FLOOD INSURANCE STUDY

VOLUME 1 OF 5

SOMERSET COUNTY, NEW JERSEY
(ALL JURISDICTIONS)

COMMUNITY NAME	COMMUNITY NUMBER
BEDMINSTER, TOWNSHIP OF	340427
BERNARDS, TOWNSHIP OF	340428
BERNARDSVILLE, BOROUGH OF	340429
BOUND BROOK, BOROUGH OF	340430
BRANCHBURG, TOWNSHIP OF	340431
BRIDGEWATER, TOWNSHIP OF	340432
FAR HILLS, BOROUGH OF	340433
FRANKLIN, TOWNSHIP OF	340434
GREEN BROOK, TOWNSHIP OF	340435
HILLSBOROUGH, TOWNSHIP OF	340436
MANVILLE, BOROUGH OF	340437
MILLSTONE, BOROUGH OF	340438
MONTGOMERY, TOWNSHIP OF	340439
NORTH PLAINFIELD, BOROUGH OF	345307
PEAPACK AND GLADSTONE, BOROUGH OF	340441
RARITAN, BOROUGH OF	340442
ROCKY HILL, BOROUGH OF	340443
SOMERVILLE, BOROUGH OF	340444
SOUTH BOUND BROOK, BOROUGH OF	340445
WARREN, TOWNSHIP OF	340446
WATCHUNG, BOROUGH OF	340447

Preliminary Date: June 30, 2014

NOTICE
This preliminary FIS report includes only revised profiles and Floodway Data Tables. See Notice to Flood Insurance Users" page for additional details.

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
34035CV001B

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) 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 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 Countywide FIS Effective Date: September 28, 2007

Revised Countywide FIS Dates:

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.

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FLOOD INSURANCE STUDY
SOMERSET COUNTY, NEW JERSEY (ALL JURISDICTIONS)

1.0 INTRODUCTION

1.1 Purpose of Study

The September 28, 2007, Flood Insurance Study (FIS) revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Somerset County, New Jersey, including: the Boroughs of Bernardsville, Bound Brook, Far Hills, Franklin, Manville, Millstone, North Plainfield, Peapack - Gladstone, Raritan, Rocky Hill, Somerville, South Bound Brook, and Watchung; and the Townships of Bedminster, Bernards, Branchburg, Bridgewater, Green Brook, Hillsborough, Montgomery, and Warren (hereinafter referred to Somerset County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the county that will be used to establish actuarial flood insurance rates. This information will also be used by Somerset County communities to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in Title 44 of the Code of Federal Regulations (CFR) § 60.3.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The countywide FIS was prepared in September 28, 2007, to include all jurisdictions within Somerset County in a countywide FIS. The authority and acknowledgments prior to the September 28, 2007 FIS have been compiled from the FIS report for the previously identified flood prone jurisdictions within Somerset County are shown below:

Bedminster, Township of:	The hydrologic and hydraulic analyses for the July 1985 study were performed by the New Jersey Department of Environmental Protection (NJDEP) for the Federal Emergency Management Agency (FEMA), under Contract No. H-4546. This work was

completed in December 1980. The hydrologic and hydraulic analyses for that study were conducted by Anderson-Nichols & Company under subcontract to the NJDEP. The hydrologic and hydraulic analyses for portions of the Lamington River and North Branch Raritan River were previously performed by the U.S. Geological Survey (USGS).

Bernards, Township of:

For the original March 1978 FIS report and September 1, 1978, FIRM (hereinafter referred to as the 1978 FIS), the hydrologic and hydraulic analyses were prepared by Pfisterer, Tor & Associates for the Federal Insurance Administration (FIA), under Contract No. H-3737. That work was completed in October 1975.

For the March 2002 revision, the hydrologic and hydraulic analyses for the Passaic River were prepared by Leonard Jackson Associates for the Federal Emergency Management Agency (FEMA), under Contract No. EMN-96-CO-0026. That work was completed in November 1998.

Bernardsville, Borough of:

For the March 1978 FIRM, the hydrologic and hydraulic analyses were prepared by Anderson-Nichols & Co., Inc., for FEMA, under Contract No. H-3715.

For the April 1984 FIS, the hydrologic and hydraulic analyses originally prepared by Anderson-Nichols & Co., Inc., were updated by Dewberry & Davis LLC under agreement with FEMA. That work was completed in March 1983. The hydrologic and hydraulic analyses for the Passaic River in the March 1983 study were computed by the NJDEP under agreement with FEMA, under Contract Nos. H-4546 and H-3959.

For the March 2003 FIS, the hydrologic and hydraulic analyses for Indian Grave Brook and Tributary K were prepared by Leonard Jackson Associates for FEMA, under Contract No. EMN-96-CO-0026. That work was completed in October 2000. The

hydrologic and hydraulic analyses for portions of Mine Brook and Tributary MB were prepared for the Borough of Bernardsville by Ferriero Engineering, Inc., in coordination with Dewberry & Davis LLC. This work was completed in January 2002. In addition, this revision incorporates portions of the hydrologic and hydraulic analyses for the Passaic River prepared by Leonard Jackson Associates for FEMA, under Contract No. EMN-96-CO-0026. That work was completed in November 1998.

Bound Brook, Borough of:

The hydrologic and hydraulic analyses in the July 1988 study represent a revision of the original analyses prepared by the Soil Conservation Service (SCS) for FEMA, under Inter-Agency Agreement No. IAA-H-1672. . The hydraulic analysis was revised by Dewberry & Davis, under agreement with FEMA. The work for the original study was completed in March 1981.

Revisions to portions of Middle Brook reflecting as-built conditions of the Green Brook FCP were performed by the New York District USACE (hydrology) and URS (hydraulics), which was completed in 2006.

The hydrologic and hydraulic analyses in the July 1988 FIS were prepared by The RBA Group for FEMA, under Contract No. EMW-83-C-1195. The work for this study was completed in April 1985.

Branchburg, Township of:

The hydrologic and hydraulic analyses for the December 1977 FIS were performed by the USGS for the FIA, under Inter-Agency Agreement No. IAA-H-20-74, Project Order No. 17. This work, which was completed in January 1977, covered all significant flooding sources affecting the Township of Branchburg.

Bridgewater, Township of:

The hydrologic and hydraulic analyses in the August 1987 FIS represent a revision of the original analyses prepared by Nebolsine, Toth and McPhee Associates for FEMA,

under Contract No. H-3598. The work for the original study was completed in July 1974. The hydrologic and hydraulic analyses in the August 1987 FIS were prepared by The RBA Group for FEMA under Contract No. EMW-83-C-1195. The work for the August 1987 study was completed in April 1985.

Far Hills, Borough of:

The hydrologic and hydraulic analyses for the January 1978 study were performed by Anderson-Nichols & Co., Inc., Consulting Engineers, for the FIA, under Contract No. H-3715. This work, which was completed in December 1975, covered all flooding sources affecting the Borough of Far Hills, New Jersey.

All survey data for the January 1978 FIS was collected and compiled by A. O. Quinn & Associates, Horsham, Pennsylvania, under subcontract from Anderson-Nichols & Co., Inc.

Franklin, Township of:

The hydrologic and hydraulic analyses for the March 1989 study represent a revision of the original analyses prepared by the USGS for FEMA, under Inter-Agency Agreement No. IAA-H-17-75 and No. IAA-H-8-76, Project Order No. 15 and No. 18, respectively. That work was completed in June 1977.

In the March 1989 revision, the hydrologic and hydraulic analysis for Seeley's Brook, Tributary A, and Tributary B was prepared by the New York District of the USACE for FEMA under Inter-Agency Agreement No. EMW-87-E-2549, Project Order No. 1. The work for the 1989 revision was completed in October 1987.

Green Brook, Township of:

The hydrologic and hydraulic analyses for the April 1988 study represent a revision of the original analyses prepared by the U.S. Soil Conservation Service (SCS) for FEMA, under Contract No. IAA-H-4-73, Project Order No. 6.

The updated hydrologic and hydraulic analyses for Green Brook were prepared by the NJDEP, Division of Water Resources, Bureau of Floodplain Management. That work was completed in July 1986.

Hillsborough, Township of: The hydrologic and hydraulic analyses for the September 1980 study were performed by the USGS for the FIA, under Inter-Agency Agreement No. IAA-H-8-76, Project Order No. 2 with Amendment No. 1. That work was completed in September 1978.

Manville, Borough of: The hydrologic and hydraulic analyses for the August 1977 study were performed by the USGS for the FIA, under Inter-Agency Agreement Nos. IAA-H-20-74 and IAA-H-8-76, Project Order Nos. 17 and 18, respectively. That work, which was completed in December 1976, covered all significant flooding sources affecting the Borough of Manville.

Millstone, Borough of: The hydrologic and hydraulic analyses for the June 1977 study were performed by the USGS, for the FIA, under Inter-Agency Agreement No. IAA-H-8-76, Project Order No. 2. That work, which was completed in March 1976, covered all significant flooding sources affecting the Borough of Millstone.

Montgomery, Township of: The hydrologic and hydraulic analyses for the October 1980 study were performed by the USGS for the FIA, under Inter-Agency Agreement No. IAA-H-8-76, Project Order No. 2 with Amendment No. 1. That work was completed in September 1978.

North Plainfield, Borough of: The hydrologic and hydraulic analyses in the September 1983 study represent a revision of the original analyses by the USGS for FEMA, under Inter-Agency Agreement No. IAA-H-19-71. The 1983 version was prepared by the NJDEP, Division of Water Resources, under Contract No. H-4623. The hydrologic and hydraulic analyses for the 1983 study were prepared by URS Company, Inc., acting as subcontractors to

the NJDEP, under Contract No. S90024, Project "Y." That work was completed in November 1980.

Peapack and Gladstone, Borough of: The hydrologic and hydraulic analyses for the February 1977 study were performed by Anderson-Nichols & Co., Inc., for the FIA, under Contract No. H-3715. That work, which was completed in December 1975, covered all flooding sources affecting the Borough of Peapack and Gladstone.

Raritan, Borough of: The hydrologic and hydraulic analyses for the June 1981 study were performed by the NJDEP, Division of Water Resources, Bureau of Floodplain Management for FEMA, under Contract No. H-4623. That work was completed in August 1980.

Rocky Hill, Borough of: The hydrologic and hydraulic analyses for the June 1980 study were prepared by the NJDEP, Division of Water Resources, for the FIA, under Contract No. H-3959. That work, which was completed in May 1979, covered all significant flooding sources in the Borough of Rocky Hill. The hydrologic and hydraulic analyses for the 1980 study were conducted by Justin & Courtney, Inc., under subcontract to the Division of Water Resources.

Somerville, Borough of: The hydrologic and hydraulic analyses for the July 1982 study were prepared by the NJDEP, for FEMA, under Contract No. H-4623. That work was completed in November 1980. The hydrologic and hydraulic analyses for the 1980 study were conducted by URS Company, Inc., under subcontract to the NJDEP.

South Bound Brook, Borough of: The hydrologic and hydraulic analyses for the March 1982 study were prepared by the NJDEP, Division of Water Resources, Bureau of Floodplain Management, for FEMA, under Inter-Agency Agreement No. IAA-H-4623. That work was completed in April 1981.

Warren, Township of:	For the original June 1977 FIS report and January 5, 1978, FIRM (hereinafter referred to as the 1978 FIS), the hydrologic and hydraulic analyses were prepared by Pfisterer, Tor, & Associates for FEMA, under Contract No. H-3737. That work was completed in September 1975. For the January 2002 revision, the hydrologic and hydraulic analyses for the Passaic River were prepared by Leonard Jackson Associates for FEMA, under Contract No. EMN-96-CO-0026. That work was completed in November 1998.
Watchung, Borough of:	For the original FIS dated August 1979 and FIRM dated December 4, 1979 (hereinafter referred to as the 1979 FIS), the hydrologic and hydraulic analyses were prepared by the NJDEP, for the FIA, under Contract No. H-3855. That work was completed in November 1977. For the August 2002 revision, the hydrologic and hydraulic analyses for Green Brook were prepared by Leonard Jackson Associates for FEMA, under Contract No. EMW-90-R-3127. This work was completed in March 2000. The hydrologic and hydraulic analyses for Stony Brook and East Branch Stony Brook were prepared by Leonard Jackson Associates for FEMA. The hydrologic and hydraulic analyses for Stony Brook were completed on October 16, 1997. The hydrologic and hydraulic analyses for East Branch Stony Brook were completed on December 29, 1994.

For the September 28, 2007 FIS, revised hydraulic and hydrologic analyses and updated topography for Cory's Brook, Dead River, Harrison Brook, Harrison Brook Branch 2, Indian Grave Brook, Passaic River, and Tributary K were prepared by Leonard Jackson Associates. This work was completed in July and September 2003, under contract EMN-96-CO-0026. The hydraulic and hydrologic analyses for the North Branch Raritan and South Branch Raritan River were prepared by Natural and Technological Hazards Management Consulting, Inc. This work was completed in May 2005. Revised hydraulic analyses for the Raritan River were conducted by Dewberry and Davis, LLC under Contract No. EMW-2000-CO-0003. This work was completed in November 2002

Base map information shown on the FIRMs was derived from digital orthophotography provided by the Somerset County GIS Department. In the study of September 28, 2007, the information was produced at a scale of 1:2,400 from aerial photography dated March 2000.

For the (*Date*) FIS, the hydrology and hydraulic analyses for the Millstone River Watershed (02030105) was performed by SUN Engineers under the Contract No. HSFEHQ-09-D-0369, under a subcontract with Risk Assessment Mapping and Planning Partners (RAMPP) and was completed in January 2014.

For the (*Date*) FIS, Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

For the (Date) FIS, bare earth elevation data was obtained from USGS NJA LiDAR Data for Somerset County, NJ. A digital terrain model in the form of terrain dataset was prepared by RAMPP for use in the project.

The coordinate system used for the production of this FIRM was, New Jersey State Plane (FIPS 2900) zone. The horizontal datum was NAD 83, GRS80 spheroid. Differences in the datum, spheroid, projection, or UTM zones 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 the FIRM.

1.3 Coordination

Consultation Coordination Officer's (COO) meetings were held for each jurisdiction in the September 28, 2007 revision. An initial CCO meeting was held typically with representatives of FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the stream so be studied by detailed methods. A final CCO meeting will be held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

The dates of the initial and final CCO meetings held prior to the September 28, 2007 FIS for the communities of Somerset County are shown in Table 1, "CCO Coordination Meetings."

TABLE 1 – CCO COORDINATION MEETINGS

Community Name	Initial CCO Date	Final CCO Date
Bedminster, Township of	*	December 2, 1982
Bernards, Township of	*	March 12, 1976
	*	April 5, 1999
Bernardsville, Borough of	December 4, 1974	March 12, 1976
	*	March 22, 2002
Bound Brook, Borough of	*	October 2, 1986
Branchburg, Township of	December 12, 1973	April 18, 1977
Bridgewater, Township of	April 8, 1983	October 2, 1986
Far Hills, Borough of	October 3, 1974	September 9, 1976
Franklin, Borough of	March 7, 1975	*
Green Brook, Township of	*	*
Hillsborough, Township of	April 1975	March 6, 1980
Manville, Borough of	December 12, 1973	February 28, 1977
Millstone, Borough of	April 18, 1975	March 10, 1977
Montgomery, Township of	April 1975	April 14, 1980
North Plainfield, Borough of	*	August 16, 1982
Peapack and Gladstone, Borough of	October 3, 1974	March 12, 1976
Raritan, Borough of	January 23, 1976	January 27, 1981
Rocky Hill, Borough of	March 16, 1976	January 29, 1980
Somerville, Borough of	March 1981	January 28, 1982
South Bound Brook, Borough of	January 23, 1976	November 23, 1981
Warren, Township of	*	November 17, 1975
	*	May 15, 2000
Watchung, Borough of	May 5, 1975	*
	*	May 25, 2000

* Date not available

For September 28, 2007 revision, communities within Somerset County were notified by FEMA in a letter dated July 2, 2003, that the FIS and FIRMs would be revised and updated. Final CCO meetings for the September 28, 2007, FIS were held on October 5, 2005 and October 6, 2005, and were attended by representatives of the Somerset County communities, the New Jersey Department of Environmental Protection, MJ Baker Corporation, Dewberry, the State and FEMA.

For the (*Date*) FIS, the introduction to Risk MAP meeting was held on June 24, 2010. The flood study review meeting for the Millstone River watershed were held on (*Date*).

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Somerset County, New Jersey.

