

APPENDIX B

PREPARATION OF MAPS AND GRAPHIC SPECIFICATIONS

This Appendix outlines requirements, standards, and specifications that the Flood Map Production Coordination Contractor (FMPCC) shall use in preparing revised Flood Insurance Rate Maps (FIRMs) and Flood Boundary and Floodway Maps (FBFMs) in a Standard, Map Initiatives, or Countywide format for printing by the U.S. Government Printing Office (GPO).

Revisions made by the FMPCC will be consistent with the format of the existing FIRM and/or FBFM, with the primary exception being that pre-Map Initiatives format studies will, whenever possible, be converted to the Map Initiatives format. In some cases, a partial Map Initiatives Format may be used when it is determined that total conversion to the Map Initiatives Format is not cost-effective.

In addition to conversions to the Map Initiatives format, there will be many cases when the Countywide format will be chosen for the map revision. This will most often occur when a subject revision involves multiple jurisdictions within a given county. Facilitating this conversion will be several factors, including the current fit of existing community-based FIRMs within the county; the number of outstanding deferred map actions within the county; the propensity for community annexations within the county, the availability of a suitable digital base map, and other factors detailed later in this Appendix and in Section 6 of these Guidelines.

The initial mapping phase for identified communities has been completed by FEMA. Therefore, separate guidelines for the preparation of initial FIRMs have not been included in this Appendix. If it becomes necessary to prepare an initial FIRM for a community, the requirements and standards used by the FMPCC shall be consistent with these Guidelines.

B.1 Map Content and Specifications

The intent of this Appendix is not to specify comprehensive graphic specifications, but rather to communicate intent and provide examples. This Appendix will address and define the components that comprise Flood Insurance Rate Maps and Flood Insurance Studies and will provide guidance on preferred presentation graphics.

B.1.1 Flood Insurance Rate Map

Because the FIRM is used by FEMA to determine the flood insurance requirements and rates for present and future floodplain structures, it must present a clear and accurate depiction of the 100- and 500-year floodplain boundaries, base flood elevation (BFE) lines, and flood insurance risk zones. A FIRM may consist of one or more individual map panels. For multiple-panel FIRMs, revisions shall be made to the FIRM Map Index and one or more of the FIRM panels as necessary. Only the Map Index and the revised panels shall be reprinted. Specifications for the FIRM and FIRM Map Index are provided in this Appendix.

B.1.2 Map Content and Graphics

The FMPCC shall follow sound cartographic practice in updating Flood Insurance Rate Maps. The mapping and typographical standards that appear in this Appendix should be used as guidance for the FMPCC in the production of the FIRM. It is important to note that the desired end product must emulate the look of the accepted samples provided in Section B.5 of this Appendix. It is recognized that base maps may differ widely in graphic presentation based on the source being used, but it is also critical that the product be user-friendly, easy to read, easy to reproduce, and internally consistent.

B.1.3 Base Map

A new base map generally will not be required for a revised FIRM. Any necessary changes normally can normally be incorporated into the existing base map. For revisions involving extensive community corporate limit changes or a new grid layout, a new base may be necessary, in which case the FMPCC shall make every effort to use a digital base map and convert the FIRM to a digital FIRM. For guidelines in the creation of digital FIRMs, see Section 6.3.3 of these Guidelines. For all FIRM creations and FIRM revisions (manual and digital) the FMPCC shall apply the base map guidelines that follow:

- In floodplain areas on every panel that contains floodplain boundaries, the base selected by the FMPCC must show and name, or shall be updated to show and name at the direction of the Project Officer, the following:
 - Cultural features, such as roads, railroads and airports; flood-control and hydraulic structures such as culverts, weirs, levees, dikes, seawalls and dams; and other prominent manmade features and landmarks.
 - Physical drainage features, such as rivers, streams, significant lakes and ponds, coastlines, canals, and channels (including both banks of a stream when one bank is beyond the corporate limits).
 - Political boundaries such as corporate limits (including boundaries of excluded areas and extraterritorial jurisdiction), parks, military reservations, government easements, wildlife preserves, etc.
 - Major cultural features outside floodplain areas shall be shown and named for orientation purposes. However, none need to be removed from existing base maps. At the direction of the Project Officer, range and township lines, state grid systems, or local gridlines shall be shown.
- The revised FIRM base shall not include any of the following:
 - Contours and spot elevations
 - Property lines and numbers
 - Areas outside corporate limits, except Extraterritorial Jurisdiction (ETJ) areas of the community and roads or physical features necessary for orientation and continuity. Features that are described in the Elevation Reference Mark descriptions may also be shown outside of the corporate limits.
 - Any other nonessential information if it would interfere with the interpretation or readability of base or floodplain information
 - Buildings of all types unless the structure has been directly considered in the hydraulic analysis and can be shown properly relative to flood hazards.

An exception to this is when USGS quadrangle separates are used for the base, in which case, all buildings shown on the quadrangles shall be shown on the base map, even landmark and other buildings that straddle floodplain boundaries. The delineation of floodplain boundaries in relation to such buildings is discussed in a FEMA memorandum dated August 15, 1989, which is included in the *FEMA Policy Memorandums Manual*.

B.1.4 Map Scale

For FIRM creations and revisions, the map scales to be used generally are to range between 1" = 400' and 1" = 2,000' (depending on available base maps) for all panels containing detailed study and/or approximate study areas. The map scales of 1" = 500' and 1" = 1,000' are preferred; however 1" = 400', 1" = 600', and 1" = 800' may also be used. A scale of 1" = 2,000' shall generally only be used for panels containing approximate-study areas, but also occasionally for detailed study areas with extremely wide floodplains. Multiple panel FIRMs prepared digitally shall normally be either 1" = 500', 1" = 1000' or 1" = 2000'. Single panel FIRMs may be processed at a scale of 1" = 400', and with the approval of the Project Officer, at 1" = 200'. After the final map scale and layout for a community have been established, the map panels must be numbered. The numbering sequence follows from left to right and from top to bottom for single scale FIRMs.

At times, it will be appropriate to use a mixture of the permitted scales in a single community, in which case a unique panel numbering scheme is employed. Whenever two or three map scales are used, a variation of the normal numbering scheme is required. Beginning with the first small-scale map panel, the four large-scale map panels that lie within the grid layout of the larger parent panel are to be numbered sequentially from left to right and top to bottom. The associated small-scale map panel shall be numbered sequentially after the four large-scale panels whose area it duplicates (i.e., panel 0025 covers the same geographical area as panels 0005, 0010, 0015, and 0020 combined). This numbering system shall be continued in a similar manner to the numbering system for single-scale maps. That is, the next number series would be 0030, 0035, 0040, and 0045 for the larger-scale panels, followed by 0050 for the smaller-scale panel. Examples of a multi-scale FIRM layout including the unique panel numbering scheme and the method of type placement are shown on Figure B.5.3. The following table indicates the numbering sequence corresponding to the various map scales.

Map Scale	Panel Numbers
1" = 400' through 1" = 600'	0001, 0002, 0003, 0004
1" = 800' through 1" = 1,000'	0005, 0010, 0015, 0020
1" = 2,000'	0025, 0050, 0075, 0100

B.2 Mapping Formats

There are several distinct classifications of FIRM formats. These are Manual, Digital, Single Jurisdiction, Countywide, Map Initiatives, Partial Map Initiatives, FIRM/FBFM (also known as Standard Format) and FIS/FIRM Combination. Additionally, many of these formats can be mixed and interchanged, as with a Digital Partial Map Initiatives FIRM.

B.2.1 Manual

Manual refers to the standard color separation techniques primarily used in the 70's, 80's and early 90's for FIRM production. Manual (non-digital) techniques are to be employed in FIRM production only when it has been determined that it is more cost effective to do so and when there is not a specific request from the FEMA Regional office to convert the FIRM to the digital format. Other factors may also facilitate the conversion of a manual cartographic FIRM to a digital format such as a community's ability and desire to use a digital product and available digital base maps. The Project Officer will provide guidance as required. It is FEMA's intent to ultimately move to a fully digital environment in the mapping of flood hazards under the NFIP, and is therefore recommended that the digital option be closely considered for FIRM creations and revisions, as well as all new Countywide FIRMs.

It is important to note that when a manual cartographic revision is processed for an existing FIRM, the FMPCC must maintain the appearance of the existing FIRM to whatever degree is practical. The existing specifications will therefore serve as guidance for the portrayal of revised information.

B.2.2 Digital

Digital FIRMs are to be prepared whenever possible for new FIRMs and for revisions to existing FIRMs. Details and protocols for digital FIRMs are provided in Section 6 of these Guidelines and graphic specifications and examples are provided in Section B.5 of this Appendix.

B.2.3 Single Jurisdiction

Single jurisdiction FIRMs were the standard for the first 20 years of the NFIP. This format maps all areas within a given community's jurisdiction on one FIRM. It is important to note that single jurisdiction FIRMs that do not use community supplied base maps should conform as closely as possible to the accepted examples shown in this Appendix. See Section B.5 for samples and specifications of title blocks and legends of single jurisdiction FIRMs.

B.2.4 Countywide

FIRMs are often prepared in a Countywide format, whereby all jurisdictions within a given county are shown on one set of maps. It is important to note that new Countywide FIRMs should be prepared digitally (see Section 6 of these Guidelines). Because FEMA encourages the use of community/county supplied digital base maps for the production of Countywide FIRMs each base map supplied for this purpose will have its own unique specifications and appearance. It is therefore important that the FMPCC focus on the intent of the presentation and make every effort to conform to the standard base map specifications presented in this Appendix. It is recognized that the use of a digital base map supplied by a community may contain unique graphic specifications, such as the portrayal of road easements or edge of pavement. Unusual base map features should be brought to the attention of the Project Officer for a decision to retain or modify as warranted. Any changes that are made to a digital base map should be made only to facilitate map presentation, ease of use, or internal consistency in base map features. The samples provided in this Appendix cover a wide range of accepted presentations. Any significant deviations to this format should be coordinated with the Project Officer. It is also important that the specifications detailed in Section B.1.3 entitled “Base Map” in this Appendix should also be followed for digital Countywide FIRMs.

On the title block of a Countywide FIRM the community identification number is replaced by the Federal Information and Processing Standard (FIPS) code developed by the National Bureau of Standards with a “C” following it. This number is to be labelled “Map Number”. The last four digits continue to be the map panel number. Refer to the sample title blocks shown on Figure B.5.5 (pages B-46, B-47, and B-50).

B.2.4.1 Multi-County Communities

In situations where a community falls in more than one county, a decision needs to be made as to how the community will be mapped. The following three options are available:

Option 1:

Map only the portion of the subject community that falls within the county being mapped and add a disclaimer note specifying that the flood hazard data are being shown for information purposes only and referring the user back to the community-based FIRM (see Section B.6.1.3). The corresponding Flood Profiles, Floodway Data tables and other supporting flood hazard data should be included in the FIS report. This option should only be chosen when a large part of the community falls within another county that is not in a Countywide format. Disclaimed

communities must not be included on the title block of the Countywide FIRM; in the Listing of Communities table on the FIRM Map Index; in the Map Repository listing on the FIRM Index; or in the Community Map History table in the FIS report. Disclaimed communities continue to retain their community-based FIRM until such time as the adjacent county in which they lie is mapped in the Countywide format.

When Option 1 has been chosen, the FMPCC must process a community-based revision to the affected multi-county community if revised flood hazard data are being shown on the disclaimed part of the multi-county community. This revision should be processed such that it has an earlier or simultaneous effective date as the Countywide FIRM.

If and when the adjacent county in which the multi-county community lies is processed as a Countywide FIRM, the FMPCC must then process an administrative revision to the adjacent Countywide FIRM that contains the disclaimed portion of the multi-county community. The actions to take on the adjacent county in this case are as follows:

- Remove the disclaimer note and add the community identification number for the subject community to the affected panel(s).
- Add the subject community to the title block of the affected panel(s).
- Add the subject community to the Listing of Communities table on the FIRM Map Index.
- Add the subject community to the Map Repository listing on the FIRM Index.
- Add the subject community to the Community Map History table in the FIS report and include any required references, Flood Profiles, or other flood hazard information that was left out of the FIS report due to the disclaimed status of the community.

Option 2:

Show the community in its entirety on the subject Countywide FIRM with no disclaimer note. This option can be chosen when the adjacent county is not in the Countywide format; the community is mostly shown within the county that is being mapped; and showing the adjacent county's portion of the dual-county community will not increase the panel count by more than 2 panels. Exceptions to this may be granted by the Project Officer on a case-by-case basis.

When Option 2 has been chosen, care must be taken to remove the portion of the community that falls in the adjacent county from the Countywide FIRM when/if the adjacent county is mapped in the Countywide format. This can be accomplished with an administrative revision to be processed concurrently with the creation of the adjacent county's Countywide FIRM. The actions to take on the adjacent county in this case are as follows:

- On the FIRM and Map Index, remove the portions of the multi-county community that lie outside the county boundary.
- Update the FIS report to remove any information that was included to cover the adjacent county.

Option 3:

Show only the portion of the community that lies within the subject county with no disclaimer note. This option can only be chosen when the other county in which the multi-county community lies is also mapped in the Countywide format.

When Option 3 is chosen, it will most often occur after the subject community was already mapped on an adjacent Countywide FIRM with a disclaimer note (as in option 1 above), or in its entirety (as in Option 2 above). When the multi-county community is mapped using Option 3, there will be a requirement to revise the adjacent county to either remove all disclaimers or to remove the areas of the subject community that fall beyond the county boundary.

B.2.5 Standard Format (FIRM/FBFM)

It is important to note that there will be no Standard Format FIRM/FBFM revisions processed. All revisions are to either be Map Initiatives or Partial Map Initiatives. Therefore, there will be no graphic specifications in this Appendix for this format. Because the Partial Map Initiatives format often requires that the FBFM Index be reprinted, specifications are provided for the FBFM Index in Section B.3.3 and a graphic representation is shown as Figure B.5.11.

B.2.6 Map Initiatives

All map revisions and creations are to be processed in the Map Initiatives format, where the information formerly shown separately on the FIRM and FBFM have been combined and shown on the FIRM. If a full conversion to the Map Initiatives format cannot be justified, the Partial Map Initiatives format should be employed.

B.2.7 Partial Map Initiatives

The Partial Map Initiatives format may be used for revisions to Standard Format FIRMs that do not affect the majority of the FIRM panels. The intent of the Partial Map Initiatives revision format is to take advantage of the new map format, thereby eliminating specific FBFM panels. This format should only be chosen for a revision that is not large enough to justify converting the entire community to Map Initiatives or to a digital FIRM. An example of this would be a 10-panel Standard Format community with a revision to 2 panels. In this case, it most likely would be more efficient to revise the 2 affected panels in the Map Initiative format and eliminate the corresponding FBFM panels.

When the Partial Map Initiatives option is chosen, the FIS report must have special verbiage added to it to explain the mixed format. The specifics of this are detailed in Appendix C of these Guidelines. In addition, the FBFM Index needs to be reprinted to explain the removal of FBFM panels. A graphic representation of the FBFM Index for Partial Map Initiatives revisions is shown as Figure B.5.11.

In addition, the Map Repository address should be added to the FIRM Index and legend of the panels that have been updated to Map Initiatives.

B.2.8 FIRM / FIS Combination

For small communities the FMPCC may opt to create a combination FIRM and FIS, which involves printing one FIRM panel containing all identified floodplains for the community as well as select components from the FIS report. The use of this format eliminates the requirement to create and print an FIS report.

Space limitations will guide the decision on how much information may be shown on the single FIRM panel. At a minimum, the Flood Profiles, Floodway Data table, and Summary of Flood Discharges will be shown. At a maximum, the FIS report itself will be condensed and placed directly on the FIRM panel (see Figure B.5.9).

B.3 Map Index

B.3.1 Map Initiatives Index

For every community that is of a geographical size requiring more than one map panel, a FIRM Map Index generally will already exist. Revisions to an existing map index may include changes to community corporate limits; additions of map panels to the grid layout; additions of roads, drainage lines, and other physical features; and revisions to dates and notes. When such revisions are necessary, the changes shall be made in a format consistent with that of the existing map index

and according to the standards applied in the preparation of the existing map index.

For maps prepared using the Map Initiatives Format, the FIRM Map Index may contain both a Street Index and a general depiction of Special Flood Hazard Areas (SFHAs). Under previous standards, a Street Index was prepared if a community had streets that were shown in the SFHA. Also under previous standards, for Map Indexes prepared under the Map Initiatives Format, a general representation of the identified flood hazards was shown on the index for the streams studied in the FIS. For revisions processed to FIRMs that have a Street Index and/or a general depiction of flood hazards, these items should be removed if the revision significantly affects the accuracy and they cannot be used as-is. For all new FIRM Indexes, a Street Index and a depiction of flood hazards on the index will not be created.

When a new Map Index layout is necessary for a single-panel FIRM that must be expanded to a multiple-panel FIRM, or when an existing layout must be completely revised, the FMPCC shall prepare a new FIRM Map Index. The FMPCC shall apply the following guidelines:

- The entire jurisdictional area of the community, including corporate and ETJ limits, if appropriate, shall be divided into map panels, following standard grid layout procedures. Each of these panels shall contain a community-panel number (for Standard or Map Initiatives Format) or a map number (for Countywide Format). Five standard frame panel sizes and layouts shall be used (see Section B.5.4). The revised or new map index shall be prepared in an 8-1/2" × 11" format for small to medium-sized communities (Figure B.5.7). When the panel count is high such that it renders an 8-1/2" × 11" Index unusable/illegible, the standard Z-fold Index may be prepared. Note that Countywide Format FIRM Map Indices shall always be prepared in the Z-fold format (Figure B.5.10).
- The revised Map Index should have the same directional orientation as the individual map panels; for all digital FIRM panels, north should be oriented to the top of the page whenever possible. However, north may be oriented 90 degrees in either direction from the top of the panel if, by doing so, the FMPCC can avoid printing extra panels. The locations and names of major flooding sources, major roads, corporate limits, and selected railroads shall be shown to facilitate the orientation and location of the individual panels. Panel neatlines shall be accurately placed with respect to the other features shown on the revised map index. Areas that are within the corporate limits but were not studied shall be labeled as such whenever the scale of the revised Map Index permits.
- The revised Map Index shall identify unprinted panels with asterisks and footnotes. The appropriate reason(s) for the panel not being printed shall

appear in the lower left hand corner of the grid layout (see Figure B.5.10). A listing of appropriate panel not printed notes is available in Section B.6.4.1 of this Appendix.

- On the Map Index, a letter suffix shall be shown for each FIRM panel depicted in the grid layout. When the preliminary copy of the revised Map Index is prepared, the suffix for each FIRM panel that has been revised shall be changed to the next letter in the alphabetical sequence, with the letter “I” being skipped. The suffixes for unprinted panels shall not be changed unless all panels are revised.
- The title block of an existing FIRM Map Index will show the FIRM effective date. This date may be designated in the title block as “Effective Date” (for the first version of the FIRM for the subject jurisdiction) or “Map Revised” (for a FIRM that has been revised at least once). When the preliminary copy of the revised Map Index is prepared, this date shall be removed. When the photo-reproducible negative for the revised Map Index is prepared, the new effective date determined for the revised FIRM shall be added and shall be designated as “Map Revised.” Sample title blocks for Map Indices are shown in Section B.5.5 on page B-45. Similar type styles and sizes are acceptable, and may vary due to Index size limitations.

B.3.2 Countywide FIRM Index

Countywide FIRMs will always have a full size Map Index, and will often need to be shown on more than one Index panel.

Countywide FIRM Indices will contain a grid layout for all geographic areas within the county to reflect the panel layout scheme. It will follow the specifications for a regular Map Initiatives FIRM Map Index with the addition of a Listing of Communities table and a Map Repository listing (see Figure B.5.10). Similar type styles and sizes are acceptable, and may vary due to Index size limitations.

The Listing of Communities table shall list, in alphabetical order and in tabular form, all incorporated communities in the county. The table shall also list non-floodprone communities in the county but shall footnote them with an indication of the non-floodprone status. The listing shall not include communities that lie in more than one county if they are being disclaimed. It is important to note that the column entitled Post FIRM Date is used by insurance agents. For communities with effective FIRMs prior to December 31, 1974, the Post-FIRM date is December 31, 1974. For FIRMs that become effective after that date, the Post-FIRM date is the same as the FIRM effective date. An example of the Listing of Communities table is shown as Figure B.5.10.

The Map Repository listing shall contain an alphabetical listing of the map repository addresses of all communities that will be receiving a copy of the FIRM. For an example of this listing, refer to Figure B.5.10. The only communities that will not be receiving a copy of the FIRM are those that are classified as disclaimed or non-floodprone.

It may be necessary to create multiple FIRM Index panels for large Countywide studies. In cases such as this, the Listing of Communities table and Map Repository listing may be on a separate FIRM Index sheet. It may also be necessary to split the Map Index itself into multiple panels. When multiple Index sheets are created, the numbering of those sheets should be NDX1, NDX2 etc, and an Index location diagram shall be added to the FIRM Index. For Countywide FIRM Indexes that are contained on one FIRM panel, the Map Index shall be numbered “0000”. See Section B.5.5 (on pages B-46 and B-47) for examples.

When a first time Countywide FIRM is created, the letter suffix for each FIRM panel that will also appear on the FIRM Index will be one letter higher than the highest suffix of all included jurisdiction’s FIRMs.

B.3.3 Flood Boundary and Floodway Map Index

A revision to the FBFM Index will need to be prepared for all revisions processed in the Partial Map Initiatives format. A partial Map Initiatives format may be used for Type-19, LMMP, and Part 65 map revisions when it is determined that total conversion to Map Initiatives is not cost effective.

