proposed action on their property.

(4) Concurrence of the Chief Executive Officer of any other communities impacted by the proposed actions;

(5) Certification that no structures are located in areas which would be impacted by the increased base flood elevation;

(6) A request for revision of base flood elevation determination according to the provisions of § 65.6 of this part;

(7) A request for floodway revision in accordance with the provisions of § 65.7 of this part;

(b) Upon receipt of the Administrator's conditional approval of map change and prior to approving the proposed encroachments, a community shall provide evidence to the Administrator of the adoption of flood plain management ordinances incorporating the increased base flood elevations and/or revised floodway reflecting the post-project condition.

(c) Upon completion of the proposed encroachments, a community shall provide as-built certifications in accordance with the provisions of § 65.3 of this part. The Administrator will initiate a final map revision upon receipt of such certifications in accordance with Part 67 of this subchapter.

[53 FR 16279, May 6, 1988]

**§ 65.13 List of communities submitting new technical data.**

This section provides a cumulative list of communities where modifica-

tions of the base flood elevation determinations have been made because of submission of new scientific or technical data. Due to the need for expediting the modifications, the revised map is already in effect and the appeal period commences on or about the effective date of the modified map. An interim rule, followed by a final rule, will list the revised map effective date, local repository and the name and address of the Chief Executive Officer of the community. The map(s) is (are) effective for both flood plain management and insurance purposes.

[51 FR 30317, Aug. 25, 1986. Redesignated at 53 FR 16279, May 6, 1988]

EDITORIAL NOTE: For a list of communities issued under this section and not carried in the CFR, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

**PART 66—CONSULTATION WITH LOCAL OFFICIALS**

Sec.

66.1 Purpose of part.

66.2 Definitions.

66.3 Establishment of community case file and flood elevation study docket.

66.4 Appointment of consultation coordination officer.

66.5 Responsibilities for consultation and coordination.

AUTHORITY: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

**§ 66.1 Purpose of part.**

(a) The purpose of this part is to comply with section 206 of the Flood Disaster Protection Act of 1973 (42 U.S.C. 4107) by establishing procedures for flood elevation determinations of Zones A1-30, AE, AH, AO and V1-30, and VE within the community so that adequate consultation with the community officials shall be assured.

(b) The procedures in this part shall apply when base flood elevations are to be determined or modified.

(c) The Administrator or his delegate shall:

(1) Specifically request that the community submit pertinent data concerning flood hazards, flooding experience, plans to avoid potential hazards, estimate of historical and prospective economic impact on the community,

and such other appropriate data (particularly if such data will necessitate a modification of a base flood elevation).

(2) Notify local officials of the progress of surveys, studies, investigations, and of prospective findings, along with data and methods employed in reaching such conclusions; and

(3) Encourage local dissemination of surveys, studies, and investigations so that interested persons will have an opportunity to bring relevant data to the attention of the community and to the Administrator.

(4) Carry out the responsibilities for consultation and coordination set forth in § 66.5 of this part.

[41 FR 46988, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 47 FR 771, Jan. 7, 1982; 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36028, Sept. 4, 1985]

**§ 66.2 Definitions.**

The definitions set forth in Part 59 of this subchapter are applicable to this part.

[41 FR 46988, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979]

**§ 66.3 Establishment of community case file and flood elevation study docket.**

(a) A file shall be established for each community at the time initial consideration is given to studying that community in order to establish whether or not it contains flood-prone areas. Thereafter, the file shall include copies of all correspondence with officials in that community. As the community is tentatively identified, provided with base flood elevations, or suspended and reinstated, documentation of such actions by the Administrator shall be placed in the community file. Even if a map is administratively rescinded or withdrawn after notice under Part 65 of this subchapter or the community successfully rebuts its flood-prone designation, the file will be maintained indefinitely.

(b) A portion of the community file shall be designated a flood elevation study consultation docket and shall be established for each community at the time the contract is awarded for a flood elevation study. The docket shall

include copies of (1) all correspondence between the Administrator and the community concerning the study, reports of any meetings among the Agency representatives, property owners of the community, the state coordinating agency, study contractors or other interested persons, (2) relevant publications, (3) a copy of the completed flood elevation study, and (4) a copy of the Administrator's final determination.

(c) A flood elevation determination docket shall be established and maintained in accordance with Part 67 of this subchapter.

[41 FR 46988, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544 and 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 66.4 Appointment of consultation coordination officer.

The Administrator may appoint an employee of the Federal Emergency Management Agency, or other designated Federal employee, as the Consultation Coordination Officer, for each community when an analysis is undertaken to establish or to modify flood elevations pursuant to a new study or a restudy. When a CCO is appointed by the Administrator, the responsibilities for consultation and coordination as set forth in § 66.5 shall be carried out by the CCO. The Administrator shall advise the community and the state coordinating agency, in writing, of this appointment.

[47 FR 771, Jan. 7, 1982, as amended at 49 FR 4751, Feb. 8, 1984]

#### § 66.5 Responsibilities for consultation and coordination.

(a) Contact shall be made with appropriate officials of a community in which a proposed investigation is undertaken, and with the state coordinating agency.

(b) Local dissemination of the intent and nature of the investigation shall be encouraged so that interested parties will have an opportunity to bring relevant data to the attention of the community and to the Administrator.

(c) Submission of information from the community concerning the study shall be encouraged.

(d) Appropriate officials of the community shall be fully informed of (1) The responsibilities placed on them by the Program, (2) the administrative procedures followed by the Federal Emergency Management Agency, (3) the community's role in establishing elevations, and (4) the responsibilities of the community if it participates or continues to participate in the Program.

(e) Before the commencement of an initial Flood Insurance Study, the CCO or other FEMA representative, together with a representative of the organization undertaking the study, shall meet with officials of the community. The state coordinating agency shall be notified of this meeting and may attend. At this meeting, the local officials shall be informed of (1) The date when the study will commence, (2) the nature and purpose of the study, (3) areas involved, (4) the manner in which the study shall be undertaken, (5) the general principles to be applied, and (6) the intended use of the data obtained. The community shall be informed in writing if any of the six preceding items are or will be changed after this initial meeting and during the course of the ongoing study.

(f) The community shall be informed in writing of any intended modification to the community's final flood elevation determinations or the development of new elevations in additional areas of the community as a result of a new study or restudy. Such information to the community will include the data set forth in paragraph (e) of this section. At the discretion of the Chief of the Natural and Technological Hazards Division in each FEMA Regional Office, a meeting may be held to accomplish this requirement.

[47 FR 771, Jan. 7, 1982, as amended at 49 FR 4751, Feb. 8, 1984]

### PART 67—APPEALS FROM PROPOSED FLOOD ELEVATION DETERMINATIONS

Sec.

67.1 Purpose of part.

67.2 Definitions.

Sec.