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. All or portions of the flooding sources listed in Table 2, "Flooding

Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

TABLE 2 – FLOODING SOURCES STUDIED BY DETAILED METHODS

Beden Brook
Chambers Brook # 1
Chambers Brook # 2
Clucas Brook
Cory's Brook
Cruser Brook
Cuckel's Brook
Dead River
Dock Watch Hollow Brook
Dock Watch Hollow Brook Branch
East Branch Middle Brook
Green Brook
Harrison Brook
Harrison Brook Branch 1
Harrison Brook Branch 2
Herzog Brook
Holland Brook
Hoopstick Brook
Indian Grave Brook
Lamington River
Lake Road Tributary D
Mac's Brook
Middle Brook to North Branch Raritan River
Middle Brook to Raritan River
Millstone River
Mine Brook
Mine Brook Tributary B
Moggy Brook
Moggy Brook Tributary
Municipal Brook
Neshanic River
North Branch Raritan River
North Branch Raritan River Tributary B
North Branch Raritan River Tributary C
North Branch Raritan River Tributary D
North Branch Raritan River Tributary E
Passaic River
Passaic River Branch 1
Passaic River Branch 2
Tributary J
Tributary K
Tributary L
Peapack Brook
Peapack Brook Tributary A
Peapack Brook Tributary B
Peapack Brook Tributary C
Penns Brook
Peter's Brook
Peter's Brook Tributary
Pike Run
Pike Run Tributary
Pleasant Run
Raritan River
Raritan Water and Power Canal Tributary
River Brook
Rock Brook
Ross Brook
Royce Brook
Royce Brook Tributary A
Royce Brook Tributary B
Royce Brook Tributary C
Seeley's Brook
Seeley's Brook Tributary A
Seeley's Brook Tributary B
Simonson Brook
South Branch Raritan River
Stony Brook
Stony Brook East Branch
Stony Brook West Branch
Stony Brook West Branch Tributary A
Stony Brook West Branch Tributary B
Ten Mile Run
Tributary A in Bernardsville
Tributary C in Bernardsville
Tributary D in Bernardsville
Tributary F
Tributary G
Tributary H
Tributary I
Tributary MB
Van Horn Brook
West Branch Middle Brook

Table 3, "Stream Name Changes," lists streams that had name changes in the September 28, 2007, FIS. In the (date) FIS there is no name change.

TABLE 3 – STREAM NAME CHANGES

Old Name	Community	New Name
Branch Stony Brook	Warren	Stony Brook West Branch Tributary B
Chambers Brook	Bedminster	Chambers Brook #1
Chambers Brook	Bridgewater	Chambers Brook #1
Chambers Brook	Branchburg	Chambers Brook #2
East Branch Stony Brook	Watchung	Stony Brook East Branch
Pike Brook	Montgomery	Pike Run
Middle Brook	Bound Brook	Middle Brook (to Raritan River)
Tributary A	Bernardsville	Tributary A in Bernardsville
Tributary A	Peapack and Gladstone	Peapack Brook Tributary A
Tributary A	Franklin	Seeley's Brook Tributary A
Tributary B	Bernardsville	North Branch Raritan River Tributary B
Tributary B	Far Hills	Mine Brook Tributary B
Tributary B	Franklin	Seeley's Brook Tributary B
Tributary B	Peapack and Gladstone	Peapack Brook Tributary B
Tributary C	Bernardsville	Tributary C in Bernardsville
Tributary C	Far Hills	North Branch Raritan River Tributary C

As part of the (date) FIS, updated analyses were included for the flooding sources shown in Table 4, "Scope of Revision."

TABLE 4 – SCOPE OF REVISION

Stream	Limits of Revised or New Detailed Study
Millstone River	from the confluence with Raritan River to approximately 200 feet downstream of Somerset/Middlesex County boundary

Riverine flooding sources throughout the county have been studied by detailed methods at different times and, prior to the September 28, 2007, countywide FIS, often on a community-by-community basis. Table 5, "Model Dates for Riverine Flooding" below represents the hydraulic modeling dates for the detailed study flooding sources in this revision.

TABLE 5 – MODEL DATES FOR RIVERINE FLOODING

STREAM NAME	COMMUNITY	MOST RECENT MODEL DATE
Millstone River	Borough of Millstone, Borough of Montgomery, Borough of Franklin, Borough of Manville, Borough of Rocky Hill and Township of Hillsborough	January, 2014

The September 28, 2007, FIS also incorporated the following Letter of Map Revision dated December 26, 2002, to reflect updated topographic data and hydraulic analysis in the vicinity of Manville Causeway; and the LOMR dated December 12, 2003, along Green Brook in the Borough of Watchung.

No Letters of Map Revision (LOMRs) were incorporated in the (date) FIS. Please see Summary of Map Actions (SOMA) for a list of Letters of Map Changes (LOMCs).

All or portions of numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA, the New Jersey Department of Environmental Protection (NJDEP), and Somerset County.

2.2 Community Description

Somerset County is located in central New Jersey. Its county seat, Somerville, is located approximately 30 miles southwest of New York City. Somerset County is bordered by Morris County to the north, Union and Middlesex Counties to the east, Mercer County to the south, and Hunterdon County to the west. The county had an approximate population of 327,707 in 2014 (Somerset County, 2014) on a total area of 304.86 square miles, giving the county a population density of

approximately 1,086 persons per square mile.

Somerset County, one of America's oldest counties, having been established by charter on May 22, 1688, is a mix of urban, suburban and rural areas with the majority of the population located in the eastern half of the county and in the Raritan River Valley. (Somerset County, 2003) The climate in Somerset County is humid continental, and precipitation in the area averages about 45 inches per year. The mean annual temperature is approximately 52 degrees Fahrenheit.

2.3 Principal Flood Problems

Because Somerset County lies in a storm belt, a history of flooding throughout the county indicates that flooding may be experienced during any season of the year. Flooding during the winter months is less frequent. However, spring flooding compounded by snowmelt and ice has occurred. Extensive flooding has occurred in the late summer and fall, usually being associated with transcontinental storms or tropical disturbances moving north along the Atlantic coast.

Rainfall is usually heaviest in late summer and fall. Much of the summer rainfall comes as thunderstorms, with approximately 30 occurring annually. Summer rainfall amounts and intensities are greatly affected by the Watchung Mountain ranges that cross the area. Most of the summer showers come from the west. As storms that come from the east or south try to pass over the mountains, rainfall is intensified on the southeastern side of the Watchung Mountains. Erosion and sediment deposits cause extensive damage and cleanup problems.

Severe floods in Somerset County were caused by Hurricane Floyd in September 1999. Hurricane Floyd produced torrential downpours and flooding across New Jersey. Hardest hit was the Raritan River Basin in the north-central part of the State, which received 7 to 11 inches of rain in less than 24 hours. The main stem of the Raritan River at Bound Brook set a new high-water mark (HWM) of record on September 17, 1999, at 42.31 feet National Geodetic Vertical Datum of 1929 (NGVD29). This is the highest stage since at least 1800. As a point of reference, this stage at Bound Brook was 4.7 feet higher than the stage following Tropical Storm Doria in 1971. Monetary damages due to Floyd in the three worst-hit Somerset County communities exceeded $200 million.

Other major floods have occurred in the Raritan River Basin in the last 100 years. After Floyd, the six greatest floods occurred in, August 2011 (Hurricane Irene) September 1882, February 1896, September 1938, August 1955, August 1971, and July 1975 (State of New Jersey, 1897; State of New Jersey, 1964; U.S. Department of the Interior, 1947; U.S. Department of the Interior, 1970; State of New Jersey, 1972). Their estimated return periods vary from 10 years to over 100 years. The other major floods since 1900 occurred in 1927, 1936, 1940, 1945, 1956, and 1968. Some of these floods were generated by local storms or compounded by structural dam failures and were of major proportions within some of the Raritan River’s tributaries (State of New Jersey, Flood Hazard Report No. 2, 1972).

The Township of Bridgewater and the Borough of South Bound Brook have experienced most of their flooding along the Raritan River. Low-lying areas beyond the Raritan River Power Canal are subject to damaging floods. Substantial flooding occurred in these areas during the storm of August 1971. Also, when the flow of the Raritan River is high, the smaller streams have no outlets, causing them to overflow into low-lying areas.

In the Township of Green Brook, the most severe storm recorded in this area occurred on September 16, 1999. Even though contributing watersheds are small and mostly wooded, all streams in the area overflowed their banks and caused record high damages to residential and commercial properties.

In Bernardsville, the North Branch Raritan River floods from the Borough of Far Hills corporate limits upstream to the Morris County boundary. The most severe flooding problems in Bernardsville occur along Mine Brook and Tributary MB, U.S. Route 202 and Mill Street along Mine Brook and Thompson Road, and Claremont Road along Tributary F, with the greatest inundation occurring from its mouth upstream to Douglass Road. Tributary I floods from its confluence with Mine Brook upstream for approximately 0.5 mile. The Passaic River floods from the Township of Bernards corporate limits upstream to the Morris County boundary. Flooding along Indian Grave Brook occurs from its mouth upstream to approximately 0.3 mile below Jockey Hollow Road.

In the Borough of Peapack and Gladstone, inundation along the North Branch Raritan River is the most severe from the borough corporate limits upstream for approximately 1.3 miles. The flooding is less severe upstream due to Ravine Lake, a steeper channel, and narrower valleys. There is widespread flooding along Peapack Brook and the lower portion of Tributary C. Just downstream of Park Avenue, the 1 percent annual chance flood inundates an area behind the Erie-Lackawanna Railroad, where it forms a pocket. The only place the flood waters can flow back into the stream is the culvert at Tributary D. The study of Tributary D is not warranted upstream of river mile 0.10, where the greatest width of the 1 percent annual chance floodplain decreases to 100 feet. The North and South Branches of the Raritan River and the Millstone River all have extensive flat floodplains up to 2,000 feet wide. Flood waters cover these floodplains several times a decade.

In the Township of Franklin, the towpath of the Delaware and Raritan Canal along the Millstone River somewhat limits flooding until the towpath is overtopped. The floodplain of the Raritan River, narrower than the Millstone River, also borders the Delaware and Raritan Canal, which restricts flood flows until the towpath is overtopped.

In the Borough of Bound Brook, flooding from Bound Brook occurs from four major sources. The Raritan River floods the low-lying areas along its banks. During Hurricane Floyd the borough was inundated by over ten feet of water in places as well as electrical fires that had their root cause in flooding. During Tropical Storm Doria (August 1971), floodwaters covered Main Street to a depth that exceeded 4 feet in many places. Also in the Borough of Bound Brook,

Middle Brook flows along the western boundary of the borough. It has not had a history of frequent flooding. On the lower portion of Middle Brook, Tropical Storm Doria caused major flood damage. This storm had a recurrence interval of approximately 200 years at that time.

In the Townships of Green Brook and Bridgewater and the Borough of Bound Brook, flood damages in the Green Brook Basin are more numerous and severe than elsewhere in the Raritan River Basin because of encroachments that have and are taking place on its floodplains. At some locations, conditions are so bad that buildings have been constructed over the top of the stream and the floodplains have been virtually eliminated. During Tropical Storm Doria, the Raritan River backed water into this area. Flooding on Green Brook has been described as "flashy" or producing severe flood conditions due to the high intensity of rainfall for a short duration. The majority of flooding on Municipal Brook in the Township of Green Brook occurs near the brook's junction with Green Brook. Some flooding also occurs upstream of Green Brook Road; however, it is more extensive downstream. Backwater from Green Brook, caused by floods with frequencies greater than 10 years, inundates the Municipal Brook Valley. A small weir and channel also direct much of the flow from Municipal Brook to Green Brook near this point.

Along most of its length through the Borough of North Plainfield, Green Brook is contained within, or immediately adjacent to, its banks during periods of high flow. However, there is flooding along Parkview Avenue in the vicinity of Green Brook Park, just downstream of the confluence of Stony Brook. Flooding can also occur from storm sewers and very small streams that frequently get backed up. When the Raritan River and Green Brook are flooding, flows on the small streams have no place to outlet and can overflow into low-lying areas.

In general, the above conditions are true in the Township of Bernards, for the lower Passaic River and the lower Dead River, which have very wide floodplains due to flat topography in the over bank areas. Harrison Brook and its tributary system, which transverses through the most intensely developed parts of the township, cause the largest amount of flood damage.

Most flood damage in the Borough of North Plainfield is caused by Stony Brook. Due to its steep slope through a gorge in the Watchung Mountains, the high velocities on Stony Brook tend to cause flash floods. The floodwaters from Stony Brook coming off the mountains inundate U.S. Route 22, overflow the Crab Brook drainage divide and finally reenter Stony Brook in the vicinity of Green Brook Road and Grove Street. In the flood of 1973, five people were killed along Stony Brook and the central business area (roughly outlined by Grove Street, Watchung Avenue, U.S. Route 22, and Green Brook Road) was severely damaged. In the Township of Green Brook and the Borough of North Plainfield, the channel bottom slope of Stony Brook, 12 feet per thousand feet, coupled with steep valley walls, severely limits accessibility and the amount of possible building. The width of the floodplain in this area averages 100 feet. In Watchung, Stony Brook may provide a potential flood hazard if areas in the vicinity of the stream are allowed to develop. Stony Brook is characterized by

high-velocity flows with resultant channel and bank degradation and erosion. This severe topography contributes to high-velocity flows and flash flooding conditions.

In Rocky Hill, low-lying areas along the Millstone River and Van Horn Brook are subject to flooding caused by the overflow of these streams. Floods have been recorded on the Millstone River in 1938, 1971, 1975, 1999, 2007 and 2011. While there are no records of floods on Van Horn Brook, according to local information, floods have occurred several times in the past, particularly in more recent years. Little damage has been caused due to the wooded nature of the floodplain areas.

Major flooding in the Borough of Somerville is caused by the Raritan River and its backwater affecting Peters Brook. Most of the areas subject to flooding in the borough are parklands located along the streams, cemeteries, or vacant lands.

In Warren, because of its steep channel and high slope banks, Dock Watch Hollow Branch does not have much of a flooding problem except in the vicinity and upstream of Blazier Road. Here the slope of the stream is milder and the overbank flatter. Dock Watch Hollow Brook Branch experienced flooding conditions in the vicinity of the most upstream Ferguson Road crossing.

The Flooding along the Millstone River is caused by heavy rain, usually associated with hurricanes during the summer and fall months and Nor'easter storms during winter months. Less intense rain, falling on frozen or saturated ground, has produced larger floods during winter and summer months. USGS gage # 01402000 located at Blackwells Mills is one of the oldest storm record gages in New Jersey. The gage has 90 years of flow records.

The most recent severe flood events recorded at the Blackwells Mills gage in the year 2011 include Hurricane Irene with a discharge of 20,700 cubic feet per second with a flood stage height at 21.24 feet. Having earlier been downgraded to a tropical storm, Hurricane Irene came ashore in Little Egg Inlet in southern New Jersey; on August 28, 2011. In anticipation of the storm Governor Chris Christie declared a state of emergency on August 25th, with President Obama signing a declaration on August 27th. Mandatory evacuations were ordered throughout the State of New Jersey. Many roads and bridges were closed during the storm including the Griggstowm Causeway Bridge and Blackwells Mills Causeway bridge. The boroughs that were hit particularly hard were the Boroughs of Manville, Hightstown and Millstone in the Millstone Watershed. The Millstone River and Stony Brook both reached all-time record high levels in various places, each merging with the Delaware & Raritan Canal for a portion of their journeys, and numerous lakes spilled over their banks. Wind speeds were recorded at 75 mph and rain totals reached over 10 inches in many parts of the state. The flooding was exacerbated by high water levels in reservoirs and wetlands as a result of previous heavy rains. 1.46 million customers lost power during the storm. Overall damage estimates, for the State of New Jersey, come to over $1 billion; with over 200,000 homes and buildings being damaged. The county received more than $48 million federal loans and grants to cover the storm

damages.

Hurricane Sandy came ashore as an immense tropical storm in Brigantine, New Jersey, on October 26, 2012. The New Jersey shore suffered the most damage. Seaside communities were damaged and destroyed up and down the coastline. Some 2.7 million households within New Jersey lost power. Initial reports suggest that 72,000 homes and businesses statewide were damaged or destroyed by the storm. Presidential disaster declaration was declared on October 28, 2012. There was no significant damage recorded in Somerset County. Hurricane Sandy is estimated to cost the State of New Jersey over $36 billion.

2.4 Flood Protection Measures

Regulations to control the use and development of the floodways of the Raritan River, the South Branch Raritan River, the Neshanic River, and the Millstone River were enacted in June 1975 by the State of New Jersey, Department of Environmental Protection, Division of Water Resources).

A flood levee was constructed on the floodplain of the Millstone River to protect the Alma White College buildings and ground in Zarepath. The top of the levee is at an approximate elevation of 41.1 feet NAVD 88 based on a 2000 survey provided by the Pillars of Fire in which the 1 percent annual chance profile is below the top of the levee. The BFE at the levee is 40.4 feet NAVD 88. The levee was overtopped by the flood of August 28, 1971, approximately equal to the 1-percent annual chance flood event.

Since the flood of August 1971, Bound Brook has completed extensive clearing and relocation of the Middle Brook channel from Talmadge Avenue to State Route 28 (Union Avenue). The Talmadge Avenue bridge was also reconstructed after that event.