- When the Partial Map Initiatives format has been used, thereby causing an FBFM panel to be superseded by the FIRM, the FBFM Index must be revised to reflect this change. The FBFM Map Index will be revised and a Panel Not Printed note will be added to the Index for FBFM panels that will be superseded by Map Initiative FIRM panels. See Section B.6.4.1 of this Appendix for the proper wording of the Panel Not Printed note.
- In addition to the Panel Not Printed note, a note needs to be added to the body of the FBFM Index informing the user that the former FBFM panels have been superseded by FIRM panels. See Section B.6.4.2 of this Appendix for the proper wording of the note. See Figure B.5.11 for an example.
- When preparing a revised FBFM Map Index it is important to note that map dates may appear beneath each FBFM panel number within the map grid on the FBFM Map Index. If dates appear on non-printed panels, they must be removed. Very specific notes on the FBFM Map Index will continue to be used to explain why FBFM panels are not printed.

- The Map Service Center must be notified by memo or e-mail when Flood Boundary and Floodway Map panel are superceded by Map Initiatives FIRM panels.

B.4 Flood Hazard Data

The mapping of floodplain and floodway boundaries as well as Base Flood Elevations, cross sections, and Elevation Reference Marks are detailed below. Specifications for the mapping of Coastal Barrier Resources System areas are provided in Section 8.0 of these Guidelines. Graphic specifications for Coastal Barriers are shown in Section B.5.2 and a graphic representation is shown on Figure B.5.8. It is important to note that although base map specifications may vary to accommodate the differences in source maps, flood hazard data should conform to strict graphic specifications as indicated in Section B.5.2 of these specifications.

B.4.1 Floodplain and Floodway Boundaries

The 100-year and 500-year floodplain boundaries are shown by solid lines, and the boundaries of Zone D areas are shown by a dashed line (see Section B.5.2).

As indicated in Section B.5.2, floodways are shown by a dashed line with a crosshatch pattern within the floodway itself. The floodway widths shown at cross-section locations shall agree with the values shown on the Floodway Data table in the Flood Insurance Study (FIS) report within a maximum tolerance of 5 percent of the map scale. When, at the scale of the map, the floodway would be less than 0.05-inch wide, the floodway shall be a schematic depiction at a 0.05-inch width. See Section B.6.1.1 for the wording of a map note to explain this situation.

It is important to note that there should be strict conformance to the prescribed graphic specifications for flood hazard data. Refer to Section B.5.1 for type font specifications and Section B.5.2 for proper lineweights and symbologies.

B.4.2 Base Flood Elevations

BFEs are shown as wavy lines perpendicular to the flow of the 100-year flood. The elevation value is to be located within or at the end of the line (Figure B.5.8). If this is not practical, then the FMPCC may place the value above the line, or to the right or left of it. If the BFE value cannot be placed within .1 inch of the BFE line, a leader line should be used to connect the BFE value to the BFE line.

The basic intent of plotting BFEs on a FIRM is to represent the flood profile to within 0.5 foot of elevation tolerance. If BFEs are plotted correctly, the FIRM should be able to be used to recreate the flood profile within a 0.5-foot accuracy. The methods by which the FMPCC may accomplish this are shown below.

Plot BFEs at significant profile inflection points (profile breaks), or as close to them as possible. These points are critical to the accuracy of the map, because the profile could not be reproduced accurately without them. Criteria to determine the significance of a profile inflection point are addressed below.

Plot intermediate BFEs between inflection points and required BFES. Intermediate BFEs shall be placed at whole-foot elevations whenever possible. To determine the proper interval at which to plot intermediate BFES, the main factor to be considered is the profile slope (gradient). The guidelines below shall be used, keeping in mind that the profile slope should be relatively constant between inflection points.

- If BFEs rise less than 1 foot per 1 inch of map distance, the FMPCC shall plot the BFEs at every whole foot of elevation rise. Intermediate duplicate BFEs may be added on very gentle slopes as needed for clarity.
- If BFEs rise more than 1 foot, but less than 5 feet per 1 inch of map distance, the FMPCC shall plot the BFEs at approximately 1-inch intervals.
- If BFEs rise 5 feet or more per 1 inch of map distance, the FMPCC shall plot the BFEs at 0.5-inch intervals of map distance or at 5-foot intervals, whichever is greater (i.e., whichever results in a wider BFE spacing).
- To determine the proper method for the intermediate BFE interval, the FMPCC shall divide the amount of BFE rise by the map distance over which it rises. For example, 10 inches of map distance with a 30-foot BFE rise equals a 3-foot BFE rise per inch; therefore, BFEs would be plotted at 3-foot intervals.
- BFEs shall not to rise more than 1 foot across panel edges (unless the stream gradient is very steep at the panel edge).
- The maximum rise between plotted BFEs is not to exceed 10 feet.
- BFEs are not to be plotted such that an insurance agent has to extrapolate to make an elevation determination.
- Extreme BFEs at corporate limits and Limits of Detailed Study do not have to be shown if graphically impossible (e.g, when the elevation is 65.5 at the corporate limits, plot 65 within 0.5 inch of the corporate limits).
- In a static 100-year, elevation zone (tidal or lacustrine flooding), elevation numbers under zone labels shall be used in lieu of BFE lines. A gutter should be placed at the point where the static zone becomes a rising elevation zone, and a BFE line of the same elevation as the static zone shall be placed immediately upstream of the gutter.

B.4.3 Elevation Reference Marks and Descriptions

Elevation Reference Marks (ERMS) must be located as accurately as possible on the revised FIRM. Each map panel shall contain a tabulation of the ERMS that are shown on the map panel. This tabulation shall usually be placed beyond the corporate or county limits and shall include descriptions and elevations of the marks. Digital FIRMs contain an area on the left side of the FIRM panel below the NOTES TO USERS area that is reserved for the tabulation of ERM descriptions. See Figure B.5.8 for an example.

The descriptions are to be brief, but shall include the elevation of the ERM; the location of the ERM in relation to roads or other physical features shown on the base map; and the sequential designation of the ERM.

The ERMS in most effective studies and restudies are referenced to NGVD. In future studies and restudies for communities in the continental United States, including Alaska, ERMS may be referenced to NAVD if the datum used for the FIS is NAVD. Refer to Appendix D of these Guidelines for more information on the use of NAVD as the vertical datum.

Whenever the tabulation contains data for an ERM located on another panel, the tabulation shall also include the number of the panel on which the ERM is located. Roads referenced in the description must be shown and labeled on the map panels.

When an ERM cannot be shown due to the fact that it lies outside of the corporate limits, a note shall be placed under the tabular listing explaining this situation. Proper wording for the note may be found in Section B.6.2.1 of this Appendix.

When an ERM falls within an Area Not Included or outside the community, base map detail shall be extended to the ERM and the ERM shall be shown when practical.

Some effective FIRMs prepared in the Map Initiatives Format may not contain ERM descriptions on the map panels. When these FIRMs and their accompanying FIS reports were prepared, the ERM descriptions were included as exhibits in the reports. When revising an FIS, the ERM descriptions shall be moved from the FIS report to the maps. When revising selected panels of a FIRM that have the ERM descriptions in the FIS report, the FMPCC shall move the ERM descriptions to the revised FIRM panels and add the following note (shown in italics below) to the FIS report in section 3.2 immediately following the datum reference sentence:

All elevations are reference to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation Reference Marks used in this study are shown on the maps. *Descriptions of marks are shown directly on selected Flood Insurance Rate Map panels; the remaining descriptions are presented in Elevation Reference Marks (Exhibit 3).*

B.4.4 Cross Section Lines

Cross sections shall be shown on the FIRM for all watercourses for which floodways are determined. The cross section symbol is shown on Figure B.5.8. Cross sections for each stream shall be labeled alphabetically, beginning at the downstream limit of detailed study. Cross section locations and designations must correspond exactly with those shown on the Flood Profiles and on the Floodway Data tables presented in the FIS report. The distances between cross sections shown on the FIRM and between cross sections and physical features shown on the FIRM must agree with those shown on the profiles within a maximum tolerance of 10 percent of the distance measured on the FIRM.

B.5 Graphic Specifications for FIRMs and Map Indices

The Flood Insurance Rate Map is intended to be a user friendly document that clearly and accurately portrays flood hazard data as a thematic overlay on a standard base map. As discussed earlier in these Guidelines, the base map features may vary to accommodate differences in base map sources. The specifications shown in sections B.5.1 and B.5.2 are intended to be used as basic guidelines for lineweights and text fonts. As noted earlier, the flood hazard data as well as the information that appears in the Map Legend, Notes to Users, and Title Block must conform to strict graphic specifications.

The following sections (B.5.1 through B.5.11) contain specifications and samples referenced throughout this Appendix.

B.5.1 Type Font Specifications (pages B-17 through B-28)

B.5.2 Lineweight Specifications (pages B-29 through B-38)

B.5.3 Map Index Scale Layouts (pages B-39 through B-40)

B.5.4 Map Frame Specification (pages B-41 through B-43)

B.5.5 Sample FIRM Title Blocks and Legends (pages B-44 through B-63)

B.5.6 Letters of Map Revision Specifications (pages B-64 through B-67a)

B.5.7 Sample 8.5 x 11 FIRM Index (page B-68)

B.5.8 Sample Countywide Format FIRM (page B-68a [full size folded map])

B.5.9 Sample FIRM/FIS Combination (page B-68b [full size folded map])

B.5.10 Sample Countywide FIRM Index (page B-68c [full size folded map])

B.5.11 Sample Partial Map Initiatives FBFM Index (page B-68d [full size folded map])

B.5.1 - TYPE SPECIFICATIONS

MAPS: GENERAL

FEATURE	SPECIFICATIONS (LISTED IN ORDER OF PREFERENCE)	EXAMPLE
City, Suburb	11 Pt.-24 Pt. Press Roman Med.-CAPS 11 Pt.-24 Pt. Press Roman Bold-CAPS 11 Pt.-24 Pt. Century Medium-CAPS 11 Pt.-24 Pt. Century Bold-CAPS 11 Pt. - 24 - Pt. Times Roman - CAPS	GENOLA
Small Town	8 Pt.-10 Pt. Press Roman Med.-CLC 8 Pt.-10 Pt. Press Roman Bold-CLC 8 Pt.-10 Pt. Century Medium-CLC 8 Pt.-10 Pt. Century Bold-CLC 8 Pt. - 10 Pt. Times Roman - CLC	Thistle
Reservation Name of Area Not Included State & Federal Forest & Park	11 Pt.-24 Pt. Press Roman Med.-CLC or CAPS 11 Pt.-24 Pt. Press Roman Bold-CLC or CAPS 11 Pt.-24 Pt. Century Medium-CLC or CAPS 11 Pt.-24 Pt. Century Bold-CLC or CAPS 11 Pt. - 24 Pt. Times Roman - CAPS or CLC	US Military Reservation City of Lafayette ROOSEVELT STATE FOREST
Area Not Included (Note)	8 Pt.-11 Pt. Univers Medium-CAPS 8 Pt.-11 Pt. Univers Bold-CAPS	AREA NOT INCLUDED
Corporate Limits	10 Pt. Univers Medium-CAPS	CORPORATE LIMITS
Extraterritorial Jurisdictional Limits Urban Growth Boundary	10 Pt. Univers Medium-CAPS	EXTRATERRITORIAL JURISDICTIONAL LIMITS URBAN GROWTH BOUNDARY
International, State & County Boundaries	10 Pt. Univers Medium-CAPS	ADAMS COUNTY MINNESOTA
Range & Township Numbers	8 Pt.-10 Pt. Univers Medium-CAPS	R. 43 W. T. 43 N.
Railroad	8 Pt. Univers Medium Italic-CAPS	<i>CHESSIE SYSTEM</i>
Street, Road, Avenue, etc.	7 Pt.-8 Pt. Univers Medium-CAPS 7 Pt.-8 Pt. Univers Bold-CAPS 6 Pt. Classified News Med.-CAPS 6 Pt. Classified News Bold-CAPS	CAPITAL STREET
Interstate Highway (U.S.)	Standard Shields & Numbers	
National Highway (U.S.)	Standard Shields & Numbers	

MAPS: GENERAL (Continued)

FEATURE	SPECIFICATIONS (LISTED IN ORDER OF PREFERENCE)	EXAMPLE
Secondary Highway (State)	Standard Shields & Numbers	
County Highway	Standard Shields & Numbers	
Miscellaneous Highway Marker	Standard Shields & Letters	
Airport, Airfield, Cemetery	8 Pt.-10 Pt. Univers Medium-CAPS 8 Pt.-10 Pt. Univers Bold-CAPS	HAMILTON CEMETERY HAGERSTOWN AIRPORT
See Panel Note	24 Pt. Futura No. 52-CAPS 24 Pt. Univers Bold-CAPS	SEE PANEL 0085
Dam, Bridge	8 Pt. Univers Medium Italic-CLC	<i>Assabet River Dam Cornish Bridge Footbridge</i>
Major Building	8 Pt.-11 Pt. Univers Med. Ital-CLC or CAPS	<i>BENTON COLLEGE</i>
Joins Panel Note	6 Pt. Classified News Bold-CAPS	JOINS PANEL 0010
Joins Inset Note	6 Pt. Classified News Bold-CAPS	JOINS INSET A ON PANEL 0001
Inset Label	14, 18, 24 Pt. Alternate Gothic No. 71-CAPS	INSET B
Section Number	8, 10, 14, 18, 24 Pt. Classified News Med. 8, 10, 14, 18, 24 Pt. Classified News Bold	15 15 15 15 15
Map Locator Diagram	14 Pt. Cheltenham Bold Condensed No. 138-CAPS 14 Pt. Times Roman-CAPS	MAP LOCATOR DIAGRAM
Community Name (8½ x 11 Index, Title Block)	11 Pt. Times Roman - CAPS	HERNDON, VIRGINIA

HYDROGRAPHY AND LANDFORMS

FEATURE	SPECIFICATIONS (LISTED IN ORDER OF PREFERENCE)	EXAMPLE
Body of Open Water: Lake, Ocean, Bay, Reservoir	7 Pt.-36 Pt. Press Roman Med. Italics-CLC or CAPS 7 Pt.-36 Pt. Press Roman Bold Italics-CLC or CAPS 7 Pt. - 36 Pt. Centry Book Italic - CAPS	<i>UTAH LAKE</i>
Double Line Drainage: River, Race, Canal, Wash, Channel, Slough	7 Pt.-24 Pt. Press Roman Med. Italics-CLC or CAPS 7 Pt.-24 Pt. Press Roman Bold Italics-CLC or CAPS 7 Pt. 24 Pt. Centry Book Italic - CAPS	<i>PROVO RIVER</i>
Single Line Drainage: Stream, Race, Ditch, Canal, Aqueduct, Slough	7 Pt.-11 Pt. Press Roman Med. Italics-CLC or CAPS 7 Pt.-11 Pt. Press Roman Bold Italics-CLC or CAPS 6 Pt.-11 Pt. Century Med. Italics-CLC or CAPS 6 Pt.-11 Pt. Century Bold Italics-CLC or CAPS	<i>Eighteen Mile Creek</i>
Small Reservoir, Pond	7 Pt. Press Roman Med. Italics-CLC 7 Pt. Press Roman Bold Italics-CLC 6 Pt. Century Medium Italics-CLC 6 Pt. Century Bold Italics-CLC	<i>Union Mill Reservoir</i>
Gulch, Canyon, Draw	8 Pt.-10 Pt Press Roman Bold Italics-CLC (Drainage) 8 Pt.-10 Pt. Univers Medium-CLC (Landform) 8 Pt.-10 Pt. Univers Bold-CLC (Landform)	<i>Red Rock Canyon</i> <i>Lost Canyon</i>
Point, Cape, Neck	8 Pt.-24 Pt. Univers Medium-CLC or CAPS 8 Pt.-24 Pt. Univers Bold-CLC or CAPS	<i>Cape Cod</i>
Large Island	14 Pt.-24 Pt. Univers Medium-CAPS 14 Pt.-24 Pt. Univers Bold-CAPS	SHIP ISLAND
Small Island	8 Pt.-11 Pt. Univers Medium-CLC or CAPS 8 Pt.-11 Pt. Univers Bold-CLC or CAPS	<i>Green Island</i>
Unnamed Stream, Tributary, Tributary No. 1, 2, 3, etc...	7 Pt.-11 Pt. Press Roman Med. Italics-CLC or CAPS 7 Pt.-11 Pt. Press Roman Med. Italics-CLC or CAPS 6 Pt.-11 Pt. Century Med. Italics-CLC or CAPS 6 Pt.-11 Pt. Century Bold Italics-CLC or CAPS	<i>Unnamed Tributary</i>

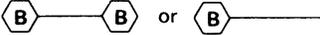
B.5.1 - TYPE SPECIFICATIONS

DESCRIPTIVE WITHOUT PROPER NAME

FEATURE	SPECIFICATIONS (LISTED IN ORDER OF PREFERENCE)	EXAMPLE
Levee, Wash, Canal, Dike, Glacier	8 Pt. Unvers Medium Italics-CLC	<i>Levee Canal</i>
Ditch, Aqueduct, Pond, Dam	8 Pt. Unvers Medium Italics-CLC	<i>Ditch Pond</i>
Dock, Pier, Flume, Weir	8 Pt. Unvers Medium Italics-CLC	<i>Flume Pier</i>
Cemetery, Park, Tunnel, Gravel Pit	8 Pt. Unvers Medium Italics-CLC	<i>Gravel Pit Cemetery</i>
Cranberry Bog, Swamp, Marsh	8 Pt. Unvers Medium Italics-CLC	<i>Swamp Cranberry Bog</i>
Retaining Wall, Diversion Structure	8 Pt. Unvers Medium Italics-CLC	<i>Diversion Structure</i>
Floodwall, Flood Control Structure	8 Pt. Unvers Medium Italics-CLC	<i>Flood Control Structure</i>
Abandoned Railroad, Airfield, Airport, Landing Strip	8 Pt. Unvers Medium Italics-CLC	<i>Abandoned Railroad</i>
Private Road, Unimproved Road, Unnamed Road	8 Pt. Unvers Medium Italics-CLC	<i>Unnamed Road</i>

B.5.1 - TYPE SPECIFICATIONS

OVERLAYS - MAP INITIATIVES FORMAT, FIRM AND FBFM

FEATURE	SPECIFICATIONS (LISTED IN ORDER OF PREFERENCE)	EXAMPLE
Zone Designation	11 Pt. Univers Bold-CAPS	ZONE A17, ZONE AE
Base Flood Elevation/or Depth beneath Zone Designation	8 Pt. Univers Medium-CAPS	ZONE AH, ZONE VE (EL 8) (EL 8)
Base Flood Elevation	10 Pt.-11 Pt. Univers Medium Italics	~~~~646~~~~ or 646~~~~
Elevation Reference Mark	10 Pt. Univers Medium-CAPS	RM9
Cross Section	10 Pt. Univers Bold-CAPS	
Special Notes:	8 Pt. Univers Bold-CAPS	100 YEAR FLOOD CONTAINED IN CHANNEL
State Encroachment Line	8 Pt. Univers Medium-CAPS	STATE ENCROACHMENT LINE
Limit of Study Limit of Detailed Study	8 Pt. Univers Medium-CAPS	LIMIT OF DETAILED STUDY
Match To Panel For SC FBFMs	10 Pt. Univers Bold-CLC	MATCH TO PANEL 35a
Profile Base Line	8 Pt. Univers Medium-CAPS	PROFILE BASE LINE
River Mile Label	10 Pt. Univers Medium - CAPS	●M63.6
Floodway Label	10 Pt. Univers Medium - CAPS	FLOODWAY

B.5.1 - TYPE SPECIFICATIONS

LEADER LINES

LEADER LINES ARE USED ONLY WHEN NECESSARY FOR CLARITY

TYPE OF LEADER	USE	APPLICATION
<p>ARROWHEAD </p> <p>Arrowhead should point to feature and should not be obscured. Leave a gap between arrowhead and feature approximately the shaft width of the leader.</p>	<p>For Point and Linear Feature Location</p>	<p>BASE FLOOD ELEVATIONS RM "X" COMMUNITY PANEL NUMBERS (INDEX) SPECIAL NOTES STREETS, DRAINAGE DAMS, CULVERTS, BUILDINGS ALL OTHER DESCRIPTIVE LABELS</p>
<p>DOT </p> <p>Place dot approximately in center of area being labelled unless this would require an excessively long leader. Dot should not be obscured by detail in the area.</p>	<p>For Area Location</p>	<p>ZONES AREAS NOT INCLUDED FLOODWAYS FORESTS, PARKS MILITARY RESERVATIONS INDIAN RESERVATIONS INDEX NOTES SECTION NOS.</p>