67.3 Establishment and maintenance of a flood elevation determination docket (FEDD).

67.4 Proposed flood elevation determination.

67.5 Right of appeal.

67.6 Basis of appeal.

67.7 Collection of appeal data.

67.8 Appeal procedure.

67.9 Final determination in the absence of an appeal by the community.

67.10 Rates during pendency of final determination.

67.11 Notice of final determination.

67.12 Appeal to District Court.

AUTHORITY: 42 U.S.C. 4001 et seq. Reorganization Plan No. 3 of 1978, E.O. 12127.

SOURCE: 41 FR 46989, Oct. 26, 1976, unless otherwise noted. Redesignated at 44 FR 31177, May 31, 1979.

#### § 67.1 Purpose of part.

The purpose of this part is to establish procedures implementing the provisions of section 110 of Flood Disaster Protection Act of 1973.

#### § 67.2 Definitions.

The definitions set forth in Part 59 of this subchapter are applicable to this part.

#### § 67.3 Establishment and maintenance of a flood elevation determination docket (FEDD).

The Administrator shall establish a docket of all matters pertaining to flood elevation determinations. The docket files shall contain the following information:

(a) The name of the community subject to the flood elevation determination;

(b) A copy of the notice of the proposed flood elevation determination to the Chief Executive Officer (CEO) of the Community;

(c) A copy of the notice of the proposed flood elevation determination published in a prominent local newspaper of the community;

(d) A copy of the notice of the proposed flood elevation determination published in the FEDERAL REGISTER;

(e) Copies of all appeals by private persons received by the Administrator from the CEO;

(f) Copies of all comments received by the Administrator on the notice of the proposed flood elevation determi-

nation published in the FEDERAL REGISTER.

(g) A copy of the community's appeal or a copy of its decision not to appeal the proposed flood elevation determination;

(h) A copy of the flood insurance study for the community;

(i) A copy of the FIRM for the community;

(j) Copies of all materials maintained in the flood elevation study consultation docket; and

(k) A copy of the final determination with supporting documents.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 67.4 Proposed flood elevation determination.

The Administrator shall propose flood elevation determinations in the following manner:

(a) Publication of the proposed flood elevation determination for comment in the FEDERAL REGISTER;

(b) Notification by certified mail, return receipt requested, of the proposed flood elevation determination to the CEO; and

(c) Publication of the proposed flood elevation determination in a prominent local newspaper at least twice during the ten day period immediately following the notification of the CEO.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 67.5 Right of appeal.

(a) Any owner or lessee of real property, within a community where a proposed flood elevation determination has been made pursuant to section 1363 of the National Flood Insurance Act of 1968, as amended, who believes his property rights to be adversely affected by the Administrator's proposed determination, may file a written appeal of such determination with the CEO, or such agency as he shall publicly designate, within ninety days of the second newspaper publication of the Administrator's proposed determination.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 67.6 Basis of appeal.

(a) The sole basis of appeal under this part shall be the possession of knowledge or information indicating that the elevations proposed by FEMA are scientifically or technically incorrect. Because scientific and technical correctness is often a matter of degree rather than absolute (except where mathematical or measurement error or changed physical conditions can be demonstrated), appellants are required to demonstrate that alternative methods or applications result in more correct estimates of base flood elevations, thus demonstrating that FEMA's estimates are incorrect.

(b) *Data requirements.* (1) If an appellant believes the proposed base flood elevations are technically incorrect due to a mathematical or measurement error or changed physical conditions, then the specific source of the error must be identified. Supporting data must be furnished to FEMA including certifications by a registered professional engineer or licensed land surveyor, of the new data necessary for FEMA to conduct a reanalysis.

(2) If an appellant believes that the proposed base flood elevations are technically incorrect due to error in application of hydrologic, hydraulic or other methods or use of inferior data in applying such methods, the appeal must demonstrate technical incorrectness by:

(i) Identifying the purported error in the application or the inferior data.

(ii) Supporting why the application is incorrect or data is inferior.

(iii) Providing an application of the same basic methods utilized by FEMA but with the changes itemized.

(iv) Providing background technical support for the changes indicating why the appellant's application should be accepted as more correct.

(v) Providing certification of correctness of any alternate data utilized or measurements made (such as topographic information) by a registered professional engineer or licensed land surveyor, and

(vi) Providing documentation of all locations where the appellant's base flood elevations are different from FEMA's.

(3) If any appellant believes the proposed base flood elevations are scientifically incorrect, the appeal must demonstrate scientific incorrectness by:

(i) Identifying the methods, or assumptions purported to be scientifically incorrect.

(ii) Supporting why the methods, or assumptions are scientifically incorrect.

(iii) Providing an alternative analysis utilizing methods, or assumptions purported to be correct.

(iv) Providing technical support indicating why the appellant's methods should be accepted as more correct and

(v) Providing documentation of all locations where the appellant's base flood elevations are different from FEMA's.

[48 FR 31644, July 1, 1983]

#### § 67.7 Collection of appeal data.

(a) Appeals by private persons to the CEO shall be submitted within ninety (90) days following the second newspaper publication of the Administrator's proposed flood elevation determination to the CEO or to such agency as he may publicly designate and shall set forth scientific or technical data that tend to negate or contradict the Administrator's findings.

(b) Copies of all individual appeals received by the CEO shall be forwarded, as soon as they are received, to the Administrator for information and placement in the Flood Elevation Determination Docket.

(c) The CEO shall review and consolidate all appeals by private persons and issue a written opinion stating whether the evidence presented is sufficient to justify an appeal on behalf of such persons by the community in its own name.

(d) The decision issued by the CEO on the basis of his review, on whether an appeal by the community in its own name shall be made, shall be filed with the Administrator not later than ninety days after the date of the

second newspaper publication of the Administrator's proposed flood elevation determination and shall be placed in the FEDD.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 67.8 Appeal procedure.

(a) If a community appeals the proposed flood elevation determination, the Administrator shall review and take fully into account any technical or scientific data submitted by the community that tend to negate or contradict the information upon which his/her proposed determination is based.

(b) The Administrator shall resolve such appeal by consultation with officials of the local government, or by administrative hearings under the procedures set forth in Part 68 of this subchapter, or by submission of the conflicting data to an independent scientific body or appropriate Federal agency for advice.

(c) The final determination by the Administrator where an appeal is filed shall be made within a reasonable time.

(d) Nothing in this section shall be considered to compromise an appellant's rights granted under § 67.12.

(e) The Administrator shall make available for public inspection the reports and other information used in making the final determination. This material shall be admissible in a court of law in the event the community seeks judicial review in accordance with § 67.12.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 67.9 Final determination in the absence of an appeal by the community.

(a) If the Administrator does not receive an appeal from the community within the ninety days provided, he shall consolidate and review on their own merits the individual appeals which, in accordance with § 67.7 are filed within the community and forwarded by the CEO.