In Bridgewater a dike was constructed along Cuckel's Brook in 1974 by the American Cyanamid Company to remove its facility from the 1 percent annual chance floodplain of the Raritan River. FEMA regulations specify that all riverine levees must have a minimum of 3 feet freeboard against 1-percent annual chance flooding to be considered an accredited flood protection measure. This dike does not meet FEMA freeboard requirements. Bernards also constructed a substantial levee, built on the west bank of Harrison Brook, however, it has not been determined to meet the FEMA requirements.

Currently, the US Army Corps of Engineers Flood Damage Reduction project is under way in the Green Brook sub-basin. The project impacts 3 New Jersey Counties and 12 Municipalities and specifically seeks to provide flood risk reduction to the communities of Bound Brook, Bridgewater, Green Brook, North Plainfield, Warren and Watchung in Somerset County. The project primarily involves channel modification and levee construction to meet its objectives within Somerset County. Channelization is used to lower the flood depths. Levees and floodwalls are designed contain flood during 150-year event. Closure gates and

pump stations are also part of levee systems and serve to hold back water and transfer surface drainage trapped behind the levee. In addition, dry detention basins are designed to reduce flows downstream. Removal of an abandoned Conrail Bridge is also part of the project. The purpose of this demolition is to accommodate for potential temporary induced flooding along the Raritan River that may be experienced during interim project build out years. The project segments within the Borough of Bound Brook are 95% complete and the US Army Corps of Engineers has been issued a CLOMR number from FEMA. The CLOMR is still in process. Once the CLOMR is official then the project construction will be evaluated and validated against the CLOMR submission. Then, final review towards accreditation will be completed. Only after accreditation the flood hazard determination can be modified. This should not change the BFE as much as the identification of flood hazards in the levee impacted area.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10, 2, 1, or 0.2 percent annual chance (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent annual chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, regulatory floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 1-percent annual chance flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Prior to the September 28, 2007, FIS, the following hydrologic analyses were carried out to establish the peak discharge-frequency and peak elevation-frequency relationships for each flooding source studied in detail affecting the county.

Each community within Somerset County has a previously printed FIS report narrative. The hydrologic analyses described in those narratives has been compiled and is summarized below.

Hydrology for the following streams, in which the drainage area was approximately 1 square mile or less, was developed using the Rational Method:

Clucas Brook	Peter's Brook Tributary
Harrison Brook Branch 1	Raritan Water and Power Canal Tributary
Mac's Brook	River Brook
Passaic River branch 1	Ross Brook
Passaic River Branch 2	Stony Brook West Branch Tributary B
Penn's Brook	

The Rational Method involves the formula $Q_p = CiA$ where

Q = discharge in cfs,
C = runoff coefficient depending on drainage-basin characteristics,
i = rainfall intensity in inches per hour, and
A = drainage area in acres

Recorded gage history of flooding on the Lamington River began in 1922 near Pottersville (USGS gage No. 01399500). Since then, a number of major and minor floods have been experienced as indicated by the peak stages and discharges recorded at the gage. Based on the peak stages and discharges at the Pottersville gage, the dates of 10 major flooding events within the Lamington River basin are as follows: February 6, 1896 (historical); March 15, 1940; September 1, 1952; August 13, 1955; April 2, 1970; August 28, 1971; May 31, 1972; January 24, 1979; July 7, 1984; October 19, 1996; September 16, 1999 and September 8, 2011. The flood occurring on September 08, 2011, was the flood of record at the Pottersville gage with a flow of 3,460 cfs (U.S. Department of the Interior, Gage Data, 2011). For the Lamington River, flow values were taken from a log-Pearson Type III analysis at the Pottersville gage were transposed to specific locations along the river according to the following drainage area-discharge formula (Johnstone, 1949):

$$Q_1 = Q_2 (A1/A2)^T$$

where Q_1 is the discharge at a specific location, A_1 is the discharge area at the point, Q_2 is the discharge at the gage, A_2 is the drainage area at the gage and T is the transfer exponent. For the Lamington River, a value of 0.75 was used for the transfer exponent.

Large-magnitude floods have occurred on the Millstone in the Township of Franklin and the Borough of Millstone. The highest known flood on the Millstone River occurred on August 28, 2011. The flood level at the USGS gage at Blackwell Mills (USGS gage No. 01402000) was 48.21 feet NGVD, which was more than 2 feet higher than the previous peak of record for the period from 1921 to 2011. For the Millstone River, flood flow-frequency data were based on statistical analysis of annual peak discharge records covering a 55-year period at the Blackwell Mills gaging station and a 16-year period at the Kingston gaging

station, both operated by the USGS. These analyses followed the standard log-Pearson Type III method outlined in Bulletin 15 (U.S. Water Resources Council, 1967). In the Township of Hillsborough, the Millstone River, discharge-frequency data were based on statistical analysis of annual peak discharge records covering a 55-year period at the Blackwells Mills gaging station operated by the USGS. These analyses followed the standard log-Pearson Type III method outlined by the Water Resources Council (U.S. Water Resources Council, 1977).

A crest-stage gage was established on Six Mile Run near Middlebush in 1966 (USGS gage No. 01401870). The highest gage height, 12.20 feet (52.11 ft NGVD), occurred on August 28, 2011. The second highest gage height, 11.77 feet (51.68 ft NGVD), occurred on July 14, 1975.

For the South Branch Raritan River downstream from the Neshanic River, Pike Run, Pike Run Tributary, and Royce Brook and its Tributaries A, B, and C, discharge-frequency relations were determined by weighting the results of using regional flood frequency equations together with log-Pearson Type III analysis data for nearby gaging stations (State of New Jersey, 1974).

The discharges used for Green Brook were based on data obtained from the NJDEP's Supplemental Flood Hazard Study X (State of New Jersey, unpublished). An "actual" unit hydrograph was derived at the USGS gage No. 01403500 in Plainfield. Based on this hydrograph, synthetic hydrographs were developed upstream and downstream of the gage along Green Brook and Stony Brook. Peak discharge-frequency relationships at the gage could then be transposed using drainage area relationships. The peak discharge versus frequency relationship for the gage was developed in accordance with the method of frequency analysis described by the Water Resources Council (U.S. Water Resources Council, 1977). The log-Pearson Type III distribution with log transformation of flood data was used as the basic distribution for defining the annual flood series. This method assumes that the logarithms of the annual peak discharges are normally distributed and that statistical procedures apply. The discharge-frequency relationship for the Plainfield gaging station is not based on the annual flood station series for the gage. This series is non-homogeneous. Certain flood peaks include residuals of larger, partially diverted floods; therefore, the discharge-frequency relationship is based on an adjusted series. The overflow area was divided into eight small portions, and the diversion for each was evaluated using a trial and error methodology based on balancing an assumed stage with a resulting stage developed from a subsequent backwater analysis. The amount of diversion at each point was estimated by treating the Green Brook-Cedar Brook divide as a broad-crested weir. A check was made by running backwater computations to match historic flood marks using incremented flows (as the flow progresses upstream) to reflect the diversion. A final verification of the synthetic relations was conducted by generating flood hydrographs using rainfall data from Technical Paper No. 40 (U.S. Department of Commerce, 1963). Results confirmed the peaks obtained through the hydrologic analysis.

In the Borough of Watchung, peak discharge information for Green Brook was based on the results of a technical coordination meeting with Anderson-Nichols.

Flows had been originally determined through the use of Special Report 38 (U.S. Department of the Interior, 1974). Subsequently, the USGS prepared updated computations based on Special Report 38, with adjustments for the hydrologic events of August 2 and 3, 1973. The results of this methodology were then compared to revised USACE log-Pearson Type III studies on Green Brook above the Plainfield gage (U.S. Department of the Army, 1978). These revised USACE figures reflected newly available annual peak discharges at the Plainfield gage not considered in their original calculations. The discharge-frequency relationships derived from each method compared favorably, and the hydrology developed by the USGS was subsequently accepted. Flows for partial drainage areas of Green Brook were estimated by applying a ratio of drainage areas to the 0.75 power to discharges at locations derived by the methods described above.

Peak discharges for East Branch Middle Brook were obtained from the FIS for the Township of Bridgewater as well as transferred from the FIS for the Township of Warren using the aforementioned drainage area-discharge relationship. For East Branch Middle Brook, a value of 0.75 was used for the transfer exponent. Discharge-frequency relationships for the East Branch Middle Brook were derived from the U.S. Soil Conservation Service for this stream at its confluence with the Raritan River (drainage area of 9.4 square miles) and used by McPhee, Smith and Rosenstein in their FIS for the Township of Bridgewater (U.S. Department of Housing and Urban Development, 1978). The Soil Conservation Service's discharge-frequency relationships for East Branch Middle Brook at its confluence with the Raritan River were obtained by modeling the basin as outlined in their publication Rainfall Runoff Model (U.S. Department of Agriculture, 1965). The results of the stream reach were obtained using the relationship $Q/Qg = (A/Ag)^{0.75}$ where Q is the discharge at a specific location, A_1 is the discharge area at the point, Q_g is the discharge at the gage, A_g is the drainage area at the gage and 0.75 is the transfer exponent.

In the original 1978 FIS for the Township of Bernards, discharge-frequency estimates for the Passaic River were obtained separately for two different segments because of the location of the Great Swamp between them. The Millington segment extends between the Bernards Township and Warren Township boundary to the Great Swamp. Discharge-frequency relationships for this segment were derived from log-Pearson Type III analyses (U.S. Water Resources Council, 1967) for the gaging stations at Millington (drainage area 55.4 square miles), covering a 53-year period, and at Chatham (drainage area 100 square miles), covering a 44-year period. Both sets of gage data were furnished by the USGS (U.S. Department of the Interior, Water Resource Data for New Jersey).

The values used for the Passaic River segment bordering Bernards Township below the Millington gaging station were obtained by interpolation between the gaging stations on the basis of discharge-drainage area relationships. The values used for the short segment above Millington gaging station were obtained from the analysis for this gaging station. The Bernardsville segment extends from Osborn Pond (drainage area 10.6 square miles) to the Bernardsville Township line. Discharge-frequency estimates were based on statistical analysis of stage

discharge records covering a 6-year period at the Bernardsville gaging station (drainage area 8.83 square miles), operated by the USGS (U.S. Department of the Interior, Water Resource Data for New Jersey). This analysis was made by the private engineering firm of Anderson-Nichols, Inc., for the Bernardsville FIS (Anderson-Nichols, Inc., 1978), and checked by Pfisterer, Tor & Associates following the standard log-Pearson Type III method (U.S. Water Resources Council, 1967), using statistical parameters for regional skew and standard deviation based on similarity to the North Branch Raritan River at Far Hills gaging station (drainage area 26.2 square miles), where the records cover 52 years. The discharge-frequency values obtained by the log-Pearson Type III analysis were adjusted by a weighting method suggested by the USGS (U.S. Department of the Interior, Estimating Flood Magnitude and Frequency).

A discharge-frequency analysis was developed for Middle Brook using the SCS TR-20 Project Formulation Program (U.S. Department of Agriculture, 1965). The 2 percent annual chance estimated rainfall was obtained by extrapolating a log-normal plot of rainfall from Weather Bureau Technical Paper No. 40 (U.S. Department of Commerce, 1963).

The peak discharges for Seeley's Brook, Seeley's Brook Tributary A, and Seeley's Brook Tributary B were determined using parameters estimated from regression equations that were obtained from the USACE Green Brook Watershed Analysis Technical Summary (USACE, undated). These parameters were then adjusted for the specific frequency by using the USACE HEC-1 flood hydrograph computer program (USACE, 1981).

For Beden Brook, Pike Run, Cruser Brook, Rock Brook, and Van Horn Brook, discharge-frequency relationships were determined by weighing the results of regional flood frequency equations using log-Pearson Type III analysis data from nearby gaging stations on Beden Brook near Hopewell and Rocky Hill, on Rock Brook near Blawenburg, and on Royce Brook Tributary near Belle Mead (State of New Jersey, 1974).

Discharge-frequency relationships for Dock Watch Hollow Brook at its confluence with East Branch Middle Brook (drainage area of 3.15 square miles) were obtained by applying the relationship that discharge varies with $A^{0.75}$ to the discharge of East Branch Middle Brook at its confluence with the Raritan River (drainage area of 9.4 square miles).

Discharge-frequency relationships for Branch Dock Watch Hollow Brook at its confluence with Dock Watch Hollow Brook (drainage area 1.02 square miles), were obtained by applying the relationship that discharge varies with $A^{0.75}$ to the discharge of Dock Watch Hollow Brook at its mouth (drainage area of 3.15 square miles).

Discharge-frequency relationships for Stony Brook within the Township of Warren were developed using the rational method. These values were similar to those obtained from a comparison with Green Brook in its headwater reaches. Both streams exhibit similar physical characteristics. The USGS derived the

discharge-frequency relationships on Green Brook at its confluence with Blue Brook (drainage area of 2.57 square miles); and the discharge-frequency relationships for Stony Brook at the Second Watchung Mountain line were developed by the relationship $(A/A)^{0.75}$. The discharge-frequency relationships used for Stony Brook were determined by the USACE and accepted as such for use in this study (U.S. Department of the Army, 1978). Peak discharges for the remaining streams tributary to Stony Brook were calculated by multiplying the values for Stony Brook by the ratio of drainage areas, with an exponent of 0.75. Approximate methods were applied to the strip of the township along Stony Brook. Here the floodplains are narrow, with very little land area affected, and no development planned for the future. Flood marks from the August 2-3, 1973, record event were used to estimate the area subject to flooding.

For Mine Brook and Tributary MB within the Township of Bernardsville, the 1% annual chance discharges were developed using the USACE HEC-1 Flood Hydrograph computer program (USACE, 1991). Synthetic rainfall for the selected frequency flood was calculated based on the Natural Resources Conservation Service curve number calculation (USDA, 1986).

The highest flood on the Raritan River occurred on September 16, 1999. The flood height at the USGS gage at Manville (USGS gage No. 01400500) was 47.71 feet NGVD which is the highest flood crest during the period of record (1904-2011) and was probably the highest since before 1800. The estimated flow for the Hurricane Floyd caused event is 77,600 cfs.

The discharges for the Raritan River were computed by the log-Pearson Type III method using USGS gage data from the Raritan, Manville, and Bound Brook stream gages (U.S. Department of the Interior, 1968). These discharges were then verified by comparison with data presented in the New Jersey Department of Environmental Protection Special Report 37 (State of New Jersey, 1972).

For the remaining streams studied by detailed methods peak discharges for the selected recurrence intervals were calculated using Special Report #38 regional equation, developed by Stephen J. Stankowski under a cooperative program between the NJDEP and the USGS (NJDEP, 1974).

The Special Report #38 regional equation was also used to determine flood flows on the stream studied by approximate methods. The drainage area, slope, storage and urbanization index were used to estimate the mean annual flood. This discharge was then used to obtain the depth of flooding from the depth-discharge-frequency curve for non-coastal plain sites in New Jersey (U.S. Department of the Interior, 1979).

For the September 28, 2007 revision, the hydrology for Cory's Brook, Dead River, Harrison Brook, and Harrison Brook Branch 2 was determined using Special Report 38, published by the New Jersey Department of Environmental Protection.

In coordination with the NJDEP and the USGS, and after review of the gage

information, the decision was made not to revise the discharges for the Raritan River in the September 28, 2007 FIS.

Flood discharges for the Royce Brook were developed by the Somerset County Engineering Department using the HEC-1 model. Revised hydrology for Middle Brook portion of the Green Brook Flood Control Project was performed using HEC-1 by the USACE, New York District.

For the North and South Branch Raritan Rivers, Pike Run, Holland Brook and Neshanic River, flood discharges were developed based on the log-Pearson Type III distribution. Peak discharges were transferred from the gage location to the various flow change locations using the following equation:

$$Q_2 = Q_1 (A_2/A_1)^c$$

Where Q_2 and Q_1 are the discharges at the desired site and the known site, respectively, A_2 and A_1 are the drainage area at these points, and c is an empirical variable used to correlate data between drainage basins.

The exponent c was either calculated between gaging stations or adopted from the existing studies.

For the (Date) FIS, the hydrologic analysis was carried out to establish peak discharge-frequency relationships for Millstone River flooding source studied by detailed methods. The hydrologic analysis for the Millstone River in Borough of Millstone, Borough of Montgomery, Borough of Manville and Township of Hillsborough was prepared using Gage Analysis (USGS Gages 01402000, 01401301, 01401000, 01400730, 01401870 and 01401600)

USGS annual peak flow frequency analysis (Peak FQ) program developed by the U.S. Geological Survey was used to calculate the peak discharges for recurrence intervals of 10, 2, 1 and 0.2 percent annual chance flood events at Blackwell Mills gage (USGS Gage 01402000) and at Carnegie Lake gage (USGS Gage 01401301). A generalized skew value of 0.41 with the standard error of 0.53 was used as directed by USGS SIR 2009-5167. The peak discharges calculated at the gages were then transferred to selected points of interest using the method specified in USGS SIR 2009-5167.