ELEVATION REFERENCE MARK DESCRIPTIONS

FEATURE	SPECIFICATIONS	EXAMPLE						
Elevation Reference Mark Title	<p>8 Pt. 11 Pt. Theme Bold-CAPS 8 Pt. 11 Pt. Univers Bold-CAPS</p>	ELEVATION REFERENCE MARKS						
Elevation Reference Mark Sub-Title	<p>8 Pt. 11 Pt. Theme Bold-CAPS 8 Pt. 11 Pt. Univers Bold-CAPS</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-right: 1px solid black;">REFERENCE MARK</td> <td style="text-align: center; border-right: 1px solid black;">ELEVATION (FT. NGVD)</td> <td style="text-align: center;">PANEL NUMBER</td> </tr> </table>	REFERENCE MARK	ELEVATION (FT. NGVD)	PANEL NUMBER			
REFERENCE MARK	ELEVATION (FT. NGVD)	PANEL NUMBER						
Elevation Reference Mark Descriptions	<p>8 Pt. Theme Medium-CLC 8 Pt. Theme Bold-CLC 8 Pt. Univers Medium-CLC 8 Pt. Univers Bold-CLC</p>	<p>Low steel elevation of Highway 69 bridge over.....</p>						
Elevation Reference Mark Number & Value	<p>8 Pt. Univers Bold-CAPS</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-right: 1px solid black;">RM1</td> <td style="text-align: center; border-right: 1px solid black;">803.13</td> <td style="text-align: center;">0001</td> </tr> <tr> <td style="text-align: center; border-right: 1px solid black;">RM2</td> <td style="text-align: center; border-right: 1px solid black;">776.90</td> <td style="text-align: center;">0004</td> </tr> </table>	RM1	803.13	0001	RM2	776.90	0004
RM1	803.13	0001						
RM2	776.90	0004						
Elevation Reference Mark Fourth Column Heading	<p>8 Pt. Theme Medium-CAPS 8 Pt. Theme Bold-CAPS 8 Pt. Univers Medium-CAPS 8 Pt. Univers Bold-CAPS</p>	<p style="text-align: center;">PANEL NUMBER 0035</p>						
Elevation Reference Mark Footnotes	<p>8 Pt. Theme Medium-CAPS 8 Pt. Theme Bold-CAPS 8 Pt. Univers Medium-CAPS 8 Pt. Univers Bold-CAPS</p>	<p style="text-align: center;">*LOCATED IN AREA NOT INCLUDED</p>						

MAP INDEX AND TITLE BLOCK (Continued)

FEATURE	SPECIFICATIONS (LISTED IN ORDER OF PREFERENCE)	EXAMPLE
Drainage (Small)	6 Pt.-7 Pt. Press Roman Bold Italics- CAPS or CLC 6 Pt. - 7 Pt. Century Book Italic - CAPS or CLC	LOCKRIDGE CREEK <i>Lewis Tributary</i>
Drainage (Large)	8 Pt.-18 Pt. Press Roman Bold Italics- CAPS or CLC 6 Pt. - 7 Pt. Century Book Italic - CAPS	ATLANTIC OCEAN <i>Clearwater Harbor</i>
Road	5 Pt.-6 Pt. Classified News Bold-CAPS	BELLE VIEW TERRACE
Areas Not Included, Forest, Park	6 Pt.-18 Pt. Press Roman Bold-CLC 6 Pt. - 18 Pt. Times Roman - CLC	Redwood National Forest
Area Not Included Label	5 Pt.-6 Pt. Classified News Bold-CAPS 5 PT. - 6 PT. Univers Bold - CAPS	AREA NOT INCLUDED
Corporate/Extraterritorial Jurisdictional Limits Urban Growth Boundary	8 Pt. Univers Medium-CAPS	CORPORATE LIMITS EXTRATERRITORIAL JURISDICTIONAL LIMITS URBAN GROWTH BOUNDARY
Railroad	8 Pt. Univers Medium Italic-CAPS	WESTERN PACIFIC
Flood Prone Areas	8 Pt. - 11 Pt. Univers Bold-CAPS	FLOOD PRONE AREAS; FOR ORIENTATION PURPOSES ONLY
Community-Panel Number (8½ × 11 Index)	11 Pt. Univers Bold-CAPS	360139 0001 - 0010
Effective Date (8½ × 11 Index)	11 Pt. Univers Bold-CAPS	MAY 10, 1983
Community Name (8½ × 11 Index)	11 Pt. Times Roman-CAPS	HERNDON, VIRGINIA
Panel Numbers (8½ × 11 Index)	8 Pt. Univers Medium - CAPS	0005
Index Inset Note (s) (8½ x 11 Index)	7 Pt. Univers Medium - CAPS	THIS AREA IS SHOWN AS INSET A ON PANEL 123456 0001

B.5.1 - TYPE SPECIFICATIONS

MAP INDEX AND TITLE BLOCK (8½ × 11)

FEATURE	SPECIFICATIONS	EXAMPLE
Classification of the Community	9 Pt. English Times Med.-CAPS 11 Pt. Press Roman Bold-CAPS 9 Pt. Times Roman - CAPS	TOWN OF - CITY OF
Community, State	12 Pt. English times Med.-CAPS 14 Pt. Press Roman Bold-CAPS 12 Pt. Times Roman - CAPS	MARANA, ARIZONA
County Name or Unincorporated areas	9 Pt. English Times Med.-CAPS 11 Pt. Press Roman Bold-CAPS 9 Pt. Times Roman - CAPS	SALT LAKE COUNTY
Title Block Community-Panel Number	12 Pt. Univers Bold Condensed	040049 0001 4350
Panel Number (Size May vary as Needed)	8 Pt. - 14 Pt. Univers Med Cond.-CAPS 8 Pt. - 14 Pt. Univers Bold Cond.-CAPS	0315 A 0315 A
List of Panels Printed	7 Pt. Univers Medium-CAPS 6 Pt. Classified News Bold-CAPS	PANELS PRINTED: 1 - 3
Panel Number (Note)	7 Pt. Univers Medium-CAPS	PANEL NUMBER 1" - 500" SCALE MAP PANEL
Footnote(s)	6 Pt. Classified News Bold-CAPS 6 Pt. Univers Medium-CAPS	*PANEL NOT PRINTED -
Effective Date	12 Pt. Univers Bold Condensed-CAPS	EFFECTIVE DATE
Index Inset Note(s)	6 Pt. Classified News Bold-CAPS 6 Pt. Univers Medium - CAPS	THIS AREA IS SHOWN AS INSET ON PANEL 123456 0001 A
Drainage	6 PT. - 8 Pt. Century Texbook Italic- CAPS or CLC 8 Pt. English Times Italics-CAPS or CLC 6 Pt. - 8 Pt. Press Roman Bold Italics- CAPS or CLC	<i>LOCKRIDGE CREEK</i> <i>Lewis Tributary</i>
Road	5 Pt. - 6 Pt. Classified News Bold - CAPS 5 Pt. - 6 Pt. Univers Bold-CAPS 6 Pt. Univers Medium - CAPS	BELLE VIEW TERRACE
Areas Not included, Forest, Park	8 Pt. English Times Med.-CLC 6 PT. - 8 Pt. Press Roman Bold-CLC 8 Pt. Times Roman - CAPS	Redwood National Forest
Area Not Included	5 Pt. - 6 Pt. Classified News Bold - CAPS 5 Pt. - 6 Pt. Univers Medium - CAPS	AREA NOT INCLUDED

B.5.1 - TYPE SPECIFICATIONS

MAP INDEX AND TITLE BLOCK (8½ × 11)(Continued)

FEATURE	SPECIFICATIONS	EXAMPLE
Corporate/Extraterritorial Jurisdictional Limits Urban Growth Boundary	7 Pt. Univers Medium - CAPS	Corporate Limits Extraterritorial Jurisdictional Limits Urban Growth Boundary
Effective/Revised Date Under Printed FBFM Panel Number	6 Pt. - 8 Pt. Classified News Bold 6 Pt. - 8 Pt. Univers Bold-CAPS	9/19/85
Railroad	6 Pt. Century Textbook Italic-CAPS 6 Pt. Univers Med. Italics-CAPS	WESTERN PACIFIC

B.5.1 - TYPE SPECIFICATIONS

TITLE BLOCK AND LEGEND OR KEY TO MAP

FEATURE	SPECIFICATIONS	EXAMPLE
Classification of the Community	14 Pt. Claren. Bold Cond.-No. 138-CAPS 14 Pt. Press Roman Bold - CAPS	TOWN OF CITY OF VILLAGE OF
Study Name	18 Pt. Claren. Bold. Cond. No. 138-CAPS 18 Pt. Press Roman Bold - CAPS	OTIS, COLORADO
County Name or Unincorporated Areas	14 Pt. Claren. Bold Cond. No. 138 - CAPS 14 Pt. Press Roman Bold - CAPS	WASHINGTON COUNTY (UNINCORPORATED AREAS)
Community-Panel Number or Map Number (Countywide)	14 Pt. Alternate Gothic No. 71 - CAPS 14 Pt. Univers Bold Cond. - CAPS	415591 0390 C
Multi-Panel: Single Panel: Panel 1 of 15 Only Panel Printed	14 Pt. Alternate Gothic No. 71 - CAPS 14 Pt. Univers Bold Cond. - CAPS	PANEL 1 OF 15 * ONLY PANEL PRINTED
Date, Effective	14 Pt. Alternate Gothic No. 71-CAPS 14 Pt. Univers Medium Cond.-CAPS 14 Pt. Univers Bold Cond.-CAPS	SEPTEMBER 27, 1985
Bar Scale Numbers	7 Pt. Univers Medium - CAPS	APPROXIMATE SCALE IN FEET 1000 0 1000
Date, Initial Identification	7 Pt. Univers Medium - CAPS	FEBRUARY 5, 1977
FHBM Revision Date FIRM Revision Date FIRM Effective Date	7 Pt. Univers Medium - CAPS	DECEMBER 15, 1977
Revision Note and Date	7 Pt.-8 Pt. Theme Medium-CLC 7 Pt.-8 Pt. Univers Medium-CLC 6 Pt. Classified News Med.-CLC 8 Pt. Oracle Medium - CLC	Map revised April 23, 1976 to reflect...
(See Map Index for Panels Not Printed)	7 Pt. Univers Medium - CAPS	(SEE MAP INDEX FOR PANELS NOT PRINTED)
Initial Identification Date Heading FHBM Date Etc.	8 Pt. Theme Medium - CAPS 8 Pt. Univers Bold - CAPS	INITIAL IDENTIFICATION DATE

*FOR USE WITH MAP LOCATOR DIAGRAM
PANEL 1 OF 4
(ONLY PANEL PRINTED)

B.5.1 - TYPE SPECIFICATIONS

TITLE BLOCK AND LEGEND OR KEY TO MAP (Continued)

FEATURE	SPECIFICATIONS	EXAMPLE
Effective Date: Map Revised:	14 Pt. Alternate Gothic No. 71-CAPS 14 Pt. Univers Bold Cond. - CAPS	EFFECTIVE DATE: MAP REVISED:
Panel Location (For Multi-Panel Only)	6 Pt. Classified News Bold - CAPS	PANEL LOCATION
Notes	8 Pt. Theme Medium - CLC	This map is for use in administering.....

BASE MAP: ROADS

	1" = 700' AND LARGER	1" = 800' TO 1" = 1500'	1" = 1600' AND SMALLER
3 LANES OR LESS	<p>LINE WIDTH → .006" - .088" - .006" SPACE WIDTH LINE WIDTH LINE WIDTH → .020</p>	<p>.004" - .028" - .004"</p>	<p>.004" - .014" - .004"</p>
4 LANES OR MORE, AND CONTROLLED ACCESS WITHOUT MEDIAN	<p>.006" - .088" - .006" - .088" - .006" .030</p>	<p>.004" - .028" - .004" - .028" - .004" .028" - .004"</p>	<p>.004" - .014" - .004" - .014" - .004" .014" - .004"</p>
CONTROLLED ACCESS HIGHWAY	<p>.006" - .088" - .006" - .022" - .006" - .088" - .006" .020 .070 .020</p>	<p>.004" - .028" - .004" - .028" - .004" .004" - .028" - .004"</p>	<p>.004" - .014" - .004" - .014" - .004" .004" - .014" - .004"</p>
ROAD BRIDGE (LINEWEIGHT .008" PLUS CASING, WING-TICK LENGTH .025", ANGLE 45°)			
FOOTBRIDGE (LINEWEIGHT .006")			
ROAD TUNNEL* (WIDTH AND LINEWEIGHT TO ROAD SPECIFICATIONS, CROSS-MEMBER AND WING TICKS .008" LENGTH .025", ANGLE 45°)			
HIGHWAY UNDERPASS/OVERPASS		<p>SPACE .020"</p>	
UNIMPROVED ROAD			

B.5.2 – LINEWEIGHT SPECIFICATIONS

BASE MAP: RAILROADS

SINGLE LINE MAIN TRACK
 SPACING .3"-5", TIE LENGTH .06"



WT. .006"

MULTI-LINE TRACK



WT. .006"

JUXTAPOSITION TRACKS



WT. .006"

RAILROAD YARD
 REPRESENTATIVE PATTERN



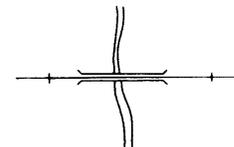
WT. .006"

RAILROAD IN ROAD
 (LENGTH TO ROAD CASING)



WT. .006"

RAILROAD BRIDGE
 (.010" CLEARANCE FROM TRACK,
 WING-TICK LENGTH .025", ANGLE 45°)



WT. .008"

RAILROAD TUNNEL
 (WIDTH AND LINEWEIGHT TO
 ROAD SPECIFICATIONS,
 CROSS-MEMBER AND WING-TICKS .004",
 LENGTH .025", ANGLE 45°)



ABANDONED RAILROAD
 SPACING .3", TIE LENGTH .06"



WT. .006"

**DISMANTLED RAILROAD/
 OLD RAILROAD GRADE**



WT. .006"

B.5.2 – LINEWEIGHT SPECIFICATIONS

BASE MAP: HYDROGRAPHY

SINGLE LINE STREAM, DITCH, CANAL



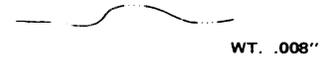
DOUBLE LINE STREAM, DITCH, CANAL



SHORELINE, LAKE, POND



INTERMITTENT STREAM



INTERMITTENT TRIBUTARY
(1" OR LESS IN LENGTH)



WASH, GLACIER



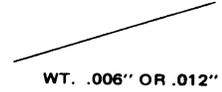
FLUME, PENSTOCK, AQUEDUCT, CULVERT
(WING-TICK LENGTH .025", ANGLE 45°)



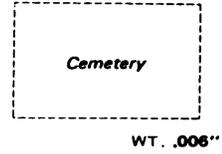
B.5.2 – LINEWEIGHT SPECIFICATIONS

BASE MAP: MISCELLANEOUS CULTURE

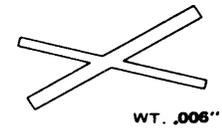
NEATLINE



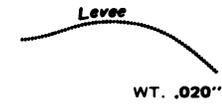
SIGNIFICANT OUTLINED LANDMARKS
(PARK, CEMETERY)



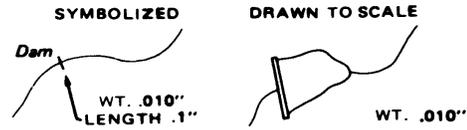
AIRPORT



LEVEE



DAM



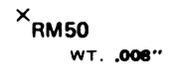
PIER, DOCK, JETTY



SEA WALL



ELEVATION REFERENCE MARK
LENGTH .08"



RIVER MILE
(DOT .03")



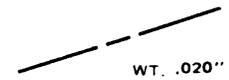
B.5.2 – LINEWEIGHT SPECIFICATIONS

**BASE MAP: JURISDICTION BOUNDARIES AND
MISCELLANEOUS FEATURES**

INTERNATIONAL, STATE OR COUNTY



CORPORATE OR EXTRATERRITORIAL



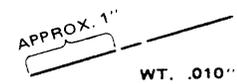
AREA NOT INCLUDED



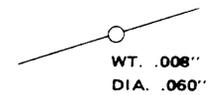
RANGE AND TOWNSHIP LINES



PROFILE BASE LINE



STATE ENCROACHMENT LINE

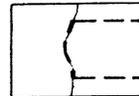


BASE MAP: BOUNDARY ILLUSTRATIONS

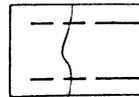
<u>CONDITIONS</u>	<u>CORPORATE LIMITS</u>	<u>AREA NOT INCLUDED</u>
BOUNDARY CENTERED ON DOUBLE LINE DRAINAGE		
BOUNDARY IN COINCIDENCE WITH SINGLE LINE DRAINAGE (SCRIBE DIRECTLY OVER DRAINAGE)		
BOUNDARY IN CENTER OF ROAD (ONE HALF NORMAL CASING IS SHOWN)		
BOUNDARY ON SIDE OF ROAD (CASINGS NORMAL WIDTH IS SHOWN)		
BOUNDARY CHANGE		
BOUNDARY IN COINCIDENCE WITH SHORELINE	<i>SEE CORPORATE LIMITS RELATIVE TO SHORELINES</i>	

CORPORATE LIMITS RELATIVE TO SHORELINES

COINCIDENT WITH SHORELINE



EXTENDED PAST SHORELINE (INDEFINITE)

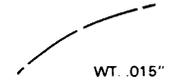


FLOOD BOUNDARIES

100-YEAR AND 500-YEAR
FLOODPLAIN BOUNDARIES



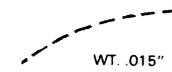
ZONE D BOUNDARIES



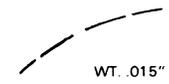
BOUNDARY DIVIDING SPECIAL FLOOD HAZARD
ZONES, AND BOUNDARY DIVIDING AREAS OF
DIFFERENT COASTAL BASE FLOOD ELEVATIONS
WITHIN SPECIAL FLOOD HAZARD ZONES. (GUTTER)



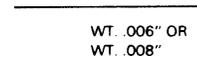
APPROXIMATE 100 YEAR
FLOODPLAIN BOUNDARIES



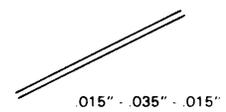
FLOODWAY BOUNDARIES



LIMIT OF STUDY OR LIMIT OF DETAILED STUDY LINE



SCHEMATIC PRESENTATION OF FLOODPLAIN BOUNDARY
(MINIMUM STANDARDS TOO NARROW TO SHOW TO
SCALE)



FLOOD AREA SCREEN TINTS

AREAS OF 100-YEAR FLOOD (ZONE A, ZONE A#, ZONE AE, ZONE AH, ZONE AO, ZONE A99, ZONE V#, ZONE VE, AND FLOODWAY FRINGE)

ZONE A



50% BIANGLE OR
50% 133 LINE SCREEN TINT

AREAS OF 500-YEAR FLOOD

ZONE B



20% BIANGLE OR
20% 133 LINE SCREEN TINT

AREAS OF 500-YEAR FLOOD

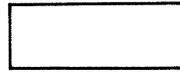
ZONE X



20% BIANGLE OR
20% 133 LINE SCREEN TINT

AREAS OF ZONE C, ZONE D OR ZONE X

ZONE C



NO SCREEN TINT

AREAS OF FLOODWAY

FLOODWAY



NO SCREEN TINT

AREAS OF FLOODWAY

FLOODWAY

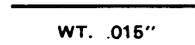


SURPRINT 100-YEAR FLOOD TINT WITH
10 LINES PER SQUARE INCH LINE PATTERN
SCREENED WITH 50% BIANGLE SCREEN TINT
LINE WEIGHT OF LINE PATTERN .010" - .015"
LINES ALWAYS ORIENTED IN DIRECTION
SHOWN

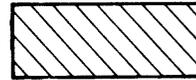
B.5.2 – LINEWEIGHT SPECIFICATIONS

UNDEVELOPED COASTAL BARRIERS (FIRM ONLY)

UNDEVELOPED COASTAL BARRIER BOUNDARIES



1982 UNDEVELOPED COASTAL BARRIER SCREEN TINT



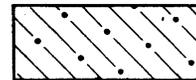
.006" PARALLEL LINES SET AT 45 DEGREES, .1" APART (OR 8 LINES PER INCH). SCREEN DIRECTION FROM UPPER LEFT TO LOWER RIGHT.

1990 UNDEVELOPED COASTAL BARRIER SCREEN TINT



.006" PARALLEL DASHED LINES SET AT 45 DEGREES, .1" APART (OR 8 LINES PER INCH). DASH LENGTH .16", SPACE LENGTH .08". SCREEN DIRECTION FROM UPPER LEFT TO LOWER RIGHT.

1991 OTHERWISE PROTECTED AREA SCREEN TINT



.006" PARALLEL DASHED/DOTTED LINES SET AT 45 DEGREES, .1" APART (OR 8 LINES PER INCH). DASH LENGTH .34", SPACE LENGTH .02". DOT DIAMETER .35" CENTERED TO THE LINE BUT NOT TOUCHING IT. DIRECTION FROM UPPER LEFT TO LOWER RIGHT.