(b) The final determination shall be made pursuant to the procedures in § 67.8 and, modifications shall be made of his proposed determination as may be appropriate, taking into account the written opinion, if any, issued by the community in not supporting such appeals.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 67.10 Rates during pendency of final determination.

(a) Until such time as a final determination is made and proper notice is given, no person within a participating community shall be denied the right to purchase flood insurance at the subsidized rate.

(b) After the final determination and upon the effective date of a FIRM, risk premium rates will be charged for new construction and substantial improvements. The effective date of a FIRM shall begin not later than six months after the final flood elevation determination.

#### § 67.11 Notice of final determination.

The Administrator's notice of the final flood elevation determination for a community shall be in written form and published in the FEDERAL REGISTER, and copies shall be sent to the CEO, all individual appellants and the State Coordinating Agency.

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

EDITORIAL NOTE: For the list of communities issued under this section, and not carried in the CFR, see the List of CFR Sections Affected appearing in the Finding Aids section of this volume.

#### § 67.12 Appeal to District Court.

(a) An appellant aggrieved by the final determination of the Administrator may appeal such determination only to the United States District Court for the District within which the community is located within sixty days after receipt of notice of determination.

(b) During the pendency of any such litigation, all final determinations of the Administrator shall be effective for the purposes of this title unless stayed by the court for good cause shown.

(c) The scope of review of the appellate court shall be in accordance with the provisions of 5 U.S.C. 706, as modified by 42 U.S.C. 4104(b).

[41 FR 46989, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544 and 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 33879, Aug. 27, 1984]

## PART 68—ADMINISTRATIVE HEARING PROCEDURES

Sec.

- 68.1 Purpose of part.
- 68.2 Definitions.
- 68.3 Right to administrative hearings.
- 68.4 Hearing board.
- 68.5 Establishment of a docket.
- 68.6 Time and place of hearing.
- 68.7 Conduct of hearings.
- 68.8 Scope of review.
- 68.9 Admissible evidence.
- 68.10 Burden of proof.
- 68.11 Determination.
- 68.12 Relief.

**AUTHORITY:** 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978; E.O. 12127.

**SOURCE:** 47 FR 23449, May 29, 1982, unless otherwise noted.

### § 68.1 Purpose of part.

The purpose of this part is to establish procedures for appeals of the Administrator's base flood elevation determinations, whether proposed pursuant to section 1363(e) of the Act (42 U.S.C. 4104) or modified because of changed conditions or newly acquired scientific and technical information.

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.2 Definitions.

The definitions set forth in Part 59 of this subchapter are applicable to this part.

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.3 Right to administrative hearings.

If a community appeals the Administrator's flood elevation determination

established pursuant to § 67.8 of this subchapter, and the Administrator has determined that such appeal cannot be resolved by consultation with officials of the community or by submitting the conflicting data to an independent scientific body or appropriate Federal agency for advice, the Administrator shall hold an administrative hearing to resolve the appeal.

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.4 Hearing board.

(a) Each hearing shall be conducted by a three member hearing board (hereinafter "board"). The board shall consist of a hearing officer (hereinafter "Judge") appointed by the Director based upon a recommendation by the Office of Personnel Management and two members selected by the Judge who are qualified in the technical field of flood elevation determinations. The Judge shall consult with anyone he deems appropriate to determine the technical qualifications of individuals being considered for appointment to the board. The board members shall not be FEMA employees.

(b) The Judge shall be responsible for conducting the hearing, and shall make all procedural rulings during the course of the hearing. Any formal orders and the final decision on the merits of the hearing shall be made by a majority of the board. A dissenting member may submit a separate opinion for the record.

(c) A technically qualified alternate will be appointed by the Judge as a member of the board when a technically qualified appointed member becomes unavailable. The Director will appoint an alternate Judge if the appointed Judge becomes unavailable.

### § 68.5 Establishment of a docket.

The General Counsel shall establish a docket for appeals referred to him/her by the Administrator for administrative hearings. This docket shall include, for each appeal, copies of all materials contained in the flood elevation determination docket (FEDD) file on the matter, copies of all correspondence in connection with the appeal, all motions, orders, state-

ments, and other legal documents, a transcript of the hearing, and the board's final determination.

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.6 Time and place of hearing.

(a) The time and place of each hearing shall be designated by the Judge for that hearing. The Administrator and the General Counsel shall be promptly advised of such designations.

(b) The board's notice of the time and place of hearing shall be sent by the Flood Insurance Docket Clerk by registered or certified mail, return receipt requested, to all appellants. Such notice shall include a statement indicating the nature of the proceedings and their purpose and all appellants' entitlement to counsel. Notice of the hearing shall be sent no later than 30 days before the date of hearing unless such period is waived by all appellants.

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.7 Conduct of hearings.

(a) The Judge shall be responsible for the fair and expeditious conduct of proceedings.

(b) The Administrator shall be represented by the General Counsel or his/her designee.

(c) One administrative hearing shall be held for any one community unless the Administrator for good cause shown grants a separate hearing or hearings.

(d) The Chief Executive Officer (CEO) of the community or his/her designee shall represent all appellants from that community; *Provided*, That any appellant may petition the board to allow such appellant to make an appearance on his/her own behalf. Such a petition shall be granted only upon a showing of good cause.

(e) Hearings shall be open to the public.

(f) A verbatim transcript will be made of the hearing. An appellant may order copies of the transcribed verbatim record directly from the reporter and will be responsible for payments.

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.8 Scope of review.

Review at administrative hearings shall be limited to: An examination of any information presented by each appellant within the 90 day appeal period indicating that elevations proposed by the Administrator are scientifically or technically incorrect; the FIRM; the flood insurance study; its backup data and the references used in development of the flood insurance study; and responses by FEMA to the issues raised by the appellant(s).

[47 FR 23449, May 29, 1982, as amended at 49 FR 33879, Aug. 27, 1984]

### § 68.9 Admissible evidence.

(a) Legal rules of evidence shall not be in effect at administrative hearings. However, *only* evidence relevant to issues within the scope of review under § 68.8 shall be admissible.

(b) Documentary and oral evidence shall be admissible.

(c) Admissibility of non-expert testimony shall be within the discretion of the board.

(d) All testimony shall be under oath.

(e) *Res judicata/collateral estoppel*. Where there has been a previous determination, decision or finding of fact by the Director, one of his delegates, an administrative law judge, hearing officer, or hearing board regarding the base flood elevations of any other community, such determination, decision, or finding of fact shall not be binding on the board and may only be admissible into evidence if relevant.

### § 68.10 Burden of proof.

The burden shall be on appellant(s) to prove that the flood elevation determination is not scientifically or technically correct.

### § 68.11 Determination.

The board shall render its written decision within 45 days after the conclusion of the hearing. The entire record of the hearing including the board's decision will be sent to the Director for review and approval. The Director shall make the final base flood elevation determination by accepting in whole or in part or by rejecting the board's decision.