In addition to 10-, 2-, 1-, and 0.2-percent-annual chance floods, the New Jersey Flood Hazard Area Design Flood (NJFHADF) was computed for the flow locations. The NJFHADF is equal to the 1-percent-annual-chance flood plus an additional 25% in flow, and not to exceed the 0.2-percent-annual-chance flood. NJFHADF boundary is to regulate disturbance to the land and vegetation within flood hazard area of a water body. This regulation is set forth by the State of New Jersey Flood Hazard Area Control Act Rules N.J.A.C. 7:13, and is administered.

The following equation was used to estimate the peak discharges for the ungaged site:

$$Q_{T(u)g} = \left(\frac{DA_u}{DA_g}\right)^b Q_{T(w)g}$$

Where:

$Q_{T(u)g}$ = The estimated peak-flow discharge (cfs), for recurrence interval T, for the ungaged site

DA_u = drainage area for the ungaged site

DA_g = drainage area for the upstream or downstream streamflow-gaging station

b = 0.58, the exponent for drainage area for each flood frequency region

$Q_{T(w)g}$ = The weighted peak-flow discharge (cfs), for recurrence interval T, for the selected flood frequency for the gaged site.

For the points of interest located above confluence with Beden Brook data from USGS Gage at Carnegie Lake was used and the points located downstream of confluence USGS Gage at Blackwell Mills data was used.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 6, “Summary of Discharges.”

TABLE 6 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
BEDEN BROOK					
At confluence with Millstone Rive	49.7	8,320	12,700	15,200	21,500
Above confluence of Pike Run	27.4	5,910	9,120	11,000	15,500
Above confluence of Rock Brook	16	4,400	7,260	8,950	12,900
At Great Road	11.8	3,770	6,420	8,000	11,700
CHAMBERS BROOK #1					
At confluence with North Branch Raritan River	5.6	1,260	1,970	2,370	3,460
At Love Road	4.69	1,070	1,670	2,020	2,962
Downstream of tributary near Route 278 and Interstate Route 78	3.37	908	1,429	1,736	2,543
Upstream of tributary near Route 278 and Interstate Route 78	2.68	720	1,050	1,390	2,044
At Bedminster/Bridgewater corporate limits	2.12	590	950	1,150	1,693
Approximately 800 feet upstream of Sunset Lake	1.3	350	575	695	1,030
CHAMBERS BROOK #2					
At mouth	10.3	1,510	2,400	2,930	4,370
CLUCAS BROOK					
At confluence with the North Branch Raritan River	4.83	844	1,452	1,851	3,071
West of Thogmor Road	1.33	205	355	455	740
Upstream of tributary near Lamington Road	0.66	155	240	310	425

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
CORY'S BROOK					
Confluence with Dead River	1.71	225	380	470	715
At remains of private road, approximately 1,400 feet upstream of Interstate 78	1.37	285	470	580	895
Just upstream tributary upstream Reinman Road	0.94	200	340	420	645
Just upstream Mount Bethel Road	0.5	90	160	200	320
CRUSER BROOK					
At confluence with Pike Run	5.19	2,150	3,660	4,580	6,780
At Conrail railroad tracks	4.04	1,680	2,880	3,630	5,450
CUCKEL'S BROOK					
At confluence with Raritan River	3	625	995	1,205	1,790
Approximately 500 feet upstream of State Route 28	1.6	475	765	935	1,405
DEAD RIVER					
At confluence with Passaic River	20.5	1,090	1,725	2,070	3,030
Just upstream of confluence with swamp tributary, about 4,000 feet downstream of Martinsville Road	13.2	2,015	3,080	3,690	5,330
At Martinsville Road	7.5	840	1,375	1,690	2,610
At Somerville Road	5.5	635	1,050	1,290	1,990
At Brook Road	2.5	600	980	1,200	1,790
DOCKWATCH HOLLOW BROOK					
Confluence with East Branch Middle Brook	3.15	1,100	1,870	2,300	3,000

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
DOCKWATCH HOLLOW BROOK BRANCH					
At confluence with Dockwatch Hollow Brook	1.02	472	8 00	990	1,290
EAST BRANCH MIDDLE BROOK					
At confluence with Middle Brook	9.4	2,600	4,350	5,400	6,900
Just upstream of Bridgewater - Warren corporate limits	7.5	2,180	3,610	4,460	5,775
GREEN BROOK					
At confluence with Raritan River	65.03	7,500	11,000	12,500	16,750
Just upstream of confluence of Ambrose Brook	51.2	6,300	9,240	10,500	14,070
At Green Brook- Bound Brook corporate limits	48.4	5,450	8,690	10,500	14,400
Approximately 1,635 feet upstream of Green Brook Road	24.27	3,960	6,560	8,800	14,400
Approximately 780 feet downstream of Warrenville Road	21.51	3,720	6,200	8,500	14,400
Downstream side of North Washington Avenue	20.44	3,650	6,100	7,900	14,400
Downstream of confluence of Stony Brook	18.2	3,650	6,100	7,900	15,200
Upstream of confluence of Stony Brook	10.3	2,040	2,500	2,850	4,150
At Plainfield gage (No. 01403500)	9.75	1,815	1,950	2,100	2,635
At Norwood Avenue	9.00	1,750	1,780	1,850	2,135

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
GREEN BROOK-Continued					
From Leland Avenue to Netherwood Avenue	8.50	1,795	2,000	2,100	2,350
From Terrill Road to Academy Road in the City of Plainfield	8.25	1,730	2,550	2,630	3,060
At Watchung – North Plainfield corporate limits	*[1]	1,730	2,550	2,630	3,060
Just downstream of U.S. Route 22	*[1]	1,620	2,480	2,700	3,100
Just downstream of Union Avenue	*[1]	1,450	2,600	3,370	5,410
Approximately 1,600 feet downstream of New Providence Road	6.3	1,380	2,480	3,240	5,200
Downstream of New Providence Road[2]	2.55	643	1,180	1,570	2,550
Approximately 400 feet downstream of Bonnie Burn Road[2]	1.6	475	870	1,160	1,890
Approximately 1,500 feet downstream of Plainfield Avenue[2]	0.77	256	465	620	1,010
Approximately 400 feet downstream of Plainfield Avenue[2]	0.53	194	352	469	764
HARRISON BROOK					
Confluence with Dead River	5.27	1,050	1,650	2,000	2,910
Just upstream of confluence with tributary approximately 1,300 downstream of Lyons Road	3.84	860	1,370	1,660	2,430
Just downstream of confluence with tributaries upstream of Lake Road	1.71	600	900	1,170	1,680

* Data not available

[1] Flow diversion between Green Brook and Cedar Brook watersheds

[2] First crossing within the community

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
HARRISON BROOK BRANCH 1					
At confluence with Harrison Brook	1.22	305	700	950	1,850
HARRISON BROOK BRANCH 2					
Confluence with Harrison Brook	1.22	305	515	645	970
Just upstream of pond upstream of Private Road dam	0.45	270	345	375	570
HERZOG BROOK					
At confluence with the Lamington River	4.83	844	1,452	1,851	3,071
At Pottersville Road	4.27	777	1,342	1,714	2,853
HOLLAND BROOK					
At mouth	12.4	2,070	3,560	4,420	7,150
Upstream side of Route 202	11.3	1,920	3,300	4,110	6,640
HOOPSTICK BROOK					
Upstream of tributary near Lamington Road	1.23	205	360	470	790
INDIAN GRAVE BROOK					
At confluence with the Passaic River	2.9	670	1,090	1,350	2,010
Upstream of confluence of Tributary K	0.56	430	530	600	700
LAKE ROAD TRIBUTARY D					
*	0.17	120	200	280	460
*	0.22	140	240	320	540

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
LAMINGTON RIVER					
At confluence with the North Branch Raritan River	100	6,560	10,000	12,000	16,500
Upstream of Rockaway Creek	57.76	2,771	4,830	5,931	9,141
Downstream of Cold Brook in Tewksbury	53.12	2,518	4,426	5,549	8,440
Upstream of Cold Brook in Tewksbury	46.88	2,229	3,932	3,848	7,537
Downstream of tributary near Camp Brady in Tewksbury	44.12	2,127	3,754	4,627	7,193
Upstream of tributary near Camp Brady in Tewksbury	42.89	2,079	3,666	4,518	7,024
Downstream of Herzog Brook	41.77	2,031	3,573	4,400	6,842
Upstream of Herzog Brook	36.87	1,843	3,237	3,983	6,193
Downstream of tributary near Pottersville	36.77	1,835	3,220	3,961	6,159
Upstream of tributary near Pottersville	32.97	1,686	2,953	3,631	5,646
MAC'S BROOK					
At confluence with Peter's Brook	1	290	485	605	935
MIDDLE BROOK TO NORTH BRANCH RARITAN					
At confluence with North Branch Raritan River	6.67	980	1,650	2,080	3,350
Downstream of Hoopstick Brook	6.45	980	1,650	2,080	3,350
Upstream of Hoopstick Brook	4.1	680	1,150	1,450	2,336
At Lamington Road	3.39	550	940	1,180	1,910

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
MIDDLE BROOK TO NORTH BRANCH RARITAN-Continued					
Downstream of tributary near Holland Road and Larger Cross Road intersection	2.81	510	870	1,100	1,782
Upstream of tributary near Holland Road and Larger Cross Road intersection	2.48	460	780	990	1,598
At Spook Hollow Road	1.83	350	610	770	1,253
MIDDLE BROOK TO RARITAN RIVER					
At confluence with Raritan River	17.0	3,930	7,480	10,810	20,340
At U.S Route 22	16.1	4,700	7,800	9,800	12,500
MILLSTONE RIVER					
Upstream of confluence with Royce Brook	266.5	12,609	20,300	24,216/30,271[1]	35,097
Upstream of Amwell Road	261.28	12,464	20,066	23,938/29,992[1]	34,693
USGS Gage-Blackwells Mills	256.399	12,330	19,850	23,680/29,600[1]	34,320
Upstream of confluence with Six Mile Run	240.09	11,869	19,108	22,724/28,493[1]	33,037
Upstream of confluence Ten Mile Run	233.98	11,693	18,824	22,456/28,070[1]	32,546
Upstream of confluence with Beden Brook	176.9	9437	13,311	14,967/18,709[1]	18,852
Upstream of confluence with Van Horn Brook	171.74	9,276	13,085	14,713/18,391[1]	18,532
At Carnegie Lake Dam	159.6	8,890	12,540	14,100/17,625[1]	17,760

[1] 1-percent annual chance discharge / New Jersey Flood Hazard Area Design Flood (NJFHADF) discharge; the NJFHADF discharge is equal to the 1-percent annual chance flow plus an additional 25% in flow, and not to exceed the 0.2-percent annual chance flow.

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
MINE BROOK					
*	6.02	1,200	1,900	2,330	3,570
*	5.72	1,150	1,840	2,250	3,460
*	4.42	1,020	1,640	2,000	3,060
*	4.02	950	1,550	1,900	2,900
*	2.62	750	1,240	1,500	2,300
Just downstream of Claremont Road bypass return	0.95	*	*	947	*
Upstream of confluence with Tributary MB	0.24	*	*	163	*
MINE BROOK TRIBUTARY B					
*	0.1	80	140	180	310
*	0.21	110	200	260	460
*	0.45	180	300	380	680
MOGGY BROOK					
*	0.18	100	180	240	460
*	0.36	120	260	340	600
*	0.52	160	320	420	720
*	0.72	200	360	480	780
*	1.54	300	520	660	420
*	1.60	320	540	700	460
MOGGY BROOK TRIBUTARY					
*	0.52	160	300	380	660
*	0.82	200	170	480	520
MUNICIPAL BROOK					
*	0.67	600	900	1,050	1,200
*	1.6	850	1,125	1,250	1,500
NESHANIC BROOK					
At mouth	55.00	8,700	16,500	21,300	36,800

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
NORTH BRANCH RARITAN RIVER					
At mouth confluence with Raritan River	191	16,600	26,700	32,200	48,000
At USGS Gage No. 01400000 at Branchburg	190	16,500	26,600	32,100	47,800
At USGS Gage No. 1399830	174	17,200	30,500	38,300	63,200
Upstream of Chambers Brook in Branchburg	172	15,200	24,600	29,600	44,100
Upstream of the Lamington River	63.9	6,430	11,400	14,100	22,200
Upstream of Middle Brook in Bedminster	56.1	5,800	10,300	12,700	20,000
Upstream of Mine Brook at Far Hills	41	4,510	8,000	9,900	15,600
Upstream of Peapack Brook	28.6	3,380	6,000	7,420	11,700
At USGS gage No. 01398500 at Far Hills	26.2	3,150	5,590	6,920	10,900
Upstream of Willies Ave. Bridge in Peapack-Gladstone	22.9	2,830	5,020	6,210	9,790
NORTH BRANCH RARITAN TRIBUTARY B					
*	1.4	420	720	920	1,535
*	1.27	380	650	830	1,400
*	0.91	280	500	640	1,090
*	0.65	240	420	540	850
*	0.31	150	240	310	520
*	0.07	60	100	140	240

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
NORTH BRANCH RARITAN TRIBUTARY C					
*	0.28	140	280	340	600
*	0.50	200	340	440	800
*	0.93	260	470	600	1,080
*	0.96	280	480	620	1,100
NORTH BRANCH RARITAN TRIBUTARY E					
*	0.77	190	340	440	770
*	0.56	160	285	370	660
*	0.22	100	180	230	410
*	0.13	80	140	180	320
PASSAIC RIVER					
At confluence with Dead River	58	1,240	1,820	2,185	2,690
At USGS Gage No. 1379000	55.4	1,350	1,870	2,111	2,610
Upstream of Lord Stirling Road	53	1,300	2,300	2,818	4,820
Upstream of Madisonville Road	10.6	1,480	1,640	3,283	5,520
*	7.7	1,400	2,450	3,100	5,200
*	4.79	999	1,666	2,100	3,500
*	3.65	750	1,300	1,650	2,700
PASSAIC RIVER BRANCH 1					
At confluence with Passaic River	0.72	270	500	700	1,350
PASSAIC RIVER BRANCH 2					
At confluence with Passaic River Branch 1	0.32	150	250	375	700
PEAPACK BROOK					
At confluence with the North Branch Raritan River	11.7	1980	3,150	3,880	6,000

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
PEAPACK BROOK TRIBUTARY A					
*	0.3	140	220	300	540
PEAPACK BROOK TRIBUTARY A					
*	0.76	220	380	500	880
*	1.1	260	460	580	1,040
PEAPACK BROOK TRIBUTARY B					
*	0.27	125	225	290	520
*	0.33	140	250	320	570
PEAPACK BROOK TRIBUTARY C					
*	0.93	200	360	500	860
*	1.46	280	500	650	1,300
PENN'S BROOK					
At confluence with Passaic River	0.23	100	140	190	350
PETER'S BROOK					
At confluence with Raritan River	9.88	1,530	2,388	2,884	4,173
At confluence of Ross Brook	7.47	1,285	2,025	2,460	3,680
At confluence of Macs Brook	6	1,040	1,660	2,025	3,060
Just downstream of confluence of Peter's Brook Tributary No. 1	3.2	720	1,145	1,375	2,080

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
PETER'S BROOK- Contiued					
Just upstream of confluence of Peter's Brook Tributary No. 1	2.1	490	790	965	1,455
PETER'S BROOK TRIBUTARY					
At confluence with Peter's Brook	1	150	285	390	590
PIKE RUN					
At confluence with Beden Brook	22.2	5,140	8,080	9,800	13,900
Above confluence of Dead Tree Run	20.5	4,940	7,860	9,580	13,600
Above confluence of Back Brook	14.9	3,580	6,180	7,690	11,600
At Belle Mead Gage	5.36	1,630	3,270	4,320	8,020
At Township Line Road	5.3	1,620	3,250	4,290	7,950
Above Pike Run Tributary	2.05	760	1,520	2,010	3,720
PIKE RUN TRIBUTARY					
At mouth	1.67	596	984	1,220	1,830
PLEASANT RUN					
At mouth	10	1,670	2,650	3,230	4,580
RARITAN RIVER					
Above confluence of Mile Run	880	36,600	45,100	52,100	67,000
Just upstream of confluence of Middle Brook	785	33,000	41,000	47,000	61,000
Just upstream of confluence of Peter's Brook	490	25,300	35,600	40,600	53,200

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
RARITAN WATER POWER CANAL TRIBUTARY					
At confluence with Raritan Water Power Canal	0.7	360	520	645	810
RIVER BROOK					
At confluence with North Branch Raritan River	0.7	290	400	460	640
ROCK BROOK					
At confluence with Beden Brook	9.5	2,240	3,700	4,540	6,810
At Sylvan Lake Dam	8.2	2,080	3,430	4,220	6,330
ROSS BROOK					
At confluence with Peter's Brook	1.6	460	750	925	1,395
ROYCE BROOK					
At Manville	16.3	2,250	3,970	5,270	9,600
Above Tributary B	8.87	1,900	2,860	3,970	6,400
Above Tributary A	3.01	1,360	1,890	2,450	3,500
ROYCE BROOK TRIBUTARY A					
At mouth	1.25	533	875	1,070	1,540
ROYCE BROOK TRIBUTARY B					
At mouth	2.09	714	1,160	1,420	2,070
ROYCE BROOK TRIBUTARY C					
At mouth	2.75	811	1,290	1,570	2,250