FIRM AND FBFM MAP INDEX

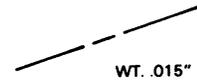
SHEETLINES
(SINGLE SCALE STUDIES)
(MULTI SCALE STUDIES, SMALL SCALE)



SHEETLINES
(MULTI SCALE STUDIES, LARGE SCALE)



CORPORATE LIMITS



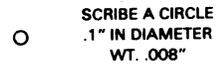
RAILROAD
(SPACING .30\", TIE LENGTH .06\")



AREA NOT INCLUDED
(AREAS LARGER THAN .50\" x .50\")



AREA NOT INCLUDED: SMALL COMMUNITIES ONLY
(AREAS LARGER THAN .25\" & SMALLER
THAN .50\" IN DIAMETER)



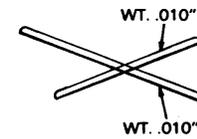
ROAD



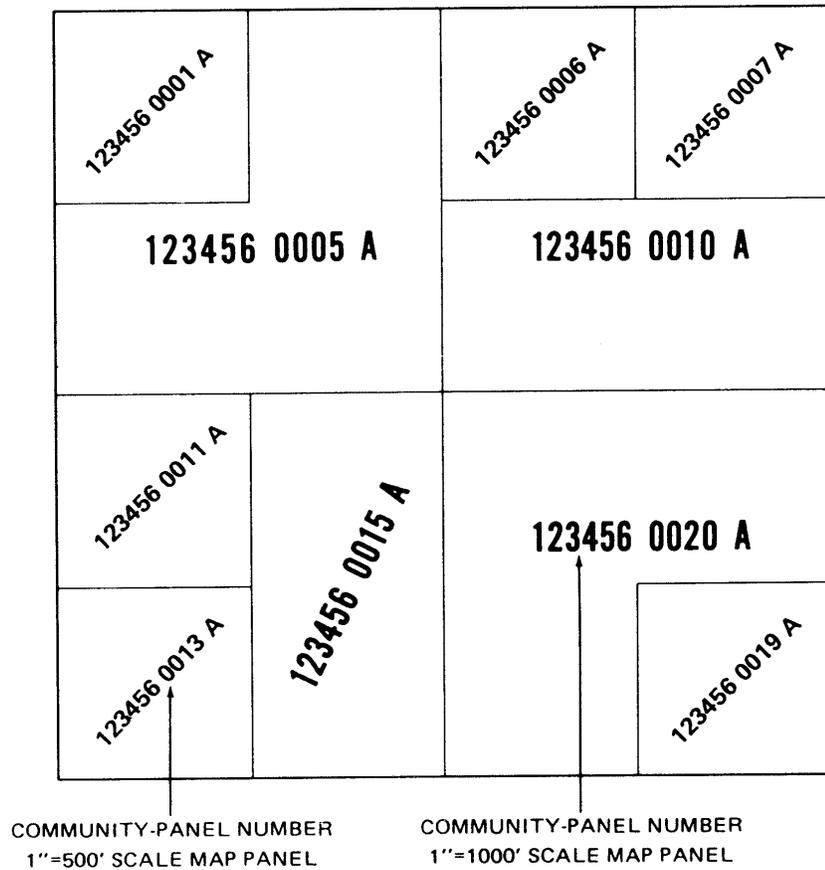
DRAINAGE



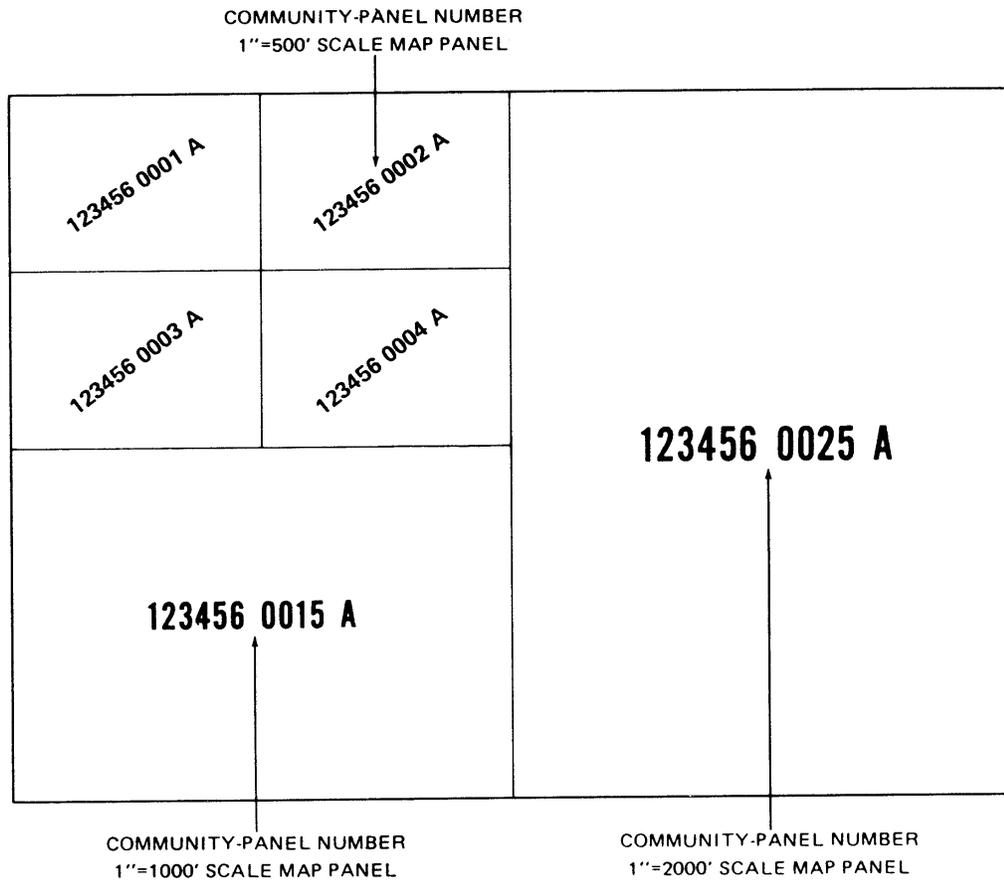
PROMINENT AIRFIELD



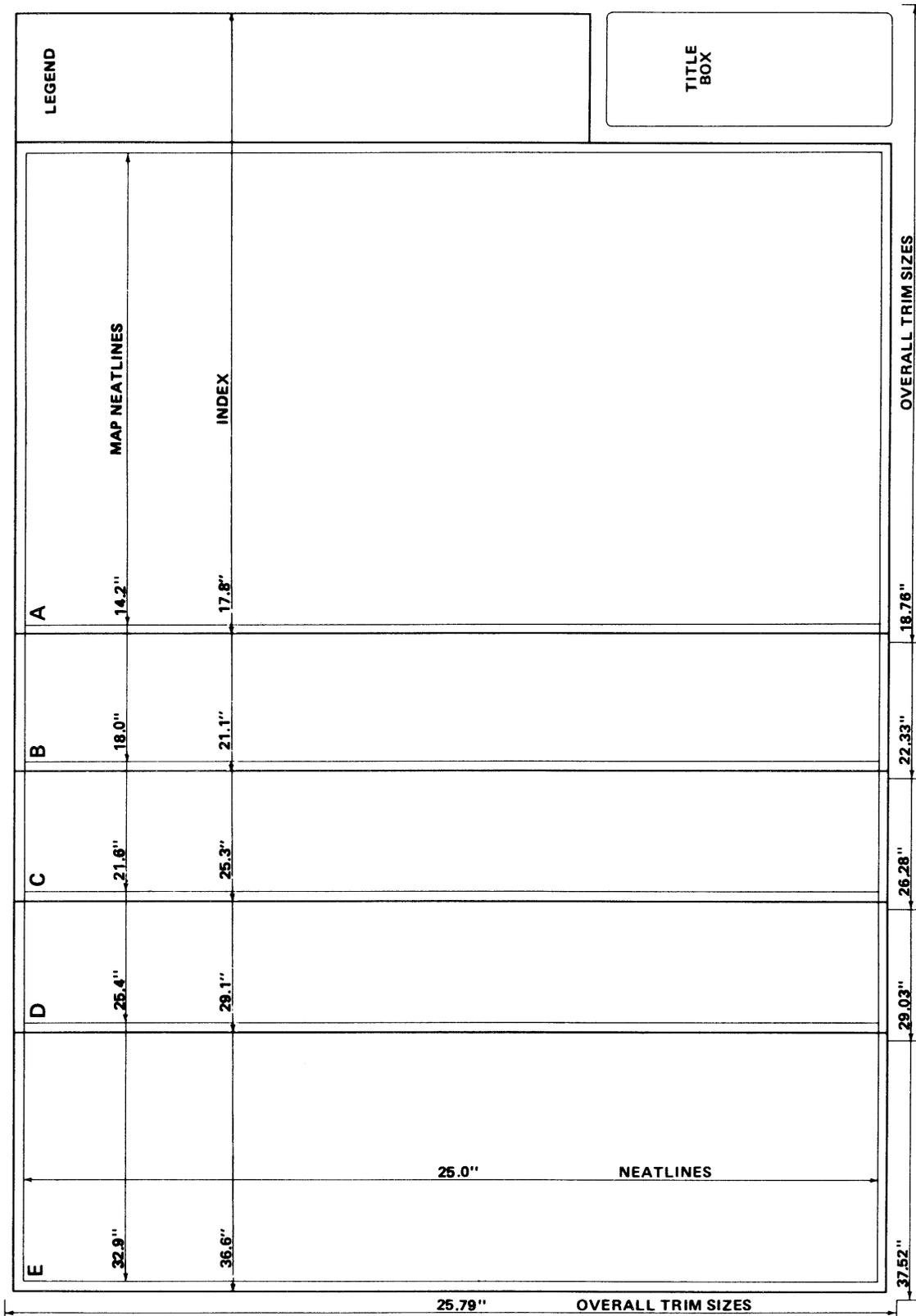
MAP INDEX: TWO-SCALE LAYOUT



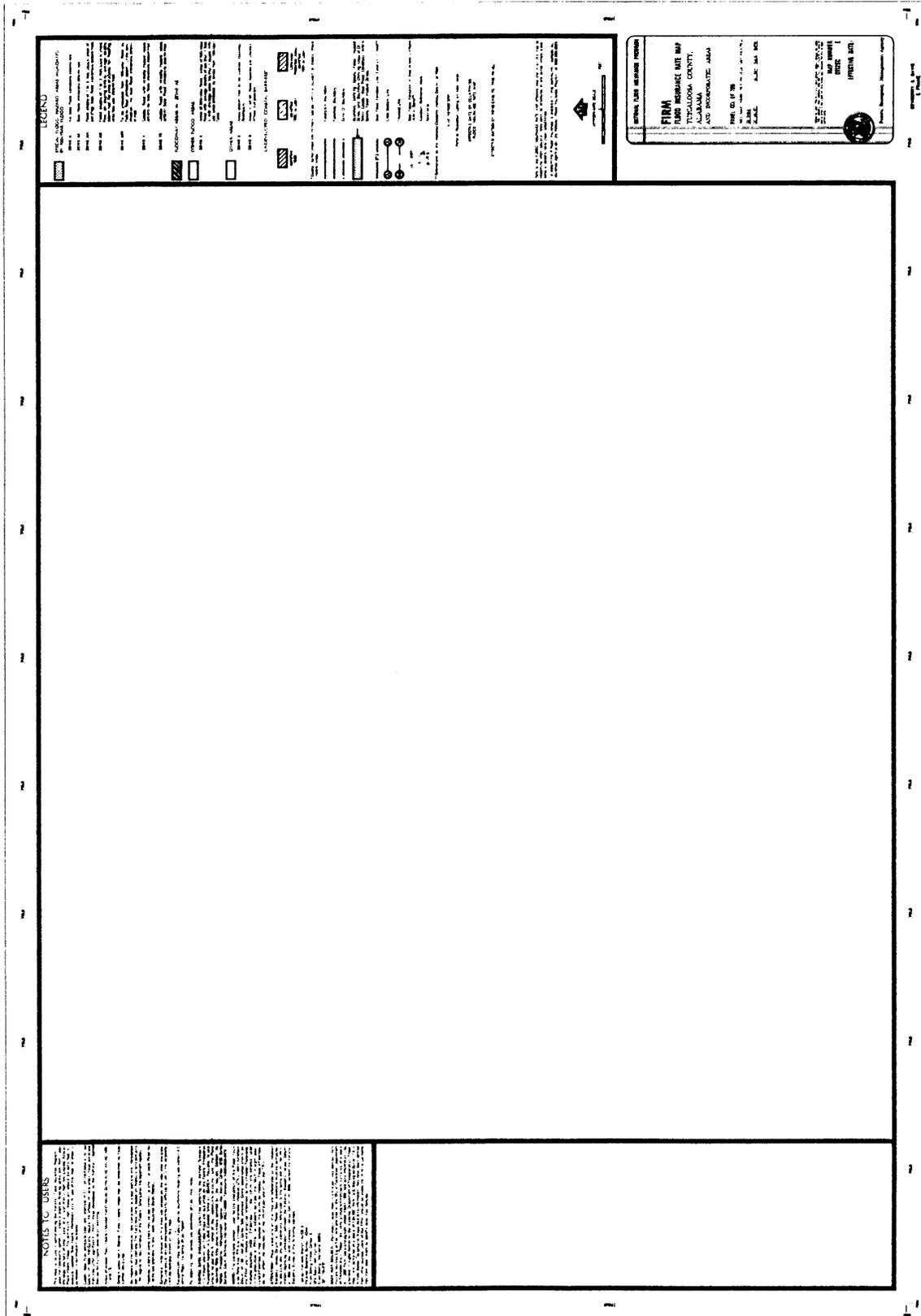
MAP INDEX: THREE-SCALE LAYOUT



MAP FRAME SPECIFICATIONS



DOUBLE BORDER OUTLINE



**B.5.5
MAP INDEX TITLE BLOCK (COUNTYWIDE FORMAT)**

	NATIONAL FLOOD INSURANCE PROGRAM
	FIRM FLOOD INSURANCE RATE MAP
	HINSDALE COUNTY, COLORADO AND INCORPORATED AREAS
	MAP INDEX
	PANELS PRINTED: 50, 75, 100, 101, 103, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350
	MAP NUMBER 08053C0000
	EFFECTIVE DATE: SEPTEMBER 30, 1987
	 Federal Emergency Management Agency

**B.5.5
MAP INDEX TITLE BLOCK
(MAP INITIATIVE/ STANDARD FORMAT)
SINGLE JURISDICTION**

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM
FLOOD INSURANCE RATE MAP**

**VENTURA COUNTY,
CALIFORNIA
(UNINCORPORATED AREAS)**

MAP INDEX

PANELS PRINTED: 150, 300, 525, 535, 540,
545, 555, 560, 565, 570, 590, 595, 610, 615,
620, 640, 645, 650, 655, 665, 685, 705, 710,
715, 720, 740, 745, 750, 755, 760, 765, 770,
780, 785, 790, 795, 815, 825, 850, 880, 885,
890, 895, 905, 910, 915, 920, 930, 935, 940,
945, 975, 980, 985, 1000, 1080, 1085, 1115,
1125

**COMMUNITY-PANEL NUMBERS
060413 0001 - 1250**

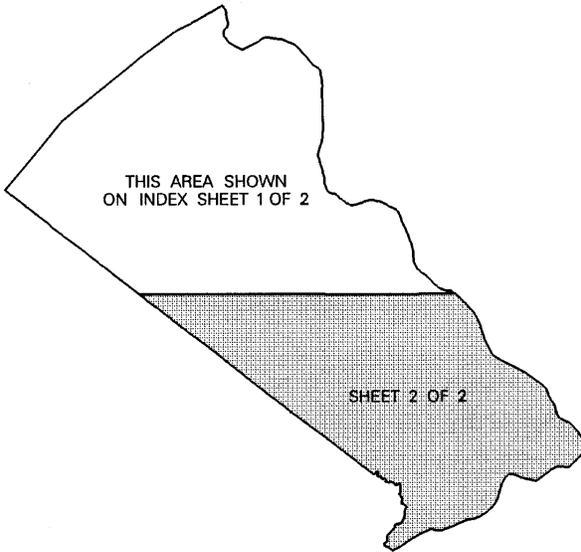
**MAP REVISED:
APRIL 17, 1985**



Federal Emergency Management Agency

**B.5.5
MULTI - INDEX COUNTYWIDE TITLE BLOCK
WITH INDEX LOCATOR DIAGRAM**

See Sheet 1 of 2 for
LISTING OF COMMUNITIES



**BUCKS COUNTY, PENNSYLVANIA
INDEX LOCATOR DIAGRAM**

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
BUCKS COUNTY,
PENNSYLVANIA
ALL JURISDICTIONS

MAP INDEX

SHEET 2 OF 2

PANELS PRINTED: 266, 267, 286, 287,
288, 289, 291, 292, 293, 294, 311, 312,
313, 314, 316, 317, 318, 319, 338, 339,
340, 343, 344, 345, 361, 363, 364, 381,
382, 384, 401, 402, 403, 404, 406, 407,
408, 409, 411, 412, 416, 417, 420, 426,
427, 428, 429, 431, 432, 433, 434, 436,
437, 438, 439, 441, 442, 443, 444, 451,
452, 453, 454, 456, 457, 458, 459, 461,
462, 463, 464, 466, 467, 468, 469, 486,
488, 501, 502, 503, 504, 506, 507, 508,
509, 511, 512, 526, 527, 528, 531, 532

(SEE SHEET 1 FOR ADDITIONAL PANELS PRINTED)

**MAP NUMBER
42017CNDX2**

**EFFECTIVE DATE:
MAY 18, 1999**



Federal Emergency Management Agency

FOLD

FOLD

FOLD

DEWBERRY & DAVIS
E FRAME

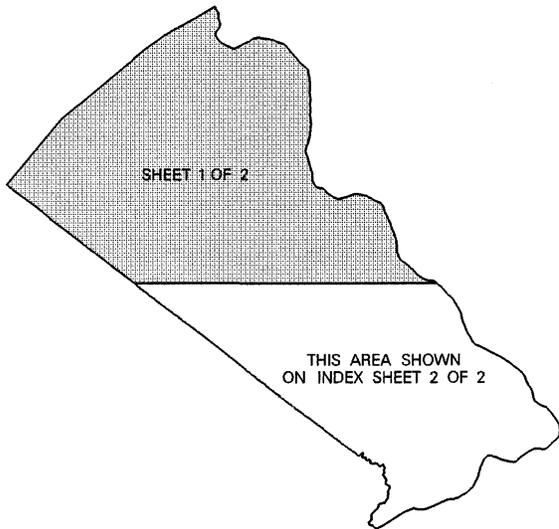
TRIM

**B.5.5
MULTI - INDEX COUNTYWIDE TITLE BLOCK
WITH INDEX LOCATOR DIAGRAM**

See Sheet 2 of 2 for
MAP REPOSITORY LISTING



| FOLD



**BUCKS COUNTY, PENNSYLVANIA
INDEX LOCATOR DIAGRAM**

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
BUCKS COUNTY,
PENNSYLVANIA
ALL JURISDICTIONS

MAP INDEX

SHEET 1 OF 2

PANELS PRINTED: 19, 35, 38, 39, 40,
43, 45, 52, 54, 55, 58, 59, 61, 62, 63, 64,
66, 67, 68, 69, 78, 86, 87, 88, 89, 104,
106, 107, 108, 109, 112, 116, 117, 118, 119,
126, 127, 128, 129, 131, 132, 133, 134, 136,
137, 138, 139, 141, 142, 143, 144, 151, 152,
153, 154, 156, 157, 158, 159, 161, 162, 163,
164, 166, 167, 168, 169, 180, 186, 190, 195,
215, 232, 251, 252, 253, 254, 256, 257,
258, 276, 277, 278, 279, 281, 282, 283,
284, 301, 303, 305, 310, 327, 330, 335

(SEE SHEET 2 FOR ADDITIONAL PANELS PRINTED)

MAP NUMBER
42017CNDX1

EFFECTIVE DATE:
MAY 18, 1999



Federal Emergency Management Agency

| FOLD

| FOLD

DEWBERRY & DAVIS
E FRAME

TRIM
| TRIM

**B.5.5
FIRM MAP INDEX TITLE BLOCK (STANDARD FORMAT)**



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM
FLOOD INSURANCE RATE MAP**

TOWN OF
PARADISE
VALLEY,
ARIZONA
MARICOPA COUNTY

MAP INDEX

PANELS PRINTED: 1670, 1680,
1690, 1695

**COMMUNITY-PANEL NUMBER
040049 0001 - 4350**

**MAP REVISED:
JUNE 19, 1985**



Federal Emergency Management Agency

B.5.5
FBFM MAP INDEX TITLE BLOCK (STANDARD FORMAT)



NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

TOWN OF
PARADISE
VALLEY,
ARIZONA
MARICOPA COUNTY

MAP INDEX
PANELS PRINTED: 1670, 1680,
1690, 1695

COMMUNITY-PANEL NUMBER
040049 0001 - 4350

MAP REVISED:
JUNE 19, 1985



Federal Emergency Management Agency

**B.5.5
TITLE BLOCK- COUNTYWIDE (MAP INITIATIVE)**

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM
FLOOD INSURANCE RATE MAP
VOLUSIA COUNTY,
FLORIDA
AND INCORPORATED AREAS**

PANEL 218 OF 930

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

<u>COMMUNITY</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFFIX</u>
DAYTONA BEACH, CITY OF	125099	0218	G
HOLLY HILL, CITY OF	125112	0218	G
ORMOND BEACH, CITY OF	125136	0218	G
VOLUSIA COUNTY	125155	0218	G

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

**MAP NUMBER
12127C0218 G**

EFFECTIVE DATE:



Federal Emergency Management Agency

B.5.5
FIRM TITLE BLOCK- SINGLE JURISDICTION
(STANDARD FORMAT)

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF
MANOR,
PENNSYLVANIA
LANCASTER COUNTY

PANEL 4 OF 13

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY - PANEL NUMBER
420557 0004 C

MAP REVISED:



Federal Emergency Management Agency

B.5.5
TITLE BLOCK- FBFM (STANDARD FORMAT)

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

VENTURA COUNTY,
CALIFORNIA
(UNINCORPORATED AREAS)

PANEL 535 OF 1250
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
060413 0535

MAP REVISED:
APRIL 17, 1985



Federal Emergency Management Agency

B.5.5
TITLE BLOCK- ONLY PANEL PRINTED (MAP INITIATIVE)

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

VILLAGE OF
BARNEVELD,
NEW YORK
ONEIDA COUNTY

ONLY PANEL PRINTED

COMMUNITY - PANEL NUMBER
361569 0001 C

EFFECTIVE DATE:



Federal Emergency Management Agency

**B.5.5
TITLE BLOCK WITH MAP LOCATOR DIAGRAM
ONLY PANEL PRINTED (MAP INITIATIVE)**

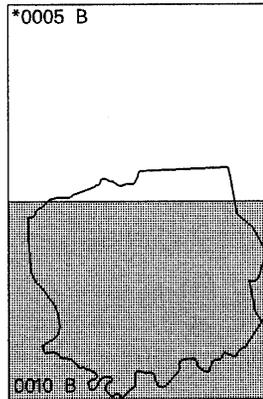
NATIONAL FLOOD INSURANCE PROGRAM

**FIRM
FLOOD INSURANCE RATE MAP**

TOWNSHIP OF
NICHOLSON,
PENNSYLVANIA
FAYETTE COUNTY

ONLY PANEL PRINTED

MAP LOCATOR DIAGRAM



*PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

**COMMUNITY - PANEL NUMBER
422420 0010 B**

MAP REVISED:



Federal Emergency Management Agency

**B.5.5
FBFM TITLE BLOCK- ONLY PANEL PRINTED
(STANDARD FORMAT)**

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

CITY OF
VENETA, OREGON
LANE COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
410128 0001

MAP REVISED:



Federal Emergency Management Agency

B.5.5
FIRM TITLE BLOCK- ONLY PANEL PRINTED
(STANDARD FORMAT)

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
TOMBSTONE,
ARIZONA
COCHISE COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
040106 0001 B
MAP REVISED:



Federal Emergency Management Agency

B.5.5
NOTES TO USERS- COUNTYWIDE DOUBLE BORDER

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD), and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Corporate limits shown on this map are based on the best data available. The user should contact appropriate community officials to verify the corporate limit delineations shown on this map.