## § 68.12 Relief.

The final determination may be appealed by the appellant(s) to the United States district court as provided in section 1363(f) of the Act (42 U.S.C. 4104).

**PART 69—[RESERVED]****PART 70—PROCEDURE FOR MAP CORRECTION****MAPPING DEFICIENCIES UNRELATED TO COMMUNITY-WIDE ELEVATION DETERMINATIONS**

## Sec.

- 70.1 Purpose of part.
- 70.2 Definitions.
- 70.3 Right to submit technical information.
- 70.4 Review by the Administrator.
- 70.5 Letter of Map Amendment.
- 70.6 Distribution of Letter of Map Amendment.
- 70.7 Notice of Letter of Map Amendment.
- 70.8 Premium refund after Letter of Map Amendment.
- 70.9 Review of proposed projects.

**AUTHORITY:** 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

**MAPPING DEFICIENCIES UNRELATED TO COMMUNITY-WIDE ELEVATION DETERMINATIONS**

## § 70.1 Purpose of part.

The purpose of this part is to provide an administrative procedure whereby the Administrator will review the scientific or technical submissions of an owner or lessee of property who believes his property has been inadvertently included in designated A, A0, A1-30, AE, AH, A99, V0, V1-30, VE, and V Zones, as a result of the transposition of the curvilinear line to either street or to other readily identifiable features. The necessity for this part is due in part to the technical difficulty of accurately delineating the curvilinear line on either a FHBM or FIRM. These procedures shall not apply when there has been any alteration of topography since the effective date of the first NFIP map (i.e., FHBM or FIRM) showing the property within an area of special flood hazard. Appeals in such circumstances

are subject to the provisions of Part 65 of this subchapter.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36028, Sept. 4, 1985; 51 FR 30317, Aug. 25, 1986]

## § 70.2 Definitions.

The definitions set forth in Part 59 of this subchapter are applicable to this part.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979]

## § 70.3 Right to submit technical information.

(a) Any owner or lessee of property (applicant) who believes his property has been inadvertently included in a designated A, A0, A1-30, AE, AH, A99, V0, V1-30, VE, and V Zones on a FHBM or a FIRM, may submit scientific or technical information to the Administrator for his/her review.

(b) Scientific and technical information for the purpose of this part may include, but is not limited to the following:

(1) An actual copy of the recorded plat map bearing the seal of the appropriate recordation official (e.g. County Clerk, or Recorder of Deeds) indicating the official recordation and proper citation (Deed or Plat Book Volume and Page Numbers), or an equivalent identification where annotation of the deed or plat book is not the practice.

(2) A topographical map showing (i) ground elevation contours in relation to the National Geodetic Vertical Datum (NVD) of 1929, (ii) the total area of the property in question, (iii) the location of the structure or structures located on the property in question, (iv) the elevation of the lowest adjacent grade to a structure or structures and (v) an indication of the curvilinear line which represents the area subject to inundation by a base flood. The curvilinear line should be based upon information provided by any appropriate authoritative source, such as a Federal Agency, the appropriate state agency (e.g. Department of Water Resources), a County Water Control District, a County or City En-

gineer, a Federal Emergency Management Agency Flood Insurance Study, or a determination by a Registered Professional Engineer;

(3) A copy of the FHBM or FIRM indicating the location of the property in question;

(4) A certification by a Registered Professional Engineer or Licensed Land Surveyor that the lowest grade adjacent to the structure is above the base flood elevation.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544 and 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36028, Sept. 4, 1985; 51 FR 30317, Aug. 25, 1986; 53 FR 16280, May 6, 1988]

## § 70.4 Review by the Administrator.

The Administrator, after reviewing the scientific or technical information submitted under the provisions of § 70.3, shall notify the applicant in writing of his/her determination within 60 days from the date of receipt of the applicant's scientific or technical information that either the ground elevations of an entire legally defined parcel of land or the elevation of the lowest adjacent grade to a structure have been compared with the elevation of the base flood and that:

(a) The property is within a designated A, A0, A1-30, AE, AH, A99, V0, V1-30, VE, or V Zone, and shall set forth the basis of such determination; or

(b) The property should not be included within a designated A, A0, A1-30, AE, AH, A99, V0, V1-30, VE, or V Zone and that the FHBM or FIRM will be modified accordingly; or

(c) An additional 60 days is required to make a determination.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36028, Sept. 4, 1985; 51 FR 30317, Aug. 25, 1986]

## § 70.5 Letter of Map Amendment.

Upon determining from available scientific or technical information that a FHBM or a FIRM requires modification under the provisions of § 70.4(b), the Administrator shall issue a Letter of Map Amendment which shall state:

(a) The name of the Community to which the map to be amended was issued;

(b) The number of the map;

(c) The identification of the property to be excluded from a designated A, A0, A1-30, AE, AH, A99, V0, V1-30, VE, or V Zone.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 50 FR 36028, Sept. 4, 1985]

## § 70.6 Distribution of Letter of Map Amendment.

(a) A copy of the Letter of Map Amendment shall be sent to the applicant who submitted scientific or technical data to the Administrator.

(b) A copy of the Letter of Map Amendment shall be sent to the local map repository with instructions that it be attached to the map which the Letter of Map Amendment is amending.

(c) A copy of the Letter of Map Amendment shall be sent to the map repository in the state with instructions that it be attached to the map which it is amending.

(d) A copy of the Letter of Map Amendment will be sent to any community or governmental unit that requests such Letter of Map Amendment.

(e) [Reserved]

(f) A copy of the Letter of Map Amendment will be maintained by the Agency in its community case file.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544 and 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

## § 70.7 Notice of letter of Map Amendment.

(a) The Administrator, shall not publish a notice in the FEDERAL REGISTER that the FIRM for a particular community has been amended by letter determination pursuant to this part unless such amendment includes alteration or change of base flood elevations established pursuant to Part 67. Where no change of base flood elevations has occurred, the Letter of Map Amendment provided under §§ 70.5 and 70.6 serves to inform the parties affected.

EDITORIAL NOTE: For a list of communities issued under this section and not carried in the CFR see the List of CFR Sections Affected appearing in the Finding Aids Section of this volume.

§ 70.8 Premium refund after Letter of Map Amendment.

A Standard Flood Insurance Policyholder whose property has become the subject of a Letter of Map Amendment under this part may cancel the policy within the current policy year and receive a premium refund under the conditions set forth in § 62.5 of this subchapter.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979]

§ 70.9 Review of proposed projects.

An individual who is proposing to build on that portion of a property that may be inadvertently included in an area of special flood hazard may request a Conditional Letter of Map Amendment in accordance with Part 72 of this subchapter. The data required to support such requests are the same as those required to support requests for final Letters of Map Amendment in accordance with § 70.3, except as-built certification is not required.