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
SEELEY'S BROOK					
At Easton Avenue	2.38	994	1,363	1,546	1,968
Above confluence of Tributary A	1.48	795	1,089	1,235	1,567
Above confluence of Tributary B	0.93	451	625	713	910
SEELEY'S BROOK TRIBUTARY A					
Above confluence with Seeley's Brook	0.58	360	487	551	690
SEELEY'S BROOK TRIBUTARY B					
Above confluence with Seeley's Brook	0.35	239	322	364	455
SIMONSON BROOK					
Above confluence with Millstone River	2.1	766	1,280	1,660	2,700
At cross section BB	1.4	562	864	1,130	1,830
SOUTH BRANCH RARITAN RIVER					
At mouth	279	14,800	24,200	29,200	43,600
Above confluence of Neshanic River	190	10,900	17,800	21,500	32,100
STONY BROOK					
At confluence with Green Brook	7.8	1,650	4,000	5,900	13,300
At Watchung- North Plainfield corporate limits	5.73	1,650	4,000	5,900	13,300

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
STONY BROOK					
EAST BRANCH					
Upstream of confluence with Stony Brook	1.51	441	1,068	1,576	3,552
STONY BROOK WEST BRANCH					
Upstream of confluence with Stony Brook	3.92	1,144	2,774	4,092	9,222
Upstream of confluence of West Branch Stony Brook Tributary	1.65	482	1,168	1,722	3,882
STONY BROOK WEST BRANCH TRIBUTARY A					
Upstream of confluence with West Branch Stony Brook	1.87	545	1,323	1,951	4,400
STONY BROOK WEST BRANCH TRIBUTARY B					
At confluence with Stony Brook	0.68	*	*	*	*
TEN MILE RUN					
Above confluence with Millstone River	4.4	980	1,590	1,950	3,160
TRIBUTARY A IN BERNARDSVILLE					
*	0.34	130	225	290	520
*	0.28	115	205	260	460
*	0.1	70	125	160	280

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
TRIBUTARY C IN BERNARDSVILLE					
*	0.36	180	315	400	690
*	0.24	150	255	330	570
TRIBUTARY D IN BERNARDSVILLE					
*	0.34	180	310	390	670
*	0.18	130	220	285	500
TRIBUTARY F					
*	1.28	360	620	780	1,280
*	1.22	355	610	760	1,260
*	0.92	300	520	660	1,100
*	0.83	290	490	620	1,040
*	0.56	240	400	510	860
*	0.45	210	360	460	760
TRIBUTARY G					
*	0.27	160	280	355	600
*	0.19	135	240	300	500
TRIBUTARY H					
*	0.3	175	305	380	620
*	0.14	120	210	260	420
TRIBUTARY I					
*	1.41	280	480	600	1,000
*	1.14	220	380	500	840
*	0.7	164	300	380	680
*	0.59	160	267	350	620
*	0.27	100	180	240	440
TRIBUTARY J					
*	0.44	140	230	300	520
*	0.28	110	190	240	460

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
TRIBUTARY K					
At confluence with Indian Grave Brook	1.51	410	680	850	1,290
Above confluence of unnamed tributary upstream of Washington at Corner Road	0.73	355	455	505	770
TRIBUTARY L					
*	0.25	180	310	390	670
*	0.2	130	220	285	500
TRIBUTARY MB					
*	0.92	360	600	750	1,240
*	0.8	340	560	700	1,140
Downstream of Claremont Road bypass	0.64	*	*	278	*
Upstream of Claremont Road	0.63	*	*	736	*
*	0.48	260	440	540	880
*	0.4	240	400	500	820
VAN HORN BROOK					
At mouth	2.57	923	1,570	1,890	2,800
At Princeton Avenue	0.94	362	570	696	1,010
At Rocky Hill- Montgomery corporate limits	0.7	275	427	520	750
WEST BRANCH MIDDLE BROOK					
At confluence with Middle Brook	6.5	1,450	3,300	4,150	4,900
Just downstream of confluence of West Branch Tributary	3.9	1,150	2,000	2,450	2,850

* Data not available

TABLE 6 - SUMMARY OF DISCHARGES -Continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-PERCENT	2-PERCENT	1- PERCENT	0.2-PERCENT
WEST BRANCH MIDDLE BROOK- Continued					
Just upstream of confluence of West Branch Tributary	2.4	710	1,220	1,500	1,750

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. User should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes users are encouraged to use the flood elevation data in the FIS in conjunction with the data shown on the FIRM.

The hydraulic analyses were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Prior to the September 28, 2007, FIS, analyses were performed as follows:

For the Lamington River, water-surface elevations of the floods selected recurrence intervals were computed through the use of the USACE HEC-2 step-backwater computer program (USACE, 1978). The below-water sections of the Lamington River were obtained from cross-sectional data provided by the USACE (USACE, 1965). The USACE furnished cross-sectional data used in their Flood Plain Information reports on the Lamington River (USACE, 1969; USACE 1969). Additional cross sections along the Lamington River were either field surveyed or developed from detailed topographic maps at a scale of 1:2400, with contour intervals of 2 or 5 feet.

For North Branch Raritan River Tributary E, in the Borough of Bernardsville, starting water-surface elevations were taken from a previously unpublished report for Far Hills, New Jersey (HUD, 1978).

For Mine Brook, in the Borough of Bernardsville, water-surface elevation of floods of the selected recurrence interval was computed using the USACE HEC-RAS Version 2.2 computer program (USACE, 1998). Starting water-surface elevations for Mine Brook were obtained using a normal depth calculation.

For the Passaic River, water-surface elevations of floods of the selected recurrence intervals for the Passaic River were computed using the USACE HEC-2 step-backwater program (USACE, 1991). Starting water-surface elevations for the Passaic River were obtained from the effective FIS for the Township of Fairfield (FEMA, 1986).

For the Township of Warren FIS, water-surface elevations of floods of the selected recurrence intervals for Passaic River Branch 1, Passaic River Branch 2, were computed using USACE HEC-2 step-backwater program (USACE, 1973). Starting water-surface elevations for the tributaries of the Passaic River were obtained from the Passaic River profiles at their confluences.

For Indian Grave Brook in the Borough of Bernardsville, water-surface elevations of floods of the selected recurrence intervals were also computed using the USACE HEC-2 step-backwater computer program (USACE, 1991). Starting water-surface elevations for Indian Grave Brook were obtained from backwater water-surface elevations for the Passaic River.

For Tributary K in the Borough of Bernardsville, water-surface elevations of floods of the selected recurrence intervals were also computed using the USACE HEC-2 step-backwater computer program (USACE, 1991). Starting water-surface elevations for Tributary K were obtained from backwater water-surface elevations on Indian Grave Brook.

For Tributary MB, water-surface elevations of floods of the selected recurrence interval were computed using the USACE HEC-RAS Version 2.2 computer program (USACE, 1998). Starting water-surface elevations for Tributary MB were obtained from the water-surface elevation on Mine Brook at its confluence with Tributary MB. As a ratio of the contributing drainage areas of the two streams at their confluence was greater than 0.6 and less that 1.2, use of coincident peaks was justified.

For Middle Brook in the Borough of Bound Brook and the Townships of Bedminster and Bridgewater, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE step-backwater computer program (USACE, 1977). For the Bound Brook FIS, starting water-surface elevations for Middle Brook were determined using slope/area calculations. Cross sections were developed by the USACE, the consulting firm of URS Engineers, and from Flood Hazard Report No. 2 for the Raritan River (New

Jersey DEP, 1972). Bridge opening geometry and underwater cross sections were obtained from the Works Progress Administration (Works Progress Administration, 1937). For the Township of Bridgewater, starting water-surface elevations for Middle Brook were calculated using the slope/area method. In the Township of Bedminster, starting water-surface elevations for Middle Brook were calculated using the slope/area method. The overbank portions of cross sections on Middle Brook were obtained from mapping at a scale of 1:2,400 with a contour interval of 5 feet (Geod Aerial Mapping Inc, 1978).

For the study of Green Brook through the Boroughs of Bound Brook, Watchung, and North Plainfield and the Township of Bridgewater, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE step-backwater computer program (USACE, 1977 and 1991). For Green Brook in the Township of Green Brook, water-surface elevations of floods of the 0.1 and 0.2 annual chance recurrence intervals were computed using the SCS computer program (U.S. Department of Agriculture, 1976). For the 1-percent annual chance flood in the Township of Green Brook, water-surface elevations were computed using the USACE HEC-2 step backwater computer program (USACE, 1973).

The starting water-surface elevations for the Green Brook study in Bound Brook were determined assuming coincident peak flow with the Raritan River. Cross sections were developed by the USACE, the consulting firm of URS Engineers, and from Flood Hazard Report No. 2 for the Raritan River (New Jersey DEP, 1972). Bridge opening geometry and underwater cross sections were obtained from the Works Progress Administration (Works Progress Administration, 1937). For the Township of Bridgewater, starting water-surface elevations for Green Brook were obtained from the FIS for the Borough of Middlesex (FEMA, 1986). At structures in the Township of Green Brook, water-surface computations were made for open channel flow, backwater, pressure flow, weir flow, or a combination. The starting water-surface elevation for Green Brook for the 1-percent annual chance flood was obtained from the FIS for the Township of Bridgewater (FEMA, 1987). A 0.2-percent annual chance flood profile was not computed for Green Brook in the Township of Green Brook. For the Borough of Watchung study of Green Brook, cross sections for Green Brook were obtained from previous studies by the NJDEP and were supplemented with field surveys. Cross-sectional information was obtained from Flood Hazard Reports Nos. 3 and 16 for Green Brook and Stony Brook, respectively (NJDEP, 1972). This report is based on topographic maps compiled from aerial photographs (Quinn, 1968). The maps were updated by field reconnaissance to include recent development in the floodplain areas. All bridges and culverts that were modified since the reports were surveyed to obtain elevation data and structural geometry. For the Rock Avenue Bridge over Green Brook, which was under construction at the time of publication for the 1983 North Plainfield FIS, final design plans were utilized.

For the Millstone River, in the Boroughs of Far Hills and Rocky Hill, water-surface elevations of floods of the selected recurrence intervals were computed on through use of the USACE HEC-2 step-backwater computer program (USACE, October 1973). For the Townships of Franklin and Hillsborough, as well as the

Boroughs of Millstone and Manville, water-surface elevations of floods of the selected recurrence intervals for the Millstone River were computed using the USGS E-431 step-backwater computer program (U.S. Department of the Interior, 1976).

For the Township of Franklin, cross sections for the backwater analysis of the Millstone River were developed using the large-scale topographic maps prepared by photogrammetric methods for Flood Hazard Report No. 12 (NJDEP, February 1973). Bridge geometries and underwater cross sections were obtained from Works Progress Administration stream survey data (Works Progress Administration, 1940). Starting water-surface elevations on the Millstone River were taken from the FIS for the Borough of Manville (U.S. Department of Housing and Urban Development, 1978). In Manville, cross sections along the Millstone River were developed from Work Progress Administration data (WPA, 1937 & 1940) and detailed topographic maps from the State of New Jersey (NJDEP, 1972 & 1973). For the Borough of Millstone cross sections along the Millstone River were developed from data and topographic maps as described in the Riparian and Stream Survey of the Millstone River (Works Progress Administration, 1940). For the Borough of Rocky Hill, overbank cross-section data for streams in the area were obtained from aerial photographs (Quinn and Associates, 1970).

For Municipal Brook in the Township of Green Brook, water-surface elevations of floods of the 10-, 2-, 1-, and 0.2 percent annual chance floods were computed using the standard SCS WSP-2 computer program (U.S. Department of Agriculture, 1976). At structures in the Township of Green Brook, water-surface computations were made for open channel flow, backwater, pressure flow, weir flow, or a combination.

Hydraulic and hydrologic analyses from previous Flood Insurance Studies of Peapack Brook and the Lamington River were used for redelineation of the flood hazard boundaries. This work was completed in May 2005 by Natural and Technological Hazards Management Consulting, Inc. New hydraulic and hydrologic analyses of the Neshanic River, Holland Brook, Pike Run and Royce Brook were used for redelineation of the flood hazard boundaries. This work was completed by Natural and Technological Hazards Management Consulting, Inc. in October 2005.

For Royce Brook, in the Township of Hillsborough and Borough of Manville, using the discharges obtained in the hydrologic analyses, water-surface profiles were determined for the 10, 2, 1, and 0.2 percent annual chance floods using the USGS step-backwater computer program E-341 (U.S. Department of the Interior, 1976). Starting water-surface elevations on Royce Brook in the Township of Hillsborough were taken from the FIS for the Borough of Manville (U.S. Department of Housing and Urban Development, 1978). For the Township of Hillsborough, cross sections on Royce Brook and its tributaries were obtained by photogrammetric means from aerial photographs flown in March 1976. (Kimball, 1976).

For Van Horn Brook, in the Township of Montgomery and Borough of Rocky Hill, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). The profile for Van Horn Brook was adopted from the Township of Montgomery FIS (U.S. Department of Housing and Urban Development, 1981). For the Township of Montgomery Van Horn Brook study water-surface profiles were determined for the 10, 2, 1, and 0.2 percent annual chance floods using the USGS step-backwater computer program E-431 (U.S. Department of the Interior, 1976). Starting water-surface elevations for Van Horn Brook were obtained by normal depth calculations. Cross-sections on Van Horn Brook were obtained as part of this study by photogrammetric means from aerial photographs flown in March 1976, at a scale of 1"=1,000' (Kimball, 1976). In the Borough of Rocky Hill, overbank cross-section data for streams in the area were obtained from aerial photographs (Quinn and Associates, 1970).

For Stony Book, in the Borough of North Plainfield, water-surface profiles were developed using the HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were determined by the stage of peak discharges on Green Brook at their confluence. Cross-sectional information was obtained from Flood Hazard Reports No. 16 for Stony Brook, respectively (NJDEP, 1973). This report is based on topographic maps compiled from aerial photographs (Quinn, 1968). The maps were updated by field reconnaissance to include recent development in the floodplain areas. All bridges and culverts that were modified since the reports were surveyed to obtain elevation data and structural geometry. For the Borough of Watchung, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (USACE, 1991). Starting water-surface elevations for Stony Brook were supplied by the USACE from the Green Brook Flood Control Feasibility Study; subsequently, water-surface elevations for Stony Brook West Branch, Stony Brook West Branch Tributary A, and Stony Brook East Branch were contingent upon Stony Brook results (USACE, June 1978). The overbanks were extended using topographic maps at a scale of 1:1200, with a contour interval of 2 feet (Kachorsky Assoc., 1972). In areas where the topographic maps did not indicate recent development, full cross section surveys of the streams were taken.

For Peapack Brook, in the Township of Bedminster, starting water-surface elevations for were calculated using the slope/area method. The overbank portions of cross sections on Peapack Brook were obtained from mapping at a scale of 1:2,400 with a contour interval of 5 feet (Geod Aerial Mapping Inc, 1978.) For the Borough of Peapack and Gladstone, water-surface elevations of floods of the selected recurrence intervals were computed on Peapack Brook and its tributaries through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations for Peapack Brook Tributaries A, B, and C were obtained from the Peapack Brook profiles at their respective confluences. Starting water-surface elevations for Peapack Brook were obtained from the North Branch Raritan River profiles.

For Chambers Brook #1, in the Townships of Bedminster and Bridgewater, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method. The overbank portions of cross sections on Chambers Brook #1 were obtained from mapping at a scale of 1:2,400 with a contour interval of 5 feet (Geod Aerial Mapping Inc, 1978.) For the Township of Bridgewater, starting water-surface elevations for starting water-surface elevations for Chambers Brook #1 were obtained from the FIS for the Township of Bedminster (FEMA, 1984). Along certain portions of Chambers Brook #1, a profile base line is shown on the maps to represent channel distances as indicated on the flood profiles and floodway data tables. Cross-section data for the backwater analyses for the portion of Chambers Brook #1 within the Bedminster corporate limits were obtained from the FIS for the Township of Bedminster (FEMA, 1984).

For Clucas Brook, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method. The overbank portions of cross sections on Clucas Brook were obtained from mapping at a scale of 1:2,400 with a contour interval of 5 feet (Geod Aerial Mapping Inc, 1978.)

For Herzog Brook, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method. The overbank portions of cross sections on Herzog Brook were obtained from mapping at a scale of 1:2,400 with a contour interval of 5 feet (Geod Aerial Mapping Inc, 1978.)