For community map revision history prior to countywide mapping, see section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

DIGITAL DATA AVAILABILITY: Digital files containing the thematic floodplain information shown on these maps are published by the Federal Emergency Management Agency in DLG-3 Optional format on CD-ROM. Requests for data should include the full name of the community or county and the Flood Insurance Rate Map panel numbers covered by the request. Contact the Federal Emergency Management Agency, Map Service Center, 6730 Santa Barbara Court, Baltimore, Maryland 21227-5832. Telephone 1-800-358-9616.

NOTE: The coordinate system used for the production of this Flood Insurance Rate Map (FIRM) is Universal Transverse Mercator (UTM), North American Datum of 1927 (NAD27), Clarke 1866 spheroid. Corner coordinates shown on the FIRM are in latitude and longitude referenced to the Universal Transverse Mercator projection, NAD27. Differences in the datum and spheroid used in the production of FIRMs for adjacent counties may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

ATTENTION: Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

BASE MAP SOURCE: Base Map information provided by City of Huntsville, Alabama, Planning Department. These files were photogrammetrically compiled from aerial photography dated 1991, at scales of 1"=200' or 1"=400'. Base Map information shown within the boundaries of the Redstone Arsenal was derived from USGS 7.5-minute quadrangle maps.

B.5.5

NOTES TO USERS- SINGLE JURISDICTION DOUBLE BORDER

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD), and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

NOTE: The coordinate system used for the production of this Flood Insurance Rate Map (FIRM) is Universal Transverse Mercator (UTM), North American Datum of 1927 (NAD27), Clarke 1866 spheroid. Corner coordinates shown on the FIRM are in latitude and longitude referenced to the UTM projection, NAD27. Differences in the datum and spheroid used in the production of FIRMs for adjacent communities may result in slight positional differences in map features at the community boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

ATTENTION: Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

BASE MAP SOURCE: Planimetric base map information was derived from U.S. Geological Survey 1:100,000 scale Digital Line Graphs. Additional information may have been derived from other sources. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

LEGEND



SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.



FLOODWAY AREAS IN ZONE AE



OTHER FLOOD AREAS

- ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.



OTHER AREAS

- ZONE X** Areas determined to be outside 500-year floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

UNDEVELOPED COASTAL BARRIERS*



Identified
1983



Identified
1990 or Later



Otherwise
Protected Areas
Identified
1991 or Later

* Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- Base Flood Elevation Line; Elevation In Feet**
- Cross Section Line
- Transect Line
- Base Flood Elevation In Feet Where Uniform Within Zone**
- Elevation Reference Mark
- River Mile

**Referenced to the National Geodetic Vertical Datum of 1929

MAP REPOSITORY

Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.



APPROXIMATE SCALE

500 0 500 FEET

B.5.5 LEGEND- COUNTYWIDE MAP INITIATIVE DOUBLE BORDER

LEGEND

-  SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

 FLOODWAY AREAS IN ZONE AE

-  OTHER FLOOD AREAS
- ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

-  OTHER AREAS
- ZONE X** Areas determined to be outside 500-year floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

UNDEVELOPED COASTAL BARRIERS*

-  Identified 1983
-  Identified 1990 or Later
-  Otherwise Protected Areas Identified 1991 or Later

*Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

-  Floodplain Boundary
-  Floodway Boundary
-  Zone D Boundary
-  Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
-  Base Flood Elevation Line; Elevation in Feet**
-  Cross Section Line
-  Transect Line
- (EL. 987)  Base Flood Elevation in Feet Where Uniform Within Zone**
- RM7  Elevation Reference Mark
- M1.5  River Mile

**Referenced to the North American Vertical Datum of 1988

MAP REPOSITORY

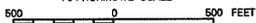
INITIAL IDENTIFICATION:

- FLOOD HAZARD BOUNDARY MAP REVISIONS:
- FLOOD INSURANCE RATE MAP EFFECTIVE:
- FLOOD INSURANCE RATE MAP REVISIONS:

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.



APPROXIMATE SCALE



B.5.5 LEGEND SINGLE JURISDICTION MAP INITIATIVE DOUBLE BORDER

B.5.5 LEGEND/ NOTES TO USER- SINGLE JURISDICTION SINGLE BORDER

LEGEND

 SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

 FLOODWAY AREAS IN ZONE AE

 OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

 OTHER AREAS

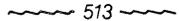
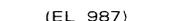
ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

UNDEVELOPED COASTAL BARRIERS*

		
Identified 1983	Identified 1990 or Later	Otherwise Protected Areas Identified 1991 or Later

* Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain Boundary
	Floodway Boundary
	Zone D Boundary
	Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
	Base Flood Elevation Line Elevation in Feet**
	Cross Section Line
	Transect Line
	Base Flood Elevation in Feet Where Uniform Within Zone**
	Elevation Reference Mark
	River Mile

(EL 987)

RM7 x

● M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding particularly from local drainage sources of small size or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD) and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

NOTE: The coordinate system used for the production of this Flood Insurance Rate Map (FIRM) is Universal Transverse Mercator (UTM), North American Datum of 1927 (NAD27), Clarke 1866 spheroid. Differences in the datum and spheroid used in the production of FIRMs for adjacent communities may result in slight positional differences in map features at the community boundaries. These differences do not affect the accuracy of the information shown on the FIRM.

ATTENTION: Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

BASE MAP SOURCE: Planimetric base map files were provided in digital format by the New Jersey Department of Transportation and the New Jersey Department of Environmental Protection. These files were compiled from U.S. Geological Survey 7.5-Minute Series Topographic Maps. Additional information may have been derived from other sources. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

MAP REPOSITORY

INITIAL IDENTIFICATION:

FLOOD HAZARD BOUNDARY MAP REVISIONS:

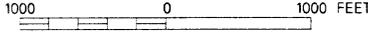
FLOOD INSURANCE RATE MAP EFFECTIVE:

FLOOD INSURANCE RATE MAP REVISIONS:

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

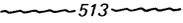


APPROXIMATE SCALE



**B.5.5
LEGEND/ NOTES TO USERS- FIRM (STANDARD FORMAT)**

KEY TO MAP

500-Year Flood Boundary	
100-Year Flood Boundary	
Zone Designations	
100-Year Flood Boundary	
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation in Feet**	
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7 _x
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the Special Flood Hazard Areas (zones A and V) may be protected by flood control structures.

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Coastal base flood elevations apply only landward of 0.0 NGVD.

For adjoining map panels see separately printed Map Index.

B.5.5 LEGEND/ NOTES TO USERS- FBFM (STANDARD FORMAT)

KEY TO MAP

500-Year Flood Boundary	
100-Year Flood Boundary	
FLOODWAY FRINGE	FLOODWAY
100-Year Flood Boundary	
500-Year Flood Boundary	
Approximate 100-Year Flood Boundary	
Cross Section Line	
Elevation Reference Mark	RM7 ×
River Mile	●M1.5

NOTES TO USER

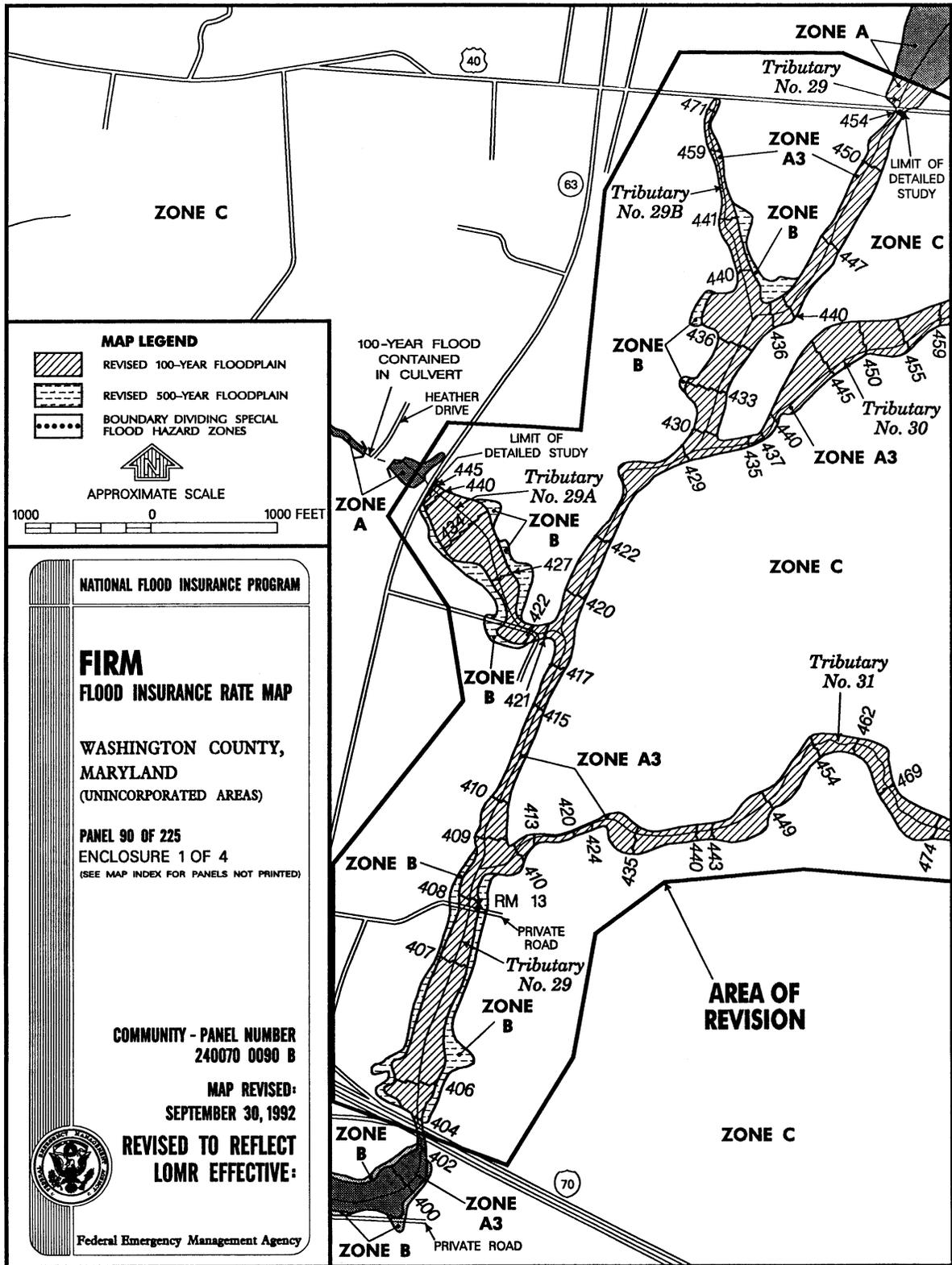
Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

This map was prepared to facilitate floodplain management activities only; it may not show all Special Flood Hazard Areas in the community or all planimetric features outside of the floodplain. Refer to the latest official Flood Insurance Rate Map for any additional areas of special flood hazard.

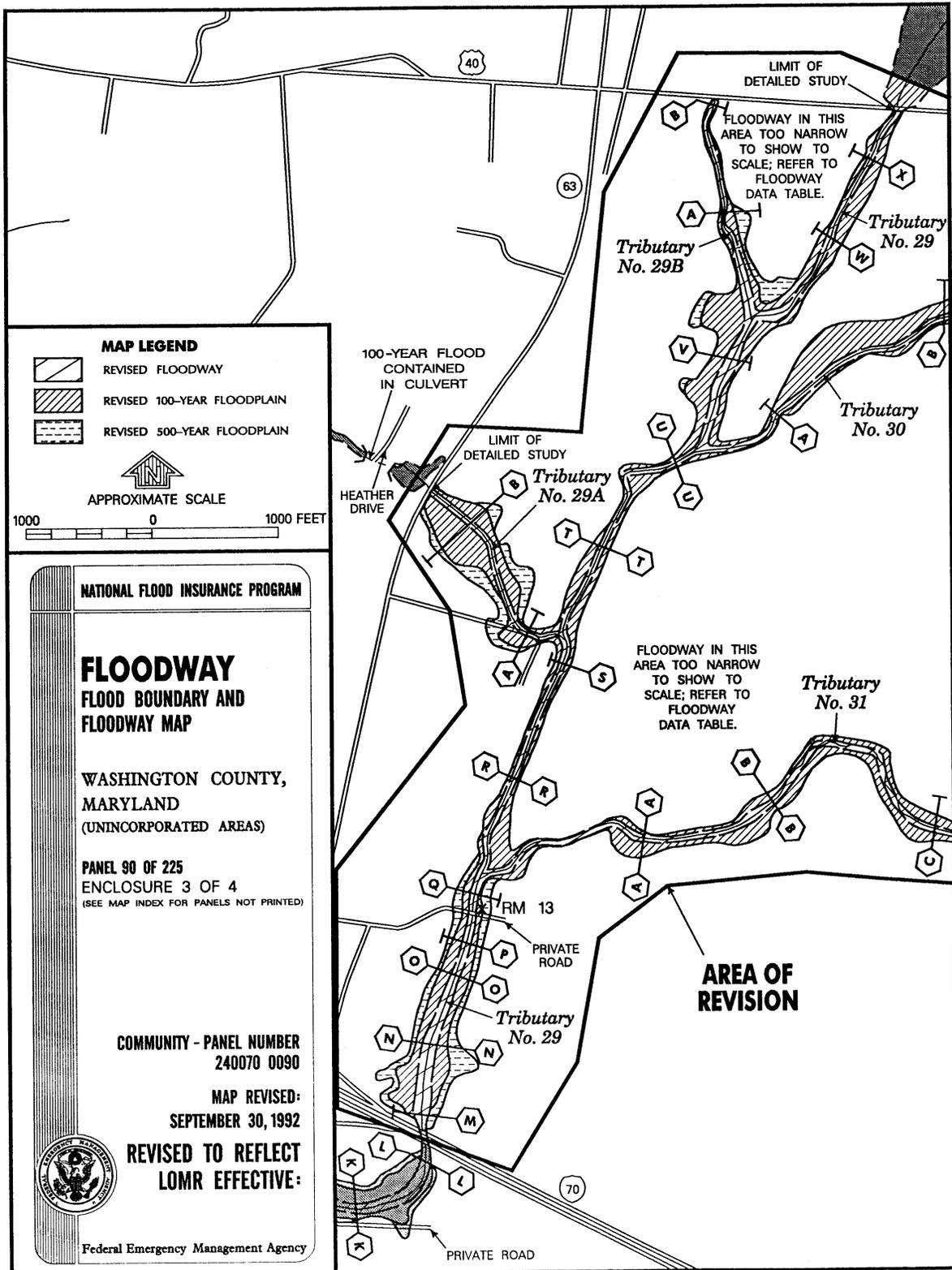
Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

For adjoining map panels, see separately printed Map Index.

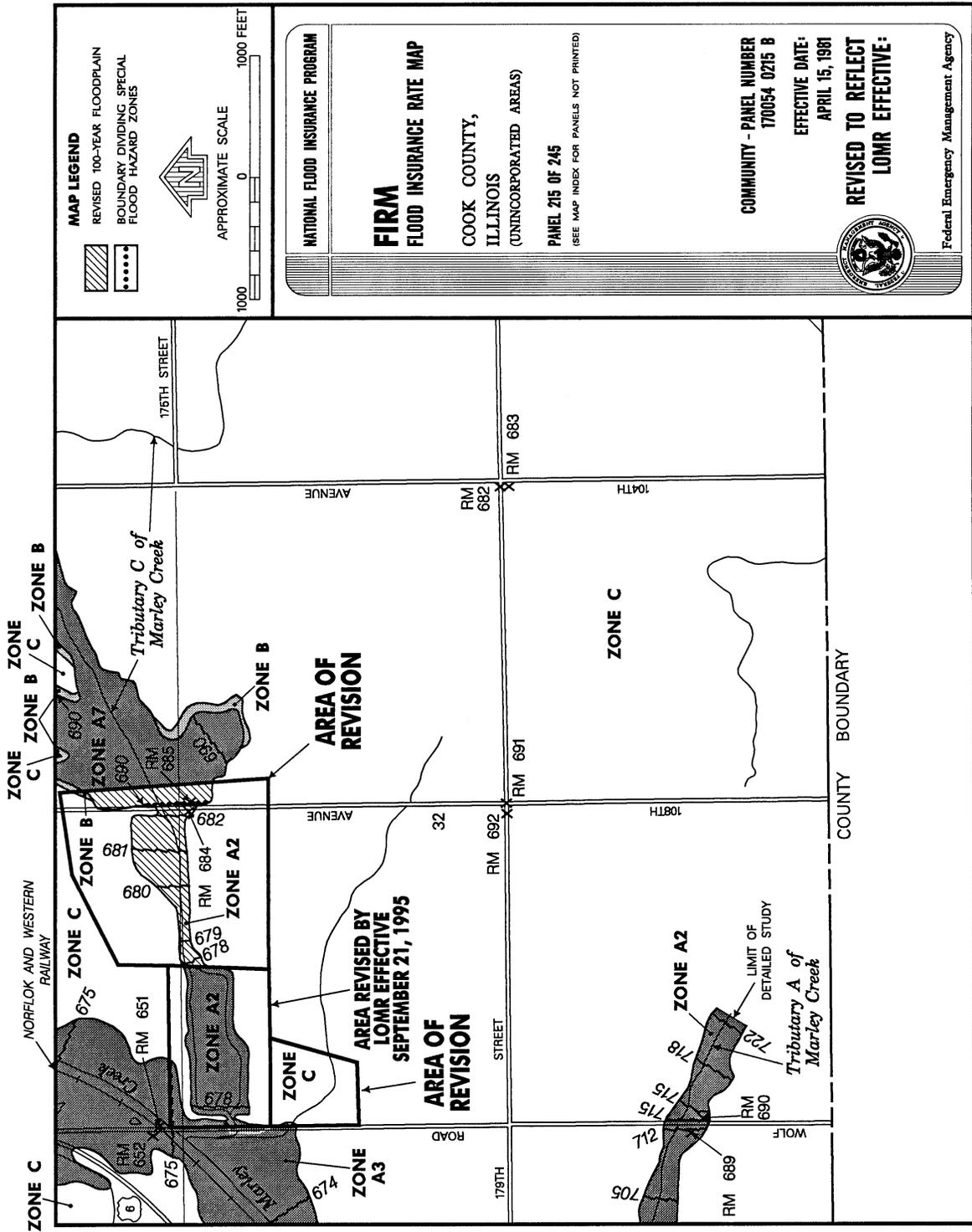
B.5.6 SAMPLE LOMR – FIRM



B.5.6 SAMPLE LOMR – FBFM



B.5.6 SAMPLE LOMR - MAP INITIATIVE



B.5.6 SAMPLE LOMR – FDT

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary No. 31								
A	3,900	174	269	0.4	23.5	23.5	23.6	0.1
B	4,200	17	19	6.1	24.4	24.4	24.4	0.0
C	4,900	126	139	0.6	27.9	27.9	28.1	0.2
D	5,600	80	129	0.6	30.8	30.8	31.0	0.2
					 <p>AREA OF REVISION</p>			

¹Stream distance in feet above Route 9

REVISED TO REFLECT LOMR EFFECTIVE:

FEDERAL EMERGENCY MANAGEMENT AGENCY

TABLE 6

FLOODWAY DATA

**WASHINGTON COUNTY, MD
(UNINCORPORATED AREAS)**

TRIBUTARY NO. 31

**B.5.7 8 1/2 X 11 SINGLE JURISDICTION
FIRM INDEX**



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM
FLOOD INSURANCE RATE MAP**

TOWN OF
TOPSAIL BEACH,
NORTH CAROLINA
PENDER COUNTY

MAP INDEX

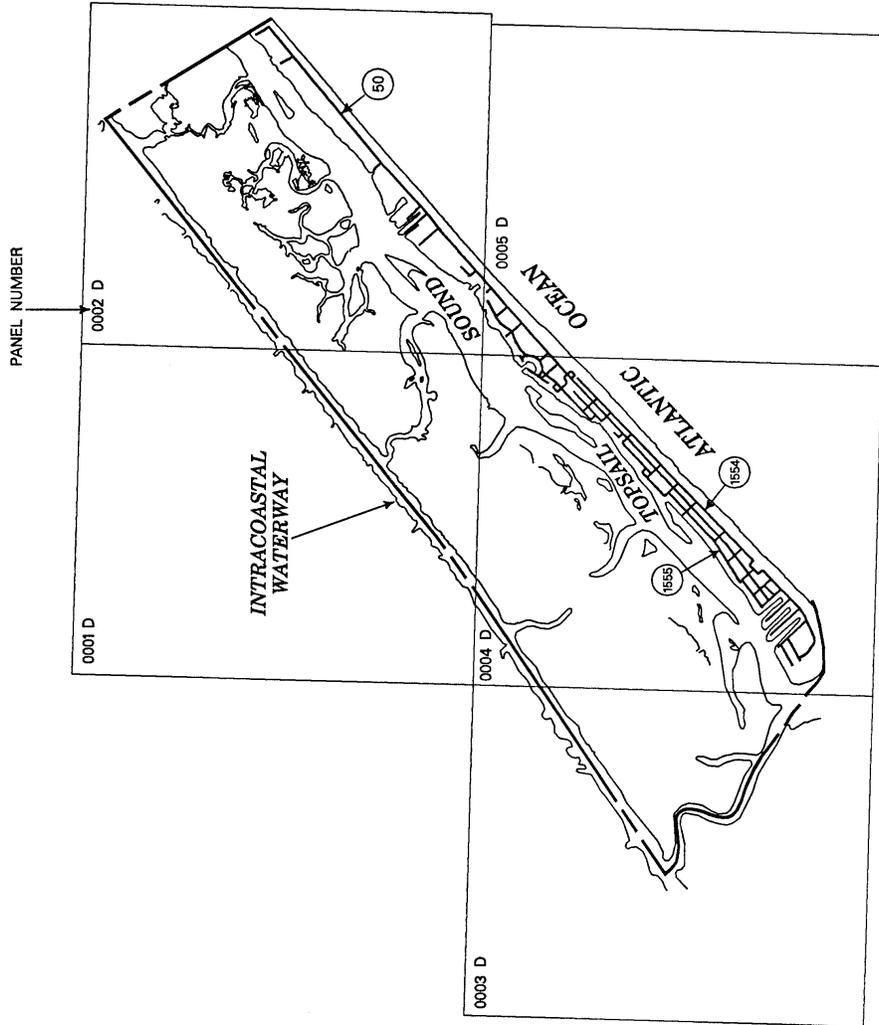
PANELS PRINTED: 1, 2, 3, 4, 5

COMMUNITY - PANEL NUMBERS
370187 0001-0005

MAP REVISED:
JANUARY 21, 1998



Federal Emergency Management Agency



MAP REPOSITORY

Topsail Beach Town Hall, 820 South
Anderson Boulevard, Topsail Beach,
North Carolina 28445-9831 (Maps
available for reference only, not for
distribution.)