[51 FR 30318, Aug. 25, 1986]

**PART 71—IMPLEMENTATION OF COASTAL BARRIER RESOURCES ACT**

- Sec.
- 71.1 Purpose of part.
- 71.2 Definitions.
- 71.3 Denial of flood insurance.
- 71.4 Documentation.
- 71.5 Violations.

AUTHORITY: Sec. 1306, 82 Stat. 575 (42 U.S.C. 4013). Reorganization Plan No. 3 of 1978 (43 FR 41943), E.O. 12127, dated March 31, 1979 (44 FR 19367), sec. 11, Pub. L. 97-348.

SOURCE: 48 FR 37039, Aug. 16, 1983, unless otherwise noted.

§ 71.1 Purpose of part.

This part implements section 11 of the Coastal Barrier Resources Act (Pub. L. 97-348) as that Act amends the National Flood Insurance Act of 1968 (42 U.S.C. 400a *et seq.*).

§ 71.2 Definitions.

(a) Except as otherwise provided in this part, the definitions set forth in Part 59 of this subchapter are applicable to this part.

(b) For the purpose of this part a structure is "new construction" unless it meets the following criteria:

(1)(i) A legally valid building permit or equivalent documentation was obtained for the construction of such structure prior to October 18, 1982; and

(ii) The start of construction (see Part 59) took place prior to October 18, 1982; or

(2)(i) A legally valid building permit or equivalent documentation was obtained for the construction of such structure prior to October 1, 1983; and

(ii) The structure constituted an insurable building, having walls and a roof permanently in place no later than October 1, 1983.

(c) For the purpose of this part, a structure is a "substantial improvement" if the substantial improvement (see Part 59) of such structure took place on or after October 1, 1983.

(d) For the purpose of this part, "new flood insurance coverage" means a new or renewed policy of flood insurance.

[48 FR 37039, Aug. 16, 1983, as amended at 49 FR 33879, Aug. 27, 1984]

§ 71.3 Denial of flood insurance.

No new flood insurance coverage may be provided on or after October 1, 1983, for any new construction or substantial improvement of a structure located on any coastal barrier within the Coastal Barrier Resources System established by section 4 of the Coastal Barrier Resources Act.

[48 FR 37039, Aug. 16, 1983, as amended at 49 FR 33879, Aug. 27, 1984]

§ 71.4 Documentation.

(a) In order to obtain flood insurance for a structure which is not covered by a policy of flood insurance as of October 1, 1983, the owner of the structure must submit the documentation described in this section in order to show that such structure is eligible to receive flood insurance.

(b) The documentation must be submitted to the Federal Insurance Administration.

(c) Where the start of construction of the structure took place prior to October 18, 1982, the documentation shall consist of:

(1) A legally valid building permit or its equivalent for the construction of the structure dated prior to October 18, 1982;

(i) If the community did not have a building permit system at the time the structure was built, a written statement to this effect signed by the responsible community official will be accepted in lieu of the building permit;

(ii) If the building permit was lost or destroyed, a written statement to this effect signed by the responsible community official will be accepted in lieu of the building permit. This statement must also include a certification that the official has inspected the structure and found no evidence that the structure was not in compliance with the building code at the time it was built; and

(2) A written statement signed by the community official responsible for building permits, attesting to the fact that he or she knows of his/her own knowledge or from official community records, that:

(i) The start of construction took place prior to October 18, 1982; and

(ii) The structure has not been substantially improved since September 30, 1983.

(d) Where the start of construction of the structure took place on or after October 18, 1982, but the structure was completed (walls and roof permanently in place) prior to October 1, 1983, the documentations shall consist of:

(1) A legally valid building permit or its equivalent for the construction of the structure dated prior to October 1, 1983;

(i) If the community did not have a building permit system at the time the structure was built, a written statement to this effect signed by the responsible community official will be accepted in lieu of the building permit;

(ii) If the building permit was lost or destroyed, a written statement to this effect signed by the responsible community official will be accepted in lieu of the building permit. This statement must also include a certification that the official has inspected the structure and found no evidence that the structure was not in compliance with the building code at the time it was built; and

(2) A written statement signed by the community official responsible for building permits, attesting to the fact that he or she knows of his/her own knowledge or from official community records, that:

(i) The structure constituted an insurable building, having walls and a roof permanently in place no later than October 1, 1983; and

(ii) The structure has not been substantially improved since September 30, 1983; and

(3) A community issued final certificate of occupancy or other use permit or equivalent proof certifying the building was completed (walled and roofed) by October 1, 1983.

(Approved by the Office of Management and Budget under control number 3067-0120)

§ 71.5 Violations.

(a) Any flood insurance policy which has been issued where the terms of this section have not been complied with or is otherwise inconsistent with the provisions of this section, is void *ab initio* and without effect.

(b) Any false statements or false representations of any kind made in connection with the requirements of this part may be punishable by fine or imprisonment under 18 U.S. Code section 1001.

**PART 72—PROCEDURE AND FEES FOR OBTAINING CONDITIONAL APPROVAL OF MAP CHANGES**

- Sec.
- 72.1 Purpose of part.
- 72.2 Definitions.
- 72.3 Initial fee schedule.
- 72.4 Submittal/payment procedures and FEMA response.
- 72.5 Exemptions.
- 72.6 Unfavorable response.
- 72.7 Resubmittals.

**PART 72—PROCEDURE AND FEES FOR OBTAINING CONDITIONAL APPROVAL OF MAP CHANGES**

- Sec.
- 72.1 Purpose of part.
- 72.2 Definitions.
- 72.3 Initial fee schedule.
- 72.4 Submittal/payment procedures and FEMA response.
- 72.5 Exemptions.
- 72.6 Unfavorable response.
- 72.7 Resubmittals.

AUTHORITY: 42 U.S.C. 4001, *et seq.*; Reorganization Plan No. 3 of 1978; E.O. 12127.

SOURCE: 50 FR 36028, Sept. 4, 1985, unless otherwise noted.

§ 72.1 Purpose of part.

The purpose of this part is to provide administrative and cost recovery procedures for engineering review and processing associated with the issuance of Conditional Letters of Map Amendment (conditional LOMAs) and Conditional Letters of Map Revision (conditional LOMRs). Final LOMAs and LOMRs granted to correct map deficiencies are not subject to this reimbursement procedure.

§ 72.2 Definitions.

(a) Except as otherwise provided in this part, the definitions set forth in Part 59 of this subchapter are applicable to this part.

(b) For the purpose of this part, a Conditional Letter of Map Amendment (conditional LOMA) is FEMA's comment on a proposed project to be located in and affecting only that portion of the area of special flood hazard outside the regulatory floodway and having no impact on the existing regulatory floodway or effective base flood elevations.

(c) For the purpose of this part, a Conditional Letter of Map Revision (conditional LOMR) will be FEMA's comment on a proposed project that would affect the hydrologic and/or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway or effective base flood elevations.