For Hoopstick Brook, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method. The overbank portions of cross sections on Hoopstick Brook were obtained from mapping at a scale of 1:2,400 with a contour interval of 5 feet (Geod Aerial Mapping Inc, 1978.)

For East Branch Middle Brook, in the Townships of Bridgewater and Warren, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method. Tributaries of East Branch Middle Brook had their starting elevations determined from their respective confluence points with the main stream.

For Cuckel's Brook, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method.

For Raritan Water and Power Canal Tributary, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method.

For River Brook, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations were calculated using the slope/area method.

For Mac's Brook, starting water-surface elevations for were obtained from the FIS for the Borough of Somerville (FEMA, 1983). For the Borough of Somerville, starting water-surface elevations were based on the slope/area method due to the large difference in their respective drainage areas. Channel cross sections and partial overbank cross sections were obtained through field surveys done for the USACE. The overbanks were extended using topographic maps prepared from an aerial survey dated April 1978 (Geod Aerial Mapping, 1978). Water-surface profiles were developed using the HEC-2 computer step-backwater model (USACE, 1973).

For Ross Brook, starting water-surface elevations were obtained from the FIS for the Borough of Somerville (FEMA, 1983). For the Borough of Somerville, starting water-surface elevations for Ross Brook were based on the slope/area method due to the large difference in their respective drainage areas. The channel cross sections and overbank cross sections were obtained through field surveys done for the USACE. The overbanks were extended using topographic maps prepared from an aerial survey dated April 1978 (Geod Aerial Mapping, 1978). Water-surface profiles were developed using the HEC-2 computer step-backwater model (USACE, 1973).

For Peter's Brook, in the Borough of Somerville, starting water-surface elevations were based on the slope/area method. Channel cross sections and partial overbank cross sections were obtained through field surveys done for the USACE. The overbanks were extended using topographic maps prepared from an aerial survey dated April 1978 (Geod Aerial Mapping, 1978). Water-surface profiles were developed using the HEC-2 computer step-backwater model (USACE, 1973). The model for Peter's Brook was extended into the Township of Bridgewater.

For Peter's Brook Tributary starting water-surface elevations were calculated using the slope/area method. Water-surface profiles were developed using the HEC-2 computer step-backwater model (USACE, 1973).

For West Branch Middle Brook starting water-surface elevations were calculated using the slope/area method. Water-surface profiles were developed using the HEC-2 computer step-backwater model (USACE, 1973). Along certain portions of West Branch Middle Brook, a profile base line is shown on the maps to represent channel distances as indicated on the flood profiles and floodway data tables.

For Stony Brook West Branch Tributary B water-surface elevations of floods of the selected recurrence intervals for were computed using USACE HEC-2 step-backwater program (USACE, 1973).

For Simonson Brook cross sections for the backwater analysis were field surveyed. Water-surface elevations of floods of the selected recurrence intervals were computed using the USGS E-431 step-backwater computer program (U.S. Department of the Interior, 1976). The starting water-surface elevations were obtained from the Township of Franklin Millstone River profiles.

For Ten Mile Run cross sections for the backwater analysis were field surveyed. Water-surface elevations of floods of the selected recurrence intervals were computed using the USGS E-431 step-backwater computer program (U.S. Department of the Interior, 1976). The starting water-surface elevations were obtained from the Township of Franklin Millstone River profiles.

For Seeley's Brook and its tributaries A and B, in the Township of Franklin, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (USACE, 1981). Starting water-surface elevations for Seeley's Brook were obtained from the original FIS for the Township of Franklin (FEMA, May 12, 1980). For Seeley's Brook Tributaries A and B, the starting water-surface elevations were obtained from the profiles for Seeley's Brook.

For Holland Brook, Chambers Brook #2, and Pleasant Run, in the Township of Branchburg, water-surface elevations were determined for 0.1, 0.2, 1 and 2 percent annual chance recurrence interval floods using USGS step-backwater computer program E-431 (U.S. Department of the Interior, 1974). Additional high-water marks for the floods of 1971 and 1975 were surveyed as part of this study. Additional cross sections along the aforementioned streams were either field surveyed or developed from detailed topographic maps at a scale of 1:2400, with contour intervals of 2 or 5 feet.

For the Neshanic River, in the Township of Hillsborough, using the discharges obtained in the hydrologic analyses, water-surface profiles were determined for the 10, 2, 1, and 0.2 percent annual chance floods using the USGS step-backwater computer program E-341 (U.S. Department of the Interior, 1976). Starting water-surface elevations for the Neshanic River were taken from the 1980 profile for the South Branch Raritan River. For the Neshanic River, cross sections were taken from the Flood Hazard Report on the river prepared by the New Jersey Department of Environmental Protection (NJDEP, 1972).

For Beden Brook and its tributaries including Pike Run, Cruser Brook and Rock Brook, using the discharges obtained in the hydrologic analyses, water-surface profiles were determined for the 10, 2, 1, and 0.2 percent annual chance floods using the USGS step-backwater computer program E-341 (U.S. Department of the Interior, 1976). Starting water-surface elevations on Beden Brook and its tributaries were obtained by assuming the coincident peaking of floods on the

main stem and tributaries. Cross sections on the streams were obtained by photogrammetric means from aerial photographs flown in March 1976, at a scale of 1"=1,000' (Kimball, 1976).

For the Townships of Branchburg, Hillsborough, and Montgomery, and the Boroughs of Manville, Raritan, and South Bound Brook, high-water marks from the floods of 1896, 1936, 1938, 1955, 1958, 1971, and 1975 were used to verify computer-generated flood profiles where available (NJDEP, 1972; U.S. Department of the Interior, 1960, U.S. Department of the Interior, 1959, U.S. Department of the Interior, 1969, U.S. Department of the Interior, 1962).

For the stream studied by approximate methods in the Borough of Bound Brook, field inspections were made to determine the high-water marks. Estimates of the 1-percent annual chance flood elevations were made from the high-water marks, and these elevations were used in conjunction with a 2-foot contour map to determine the approximate location of the 1 percent annual chance boundary (New Jersey DEP, 1982).

In the Townships of Branchburg and Montgomery and the Borough of Millstone, flood elevations on certain streams were determined by approximate methods including the regional stage-frequency method proposed by Thomas outlined in Flood Depth Frequency in New Jersey (New Jersey Department of Conservation [NJDEC], 1943). In the Township of Montgomery, the flood boundaries of the streams studied by approximate methods were delineated using the Flood Hazard Boundary Map prepared for the Township of Montgomery (U.S. Department of Housing and Urban Development, 1976).

In the Township of Hillsborough, the 1-percent annual chance flood boundaries for the streams studied by approximate methods were delineated on the basis of regional depth frequency and engineering judgment, using topographic maps at a sale of 1: 24,000, with a contour interval of 20 feet (USGS, 1943-55).

In the Borough of Peapack and Gladstone, an approximate study of Peapack Brook Tributary D was based upon hydrologic considerations and detailed results of inundation of similar locations in the immediate area.

The flooding data for the approximate-study streams in the Boroughs of Raritan and South Bound Brook were determined using regional depth-discharge-frequency analysis, field surveys, and engineering judgment (U.S. Department of the Interior, 1979).

In the Township of Franklin, the 1-percent annual chance flood elevations for the streams studied by approximate methods were computed by the regional stage-frequency method proposed by the USGS in Circular No. 14 and engineering judgment (U.S. Department of the Interior, 1964).

In the Borough of Watchung, for the stream tributary to Green Brook and the portion of Stony Brook West Branch Tributary A studied by approximate

methods, water-surface elevations were based on depth-discharge-frequency relationships for non-coastal plain sited in New Jersey for the mean annual flood (U.S. Department of the Interior, 1964). Also, where applicable, studies previously performed on streams associated with the Borough of Watchung were used for cross section and computer information (FEMA, 1992; U.S. Department of Housing and Urban Development, 1977; NJDEP 1973).

For the previously printed community based FISs bridges, dams and culverts were field checked to obtain elevation data and structural geometry. For streams not updated during the revision, data for those bridges, dams and culverts have not been queried as to changes nor has field survey data been collected. In undeveloped areas or in areas with long distances occurring between structures, cross sections were located at regular intervals and at changes in valley configuration. Cross sections for the backwater analysis were taken at close intervals upstream and downstream of structures in order to determine their significant hydraulic characteristics and backwater effects of these structures.

For the September 28, 2007, analyses, the water-surface elevations of flood profiles of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (USACE, 1982). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. Starting water surface elevations for the Dead River were obtained by the slope/area method. Starting water-surface elevations for Harrison Brook were obtained from known water surface elevations as per the effective NJDEP study. Starting water-surface elevations for Harrison Brook Branch 2 were obtained from known water surface elevations as per the effective NJDEP study. Starting water-surface elevations for Cory's Brook were obtained by utilizing critical depth.

Water-surface elevations of flood profiles of the selected recurrence intervals for the North Branch and South Branch Raritan Rivers, Holland Brook, Neshanic River, Pike Run and Royce Brook were computed using the USACE HEC-RAS computer program (USACE, 2002). Cross-section data for the rivers were obtained by aerial photogrammetry by Geomaps International and the cross-section underwater portions, as well as all structures, were field surveyed by Tectonic Engineering & Surveying Consultants, P.C. and Badey & Watson, Survey & Engineering, P.C. (Tectonic, 2004). The hydraulic model HEC-RAS was used for the revised hydraulics for Middle Brook and was performed by URS Corporation under contract to the USACE, New York District. The model reflects the levee construction currently in place.

For the remaining streams, cross-section data for the backwater analyses were field surveyed. Cross-sections for all the streams were located at close intervals above or below bridges and culverts in order to compute the significant backwater effects of these structures. All bridges and culverts were surveyed to obtain elevation data and structural geometry. The baselines used for horizontal control were also obtained by field survey.

For the Lamington River and Peapack Brook, the existing hydrologic and hydraulic data, published in the FIS reports for the communities involved in this study were adopted for this analysis. These data were converted from the National Geodetic Vertical Datum of 1929 (NGVD 29) to the North American Vertical Datum of 1988 (NAVD 88). The converted data were superimposed on new topographic maps for the purpose of this study. For the portion of the Lamington River in Somerset County, the location of the channel cross-sections and partial overbank cross-sections were obtained from existing FIS reports for the Townships of Branchburg and Bedminister, and utilized on topographic maps that were compiled from aerial photographs. The locations of the cross-sections for the Peapack Brook in the Borough of Peapack-Gladstone and the Township of Bedminster were obtained from existing Flood Insurance Study (FIS) for the Township of Bedminster and the Borough of Peapack-Gladstone, and utilized on topographic maps that were compiled from aerial photographs.

In the latest restudy of the Lamington River, the water-surface elevations were computed using the USACE HEC-2 step-backwater computer program. (USACE, 1978). The below-water sections of the Lamington River were obtained from the cross-sectional data provided by the USACE (USACE, 1965). Additional cross-sectional data was obtained from the USACE in their Flood Plain Information reports on the Lamington River (USACE, 1969).

On the Peapack Brook, along with remaining study streams, the water-surface elevations of floods of the selected recurrence intervals were computed through the use of the USACE HEC-2 step-backwater computer program.

Water-surface elevations of floods of the selected recurrence intervals for the Raritan River and the Chambers Brook were computed using the USGS E-431 step-backwater computer program.

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.1 foot for floods of the selected recurrence intervals. Locations of the selected cross-sections used in the hydraulic analyses are shown in the Flood Profiles. For stream segments for which a floodway is computed, selected cross-section locations are shown on the FIRM.

Starting water-surface elevations for the South Branch Raritan River, North Branch Raritan River, Neshanic River and Holland Brook were calculated using the slope/area method.

Starting water-surface elevations for Royce Brook Tributaries A, B, and C were taken from the profile for Royce Brook; for Pike Run Tributary, starting water-surface elevations were taken from the Pike Run profile. These elevations were adopted on the assumption of coincident flow with the main stems.

Starting water-surface elevations for the detailed restudy of Pike Run and Royce Brook were taken from the published FIS for Somerset County profiles for Pike Run and Royce Brook at the points of the beginning of the detailed restudy.

Starting water-surface elevations for Tributaries A, B, and C were obtained from the Peapack Brook profiles at their respective confluences.

Flood profiles were drawn showing computer water-surface elevations for floods of the selected recurrence intervals. Due to the extreme meandering nature of the streams, stream distances will not always agree between maps and profiles.

At some locations along study streams, hydraulic conditions may create a situation of supercritical flow. Because of the inherent instability of such a condition, an assumption of critical flow has been adopted for the backwater analyses.

Roughness coefficients (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field observations of the channel and floodplain areas. Ineffective flow areas are removed from the conveyance calculations by utilizing extremely high "n" values. Channel and overbank "n" values for the streams studied by detailed methods are shown in Table 7.

For the (*Date)* FIS, for the Millstone River, the hydraulic model used was HEC-RAS, Version 4.1.0. The HEC-RAS model was developed for the 10-percent, 2-percent, 1-percent, New Jersey Flood Hazard Area Design Flood (NJFHADF), and 0.2 percent annual chance flood events. HEC-GeoRas applications were used as a pre-processor for inputs to the hydraulic models and a post-processor for delineation of the floodplains. Known Water Surface Elevation from Pillar of Fire's LOMR case number 02-02-055P was used as a boundary condition for all profiles. This study was conducted in accordance with the requirements of Appendix C of FEMA's Guidelines and Specifications for Flood Hazard Mapping Partners, dated 2009.

Somerset county flood marks were available for calibration. The Hydraulic model was calibrated for the April 2007 flood event at USGS station (XS 32918). The High Water Mark elevation for the 2007 flood event was 45.24 feet NAVD 88 and the model predicts 44.97 feet NAVD 88 (0.27 feet difference). The HEC RAS model results matched well within 0.5 foot of the flood marks. The model was also calibrated to match the USGS rating curve.

Landuse data developed by New Jersey Department of Environmental Protection (NJDEP) for different Watershed management areas (WMA) in NJ was used in this study to develop Manning's n-values. Manning's coefficient values (n-values) for the main channel and the overbank portions at each cross section were estimated based on the tables from Open Channel Hydraulics (V.T. Chow 1959; Reissued 1988). The Manning's n-values were estimated taking into consideration several factors, such as channel bed materials, type, and density, as well as height of existing vegetation and existing structures in the overbanks. Multiple Manning's n-values were used as necessary to accurately describe changes in land cover across the cross section the revised manning's n values are updated in Table 7.

TABLE 7 – ROUGHNESS COEFFICIENTS

Stream	Channel "n"	Overbank "n"
Beden Brook	0.035-0.055	0.060-0.300
Chambers Brook #1	0.013-0.040	0.050-0.090
Chambers Brook #2	0.040	
Clucas Brook	0.030-0.040	0.050-0.090
Cory's Brook	0.040	0.10
Cruser Brook	0.040-0.045	0.070-0.120
Cuckel's Brook	0.030	0.070-0.100
Dead River	0.05	0.15
Dockwatch Hollow Brook	*	*
Dockwatch Hollow Brook Branch	*	*
East Branch Middle Brook	0.030-0.035	0.070-0.100
Green Brook	0.018-0.055	0.050-0.160
Harrison Brook	0.04	0.12
Harrison Brook Branch 1	*	*
Harrison Brook Branch 2	0.018-0.040	0.040-0.120
Herzog Brook	0.040-0.045	0.060-0.080
Holland Brook	0.035	0.070-0.110
Hoopstick Brook	0.030-0.040	0.060-0.085
Indian Grave Brook	0.015-0.040	0.040-0.110
Lake Road Tributary D	0.025-0.040	0.060-0.110
Lamington River	0.038–0.040	0.060–0.085
Mac's Brook	0.035	0.050-0.100
Middle Brook to North Branch Raritan	0.030-0.045	0.040-0.090
Middle Brook to Raritan	0.023	0.051
Millstone River	0.035-0.120	0.050-0.120
Mine Brook	0.015-0.040	0.040-0.110
Mine Brook Tributary B	0.025-0.040	0.060-0.110
Moggy Brook	0.025-0.040	0.060-0.110
Moggy Brook Tributary	0.025-0.040	0.060-0.110
Municipal Brook	*	*
Neshanic River	0.035	0.040-0.110
North Branch Raritan River	0.025–0.085	0.030-0.100
North Branch Raritan Tributary B	0.020-0.025	0.070-0.110
North Branch Raritan Tributary C	0.020-0.040	0.060-0.110
North Branch Raritan Tributary E	0.020-0.025	0.070-0.110
Passaic River	0.015-0.040	0.040-0.110
Passaic River Branch 1	*	*
Passaic River Branch 2	*	*
Peapack Brook	0.030-0.035	0.045-0.080
Peapack Brook Tributary A	0.025-0.040	0.080-0.090
Peapack Brook Tributary B	0.025-0.040	0.080-0.090
Peapack Brook Tributary C	0.025-0.040	0.080-0.090
Penn's Brook	*	*
Peter's Brook	0.030-0.040	0.060-0.120

* Data not available

TABLE 7 – ROUGHNESS COEFFICIENTS-continued

Stream	Channel "n"	Overbank "n"
Peter's Brook Tributary	0.035	0.120
Pike Run	0.035-0.045	0.060-0.120
Pike Run Tributary	0.040-0.050	0.060-0.200
Pleasant Run	0.040	*
Raritan River	0.035-0.050	0.040-0.150
Raritan River		
Power Canal Tributary	*	*
River Brook	*	*
Rock Brook	0.040-0.055	0.050-0.300
Ross Brook	0.035	0.040-0.100
Royce Brook	0.025-0.045	0.080-0.150
Royce Brook Tributary A	0.040	0.050-0.070
Royce Brook Tributary B	0.030-0.040	0.050-0.090
Royce Brook Tributary C	0.040	0.055-0.090
Seeley's Brook	0.037	0.150
Seeley's Brook Tributary A	0.037	0.150
Seeley's Brook Tributary B	0.037	0.150
Simonson River	0.055	0.100
South Branch Raritan River	0.030-0.085	0.050-0.110
Stony Brook	0.030-0.045	0.040-0.100
Stony Brook East Branch	*	*
Stony Brook West Branch	*	*
Stony Brook West Branch Tributary A	*	*
Stony Brook West Branch Tributary B	*	*
Ten Mile Run	0.045	0.120
Tributary A in Bernardsville	0.020-0.025	0.070-0.110
Tributary C in Bernardsville	0.020-0.025	0.070-0.110
Tributary D in Bernardsville	0.020-0.025	0.070-0.110
Tributary F	0.020-0.025	0.070-0.110
Tributary G	0.020-0.025	0.070-0.110
Tributary H	0.020-0.025	0.070-0.110
Tributary I	0.020-0.025	0.070-0.110
Tributary J	0.020-0.025	0.070-0.110
Tributary K	0.020-0.025	0.040-0.110
Tributary L	0.020-0.025	0.040-0.110
Tributary MB	0.015-0.040	0.040-0.110
Van Horn Brook	0.040-0.050	0.060-0.150
West Branch Middle Brook	0.030-0.035	0.060-0.100

* Data not available

Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First of Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or locations information for the bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

It is important to note that temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the finalization of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are being prepared using NAVD88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD88. Structure and ground elevations in the community must, therefore, be referenced to NAVD88. It is important to note that adjacent communities may be referenced to NGVD29. This may result in differences in base flood elevations across the corporate limits between the communities.