B.6 Map Notes

The FMPCC must use standard and accepted map notes on the body and legend of the FIRM and FIRM Index to facilitate map users. The accepted notes and the rules for their usage are detailed below.

B.6.1 Standard Map Notes for the Body of the FIRM

B.6.1.1 Map Notes for Flood Hazard Data

1. Limit of Detailed Study

This note is used on FIRM and FBFM panels to indicate the terminus of a 100-year floodplain of a stream that has been studied by detailed hydrologic and hydraulic methods. This note may also have the stream name added to it for cases of clarity. A graphic representation can be found on Figure B.5.8.

2. Limit of Study

This note is used on FIRM and FBFM panels to indicate the terminus of a 100-year floodplain of a stream for which the stream has not been studied by detailed analyses and for the terminus of detailed backwater flooding on unstudied tributaries. A graphic representation can be found on Figure B.5.8.

3. Limit of Floodway

This note is used on FIRM and FBFM panels to indicate the terminus of the FEMA-designated area of non-encroachment (the detailed analysis will continue). A graphic representation can be found on Figure B.5.8.

4. Floodway

This note is used on FBFM panels only to indicate the location of the floodway along extensive segments of the stream when there is no 100-year floodplain floodway fringe.

5. Floodway in this area too narrow to show to scale; refer to Floodway Data table.

This note is used on Map Initiatives FIRM panels and FBFM panels to indicate that map scale limitations do not allow the accurate portrayal of the actual width of the floodway.

6. 100-year Flood Discharge Contained in Channel/Culvert

This note is used on FIRM and FBFM panels to indicate where the 100-year flood elevation does not overtop the channel banks or is completely contained within the culvert pipe. This area may be bordered by a 500-year floodplain.

7. 500-year Flood Discharge Contained in Channel/Culvert

This note is used on FIRM and FBFM panels to indicate where both the 1% and 0.2% annual chance (100- and 500-year) flood discharges do not overtop the channel banks or are completely contained within the culvert pipe. A graphic representation can be found on Figure B.5.8.

8. Floodway Contained in Channel/Culvert

This note is used on FIRM and FBFM panels to indicate where the floodway boundaries coincide with the channel banks or culvert pipe that is depicted as single line drainage. A graphic representation can be found on Figure B.5.8.

9. This Area Protected from the 100-Year Flood by Levee, Dike or Other Structure Subject to Possible Overtopping During Larger Floods

This note is used on FIRM and FBFM panels to indicate the area of the 500-year floodplain that is on the landward side of the levee and could be subject to 100-year flooding once the levee has been breached. A graphic representation can be found on Figure B.5.8.

10. Coastal Base Flood Elevations Apply Only Landward of 0.0 Feet (NGVD / NAVD)

This note is used on FIRM panels to indicate where the application of the wave height analysis is in effect. The note will vary according to the elevation reference datum used. This note is placed on the map panel near the shoreline of the open body of water. A graphic representation can be found on Figure B.5.8.

B.6.1.2 Map Notes for other Planimetric Data

1. This Area is Contained Within the Coastal Barrier Resources System

This note is used on Map Initiatives FIRM panels when the Coastal Barrier overlaps an area of floodway. Additional notes pertaining to Coastal Barrier Resources Systems can be found in Section 8.9.5 of this Appendix.

2. U.S. Government Property Fee and/or Flowage Easement Boundary

This note is used to label the boundary of an area in which a community enforces more restrictive criteria for floodplain management than the minimum requirements of the NFIP.

3. CONTOUR AND SPOT GROUND ELEVATION DATA ON THIS MAP MAY BE OUTDATED AND THEREFORE SHOULD NOT BE CONSIDERED AUTHORITATIVE.

This note is used when the base map contains contour and ground elevation information that cannot easily be removed.

4. PROFILE BASE LINE

This note is used to identify a line on the map panel that indicates the general flow path of a stream. A graphic representation can be found on Figure B.5.8.

B.6.1.3 Map Notes for Community Information

1. FLOOD HAZARD INFORMATION IS SHOWN WITHIN THE (COMMUNITY NAME) FOR INFORMATION PURPOSES ONLY. FOR FLOOD INSURANCE PURPOSES, REFER TO SEPARATELY PRINTED FLOOD INSURANCE RATE MAP FOR THE (COMMUNITY NAME).

This note is used on Countywide map panels to indicate that the named community is not included in the Countywide FIS or on the Countywide FIRM that it is being shown on because portions of it are also located within one or more counties that currently are not in the Countywide mapping format. A graphic representation can be found on Figure B.5.8.

2. FLOOD INSURANCE INFORMATION ON THIS MAP APPLIES ONLY TO THE AREAS WITHIN THE CORPORATE LIMITS OF THE (*COMMUNITY NAME*). SPECIAL FLOOD HAZARD AREAS ARE SHOWN OUTSIDE OF THE (*COMMUNITY NAME*) FOR PLANNING PURPOSES ONLY.

This note is used when the previous Standard Format FBFM panel showed additional flood hazard information outside of the corporate limits and is now being combined with the FIRM. This information is to be kept on the map at the discretion of the Project Officer.

3. (AREA NOT INCLUDED)

This note is used on the FIRM and Index to indicate areas that are excluded from the FIS because they are portions of separate jurisdictions. A graphic representation can be found on Figure B.5.11.

4. CORPORATE LIMITS / COUNTY BOUNDARY COINCIDENT WITH SHORELINE

This note is used when the corporate limits of a community or county boundary are deemed to be at the shoreline. No corporate limits or county boundary is shown. A graphic representation can be found on Figure B.5.8.

B.6.2 Standard Notes for Other Map Components

B.6.2.1 Elevation Reference Marks

1. National Geodetic Vertical Datum of 1929

This note is used as a footnote for Elevation Reference Marks descriptions when the elevation datum used for the hydrologic and hydraulic analyses are based on the National Geodetic Vertical Datum of 1929. A graphic representation can be found on Figure B.5.8.

2. North American Vertical Datum of 1988

This note is used as a footnote for Elevation Reference Marks descriptions when the elevation datum used for the hydrologic and hydraulic analyses are based on North American Vertical Datum of 1988.

3. Located outside of corporate limits-not shown

This note is used as a footnote for Elevation Reference Marks descriptions when the actual location of the mark cannot be shown on the map panel because it is outside of the designated panel neatline.

4. Located outside of county boundary-not shown

This note is used as a footnote for Elevation Reference Marks descriptions when the actual location of the mark cannot be shown on the map panel because it is outside of the designated panel neatline. A graphic representation can be found in Section B.5.8.

5. For description of Elevation Reference Marks (*ERM numbers*) see panel (*panel number*) [or (*map number*) for Countywide FIRMs].

This note is used as a footnote for Elevation Reference Marks descriptions when all of the descriptions cannot be listed on the panel on which they appear.

B.6.2.2 National and State Public Lands

1. PARK, FOREST, RESERVE, etc., BOUNDARY

This note is used to label the boundary of a National or State designated land use area. A graphic representation can be found on Figure B.5.8.

B.6.2.3 Adjacent Panel Indicators

1. JOINS PANEL (*panel number*)

This note is used along the each neatline of the map panel to indicate the number of the adjacent panel. The panel number will not include the community number or the 5-digit FIPS code used for Countywide FIRMs. A graphic representation can be found on Figure B.5.8.

2. JOINS INSET (*inset letter designator*)

This note is used along the neatline of the map panel to indicate that the adjacent portion of the map is shown as a boxed inset on the same panel.

3. JOINS INSET (*inset letter designator*) ON PANEL (*panel number*)

This note is used along the neatline of the map panel to indicate that the adjacent portion of the map is shown as a boxed inset on another panel. The panel number will not include the community number or the 5-digit FIPS code used for Countywide FIRMs

4. THIS AREA SHOWN AT A SCALE OF 1" = (*map scale*) ON PANEL (*panel number*)

This note is used on non-Countywide panels in the blank area of the breakout panel. . The panel number will include the community number as well as the panel number.

5. THIS AREA SHOWN ON MAP NUMBER (*Countywide map number*)

This note is used on Countywide panels in the blank area of the breakout panel. This number will include the 5-digit FIPS code, followed by "C" as well as the 4-digit panel number.

B.6.3 Map Notes for Use in the Title Block and Legend of the FIRM

B.6.3.1 Map Legend and Title Block Notes

1. *Map Repository Address* (Maps available for reference only, not for distribution.)

The Map Repository Address is found in the Notes to User Legend of single jurisdiction and non-Countywide maps. It is a community government's designated location for housing its FIRM. The disclaimer as stated follows each address. A graphic representation can be found on Figure B.5.9.

2. Map Revision Notes

Standard notes are to be used in the "Flood Insurance Rate Map Revisions" portion of the FIRM panel legend to document the reasons for past and present FIRM revisions. The FMPCC shall use one or a combination of notes to explain why a panel is revised. Only one date is required when more than one note is used.

Note: The map revision notes that are used for each FIRM revision are to be date specific and not panel specific. All actions occurring

on a specific date are to be combined as one map revision note and used on all panels for that particular revision.

Map revision notes pertaining to modifications to the Coastal Barrier Resources System can be found in Section 8.9.3 of this document.

The following is a listing of the standard map revision notes accompanied by an explanation for clarity. A graphic representation can be found on Figure B.5.9:

- a. *(Date of revision)*- to update corporate limits

To be used any time a revised FIRM shows a new corporate limit configuration.

- b. *(Date of revision)*- to decrease base flood elevations

To be used any time existing BFEs have only been decreased.

- c. *(Date of revision)*- to increase base flood elevations

To be used any time existing BFEs have only been increased.

- d. *(Date of revision)*- to change base flood elevations

To be used when BFEs are both increasing and decreasing.

- e. *(Date of revision)*- to add base flood elevations

To be used when BFEs are added to a new detailed A or V zone for an area previously unstudied or previously studied by approximate methods.

- f. *(Date of revision)*- to add special flood hazard areas

To be used when new detailed or approximate 100-year flooding is added to an area previously unstudied.

- g. *(Date of revision)*- to change special flood hazard areas

To be used when the configuration of an existing special flood hazard area is modified.

- h. (*Date of revision*)- to delete special flood hazard areas

To be used when a special flood hazard area is entirely removed from the FIRM.

- i. (*Date of revision*)- to change zone designations

To be used when X or B (500-year) zones are changed to X or C (no flooding) zones, or vice versa; when A zones are changed to X or B (500-year) zones; and when A or V zones are changed to detailed zones (numbered A or V zones, and AE or VE zones).

- j. (*Date of revision*)- to update map format

To be used when an 11" x 17" FIRM is remapped into a z-fold, when a FIRM and FBFM are combined into a FIRM (Map Initiatives), or when the digital format is used for the first time.

- k. (*Date of revision*)- to add roads and road names

To be used when new roads and road names are added to the FIRM. "Update" instead of "add" should be used when roads are moved, deleted, or have the names changed.

- l. (*Date of revision*)- to include the effects of wave action

To be used when a coastal wave height analysis has been added to an existing "non-wave height" FIS. Please note that revision notes b through i are not necessary when this note is used to describe changes on the FIRM resulting from the addition of a wave height analysis.

- m. (*Date of revision*)- to add special flood hazard areas previously shown on (community name), (state) Flood Insurance Rate Map dated (date), (year)

To be used when a FIRM revision incorporates the annexation on an area with special flood hazards that was previously shown on another community's FIRM.

- n. (*Date of revision*)- to reflect updated topographic information

To be used when the FIRM revision is at least based in part on new topographic information.

- o. (Date of revision)- to incorporate previously issued letters of Map Revision

To be used when determinations made by LOMR are physically added to the revised FIRM.

- p. (Date of revision)- to incorporate previously issued Letters of Map Amendment

To be used when determinations made by LOMA are physically added to the revised FIRM.

- q. (Date of revision)- to change floodway

To be used when a floodway delineation change is the basis of the revision. This note is to be used on Map Initiatives format only.

- r. (Date of revision)- to advance suffix

To be used when the only change to the FIRM is to change the panel or map number letter suffix. This note is to be used with the approval of the Project Officer.

3. Elevation Datum Notes

- a. Referenced to National Geodetic Vertical Datum of 1929

This note is used when the elevation datum used for the hydrologic and hydraulic analyses is based on 1929 survey.

- b. North American Vertical Datum of 1988

This note is used when the elevation datum used for the hydrologic and hydraulic analyses is based on 1988 survey.

4. Coordinate System Notes

The wording of the Base Map Coordinate System note is contingent on the type and source of the information itself. The description of sources can be found in Section 6.3.5. Example notes are shown on Figures B.5.8 and B.5.9.

5. Digital Data Availability Note

This note informs the map user of the availability of the map in its digital form on CD-ROM. This note is used for digital Countywide maps only. An example note is shown on Figure B.5.8.

6. Base Map Source Notes

The wording of the Base Map Source note is contingent on the type and source of the information itself. The description of several sources can be found in Section 6.3.3. An example note is shown on Figure B.5.8.

7. Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

This note is placed on all Countywide title blocks so that the map user can identify the use of the map and community numbers. A graphic representation can be found on Figure B.5.8.

B.6.4 Standard Map Notes for Use on the FIRM and FBFM Index

B.6.4.1 Panel Not Printed Footnotes

1. Panel Not Printed – No Special Flood Hazard Areas

This note is used as a footnote on the Map Initiatives or Partial Map Initiatives FIRM index to designate panels not printed because the entire panel area does not contain floodplain areas. A graphic representation can be found on Figure B.5.10.

2. Panel Not Printed – Area in Zone D

This note is used as a footnote on the FIRM index to indicate panels not printed because the panel area is entirely Zone D.

3. Panel Not Printed – Area not Included

This note is used as a footnote on both the FIRM and FBFM index to indicate when an entire panel area is contained in an Area Not Included.

4. Panel Not Printed – Open water Area

This note is used as a footnote on the FIRM index when an area of all water and no land is contained within the panel area.

5. Panel Not Printed – Area all within Zone AE (A#)

This note is to be used when the entire panel falls entirely within one flood hazard zone with one flood elevation. This procedure should not be used without the approval of the Project Officer, as normally any land areas on a FIRM with identified flood hazards should be printed.

6. Panel Not Printed – Area Outside Corporate / County Boundary

This note is used as a footnote on the FIRM and FBFM index to indicate paneled areas outside the subject jurisdiction.

7. Panel Not Printed - No floodway delineated; for floodplain boundaries, see corresponding Flood Insurance Rate Map panel published separately

This note is used as a footnote on the FBFM index to designate panels not printed because no floodway has been designated on that panel. Omit *published separately* if index is part of a Partial Map Initiatives publication. Omit *corresponding* if the FBFM paneling scheme is different from the FIRM.

8. Panel Not Printed - Area within (*community name*), which has a separately printed Flood Insurance Rate Maps; the portion of the (*community name*) on map number (*map number*) is not within Special Flood Hazard Areas.

This note is used as footnote on the Countywide FIRM index to indicate a panel that is partially within an Area Not Included and partially within an area that does not contain floodplains.

9. Panel Not Printed – Floodway delineation shown on Flood Insurance Rate Map

This note is used as a footnote on the FBFM index to indicate that the floodway is now shown on the FIRM panel. A graphic representation can be found on Figure B.5.11.

B.6.4.2 Notes on Body of Index

1. NOTE TO USER:

Floodways on Flood Boundary and Floodway Map panels (*affected FBFM panels numbers*) are shown on the corresponding Flood Insurance Rate Map panel(s).

This note is used in conjunction with the preceding footnote on the body of the FBFM index to indicate that the FBFM panels have been superseded by the FIRM when the floodway is now shown on the FIRM panel. Omit *corresponding* if the panel numbers are different between the FIRM and FBFM. A graphic representation can be found on Figure B.5.11.

2. NOTE TO USER:

Panels (*panel numbers*) should be used for floodway information only. Please refer to the corresponding Flood Insurance Rate Map panels for up-to-date 100- and 500-year floodplain boundary information.

This note is used on the body of the FBFM index when the floodplain boundaries have been modified but the floodway boundaries have remained the same and therefore, the FBFM panels were not revised.

3. This area shown as inset (*inset designator letter*) on panel (*panel number*)

This note is used on the body of the non-Countywide index to indicate the location of an inset.

4. This area of the community not printed – all in open water

This note is used on the body of the index to indicate an unpanelled area of the community that is entirely in open water.

5. This area of the community contains no Special Flood Hazard Areas and is therefore not printed

This note is used on the body of the index to indicate an area of the community that does not have floodplain areas and is not paneled.

6. COMMUNITY - PANEL NUMBER

This note is used on the body of the non-Countywide index to indicate an example of a panel number. A graphic representation can be found on Figure B.5.11

Note: The community - panel number in the FIRM title block and on the FIRM Index is the 6-digit community identification number followed by a space and the 4-digit panel number.

7. MAP NUMBER

This note is used on the body of the Countywide index to indicate an example of a panel number. A graphic representation can be found on Figure B.5.10.

Note: The Map Number used in the Countywide title block and on the FIRM Index is comprised of the 5-digit FIPS code, followed by "C" and the 4-digit panel number with no spaces in between (e.g. 41055C0150).

8. *Map Repository Address* (Maps available for reference only, not for distribution.)

The Map Repository Address is found on the body of the index of single jurisdiction and non-Countywide maps above the north arrow. It is found as a separate listing on the body of the Countywide format index. The Map Repository address is the location that the community has designated for storing its FIRM. The disclaimer as stated immediately follows the header for the address(es). A graphic representation for Countywide and non-Countywide index can be found in Section B.5.10.

B.6.5 Standard Map Notes for CBRS Revisions

For standard map notes and specifications to be used for Coastal Barrier Resources System revisions, refer to Section 8 of this Appendix. For graphic specifications, see Section B.5.2. For a graphic representation, see Figure B.5.8.

B.7 Letter of Map Revision (LOMR)

It is often the case that a revision requester needs to have the FIRM revised in rapid fashion to reflect the effects of a revised hydrologic and/or hydraulic analyses, and/or the effects of a floodplain or stream modification project. Section 2 of these Guidelines

provides more information on the processing of LOMRs. In addition, Section B.5.6 in this Appendix provides samples that may be used in the graphic portrayal of the map and its attachments for the LOMR itself.

B.8 Flood Insurance Study Report Text Graphics and Specifications

The following are graphic examples of components of the Flood Insurance Study Report. Directives for the creation and revision of reports can be found in Appendix C of this document.

B.8.1 Flood Insurance Study Report Text

B.8.1.1 Cover Sheet

Figure B.8.1 is an example of the Flood Insurance Study cover sheet for a multi-volume Countywide report. The word *Revised* will not be used for a first-time Countywide report.

Figure B.8.2 is an example of the Flood Insurance Study cover sheet for a multi-volume non-Countywide Flood Insurance Study report. The word Revised will not be used for a first-time report.

Figure B.8.3 is an example of the Flood Insurance Study cover sheet for a multi-volume single community Flood Insurance Study report. The word Revised will not be used for first-time report.

Figure B.8.4 is an example of the Flood Insurance Study cover sheet for a single community Flood Insurance Study report. The word Revised will not be used for a first-time report.