§ 72.3 Initial fee schedule.

(a) For conditional Letters of Map Amendment, the initial fee shall be paid by the requestor in the following amounts:

- (1) Single-lot.....\$125
- (2) Multi-lot/subdivision.....\$175

(b) For conditional Letters of Map Revision, the initial fee shall be paid by the requestor in the following amounts:

- (1) New bridge or culvert (no channelization).....\$350
- (2) Channel modifications only..... \$400
- (3) Channel modification and new bridge or culvert.....\$525
- (4) Levees, berms, or other structural measures.....\$675

(c) For projects involving combinations of the above actions which are not separately identified, the initial fee shall be that charged for the most expensive of the actions comprising the combination.

§ 72.4 Submittal/payment procedures and FEMA response.

(a) Initial fees shall be submitted with the request for FEMA review and processing of conditional LOMAs and conditional LOMRs.

(b) Initial fees must be received by FEMA before the review can be initiated for any conditional LOMA or conditional LOMR request.

(c) Following completion of FEMA review for any conditional LOMA or conditional LOMR, the requestor will be billed at the prevailing private sector labor rate (currently \$25.00 per hour) for any actual costs exceeding the initial fee incurred during the review.

(1) Requestors of conditional LOMAs will be notified of the anticipated total cost if the total cost of processing their request will exceed \$500.

(2) Requestors of conditional LOMRs will be notified of the anticipated total cost if the total cost of processing their request will exceed \$1,500.

(3) In the event that processing costs exceed the limits defined in paragraphs (c)(1) and (2) of this section, processing of the request will be suspended pending FEMA receipt of written approval from the requestor to proceed.

(d) The entity that applies to FEMA through the local community for review will be billed for the cost of the review. The local community incurs no financial obligation under the reimbursement procedure set forth in this part as a result of transmitting the submittal to FEMA.

(e) Payment of both the initial fee and final cost shall be by check or money order payable to the United States Treasury and must be received by FEMA before the conditional LOMA or conditional LOMR will be issued.

(f) For conditional LOMA requests, FEMA shall:

(1) Notify the requestor within 30 days as to the adequacy of the submittal, and

(2) Within 30 days of receipt of adequate information, provide comment to the requestor on the proposed project.

(g) For conditional LOMR requests, FEMA shall:

(1) Notify the requestor within 60 days as to the adequacy of the submittal, and

(2) Within 90 days of receipt of adequate information, provide comment to the requestor on the proposed project.

§ 72.5 Exemptions.

Federal, State, and local governments and their agencies shall be exempt from fees for projects they sponsor if the Administrator determines or the requestor certifies that the particular project is for public benefit and primarily intended for flood loss reduction to existing development in identified flood hazard areas, as opposed to planned flood plain development.

[50 FR 36028, Sept. 4, 1985, as amended at 53 FR 16280, May 6, 1988]

§ 72.6 Unfavorable response.

A conditional LOMA or conditional LOMR may be denied or may contain specific comments, concerns, or conditions regarding a proposed project or design and its impacts on flood hazards in a community. A requestor is not entitled to any refund if the letter contains such comments, concerns, or conditions, or if the letter is denied. A requestor is not entitled to any refund if the requestor is unable to obtain required authorizations, permits, financing, etc., for which the letter was sought.

§ 72.7 Resubmittals.

Any resubmittal of a request more than 90 days after FEMA notification that a request has been denied or after a review has been terminated due to insufficient information or other reasons will be treated as an original submission and subject to all submittal/payment procedures as described in

§ 72.4, including the initial fee. The procedure of § 72.4 including the initial fee, will also apply if the project has been significantly altered in design or scope other than that necessary to respond to previously issued comments, concerns, or conditions by FEMA.

**PART 73—IMPLEMENTATION OF SECTION 1316 OF THE NATIONAL FLOOD INSURANCE ACT OF 1968**

Sec.

- 73.1 Purpose of part.
- 73.2 Definitions.
- 73.3 Denial of flood insurance coverage.
- 73.4 Restoration of flood insurance coverage.

AUTHORITY: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978; E.O. 12127.

SOURCE: 51 FR 30318, Aug. 25, 1986, unless otherwise noted.

§ 73.1 Purpose of part.

This part implements Section 1316 of the National Flood Insurance Act of 1968.

§ 73.2 Definitions.

(a) Except as otherwise provided in this part, the definitions set forth in Part 59 of this subchapter are applicable to this part.

(b) For the purpose of this part a "duly constituted State or local zoning authority or other authorized public body" means an official or body authorized under State or local law to declare a structure to be in violation of a law, regulation or ordinance.

(c) For the purpose of this part, "State or local laws, regulations or ordinances intended to discourage or restrict development or occupancy of flood-prone areas" are measures such as those defined as "Flood plain management regulations" in § 59.1 of this subchapter. Such measures are referred to in this part as State or local flood plain management regulations.

§ 73.3 Denial of flood insurance coverage.

(a) No new flood insurance shall be provided for any property which the Administrator 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 flood-prone areas.

(b) New and renewal flood insurance shall be denied to a structure upon a finding by the Administrator of a valid declaration of a violation.

(c) States and communities shall determine whether to submit a declaration to the Administrator for the denial of insurance.

(d) 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 to 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.

#### § 73.4 Restoration of flood insurance coverage.

(a) Insurance availability shall be restored to a property upon a finding by the Administrator of a valid rescission of a declaration of a violation.

(b) A valid rescission shall be submitted to the Administrator and shall consist of:

(1) The name of the property owner(s) and an address or legal description of the property sufficient to identify the property and to enable FEMA to identify the previous declaration;

(2) A clear and unequivocal statement by an authorized public body rescinding the declaration and giving the reason(s) for the rescission;

(3) A description of and supporting documentation for the measures taken in lieu of denial of insurance in order to bring the structure into compliance

with the local flood plain management regulations; and

(4) A clear statement that the public body rescinding the declaration has the authority to do so and a citation to that authority.

### PART 74 [RESERVED]

## PART 75—EXEMPTION OF STATE-OWNED PROPERTIES UNDER SELF-INSURANCE PLAN

### Subpart A—General

Sec.

75.1 Purpose of part.

75.2 Definitions.

75.3 Burden of proof.

### Subpart B—Standards for Exemption

75.10 Applicability.

75.11 Standards.

75.12 Application by a State for exemption.

75.13 Review by the Administrator.

75.14 States exempt under this part.

**AUTHORITY:** 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978; E.O. 12127.

**SOURCE:** 41 FR 46991, Oct. 26, 1976, unless otherwise noted. Redesignated at 44 FR 31177, May 31, 1979.

### Subpart A—General

#### § 75.1 Purpose of part.

The purpose of this part is to establish standards with respect to the Administrator's determinations that a State's plan of self-insurance is adequate and satisfactory for the purposes of exempting such State, under the provisions of section 102(c) of the Act, from the requirement of purchasing flood insurance coverage for State-owned structures and their contents in areas identified by the Administrator as A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE, and E Zones, in which the sale of insurance has been made available, and to establish the procedures by which a State may request exemption under section 102(c).