As noted above, the elevations shown in the [*date*] FIS report and on the FIRM for Somerset County, New Jersey are referenced to NAVD88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD29 by applying a standard conversion factor. The conversion factor to NGVD29 +0.90. The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users who wish to convert the elevations in this FIS to NGVD29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1 foot.

$$NGVD29 = NAVD88 + 0.90$$

For more information on NAVD88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Spatial Reference System Division, National Geodetic Survey, NOAA, Silver Spring Metro Center, 1315 East-West Highway, Silver Spring, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent annual chance floodplain data, which may include a combination of the following: 10, 2, 1, and 0.2 percent annual chance flood elevations; delineations of the 1-percent annual chance flood and 0.2-percent annual chance floodplains; and 1-percent annual chance floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the community. For the stream studied in detail, the 1-percent and 0.2-percent annual chance floodplains have been delineated using the flood elevations determined at each cross section.

For the September 28, 2007 revision, the boundaries for Dead River, Harrison Brook, and Harrison Brook Branch 2 were interpolated between cross sections, using topographic maps provided by the Town of Bernards at a scale of 1"=200' with a contour interval of two feet. The mapping was prepared by photogrammetric methods from aerial photography obtained April 1994. In the Township of Warren, the boundaries for the Dead River and Cory's Brook were interpolated between

cross sections, using topographic maps provided by the New Jersey Department of Environmental Protection at a scale of 1"=200' with a contour interval of two feet (New Jersey Department of Environmental Protection, 1974). In the Township of Montgomery, the floodplain boundaries for all flooding sources studied in detail were redelineated based on 1996 aerial photography supplied by the Township at a scale of 1'=100" 1"=100' (ProMaps, Inc., 1996). Topography for the Middle Brook floodplain delineation was produced by VEP Associates, in 1986 for the USACE, New York District, under subcontract agreement with URS Corporation. Stream cross sections were surveyed as part of this project.

For the Raritan River basin boundaries were interpolated between cross sections, using topographic maps provided by Somerset County, New Jersey in conjunction with USACE at a scale of 1"=1,200' with a contour interval of two feet.

In the Borough of Hillsborough, the South Branch Raritan River has a floodway that has been previously designated by the State of New Jersey. This designated floodway was run through the computer step-backwater model, and the results were tabulated at selected cross-sections.

In the Township of Branchburg, the South Branch Raritan River, the North Branch Raritan River, and the Lamington River all have floodways previously designated by the State of New Jersey. These previously designated floodways, except for the Lamington River, were run through the computer step-backwater models, and the results are tabulated at selected cross-sections. The State-designated floodways that were run conformed with State regulations by causing no more than 0.2 foot surcharge.

In the Borough of Peapack-Gladstone, the discharges and methodologies used for the present study of the North Branch Raritan River were similar to the ones previously used for developing the adopted floodway limits, and yielded similar results. Therefore, the reanalyzed floodway limits are shown on the FIRM. For the Peapack Brook, the results of existing step-backwater computations were utilized and plotted on new topographic maps.

For all other streams in Somerset County the floodplain boundaries were interpolated between cross sections, using topographic maps provided by Somerset County, New Jersey in conjunction with USACE at a scale of 1"=1,200' with a contour interval of two feet

For the (*date*) revision, the 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). These flood boundaries were exported to GIS format and mapped. The results from the HEC-RAS modeling were exported to the GIS, and then mapped using the LiDAR-derived terrain model. The LiDAR data was collected by U.S. Geological Survey in January 2008. The nominal resolution of the LiDAR is 0.90 meter with 50% overlap.

In some instances, the terrain model did not pick up the full depth or shape of the channel or the true height of the channel banks noted during field reconnaissance. For example, the terrain model may not pick up data within steep slopes or steep banks. Engineering judgment was used to determine the floodplain boundary based on field reconnaissance and contour data for cases where there was a difference.

On the map, the 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 2 percent annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1 and 2 percent annual chance floodplain boundaries are close together, only the 1-percent annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

New Jersey Flood Hazard Area Design Flood

For the Millstone River, the New Jersey Flood Hazard Area Design Flood (NJFHADF) floodplain boundary was delineated in addition to the 1- and 0.2-percent-annual-chance boundaries. The State of New Jersey, Department of Environmental Protection (the Department) is mandated to delineate and regulate flood hazard areas pursuant to N.J.S.A. 58:16A-50 et seq., the Flood Hazard Area Control Act. This Act authorizes the Department to adopt land use regulations for development within the flood hazard areas, to control stream encroachments and to integrate the flood control activities of the municipal, county, State and Federal Governments. The State's Flood Hazard Area delineations are defined by the New Jersey Flood Hazard Area Design Flood. In 1974, the Water Policy and Supply Council passed a resolution stating that the New Jersey Flood Hazard Area Design Flood shall be equal to a design flood discharge 25% greater in flow than the 1-percent-annual chance flood.

4.2 Floodways

Encroachment on floodplains, such as artificial fill, reduces the flood-carrying capacity and increases flood heights, thus increasing flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order that the 1-percent annual chance be carried without substantial increases in flood heights. Criteria adopted by the State of New Jersey Department of Environmental Protection limit such increases in flood heights to 0.2 foot, provided that hazardous velocities are not produced. Velocities which are greater than 10 feet per second within the channel, and 5 feet per second on the floodplain are considered hazardous.

No encroachment was attempted for cross-sections at bridges or having pre-floodway condition velocities greater than the maximum permitted. Encroachment limits based on equal conveyance reduction, which would produce a 0.2 foot water rise at each of the remaining sections, were determined. Channel and overbank velocities were checked to ensure that they were within the permitted maxima. If they were not, the encroachment limits were adjusted until

the velocities were reduced below these maxima, often resulting in a water-surface increase of less than 0.2 foot.

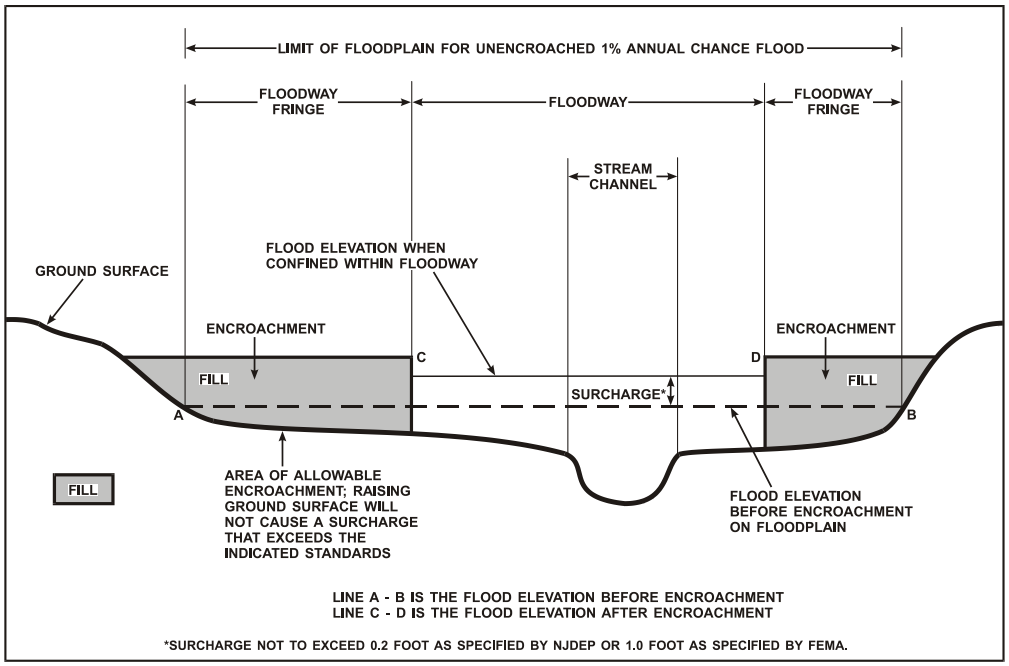
As of 1977 FIS, the State of New Jersey had already adopted floodway limits on the North Branch Raritan River as part of the Statewide Program of Flood Hazard Area Delineation under authority of Chapter 19, Public Law 1962, 58:16A. The discharges and methodologies used for the present study were similar to the ones previously used for developing the adopted floodway limits, and yielding similar results. Therefore, the reanalyzed floodway limits for the North Branch Raritan River and Peapack Brook are shown on the FIRM.

The following streams have floodways previously designated by the State of New Jersey (Anderson-Nichols and Company, Inc., 1973; 1975; NJDEP, Flood Hazard Report No. 4, 1972; NJDEP, Flood Hazard Report No. 11, 1973): the South Branch Raritan River in Branchburg and Hillsborough, the Neshanic River, Holland Brook, Beden Brook, Millstone River (except the revised reach in this study), and Peapack Brook Tributaries A, B, and C. These designated floodways were run through the computer step-backwater models, and the results are tabulated at selected cross sections. The floodways for the above-mentioned stream and stream segment were determined using Method 1, a general encroachment throughout the study reach, of the USACE HEC-2 computer program (USACE, 1973). No encroachment was attempted for cross sections at bridges or having pre-floodway condition velocities greater than the maximum permitted. The above-mentioned floodways conform with state regulations by causing no more than a 0.2-foot surcharge, except on Beden Brook at two locations, where a revised floodway was developed which conforms with state regulations.

For all other flooding sources studies in detail, the floodways presented in the September 28, 2007 FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, “Without Floodway” elevations presented in Table 8 for downstream cross sections of certain studied streams are lower than the regulatory flood elevations in that area, which must take into account the 1-percent annual chance flooding due to backwater from other sources.

The area between the floodway and 1-percent annual chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent annual chance 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 1, “Floodway Schematic.”



FLOODWAY SCHEMATIC Figure 1

Portions of the floodway for Raritan River, Passaic River, and Green Brook extend beyond the county boundary.

No floodway was delineated for the following streams because they were not restudied in the previous FIS: Municipal Brook, portions of Middle Brook, portions of East Branch Middle Brook, portions of West Branch Middle Brook, portions of Ross Brook, portions of Mac's Brook, Peter's Brook Tributary, Raritan Water and Power Canal Tributary, and River Brook.

In areas of impoundments created by manmade dams, it is not appropriate to delineate a floodway. This occurs in the Borough of Far Hills along Moggy Brook, Moggy Brook Tributary, Mine Brook Tributary B, and Lake Road Tributary D.

Along Stony Brook in the area from Johnston Drive to the intersection of Watchung Avenue and Somerset Street, the floodway was adjusted to reflect the existing non-effective flow area caused by the building line along Somerset Street; that is, the floodway limits were set and a new water-surface elevation was computed. Due to the steepness of the stream and the dynamic nature of the cross sections, comparison of the floodway was difficult. However, the results indicate that this was a justifiable modification.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 8, "Floodway Data." To reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beden Brook								
A	1,370	625	7,175	2.1	51.1	49.6[2]	49.8	0.2
B	1,850	480	6,064	2.5	51.1	49.9[2]	50.1	0.2
C	2,410	470	5,593	2.7	51.1	50.2[2]	50.4	0.2
D	3,250	390	4,804	2.3	51.1	50.8[2]	51.0	0.2
E	3,880	500	5,384	2.0	51.3	51.3	51.5	0.2
F	4,680	410	4,440	2.5	51.9	51.9	52.1	0.2
G	5,260	325	3,620	3.0	52.3	52.3	52.5	0.2
H	5,670	365	3,826	2.9	52.7	52.7	52.9	0.2
I	6,030	465	4,564	2.4	53.1	53.1	53.3	0.2
J	6,470	516	3,750	2.9	53.4	53.4	53.6	0.2
K	7,490	475	5,632	2.0	56.3	56.3	56.5	0.2
L	8,440	520	6,163	1.8	56.7	56.7	56.9	0.2
M	9,140	400	4,072	2.7	57.1	57.1	57.3	0.2
N	9,810	325	3,907	2.8	57.8	57.8	58.0	0.2
O	10,370	310	3,515	3.1	58.3	58.3	58.5	0.2
P	10,830	310	2,986	3.7	58.8	58.8	59.0	0.2
Q	11,670	410	4,836	2.3	60.2	60.2	60.4	0.2
R	12,230	524	4,836	2.3	60.7	60.7	60.8	0.1
S	12,935	530	6,104	1.8	61.4	61.4	61.6	0.2
T	13,805	440	4,955	2.2	62.0	62.0	62.2	0.2
U	14,265	450	4,251	2.6	62.4	62.4	62.6	0.2
V	14,577	670	6,529	1.7	62.8	62.8	63.0	0.2
W	15,062	750	6,997	1.6	63.0	63.0	63.2	0.2
X	15,412	400	3,747	2.9	63.2	63.2	63.4	0.2
Y	15,742	210	2,180	5.0	63.7	63.7	63.9	0.2
Z	16,552	373	3,498	2.6	65.2	65.2	65.4	0.2
AA	17,632	415	3,392	2.6	66.7	66.7	66.9	0.2
AB	18,229	428	3,015	3.0	67.6	67.6	67.7	0.1

[1]Feet above confluence with Millstone River
[2]Elevation computed without consideration of backwater effects from the Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

BEDEN BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beden Brook (continued)								
AC	19,099	740	4,883	1.8	69.0	69.0	69.1	0.1
AD	19,987	479	2,210	4.1	70.6	70.6	70.7	0.1
AE	20,536	440	2,892	3.1	72.6	72.6	72.7	0.1
AF	21,206	450	3,235	2.6	73.7	73.7	73.7	0.0
AG	22,151	540	3,700	2.2	74.6	74.6	74.6	0.0
AH	22,790	570	3,250	2.6	75.2	75.2	75.3	0.1
AI	23,736	310	1,736	4.8	76.9	76.9	77.0	0.1
AJ	24,326	405	2,654	3.1	78.3	78.3	78.5	0.2
AK	25,234	340	1,973	4.2	79.5	79.5	79.7	0.2
AL	25,861	485	2,922	2.8	80.6	80.6	80.8	0.2
AM	26,461	550	3,224	2.6	81.3	81.3	81.4	0.1
AN	27,051	430	2,343	3.5	81.9	81.9	82.0	0.1
AO	27,751	430	2,327	3.6	82.9	82.9	82.9	0.0
AP	28,151	360	2,111	3.9	83.9	83.9	83.9	0.0
AQ	28,836	230	1,415	5.9	85.3	85.3	85.4	0.1
AR	29,358	370	2,228	3.7	87.5	87.5	87.6	0.1
AS	29,856	290	2,017	4.0	88.2	88.2	88.4	0.2
AT	30,896	290	1,927	4.2	90.4	90.4	90.6	0.2
AU	31,466	340	1,912	4.2	91.6	91.6	91.7	0.1
AV	31,906	400	2,063	3.9	92.2	92.2	92.4	0.2
AW	32,506	270	1,291	5.5	93.4	93.4	93.5	0.1
AX	33,015	265	1,353	5.2	95.5	95.5	95.6	0.1
AY	33,490	310	1,917	3.7	98.0	98.0	98.2	0.2
AZ	34,096	185	904	7.7	98.9	98.9	99.1	0.2
BA	34,716	348	1,653	4.2	102.1	102.1	102.1	0.0
BB	35,556	320	2,159	3.2	104.5	104.5	104.6	0.1
BC	36,006	410	2,216	3.2	105.0	105.0	105.2	0.2
BD	36,951	358	2,098	3.3	107.5	107.5	107.6	0.1