B.8.1.2 Notice to User Page

Figure B.8.5 is an example of the NOTICE TO FLOOD INSURANCE STUDY USERS page with a note that explains missing components. When a study is issued for the preliminary review, any unchanged components are omitted. This note would be removed by the FMPCC at the final GPO processing.

Figure B.8.6 is an example of the NOTICE TO FLOOD INSURANCE STUDY USER page for a Partial Map Initiatives Flood Insurance Study report. It also shows the addition of the Reason for Revision date and explanation when room is limited on the Flood Insurance Rate Map panel.

B.8.1.3 Table of Contents

Figures B.8.7a through B.8.7d are examples of the “TABLE OF CONTENTS” of Volume 1 of a multi-volume Countywide Flood Insurance Study report. After the initial Countywide is published, the dates listed with each volume number indicate when the individual volume was revised.

B.8.1.4 Body of FIS Report

Figure B.8.8 is an example of the description for a digital base map source in the Flood Insurance Study report. More information concerning the base map source can be found in Section 6.3.3 of this document.

Figures B.8.9a through B.8.9e are several examples of Flood Insurance Study report tables. Tables such as this are used when there are multiple listings of the data being presented.

Figure B.8.10 is an example of the SUMMARY OF DISCHARGES table that appears in the Flood Insurance Study report.

Figure B.8.11 is an example of the SUMMARY OF COASTAL STILLWATER ELEVATIONS table that appears in wave height analyses Flood Insurance Study reports.

Figure B.8.12 is an example of the MANNINGS "N" VALUES list placed in tabular form. Tables such as this are used when several streams are studied in the FIS and multiple “n” values are being listed.

Figure B.8.13 is an example of the TRANSECT DESCRIPTIONS table and the Transect Schematic figure that appear in wave height analyses Flood Insurance Study reports.

Figure B.8.14 is an example of the TRANSECT DATA table that appears in wave height analyses Flood Insurance Study reports.

Figure B.8.15 is an example of the Floodway Schematic figure that appears in Flood Insurance Study reports with riverine analyses.

Figures B.8.16a, 16b, and 16c are examples of the FLOODWAY DATA tables that appear in Flood Insurance Study reports with riverine analyses.

Figure B.8.17 is an example of ELEVATION REFERENCE MARKS descriptions, as they would appear in the Flood Insurance Study report. See Section B.4.3 for additional information and explanation.

Figure B.8.18 is an example of the COMMUNITY MAP HISTORY table that appears in all Countywide Flood Insurance Study reports.

Figures B.8.19a and 19b are examples of the FLOOD PROFILES as they would appear in the Flood Insurance Study report.

Figure B.8.1

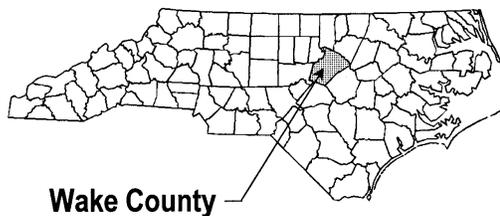
FLOOD INSURANCE STUDY

VOLUME 1 OF 6



WAKE COUNTY NORTH CAROLINA, AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
APEX, TOWN OF	370467
CARY, TOWN OF	370238
FUQUAY-VARINA, TOWN OF	370239
GARNER, TOWN OF	370240
HOLLY SPRINGS, TOWN OF	370403
KNIGHTDALE, TOWN OF	370241
MORRISVILLE, TOWN OF	370242
RALEIGH, CITY OF	370243
ROLESVILLE, TOWN OF	370468
WAKE COUNTY (UNINCORPORATED AREAS)	370368
WAKE FOREST, TOWN OF	370244
WENDELL, TOWN OF	370245
ZEBULON, TOWN OF	370246



REVISED:
NOVEMBER 20, 1998



Federal Emergency Management Agency

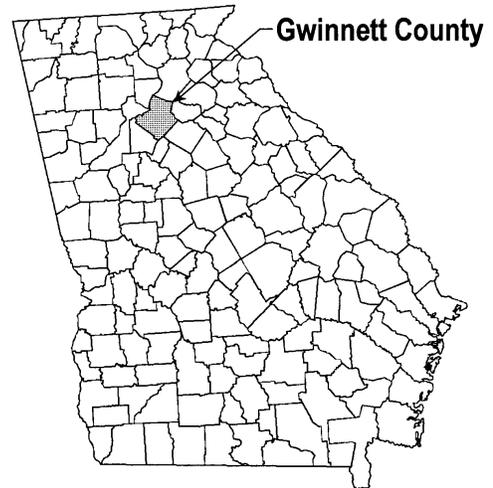
Figure B.8.2

FLOOD INSURANCE STUDY

VOLUME 1 OF 3



GWINNETT COUNTY, GEORGIA (UNINCORPORATED AREAS)



REVISED:
JULY 20, 1998



Federal Emergency Management Agency

COMMUNITY NUMBER - 130322

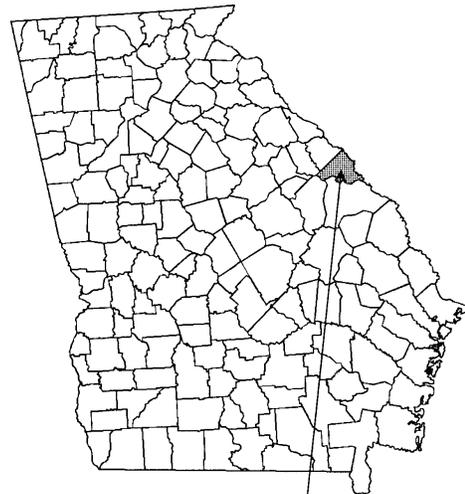
Figure B.8.3

FLOOD INSURANCE STUDY



CITY OF AUGUSTA, GEORGIA

VOLUME 1 OF 2



City of Augusta

REVISED:
MARCH 23, 1999



Federal Emergency Management Agency

COMMUNITY NUMBER - 130158

Figure B.8.4

FLOOD INSURANCE STUDY



CITY OF HIGH POINT, NORTH CAROLINA DAVIDSON, FORSYTH, GUILFORD, AND RANDOLPH COUNTIES



REVISED:
MAY 18, 1998



Federal Emergency Management Agency

COMMUNITY NUMBER - 370113

Figure B.8.5

NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial FIS Effective Date: August 2, 1995

Revised FIS Dates: July 16, 1997

This preliminary FIS report does not include unrevised Floodway Data Tables or unrevised Flood Profiles. These Floodway Data Tables and Flood Profiles will appear in the final FIS report.

Figure B.8.6

NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components. Selected Flood Insurance Rate Map (FIRM) panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways and cross sections). In addition, former flood hazard zone designations have been changed as follows.

<u>Old Zone (s)</u>	<u>New Zone</u>
A1 through A30	AE
V1 through V30	VE
B	X
C	X

Initial FIS Effective Date: January 20, 1990

Revised FIS Dates: April 15, 1994 – to change special flood hazard areas, to change base flood elevations, to change zone designations and to add special flood hazard areas, dated May 13, 1990, from Fulton County, Pennsylvania.
August 22, 1997

Figure B.8.7a

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Figure B.8.7b

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Barbee Ditch	Panels 05P-07P
Barnes Ditch	Panels 08P-10P
Beem Ditch	Panels 11P-12P
Big Darby Creek	Panels 13P-17P
Big Run	Panels 18P-20P
Big Walnut Creek	Panels 21P-28P
Billingsley Ditch	Panels 29P-31P
Bishop Run	Panels 32P-33P

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Exhibit 1 - Flood profiles – continued	
Blacklick Creek	Panels 34P-50P
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Figure B.8.7c

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EXHIBITS – continued

Exhibit 1 - Flood Profiles – continued	
Blacklick Creek Lateral G-B	Panel 52P
Blacklick Creek Lateral K	Panels 53P-54P
Blacklick Creek Tributary C	Panel 55P
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Georges Creek	Panels 90P-92P
Grant Run	Panels 93P-95P
Orders & Wallace Ditch	Panel 95P
Grove City Creek 1	Panel 96P
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Little Darby Creek	Panel 120P
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Exhibit 1 - Flood Profiles – continued	
Mason Run	Panels 130P-134P
Molcomb Ditch	Panels 135P-140P

Figure B.8.7d

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EXHIBITS – continued

Exhibit 1 - Flood Profiles – continued

Olentangy River	Panels 141P-143P
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Scioto Big Run	Panels 159P-162P
Scioto River	Panels 163P-169P
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Snyder Run	Panels 171P-172P
South Fork Dry Run	Panel 173P
South Fork Georges Creek	Panels 174P-175P
South Fork Indian Run	Panels 176P-186P
Spring Run	Panels 187P-190P ¹
Sugar Run	Panels 192P-196P
Swisher Creek	Panel 197P
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Tudor Ditch	Panels 201P-205P
Turkey Run	Panels 206P-207P
Tussing-Bachman Ditch	Panels 208P-209P
Bush Ditch	Panels 209P-210P
Utzinger Ditch	Panel 211P
Georges Creek Overland Flow	Panel 212P

Exhibit 2 - Flood Insurance Rate Map Index

Flood Insurance Rate Map

¹Note to users: Flood Profile 191P was removed to reflect the removal of the Delaware County portion of the City of Westerville

Figure B.8.8

The hydrologic and hydraulic analyses for the August 2, 1995, countywide FIS were performed by Water Resources and Coastal Engineering, Inc., for FEMA, under Joint Venture Contract No. EMW-91-C-3360. The joint venture team consisted of Water Resources & Coastal Engineering, Inc. and Geodyssey, Inc. That work was completed in September 1992.

For the July 16, 1997, revision, the hydrologic and hydraulic analyses for Tussing-Bachman Ditch, Bush Ditch, and Georges Creek Overland Flow were prepared by the ODNR Division of Water. These analyses were subsequently modified by Dewberry & Davis under a directive from FEMA. This work was completed in December 1995.

For this revision, the hydrologic and hydraulic analyses for the Olentangy River were taken from the Delaware County, Ohio and incorporated areas FIS (Reference 1). The analyses were prepared by Evans, Mechwart, Hambleton, and Tilton, Inc. under Contract No. EMW-94-C-4525, and subsequently modified by Dewberry & Davis under a directive from FEMA.

The digital base mapping information was provided by the Franklin County Auditor's Office, Division of Automated Mapping, 373 South High Street, 19th Floor, Columbus, Ohio, 43215-6310. Further information about the base mapping is available by contacting the Auditor's Office. These files were compiled by photogrammetric methods and meet or exceed National Map Accuracy Standards at the original compilation scale of 1"=100'. The coordinate system used for the production of this FIRM is Universal Transverse Mercator, North American Datum of 1927, Clarke 1866 spheroid. Differences in the datum and spheroid used in the production of FIRMs for adjacent counties may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of information shown on this FIRM.

Figure B.8.9a

For this countywide FIS, Woodward-Clyde was contracted by FEMA to perform the coastal flood studies of the Florida Panhandle under Contract No. EMW-95-C-4678/TO043. The coastal 100-year stillwater elevations and analyses were revised by Dewberry & Davis, under subcontract to Woodward-Clyde. All work was completed in April 1998. Riverine analyses for this countywide FIS were compiled from previously effective FISs for Bay County and its incorporated communities (References 1 - 9).

The digital base map files were derived from U.S. Geological Survey (USGS) 1:24,000 scale Digital Line Graphs. These files were modified in and around the floodplains to match data previously compiled for the FIS of Bay County and its unincorporated communities.

The coordinate system used for the production of the digital FIRMs is Universal Transverse Mercator referenced to the North American Datum of 1927 and the Clarke 1866 spheroid.

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

The dates of the initial and final CCO meetings held for the incorporated communities within the boundaries of Bay County are shown in Table 1, "CCO Meeting Dates for Precountywide FISs."

TABLE 1 - CCO MEETING DATES FOR PRECOUNTYWIDE FISs

<u>Community Name</u>	<u>Initial CCO Date</u>	<u>Final CCO Date</u>
Bay County (Unincorporated Areas)	*	June 12, 1985
Callaway, City of	*	June 11, 1985
Cedar Grove, Town of	*	*
Lynn Haven, City of	*	June 11, 1985
Mexico Beach, Town of	*	June 12, 1985
Panama City, City of	*	June 12, 1985
Panama City Beach, City of	*	June 13, 1985
Parker, City of	*	June 6, 1985
Springfield, City of	*	May 17, 1979

*Data not available

Figure B.8.9b

TABLE 1 - STREAMS STUDIED BY DETAILED METHODS

Abrams Creek	Pennypack Creek
Abrams Run	Pennypack Creek Branch
Baeder Run	Pennypack Creek Tributary No. 1
Blair Mill Run	Perkiomen Creek
Blair Mill Run Tributary	Pine Run
Buckwalter Tributary	Plymouth Creek
Colmar Tributary	Rapp Run
Crow Creek	Rock Creek
Davis Grove Tributary	Rose Valley Creek
Deep Creek	Sanatoga Creek
Dodsworth Run	Sandy Run
Donny Brook Run	Sandy Run Tributary No. 1
East Branch Perkiomen Creek	Sawmill Run
East Tributary Stony Creek	Schlegel Run
Erdenheim Run	Schuylkill River
Frog Run	Scioto Creek
Goshenhoppen Creek	Skippack Creek
Gulph Mills Creek	Skippack Creek Tributary No. 1
Gulph Mills Creek Tributary A	Skippack Creek Tributary No. 2
Gulph Mills Creek Tributary B	Southampton Creek
Hosensack Creek	Sprogels Run
Huntingdon Valley Creek	St. Josephs Run
Indian Creek	Stony Creek
Jenkintown Creek	Stony Creek Tributary
Lansdale Tributary	Stony Run
Little Neshaminy Creek	Swamp Creek
Little Neshaminy Creek Tributary No. 1	Tacony Creek
Little Neshaminy Creek Tributary No. 2	Tannery Run
Lodal Creek	Towamencin Creek No. 1
Macoby Creek	Towamencin Creek No. 2
Macoby Creek Branch	Tributary to Oreland Run
Manatawny Creek	Tributary No. 1 to Unionville Tributary
Matsunk Creek	Trout Creek
Meadow Brook	Unami Creek
Middle Creek	Unionville Tributary
Mill Creek	Unnamed Creek A
Mingo Creek	Valley Creek
Mingo Creek Tributary No. 1	Vaughn Run
Minister Creek	War Memorial Creek
Minister Creek Tributary	West Branch Neshaminy Creek
Neshaminy Creek Branch	West Branch Neshaminy Creek Tributary
North Branch Baeder Run	West Branch Perkiomen Creek
North Branch Zacharias Creek	West Branch Skippack Creek
North Hatfield Tributary	West Branch Swamp Creek
Oak Terrace Tributary	West Branch Towamencin Creek
Oley Creek	West Branch Towamencin Creek Tributary No. 3
Oreland Run	Wissahickon Creek
Park Creek	Zacharias Creek

Figure B.8.9c

TABLE 3 - SCOPE OF STUDY

<u>Stream</u>	<u>Limits of Detailed Study</u>
Abrams Creek	From its confluence with the Schuylkill River to a point approximately 60 feet upstream of Brawnlee Road
Abrams Run	From its confluence with Crow Creek to a point approximately 420 feet upstream of Falcon Road
Crow Creek	From its confluence with the Schuylkill River to a point approximately 80 feet upstream of Croton Road
Frog Run	From Flint Hill Road to a point approximately 440 feet upstream of South Henderson Road
Gulph Mills Creek	From Holstein Road to a point approximately 330 feet upstream of Gypsy Road
Gulph Mills Creek Tributary A	From its confluence with Gulph Mills Creek to a point approximately 80 feet upstream of Arden Road
Gulph Mills Creek Tributary B	From its confluence with Gulph Mills Creek to a point approximately 65 feet upstream of Lantern Lane
Matsunk Creek	From its confluence with the Schuylkill River to a point approximately 620 feet upstream of Crooked Lane
Unnamed Creek A	From its confluence with Matsunk Creek to a point approximately 80 feet upstream of Flint Hill Road

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

This countywide FIS also incorporates the determination of letters issued by FEMA resulting in map changes (Letter of Map Revision [LOMR], Special Response [SR], Letter of Map Amendment [LOMA]), as shown in Table 4, "Letters of Map Change."

TABLE 4 - LETTERS OF MAP CHANGE

<u>Community</u>	<u>Flooding Source(s) and Project Identifier</u>	<u>Date Issued</u>	<u>Type</u>
Borough of Collegeville	Donny Brook Run Updated hydrologic and hydraulic data for the Stafford Avenue culvert	July 23, 1990	LOMR

Figure B.8.9d

Table 2, "Stream Name Changes," lists streams that have names in this countywide FIS other than those used in the previously printed FISs for the communities in which they are located.

<u>TABLE 2 - STREAM NAME CHANGES</u>		
<u>Community</u>	<u>Old Name</u>	<u>New Name</u>
Township of Abington	Tributary No. 1	Sandy Run Tributary No. 1
Borough of Hatfield	Towamencin Creek	Towamencin Creek No. 2
Township of Hatfield	Tributary to Unionville Tributary	Tributary No. 1 to Unionville Tributary
Township of Horsham	Branch of Pennypack Creek	Pennypack Creek Branch
Borough of Lansdale	Branch of Neshaminy Creek	Neshaminy Creek Branch
Township of Limerick	Tributary No. 1 to Mingo Creek	Mingo Creek Tributary No. 1
Township of New Hanover	Tributary to Minister Creek	Minister Creek Tributary
Borough of Norristown	Tributary to Stony Creek	Stony Creek Tributary
Township of Skippack	Tributary 1 to Skippack Creek	Skippack Creek Tributary No. 1
Township of Towamencin	Towamencin Creek	Towamencin Creek No. 1
	Tributary No. 1 of Skippack Creek	Skippack Creek Tributary No. 2
	Tributary No. 3 of West Branch Towamencin Creek	West Branch Towamencin Creek Tributary No. 3
Township of Upper Merion	Abrams Run	Crow Creek
	Gulph Creek	Gulph Mills Creek
	Gulph Creek Branch	Gulph Mills Creek
Township of Upper Moreland	Tributary 1	Pennypack Creek Tributary No. 1

For the December 19, 1996, FIS, the Schuylkill River was restudied by detailed methods, including its backwater effects, for its entire length within the county.

For this revision, limits of detailed study for the newly studied streams are listed in Table 3, "Scope of Study."

Figure B.8.9e

The coastal areas of Walton County are subject to flooding from tidal surges associated with hurricanes both along the Gulf of Mexico and inside Choctawhatchee Bay. Generally, the terrain inland along Choctawhatchee Bay rises fairly rapidly and flooding from surges is restricted to only short distances inland of the bay shoreline.

Walton County has experienced flooding from several hurricanes since 1870. Reports of high water marks for the hurricanes of 1936 were 8.4 feet NGVD at Fort Walton Beach, Okaloosa County, and from 7 to 8 feet NGVD at Destin, in Okaloosa County. This compares with the GKY 100-year surge prediction of 2 to 7 feet NGVD. The prediction does not incorporate the effects of wind driven waves or the tidal influences of the heavenly bodies. In October 1995, Hurricane Opal produced high storm surge tides in Walton County. Hurricane Opal highwater marks along the Gulf of Mexico shoreline of Walton County were from 8 to 25 feet NGVD and in Choctawhatchee Bay from 6 to 7 feet NGVD. Present conclusions about recurrence coastal flood elevations rely heavily on historical evidence from the continuous tidal records identified in Table 1.

For this countywide FIS, in order to evaluate existing FIS coastal flood frequencies and revised 100-year stillwater elevations, historical tide gauge water level records for the Florida Panhandle region were used. These water level records are shown in Table 1.

TABLE 1 - HISTORICAL TIDE GAUGE WATER LEVEL RECORDS FOR FLORIDA

PANHANDLE REGION

AGENCY and GAUGE I.D.	SITE NAME	LATITUDE	LONGITUDE	MEAN TIDE RANGE (FT)	PERIOD of RECORD
NOS 8728690	Apalachicola	29° 43.6' N	84° 58.9' W	1.11	1967-95
USACE 02359665	Panama City	30° 09'22" N	85° 38'12" W	1.33	1935-95
NOS 8729108	Panama City	30° 09.1' N	85° 40.0' W	1.24	1975-95
NOS 8729210	Panama City Beach	~ 30.2° N	~ 85.8° W	1.25	1989-94
USACE 02366990	Destin/East Pass	30° 23'20" N	86° 30'04" W	0.58	1957-94
NOS 8729681	Navarre Beach	30° 22.6' N	86° 51.9' W	0.74	1978-89
NOS 8729840	Pensacola	30° 24.2' N	87° 12.8' W	1.19	1923-95
USACE 02376083	Gulf Beach	30° 18'50" N	87° 25'40" W	0.83	1940-95

Brief notes on the history and damages caused by hurricanes are abstracted from reports by the U.S. Army Corps of Engineers (USACE) (References 6 and 7). Additional information on hurricane history and damages, particularly for recent storms, comes from papers published in the Monthly Weather Review. The following pages list the significant storms affecting the panhandle in this century. Damage figures are those determined for values at the time of the storm, and no attempt has been made to adjust these figures to present day values.