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 5621, Feb. 14, 1984; 50 FR 36029, Sept. 4, 1985]

#### § 75.2 Definitions.

The definitions set forth in Part 59 of this subchapter are applicable to this part.

#### § 75.3 Burden of proof.

In any application made by a State to the Administrator for certification of its self-insurance plan, the burden of proof shall rest upon the State making application to establish that its policy of self-insurance is adequate and equals or exceeds the standards provided in this part.

### Subpart B—Standards for Exemption

#### § 75.10 Applicability.

A State shall be exempt from the requirement to purchase flood insurance in respect to State-owned structures and, where applicable, their contents located or to be located in areas identified by the Administrator as A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE and E Zones, and in which the sale of flood insurance has been made available under the National Flood Insurance Act of 1968, as amended, provided that the State has established a plan of self-insurance determined by the Administrator to equal or exceed the standards set forth in this subpart.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 5621, Feb. 14, 1984; 50 FR 36029, Sept. 4, 1985]

#### § 75.11 Standards.

(a) In order to be exempt under this part, the State's self-insurance plan shall, as a minimum:

(1) Constitute a formal policy or plan of self-insurance created by statute or regulation authorized pursuant to statute.

(2) Specify that the hazards covered by the self-insurance plan expressly include the flood and flood-related hazards which are covered under the Standard Flood Insurance Policy.

(3) Provide coverage to state-owned structures and their contents equal to that which would otherwise be available under a Standard Flood Insurance Policy.

(4) Consist of a self-insurance fund and/or a commercial policy of insurance or reinsurance for which provision is made in statute or regulation and which is funded by periodic premiums or charges allocated for state-owned structures and their contents in areas identified by the Administrator as A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE, and E Zones. The person or persons responsible for such self-insurance fund shall report on its status to the chief executive authority of the State, or to the legislature, or both, not less frequently than annually. The loss experience shall be shown for each calendar or fiscal year from inception to current date based upon loss and loss adjustment expense incurred during each separate calendar or fiscal year compared to the premiums or charges for each of the respective calendar or fiscal years. Such incurred losses shall be reported in aggregate by cause of loss under a loss coding system adequate, as a minimum, to identify and isolate loss caused by flood, mudslide (i.e., mud-flow) or flood-related erosion. The Administrator may, subject to the requirements of paragraph (a)(5) of this section, accept and approve in lieu of, and as the reasonable equivalent of the self-insurance fund, an enforceable commitment of funds by the State, the enforceability of which shall be certified to by the State's Attorney General, or other principal legal officer. Such funds, or enforceable commitment of funds in amounts not less than the limits of coverage which would be applicable under Standard Flood Insurance Policies, shall be used by the State for the repair or restoration of State-owned structures and their contents damaged as a result of flood-related losses occurring in areas identified by the Administrator as A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE, and E Zones.

(5) Provide for the maintaining and updating by a designated State official or agency not less frequently than annually of an inventory of all State-owned structures and their contents within A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE, and E Zones. The inventory shall: (i) Include the location of individual structures; (ii) in-

clude an estimate of the current replacement costs of such structures and their contents, or of their current economic value; and (iii) include an estimate of the anticipated annual loss due to flood damage.

(6) Provide the flood loss experience for State-owned structures and their contents based upon incurred losses for a period of not less than the 5 years immediately preceding application for exemption, and certify that such historical information shall be maintained and updated.

(7) Include, pursuant to § 60.12 of this subchapter, a certified copy of the flood plain management regulations setting forth standards for State-owned properties within A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE, and E Zones.

(b) The Administrator shall determine the adequacy of the insurance provisions whether they be based on available funds, an enforceable commitment of funds, commercial insurance, or some combination thereof, but has discretion to waive specific requirements under this part.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 5621, Feb. 14, 1984; 50 FR 36029, Sept. 4, 1985]

#### § 75.12 Application by a State for exemption.

Application for exemption made pursuant to this part shall be made by the Governor or other duly authorized official of the State accompanied by sufficient supporting documentation which certifies that the plan of self-insurance upon which the application for exemption is based meets or exceeds the standards set forth in § 75.11.

#### § 75.13 Review by the Administrator.

(a) The Administrator may return the application for exemption upon finding it incomplete or upon finding that additional information is required in order to make a determination as to the adequacy of the self-insurance plan.

(b) Upon determining that the State's plan of self-insurance is inadequate, the Administrator shall in

writing reject the application for exemption and shall state in what respects the plan fails to comply with the standards set forth in § 75.11 of this subpart.

(c) Upon determining that the State's plan of self-insurance equals or exceeds the standards set forth in § 75.11 of this subpart, the Administrator shall certify that the State is exempt from the requirement for the purchase of flood insurance for State-owned structures and their contents located or to be located in areas identified by the Administrator as A, A0, AH, A1-30, AE, A99, M, V, VO, V1-30, VE, and E Zones. Such exemption, however, is in all cases provisional. The Administrator shall review the plan for continued compliance with the criteria set forth in this part and may request updated documentation for the purpose of such review. If the plan is found to be inadequate and is not corrected within ninety days from the date that such inadequacies were identified, the Administrator may revoke his certification.

(d) Documentation which cannot reasonably be provided at the time of application for exemption shall be submitted within six months of the application date. The Administrator may revoke his certification for a State's failure to submit adequate documentation after the six month period.

[41 FR 46991, Oct. 26, 1976. Redesignated at 44 FR 31177, May 31, 1979, and amended at 48 FR 44544, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 5621, Feb. 14, 1984; 50 FR 36029, Sept. 4, 1985]

#### § 75.14 States exempt under this part.

The following States have submitted applications and adequate supporting documentation and have been determined by the Administrator to be exempt from the requirement of flood insurance on State-owned structures and their contents because they have in effect adequate State plans of self-insurance: Florida, Georgia, Iowa, Maine, New Jersey, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, and Vermont.

[48 FR 44544, Sept. 29, 1983]

## PART 76—[RESERVED]

## PART 77—ACQUISITION OF FLOOD DAMAGED STRUCTURES

### GENERAL PROVISIONS

#### Sec.

77.1 Definitions.

77.2 Criteria for acquisition.

AUTHORITY: 42 U.S.C. 4001 *et seq.*; Reorganization Plan No. 3 of 1978; E.O. 12148.

### GENERAL PROVISIONS

#### § 77.1 Definitions.

(a) Definitions found in § 59.1 of this subchapter are applicable to this section.