Figure B.8.10**TABLE 1 - SUMMARY OF DISCHARGES**

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (sq. miles)</u>	<u>PEAK DISCHARGES (cfs)</u>			
		<u>10-YEAR</u>	<u>50-YEAR</u>	<u>100-YEAR</u>	<u>500-YEAR</u>
SAVANNAH RIVER					
At Butler Creek gage	7,508	59,800	103,000	138,000	262,000
SPIRIT CREEK					
At mouth	106.0	4,226	6,049	6,825	8,982
At Norfolk Southern Railway	104.4	4,149	5,936	6,697	8,813
Just downstream of the confluence of Little Spirit Creek	100.2	4,000	5,719	6,450	8,486
At Old Waynesboro Road	71.1	2,775	3,930	4,422	5,804
Approximately 1.5 miles downstream of U.S. Route 25	62.3	2,432	3,334	3,746	4,909
At U.S. Route 25	55.7	2,045	2,864	3,213	4,204
At Norfolk Southern Railway (downstream of Windsor Springs Road)	51.7	4,427	6,465	7,329	9,698
At Willis Foreman Road	45.5	4,101	5,988	6,788	8,982
Just downstream of Birdwell Drive	33.1	3,388	4,947	5,609	7,421
SPIRIT CREEK TRIBUTARY NO. 1					
At mouth	2.5	714	1,043	1,182	1,564
Approximately 1.3 miles upstream of mouth	1.5	521	761	862	1,141
SPIRIT CREEK HORSEPEN BRANCH					
At mouth	3.1	818	1,194	1,355	1,792
At Willis Foreman Road	2.7	753	1,100	1,247	1,650
Approximately 1 mile upstream of Willis Foreman Road	1.8	591	862	978	1,293
BUTLER CREEK					
At mouth	73.0	5,768	8,438	9,580	12,305
At New Savannah Road	33.9	3,335	4,887	5,553	6,978
At U.S. Route 25	29.2	2,914	4,271	4,856	6,055
At Windsor Spring Road	26.1	2,593	3,803	4,325	5,352
At U.S. Route 1	18.6	1,203	1,773	2,024	2,307
Just downstream of Lombards Millpond Dam	13.2	515	980	1,390	2,371
At McKenna Gate-Fort Gordon	10.4	1,691	2,470	2,800	3,705
At Fort Gordon Highway	7.7	1,412	2,062	2,338	3,094

Figure B.8.11

TABLE 5 – SUMMARY OF COASTAL STILLWATER ELEVATIONS

<u>FLOODING SOURCE AND LOCATION</u>	<u>ELEVATION (feet NGVD)</u>			
	<u>10-YEAR</u>	<u>50-YEAR</u>	<u>100-YEAR</u>	<u>500-YEAR</u>
GULF OF MEXICO				
Open coast shoreline from SR 386 to the south side of Saint Joe Beach	4.0	6.8	10.5 ¹	10.8
Open coast shoreline of St. Joseph Peninsula starting at St. Joseph Point and extending south for approximately 4.7 miles	3.5	5.6	8.7 ¹	7.6
Open coast shoreline of St. Joseph Peninsula starting approximately 4.7 miles south of St. Joseph Point and ending approximately 8.3 miles south of St. Joseph Point	3.3	5.3	8.4 ¹	7.1
Open coast shoreline of St. Joseph Peninsula starting approximately 8.3 miles south of St. Joseph Point and ending at Cape San Blas	3.4	5.3	8.1 ¹	6.8
Open coast shoreline starting at Cape San Blas and extending east approximately 2.2 miles	3.7	5.5	8.0 ¹	7.4
GULF OF MEXICO/ ST. JOSEPH'S BAY				
Entire shoreline of St. Joseph Bay within Gulf County and incorporated areas	4.0	6.8	8.0 ¹	10.8
INDIAN LAGOON				
Open coast shoreline starting approximately 2.2 miles east of Cape San Blas and extending east to Indian Pass	3.9	6.0	9.1 ¹	7.7

¹Includes wave setup of 2.5 feet.

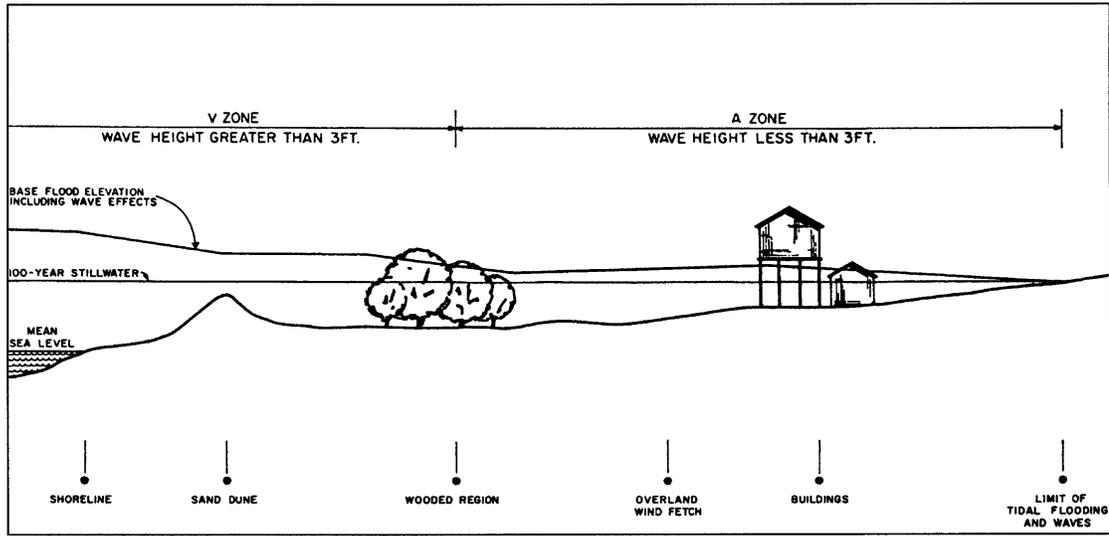
Figure B.8.12

The channel and overbank "n" values for all of the streams studied by detailed methods are shown in Table 6, "Manning's "n" Values."

TABLE 6 - MANNING'S "N" VALUES

<u>Stream</u>	<u>Channel "n"</u>	<u>Overbank "n"</u>
Abrams Creek	0.035-0.040	0.030-0.070
Abrams Run	0.013-0.035	0.035-0.050
Baeder Run	0.018-0.070	0.040-0.110
Blair Mill Run	0.032	0.060-0.087
Blair Mill Run Tributary	0.035-0.037	0.080-0.095
Buckwalter Tributary	0.040-0.045	0.050-0.120
Colmar Tributary	0.025-0.035	0.070
Crow Creek	0.035	0.030-0.050
Davis Grove Tributary	0.040-0.050	0.050-0.130
Deep Creek	0.035-0.045	0.050-0.080
Dodsworth Run	0.012-0.032	0.050
Donny Brook Run	0.012-0.050	0.030-0.125
East Branch Perkiomen Creek	0.013-0.090	0.033-0.125
East Tributary Stony Creek	0.045-0.050	0.055-0.085
Frog Run	0.035-0.040	0.020-0.050
Goshenhoppen Creek	0.035-0.040	0.060-0.080
Gulph Mills Creek	0.035-0.040	0.040-0.050
Gulph Mills Creek Tributary A	0.035	0.050
Gulph Mills Creek Tributary B	0.040	0.050
Hosensack Creek	0.035-0.040	0.035-0.080
Huntington Valley Creek	0.030-0.035	0.070-0.085
Indian Creek	0.030-0.040	0.050-0.125
Jenkintown Creek	0.050	0.130
Lansdale Tributary	0.020-0.035	0.060-0.075
Little Neshaminy Creek	0.030-0.050	0.050-0.110
Little Neshaminy Creek Tributary No. 1	0.045-0.060	0.075-0.120
Little Neshaminy Creek Tributary No. 2	0.025-0.050	0.060-0.120
Lodal Creek	0.040	0.055-0.080
Macoby Creek	0.030-0.045	0.030-0.090
Macoby Creek Branch	0.040	0.050-0.080
Manatawny Creek	0.035-0.040	0.050-0.090
Matsunk Creek	0.035-0.040	0.020-0.050
Meadow Brook	0.030-0.035	0.055-0.080
Middle Creek	0.032-0.055	0.030-0.120
Mill Creek	0.020-0.043	0.015-0.090
Mingo Creek	0.040	0.055-0.080
Mingo Creek Tributary No. 1	0.035-0.040	0.050-0.060

Figure B.8.13



TRANSECT SCHEMATIC

Figure 3

TABLE 5 – TRANSECT DESCRIPTIONS

TRANSECT	LOCATION	ELEVATION (feet NGVD)	
		100-YEAR STILLWATER	MAXIMUM 100-YEAR WAVE CREST
1	At shoreline of Gulf of Mexico, in the unincorporated areas of Walton County, approximately 2.4 miles east of the Okaloosa/Walton County line.	10.5 ¹	16.1
2	At shoreline of Gulf of Mexico, in the unincorporated areas of Walton County, south of Morris Lake.	10.5 ¹	16.1
4	At shoreline of Gulf of Mexico, in the unincorporated areas of Walton County, approximately 1,200 feet southeast of intersection of County Route 30-A and Blue Mountain Road.	15 ¹	16.1

¹Includes wave setup of 2.5 feet.

Figure B.8.14

TABLE 9 – TRANSECT DATA

FLOODING SOURCE	STILLWATER ELEVATION (feet NGVD)				ZONE	BASE FLOOD ELEVATION (feet NGVD) ²
	10-YEAR	50-YEAR	100-YEAR	500-YEAR		
GULF OF MEXICO Transects 1-2	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
	4.0	6.8	8.0	10.8	VE AE	10-12 8-10
Transects 3-10	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
Transect 11	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
	4.0	6.8	8.0	10.8	VE AE	10-12 8-10
GULF OF MEXICO/ ST. ANDREW BAY Transect 12	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
	4.0	6.8	8.0	10.8	VE AE	10-12 8-10
GULF OF MEXICO Transects 13-15	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
Transect 16	4.0	6.8	10.5 ¹	10.8	VE AE	13-16 11-13
	4.0	6.8	8.0	10.8	VE AE	10-12 8-10

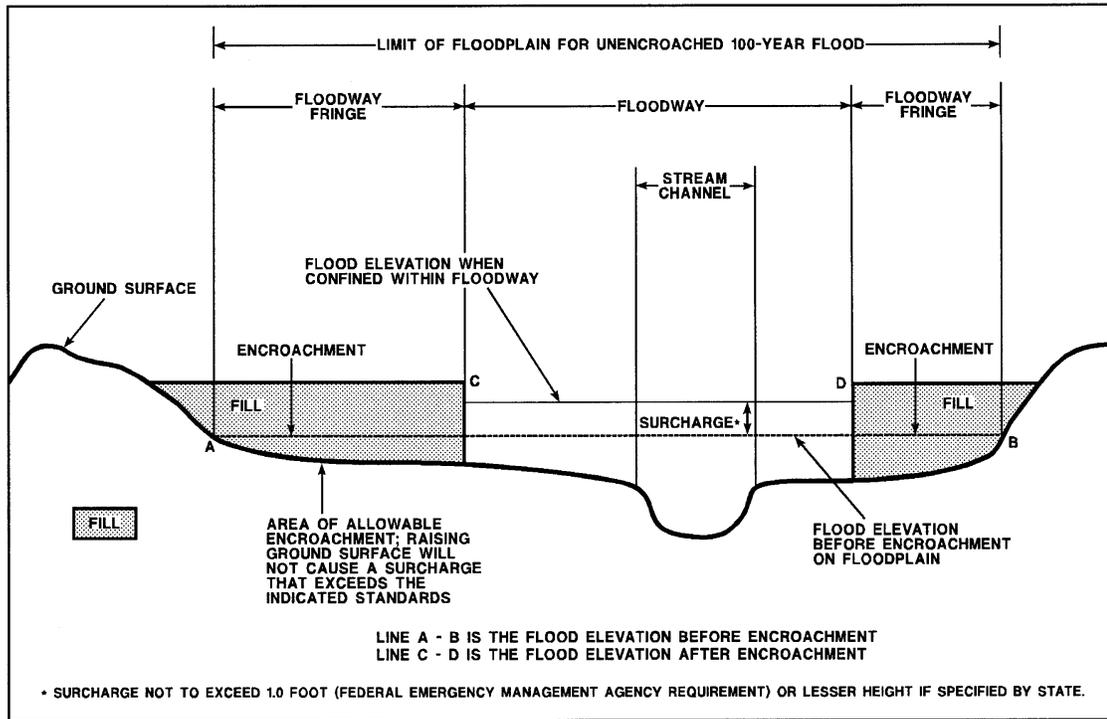
¹Includes wave setup of 2.5 feet.

²Because of map scale limitations, base flood elevations shown on the FIRM represent average elevations for the zone depicted.

*Data not available.

Figure B.8.15

could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.



FLOODWAY SCHEMATIC

Figure 4

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Figure B.8.16a

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			INCREASE
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	
Callaway Bayou Tributary A-G*	7,170 ¹	100	560	2.0	21.9	21.9	21.9	0.0
	10,200 ¹	100	430	2.2	27.3	27.3	28.0	0.7
	10,350 ¹	100	490	1.9	28.0	28.0	28.6	0.6
Callaway Creek	7,920 ²	300	2,440	1.1	11.4	11.4	11.5	0.1
	10,650 ²	200	1,230	1.9	14.6	14.6	14.7	0.1
	12,850 ²	200	1,200	2.0	19.4	19.4	20.4	1.0
	16,460 ²	200	1,350	1.6	28.3	28.3	29.1	0.8
Clear Creek	2,450 ³	239	339	3.6	12.0	12.0	12.0	0.0
	2,525 ³	293	525	2.3	12.3	12.3	12.3	0.0
	2,850 ³	206	462	2.6	14.3	14.3	14.3	0.0
	4,580 ³	206	837	1.4	19.4	19.4	19.4	0.0
	7,150 ³	80	448	2.3	27.4	27.4	27.9	0.5
	10,220 ³	80	435	2.0	37.0	37.0	37.5	0.5
	13,100 ³	80	380	1.7	45.6	45.6	46.3	0.7
	14,300 ³	50	240	1.3	49.0	49.0	49.8	0.8
Double Branch A	2,300 ⁴	100	550	1.8	63.4	63.4	64.4	1.0

*No floodway data computed

¹Feet above State Route 22
²Feet above Berthe Avenue
³Feet above confluence with Bear Creek
⁴Feet above confluence with Little Bear Creek

FEDERAL EMERGENCY MANAGEMENT AGENCY

**BAY COUNTY, FL
AND INCORPORATED AREAS**

FLOODWAY DATA

CALLAWAY BAYOU TRIBUTARY - CALLAWAY CREEK -
CLEAR CREEK - DOUBLE BRANCH

TABLE 10

Figure B.8.16b

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Econfina Creek								
A	0 ¹	74	780	9.9	81.0	81.0	82.0	1.0
B	12,500 ¹	100	1,190	5.9	103.1	103.1	104.0	0.9
C	15,300 ¹	100	1,320	4.9	107.4	107.4	107.9	0.5
D	22,300 ¹	250	2,310	2.7	121.1	121.1	121.6	0.5
E	27,100 ¹	300	2,830	2.1	127.3	127.3	128.3	1.0
F	37,700 ¹	300	2,900	1.9	143.5	143.5	143.6	0.1
G	45,000 ¹	400	3,710	1.4	147.4	147.4	148.3	0.9
Juniper Creek								
A	0 ¹	300 ³	1,860	1.3	138.8	138.8	139.8	1.0
B	4,000 ¹	300	1,530	1.4	144.5	144.5	145.3	0.8
C	8,100 ¹	300	1,660	1.0	149.9	149.9	150.9	1.0
D	13,300 ¹	250	1,230	1.0	155.2	155.2	156.0	0.8
E	13,500 ¹	70	240	5.3	157.9	157.9	157.9	0.0
F	13,700 ¹	40	170	7.3	158.5	158.5	158.5	0.0
Lake Martin								
A-F*								
G	8,220 ²	350	1,110	1.1	10.2	10.2	10.2	0.0
H	8,940 ²	410	4,180	0.3	10.3	10.3	10.3	0.0
I	9,300 ²	300	2,810	0.4	10.3	10.3	10.3	0.0
J	10,940 ²	300	820	1.2	10.4	10.4	10.4	0.0
K	11,200 ²	100	280	3.6	10.5	10.5	10.5	0.0
L	13,860 ²	50	345	2.9	13.3	13.3	13.3	0.0
M	15,960 ²	50	205	4.4	23.5	23.5	24.4	0.9
N	16,010 ²	50	350	2.6	25.8	25.8	26.2	0.4
O	16,600 ²	50	340	2.6	26.9	26.9	27.6	0.7

¹Feet above county boundary
²Feet above U.S. Highway 98 (Business)
³This width extends beyond county boundary
*No floodway data computed

FEDERAL EMERGENCY MANAGEMENT AGENCY BAY COUNTY, FL AND INCORPORATED AREAS	FLOODWAY DATA ECONFINA CREEK – JUNIPER CREEK – LAKE MARTIN
--	--

TABLE 10

Figure B.8.16c

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Lake Martin Tributary	230 ¹	240	1,560	0.3	10.3 ⁴	7.4 ⁴	8.4	1.0
	1,100 ¹	100	315	1.4	10.3 ⁴	7.4 ⁴	8.4	1.0
	1,150 ¹	100	530	0.8	10.8 ⁵	10.3 ⁴	10.4	0.1
	1,330 ¹	100	480	0.9	10.8 ⁵	10.3 ⁴	10.4	0.1
	1,380 ¹	100	400	1.0	10.8 ⁵	10.4 ⁴	10.5	0.1
	1,450 ¹	100	380	1.2	10.8 ⁵	10.4 ⁴	10.5	0.1
Little Bear Creek	1,400 ²	400	3,300	1.6	25.8	23.0 ⁵	23.9	0.9
	7,480 ²	400	2,070	2.5	31.6	31.6	32.6	1.0
	11,100 ²	450	3,460	1.4	37.5	37.5	38.4	0.9
	18,000 ²	300	2,380	1.9	49.3	49.3	49.9	0.6
	18,150 ²	200	1,810	2.5	49.6	49.6	50.2	0.6
	20,350 ²	300	3,180	1.3	52.1	52.1	53.0	0.9
	22,100 ²	300	3,000	1.2	55.8	55.8	56.7	0.9
Little Bear Creek Tributary	700 ³	200	650	1.8	50.8	50.4 ⁶	51.2	0.8
	1,100 ³	50	390	3.0	52.6	52.6	53.2	0.6
	1,300 ³	50	380	3.1	54.7	54.7	54.9	0.2
	1,700 ³	50	310	3.8	56.5	56.5	56.6	0.1

¹Feet above mouth

²Feet above confluence with Bear Creek

³Feet above confluence with Little Bear Creek

⁴Elevation computed without consideration of backwater effects from Lake Martin

⁵Elevation computed without consideration of backwater effects from Bear Creek

⁶Elevation computed without consideration of backwater effects from Little Bear Creek

FEDERAL EMERGENCY MANAGEMENT AGENCY

BAY COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

LAKE MARTIN TRIBUTARY - LITTLE BEAR CREEK -
LITTLE BEAR CREEK TRIBUTARY

TABLE 10

Figure B.8.17

Exhibit 3

ELEVATION REFERENCE MARKS

<u>REFERENCE MARK</u>	<u>FLOOD INSURANCE RATE MAP PANEL</u>	<u>ELEVATION (FEET NGVD)</u>	<u>DESCRIPTION OF LOCATION</u>
84	0086	3021.76	spike in power pole 15-37 located east of intersection of U.S. Route 221 and SR 1137
85	0086	3042.35	chiseled cross on southwest headwall of culvert for Beaver Creek under Private Road, about 1,700 feet southwest of intersection of U.S. Route 221 and SR 1137
86	0079	2628.68	chiseled cross on southeast culvert headwall of State Road 88 bridge over Naked Creek
87	0079	2687.13	spike in top of 6-inch square post at southwest wingwall of SR 1585 bridge over Naked Creek
88	0079	2729.89	U.S. Geological Survey monument on southeast wingwall of State Road 16 bridge over Naked Creek
89	0079	2777.28	top of east end of 60-inch culvert at old Gambill Convent Road over Naked Creek
90	0153	2,924.70	Concrete pole with reference tag on southeast corner of State Route 1100 bridge over the South Fork New River
91	0132	2,944.35	Chiseled X on fence column footing approximately 15 feet west of State Route 1106, approximately 25 feet northeast of bridge over the South Fork New River

Figure B.8.18

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Abington, Township of	March 2, 1973 May 28, 1976	None	September 30, 1977	January 2, 1991 March 3, 1992 December 19, 1996
Ambler, Borough of	May 31, 1974	April 30, 1976	November 2, 1977	August 18, 1992 December 19, 1996
Bridgeport, Borough of	January 16, 1974	December 13, 1976	January 3, 1979	December 19, 1996
Bryn Athyn, Borough of	December 20, 1974	None	February 17, 1982	May 15, 1991 December 19, 1996
Cheltenham, Township of	June 28, 1974	April 11, 1975	November 22, 1976	December 19, 1996
Collegeville, Borough of	November 22, 1974	None	February 15, 1980	December 19, 1996
Conshohocken, Borough of	March 22, 1974	None	December 15, 1977	December 19, 1996
Douglass, Township of	November 1, 1974	None	May 15, 1984	July 2, 1991 December 19, 1996
East Greenville, Borough of	November 15, 1974	None	July 25, 1976	December 19, 1996
East Norriton, Township of	June 28, 1974 July 9, 1976	None	September 30, 1977	December 19, 1996

FEDERAL EMERGENCY MANAGEMENT AGENCY

MONTGOMERY COUNTY, PA
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

TABLE 8

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B.9 Deliverables to the Map Service Center

The FMPCC must prepare all FIRM deliverables to the Map Service Center for printing by the Government Printing Office on a regular pre-determined schedule. The deliverables will include photo reproducibles of the Flood Insurance Rate Map as well as all associated paperwork such as the Community Map Actions list and print requisition forms.