(b) Furthermore, the following definitions are established:

*Damaged Substantially Beyond Repair*—means where (a) damages to the improved real property are such that as a condition of repair as imposed by a state or local government, the structure must be elevated or floodproofed to or above the 100-year flood elevation, or (b) damages to the improved real property equals or exceed 50 percent of the structure's fair market or actual cash value, whichever is less, or (c) where damages to the improved real property are such that repair is physically impossible or infeasible.

*Flood Risk Area*—See definition for *Special Hazard Area* in § 59.1, or other area subject to flooding as determined by the Administrator.

*Significantly Increased Construction Cost*—occurs when a specific State or local statute, ordinance, or code requires that improvements be made to a structure as a condition of the repair of damages sustained, such that the actual cost of repair would be greater by 25 percent than the cost which would be required for repair of the damages only.

*Sound Land Management and Use*—The process wherein the governmental body responsible for land use regulation in a political jurisdiction plans and regulates the use of land within its jurisdiction in order to promote the reduction of property exposure to flood hazard and the protection of environmental values of flood plains.

Sound use of land acquired by FEMA and transferred to local governments pursuant to section 1362 of Pub. L. 95-128 is use for primarily open space and recreational purposes to minimize potential for any future flood damage, with a general prohibition of enclosed structures unless functionally dependent for some recreational or open space use. The criteria set forth in paragraphs (d)(1) through (4), of § 77.2 and restrictions to be placed in deeds used to convey title to real property from the Federal Government to local governments will set forth more specific requirements to be used in determining what constitutes sound Land Management and Use for individual land parcels.

[45 FR 50282, July 28, 1980, as amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984]

#### § 77.2 Criteria for acquisition.

(a) The objectives of the Flooded Property Purchase Program under the National Flood Insurance Program are:

(1) To reduce future flood insurance and disaster assistance costs by removing repetitively and/or substantially damaged structures from flood risk areas;

(2) To provide an opportunity for owners of repetitively and substantially damaged structures to be permanently removed from flood risk areas, and to reduce risk to life from flooding; and

(3) To complement Federal, State and local efforts to restore flood plain values, protect the environment and provide recreational and open space resources.

(b) The Administrator will, when he or she deems it to be in the public interest, enter into negotiation with property owners whose improved real property has been damaged by flooding for the purpose of purchasing such buildings and associated land or lot for transfer by sale, lease, or donation to a community when the following conditions are met:

(1) The property must be located in a flood risk area as determined by the Administrator;

(2) The property must have been covered by a flood insurance policy under the National Flood Insurance Program at the time damage took place.

(3) The building, while covered by flood insurance under the National Flood Insurance program, must have been damaged substantially beyond repair or must have been damaged not less than three previous times during the preceding five year period, each time the cost of repair equalling 25 percent or more of the structure's value, or must have been damaged from a single casualty of any nature so that a statute, ordinance or regulation precludes its repair or restoration or permits repair or restoration only at significantly increased cost.

(4) A State or local community must enter into an agreement authorized by ordinance or legally binding resolution to take title to and manage the property in a manner consistent with sound land management use as determined by the Administrator.

(5) The community must agree to remove without cost to the Federal Emergency Management Agency (FEMA), by demolition, relocation, donation or sale any damaged structures to which the community accepts title from FEMA, provided the Administrator may, when it is in the public interest to do so, agree to assume a part or all of the cost of such removal.

(c) Title to the real property acquired by FEMA shall be conveyed to local communities subject to specific restrictive covenants, conditions and agreements which will run with the land and be binding on subsequent successors, grantees and assigns. These restrictive covenants, conditions and agreements will be recited in the deed a community receives from FEMA and the community shall join in the execution of the deed.

(d) The general criteria from which specific deed restrictions will be developed may include, among other things, that:

(1) The land must be dedicated in perpetuity for open space purposes, or such other purposes as the Administrator may agree are consistent with the objectives set forth in paragraphs (a)(1) through (3) of this section; that

the community shall faithfully manage the land for its dedicated purposes; that the community shall not erect or permit to be erected and structures or other improvements on the land unless such structures are, except for restrooms, open on all sides and functionally related to a designated open space use without the prior approval in writing of the Administrator; and that the community shall not permit any use which will create a threat to human life from flooding.

(2) In general, allowable open space uses include parks for outdoor recreational activities, nature reserves, cultivation, grazing, camping (except where adequate warning time is not available to allow evacuation), temporary storage in the open of wheeled vehicles which are easily movable (except mobile homes), unimproved parking lots, buffer zones, or open space areas that are part of Planned Unit Developments (PUD's). Structures functionally related to these uses are open-sided picnic and camping facilities, kiosks and refreshment stands or nonhabitable, elevated or floodproofed service structures associated with a marina.

(3) The rights to enforce the restrictive covenants shall be assigned to the Administrator as assignee, together with a declaration that any future violation of the restrictive covenants or agreements, delivered in writing to the Chief Executive Officer within thirty (30) days from the date the Administrator receives actual notice of the violation, shall be deemed at the Administrator's option to cause a reversion of title to FEMA.

(4) The property shall be transferred subject to zoning and building laws and ordinances; easements, agreements, reservations, covenants and restriction of record; any state of facts an accurate survey might show; encroachments and variations from the record lines of hedges, retaining walls, sidewalks and fences;

(e) Any structures, as described at paragraph (d)(2) of this section, and built in accordance with the deed restrictions shall be floodproofed or elevated to withstand the effects of the 500 year or .02 percent chance flood.

(f) Appraisals for the determination of compensation for flood damaged real property will be undertaken in conformance with the "Uniform Appraisal Standards for Federal Land Acquisitions" published by the Inter-agency Land Acquisition Conference, GPO (1973). Appraisals will reflect the adjusted (for time) pre-damage fair market value (FMV) of the structure and land to the extent that this FMV may have been reduced or depressed in the open market as a result of flooding. Actual compensation of FMV will be inclusive of any flood insurance claim payments made or to be made as a result of the most recent flood event to the extent that repairs have not yet been made.

(g) Agreement to sell real property on the part of owners will be completely voluntary. No property owners will be required to sell their properties under section 1362.

(h) Relocation assistance under the Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 U.S.C. 4601 et seq.) is not available to property owners who sell their properties under section 1362.

[45 FR 50282, July 28, 1980, as amended at 48 FR 44553, Sept. 29, 1983; 49 FR 4751, Feb. 8, 1984; 49 FR 33879, Aug. 27, 1984]

**LITTLE RAINBOW VALLEY  
FLOOD CONTROL DISTRICT**  
Map of Exterior Boundaries  
**MARICOPA COUNTY, ARIZONA**  
1984

BASE MAP COURTESY OF USGS  
HASSAYAMPA AND BUCKEYE QUADRANGLES PHOTO REVISED 1971  
OTHER TOPOGRAPHIC MAPS COMPLETED 1973

MAP PREPARED BY WIDE WORLD OF MAPS INC.  
2626 W. INDIAN SCHOOL RD.