[1] Feet above confluence with Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

BEDEN BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beden Brook (continued)								
BE	37,591[1]	300	1,545	4.5	108.9	108.9	109.0	0.1
BF	38,326[1]	240	1,306	5.4	110.7	110.7	110.9	0.2
Chambers Brook #1								
A	2,628[2]	270	856	2.6	79.8	78.7[3]	78.9	0.2
B	4,057[2]	160	660	3.3	84.2	84.2	84.2	0.0
C	5,082[2]	307	618	3.0	85.0	85.0	85.2	0.2
D	6,100[2]	147	517	3.6	87.8	87.8	87.9	0.1
E	7,025[2]	132	343	5.5	91.4	91.4	91.4	0.0
F	8,918[2]	105	306	6.1	96.1	96.1	96.2	0.1
G	9,883[2]	119	326	5.8	101.7	101.7	101.7	0.0
H	10,180[2]	159	611	3.1	103.1	103.1	103.3	0.2
I	11,530[2]	218	439	4.3	110.9	110.9	111.0	0.1
J	13,240[2]	118	321	5.9	123.4	123.4	123.4	0.0
K	14,235[2]	207	569	2.2	129.4	129.4	129.6	0.2
L	15,070[2]	37	148	8.6	138.4	138.4	138.4	0.0
M	15,780[2]	106	264	4.8	145.4	145.4	145.6	0.2
N	16,540[2]	85	214	5.9	153.3	153.3	153.3	0.0
O	17,634[2]	135	316	4.0	167.5	167.5	167.5	0.0
P	18,220[2]	39	174	7.3	172.4	172.4	172.4	0.0
Q	18,903[2]	105	563	2.3	188.5	188.5	188.7	0.2
R	19,785[2]	47	149	7.7	196.8	196.8	197.0	0.2
S	20,295[2]	179	233	4.9	210.2	210.2	210.4	0.2
T	20,995[2]	490	4,325	0.3	222.8	222.8	222.8	0.0
U	22,045[2]	83	116	6.0	222.9	222.9	222.9	0.0
V	23,270[2]	35	79	8.8	235.0	235.0	235.0	0.0
W	24,575[2]	83	146	4.8	253.6	253.6	253.6	0.0
X	26,015[2]	94	108	6.4	276.4	276.4	276.4	0.0

[1]Feet above confluence with Millstone River
[2]Feet above confluence with North Branch Raritan River
[3]Elevation computed without consideration of backwater effects from North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

BEDEN BROOK – CHAMBERS BROOK #1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Chambers Brook #2								
A	1,630	516	3,520	0.8	73.7	71.4[2]	71.6	0.2
B	1,950	260	1,875	1.6	73.7	71.4[2]	71.6	0.2
C	2,400	300	3,070	1.0	77.1	77.1	77.1	0.0
D	3,000	300	2,370	1.2	77.1	77.1	77.1	0.0
E	3,700	300	2,340	1.3	77.1	77.1	77.2	0.1
F	4,300	300	2,230	1.3	77.1	77.1	77.2	0.1
G	5,000	300	1,960	1.5	77.2	77.2	77.3	0.1
H	5,600	363	2,140	1.4	77.6	77.6	77.8	0.2
I	6,950	180	1,180	2.5	78.2	78.2	78.3	0.1
J	7,500	260	1,660	1.8	78.5	78.5	78.6	0.1

[1]Feet above confluence with North Branch Raritan River
[2]Elevation computed without consideration of backwater effects from North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

CHAMBERS BROOK #2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Clucas Brook								
A	820[1]	25	77	7.2	102.6	102.6	102.6	0.0
B	1,600[1]	160	395	1.4	104.8	104.8	105.0	0.2
C	2,220[1]	50	109	5.1	106.5	106.5	106.6	0.1
D	2,876[1]	35	118	4.7	109.8	109.8	109.9	0.1
E	3,000[1]	95	240	2.3	110.7	110.7	110.9	0.2
F	4,020[1]	20	79	7.0	113.0	113.0	113.1	0.1
G	5,400[1]	40	120	4.6	118.0	118.0	118.1	0.1
H	6,220[1]	20	86	5.3	120.1	120.1	120.2	0.1
I	8,580[1]	59	84	5.4	129.5	129.5	129.5	0.0
J	9,620[1]	20	67	4.6	132.7	132.7	132.9	0.2
K	10,810[1]	40	79	3.9	144.0	144.0	144.0	0.0
L	11,090[1]	30	58	5.3	145.6	145.6	145.6	0.0
Cory's Brook								
A	1,780[2]	150	564	0.8	213.2	212.9[3]	213.0	0.1
B	3,430[2]	46	122	3.8	220.6	220.6	220.6	0.0
C	5,417[2]	31	61	7.7	259.6	259.6	259.6	0.0
D	6,980[2]	30	67	8.6	293.2	293.2	293.2	0.0
E	9,050[2]	50	158	2.7	328.1	328.1	328.2	0.1
F	10,926[2]	33	62	6.8	348.3	348.3	348.4	0.1
G	11,985[2]	85	79	5.3	373.7	373.7	373.7	0.0
H	13,744[2]	30	33	6.1	391.1	391.1	391.1	0.0

[1]Feet above confluence with North Branch Raritan River
[2]Feet above confluence with Passaic River
[3]Elevation computed without consideration of backwater effects from the Passaic River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

CLUCAS BROOK – CORY'S BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cruser Brook								
A	805	238	1,718	2.7	66.3	66.3	66.4	0.1
B	1,005	187	1,438	3.2	66.4	66.4	66.5	0.1
C	1,805	325	1,891	2.4	67.3	67.3	67.5	0.2
D	2,365	257	1,584	2.9	67.9	67.9	68.1	0.2
E	2,815	250	1,525	3.0	70.1	70.1	70.1	0.0
F	3,188	257	1,691	2.7	70.5	70.5	70.5	0.0
G	3,398	162	1,087	3.9	70.6	70.6	70.6	0.0
H	3,798	166	1,290	3.3	71.2	71.2	71.3	0.1
I	4,198	216	1,361	3.1	71.7	71.7	71.8	0.1
J	4,628	200	1,295	3.2	72.3	72.3	72.4	0.1
K	5,268	261	1,748	2.4	73.0	73.0	73.1	0.1
L	5,668	208	1,239	3.4	73.4	73.4	73.5	0.1
M	6,428	322	2,140	2.0	74.6	74.6	74.8	0.2
N	6,918	232	1,424	2.9	75.0	75.0	75.2	0.2
O	7,840	264	1,650	2.2	79.2	79.2	79.2	0.0
P	8,180	189	1,556	2.3	79.4	79.4	79.4	0.0
Q	8,670	229	1,076	2.4	79.7	79.7	79.8	0.1
R	8,850	208	1,174	3.1	80.0	80.0	80.1	0.1
S	9,040	179	1,033	3.5	80.2	80.2	80.4	0.2
T	9,290	175	922	3.9	80.6	80.6	80.8	0.2
U	9,670	183	1,274	2.5	81.3	81.3	81.4	0.1
V	10,060	162	928	3.4	81.6	81.6	81.8	0.2
W	10,580	205	1,301	2.4	82.4	82.4	82.6	0.2
X	11,080	178	987	3.2	82.9	82.9	83.1	0.2
Y	11,560	262	1,396	2.2	83.7	83.7	83.9	0.2
Z	12,120	200	1,122	2.8	84.4	84.4	84.6	0.2

[1]Feet above confluence with Pike Run

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

CRUSER BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cuckel's Brook								
A	3,050	88	438	2.8	39.6	29.3[2]	29.5	0.2
B	4,835	83	474	2.5	41.5	30.8[2]	30.9	0.1
C	5,730	31	168	7.2	41.9	31.0[2]	31.2	0.2
D	7,230	43	223	5.4	41.9	38.2[2]	38.2	0.0
E	9,315	100	419	2.9	43.6	43.6	43.6	0.0
F	10,035	54	304	3.1	45.4	45.4	45.4	0.0
G	10,790	63	223	4.2	46.0	46.0	46.2	0.2
H	11,705	21	89	10.5	48.9	48.9	49.0	0.1
I	12,375	210	357	2.6	51.4	51.4	51.4	0.0
J	13,675	33	116	8.1	53.2	53.2	53.2	0.0
K	13,910	31	138	6.8	54.2	54.2	54.3	0.1
L	14,785	80	255	3.7	56.4	56.4	56.4	0.0
M	15,830	160	671	1.4	61.5	61.5	61.6	0.1
N	17,010	55	173	5.4	63.0	63.0	63.1	0.1
O	17,940	274	325	2.9	68.4	68.4	68.5	0.1
P	18,760	105	324	2.9	71.0	71.0	71.1	0.1
Q	19,495	135	240	3.9	75.7	75.7	75.7	0.0
R	20,375	235	298	3.1	80.0	80.0	80.0	0.0
S	21,030	127	384	2.4	82.6	82.6	82.8	0.2

[1]Feet above confluence with Raritan River
[2]Elevation computed without consideration of backwater effects from Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

CUCKEL'S BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dead River								
A	2,460[1]	1,775	5,319	0.4	213.2	213.1[4]	213.1	0.0
B	6,255[1]	1,870	5,504	0.4	213.8	213.8	214.0	0.2
C	9,470[1]	2,150	6,669	0.3	214.5	214.5	214.7	0.2
D	13,100[1]	1,444	3,866	0.5	215.2	215.2	215.4	0.2
E	15,250[1]	930	2,502	0.8	216.7	216.7	216.8	0.1
F	18,125[1]	949	4,797	0.8	219.7	219.7	219.9	0.2
G	22,100[1]	681	2,928	0.6	222.3	222.3	222.5	0.2
H	24,360[1]	616	2,900	0.6	223.7	223.7	223.9	0.2
I	29,030[1]	414	809	1.6	235.0	235.0	235.2	0.2
J	32,715[1]	320	878	1.5	248.1	248.1	248.3	0.2
K	36,965[1]	178	604	2.0	260.9	260.9	261.1	0.2
L	38,550[1]	177	815	1.5	264.5	264.5	264.7	0.2
Dock Watch Hollow Brook								
A	150[2]	129	375	6.2	205.8	205.8	206.0	0.2
B	910[2]	182	403	5.8	217.8	217.8	217.8	0.0
C	2,850[2]	67	220	10.6	248.9	248.9	249.1	0.2
D	8,775[2]	135	441	5.2	375.0	375.0	375.2	0.2
E	10,872[2]	255	900	2.6	381.9	381.9	382.1	0.2
F	12,293[2]	142	442	5.2	393.6	393.6	393.8	0.2
Dock Watch Hollow Brook Branch								
A	50[3]	65	240	4.1	311.9	311.9	312.1	0.2
B	1,070[3]	69	155	6.4	340.7	340.7	340.9	0.2
C	2,000[3]	78	199	4.9	370.9	370.9	371.1	0.2
D	2,844[3]	95	308	3.2	381.4	381.4	381.5	0.1

[1]Feet above confluence with Passaic River
[2]Feet above confluence with East Branch Middle Brook
[3]Feet above confluence with Dock Watch Hollow Brook
[4]Elevation computed without consideration of backwater effects from Passaic River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

DEAD RIVER - DOCK WATCH HOLLOW BROOK - DOCK WATCH HOLLOW BROOK BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
East Branch Middle Brook								
A	1,810	196	1,486	3.6	153.5	153.5	153.5	0.0
B	3,710	162	632	8.5	159.0	159.0	159.1	0.1
C	5,570	200	935	4.8	167.4	167.4	167.6	0.2
D	7,305	138	462	9.7	178.4	178.4	178.5	0.1
E	9,055	255	728	6.1	190.0	190.0	190.1	0.1
F	10,352	135	686	6.5	200.1	200.1	200.1	0.0
G	10,610	335	1,329	2.2	208.3	208.3	208.5	0.2
H	11,793	287	652	4.4	213.1	213.1	213.3	0.2
I	12,800	214	611	4.7	217.2	217.2	217.3	0.1
J	15,199	209	588	4.9	227.3	227.3	227.4	0.1
K	16,630	190	545	4.5	232.7	232.7	232.8	0.1
L	18,544	236	734	3.4	240.0	240.0	240.0	0.0
M	20,742	271	830	2.3	245.5	245.5	245.7	0.2
N	21,510	105	354	5.4	249.1	249.1	249.2	0.1
O	23,500	24	120	7.5	255.0	255.0	255.1	0.1
P	24,383	65	147	6.1	262.6	262.6	262.8	0.2
Q	25,063	83	538	1.5	265.0	265.0	265.2	0.2
R	25,685	113	586	1.4	270.0	270.0	270.0	0.0

[1]Feet above confluence with Middle Brook to Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

EAST BRANCH MIDDLE BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Green Brook								
A	3,220	800[2]	9,642	1.1	35.1	35.1	35.3	0.2
B	5,691	710/650[3]	6,402	1.6	35.5	35.5	35.7	0.2
C	7,890	410/365[3]	3,691	2.8	36.9	36.9	37.1	0.2
D	11,035	645/610[3]	5,522	1.9	38.7	38.7	38.8	0.1
E	11,950	753/500[3]	4,996	2.1	39.2	39.2	39.4	0.2
F	13,210	510/150[3]	4,615	2.3	40.2	40.2	40.3	0.1
G	14,880	755/680[3]	6,732	1.6	42.5	42.5	42.7	0.2
H	15,850	802/408[3]	7,440	1.2	42.9	42.9	43.1	0.2
I	18,925	910/475[3]	5,666	1.6	43.9	43.9	44.0	0.1
J	22,105	946/245[3]	5,005	1.7	45.0	45.0	45.2	0.2
K	24,190	690/510[3]	5,532	1.5	48.1	48.1	48.3	0.2
L	26,575	656/271[3]	5,490	1.5	51.5	51.5	51.6	0.1
M	28,080	1,435/1,057[3]	9,567	0.8	52.1	52.1	52.2	0.1
N	28,987	2,125/1,600[3]	16,812	0.5	52.2	52.2	52.3	0.1
O	31,475	1,340/1,285[3]	7,885	1.0	52.4	52.4	52.5	0.1
P	34,405	636/461[3]	5,016	1.6	57.6	57.6	57.8	0.2
Q	36,115	603/520[3]	3,886	2.0	59.5	59.5	59.7	0.2
R	37,895	518/293[3]	3,469	2.3	61.5	61.5	61.7	0.2
S	39,005	859/536[3]	5,559	1.4	62.2	62.2	62.4	0.2
T	40,300	672/323[3]	2,467	1.2	62.7	62.7	62.9	0.2
U	41,695	104/70[3]	425	6.7	64.8	64.8	65.0	0.2
V	44,080	130/102[3]	662	3.2	74.4	74.4	74.6	0.2
W	45,945	50/22[3]	297	7.1	83.6	83.6	83.6	0.0
X	47,685	60/36[3]	342	5.4	92.6	92.6	92.7	0.1
Y	49,330	57/13[3]	237	7.8	99.5	99.5	99.6	0.1
Z	51,150	139/71[3]	496	3.7	108.6	108.6	108.6	0.0
AA	53,050	101/83[3]	330	6.4	114.1	114.1	114.1	0.0

[1]Feet above confluence with Raritan River
[2]Width extends beyond county boundary
[3]Width/width within county

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

GREEN BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Green Brook (continued)								
AB	53,745	100/50[2]	448	4.7	117.2	117.2	117.4	0.2
AC	55,315	148/93[2]	589	3.6	121.5	121.5	121.7	0.2
AD	56,525	204/43[2]	707	3.7	125.4	125.4	125.6	0.2
AE	57,720	159[3]	667	3.9	129.1	129.1	129.2	0.1
AF	58,790	105[3]	586	4.5	134.0	134.0	134.2	0.2
AG	59,775	164[3]	493	5.3	136.5	136.5	136.5	0.0
AH	60,955	111[3]	475	5.5	143.2	143.2	143.2	0.0
AI	62,365	50[3]	291	9.3	150.9	150.9	150.9	0.0
AJ	62,855	102[3]	720	3.8	153.4	153.4	153.5	0.1
AK	63,255	70[3]	363	7.4	154.7	154.7	154.8	0.1
AL	64,795	124[3]	428	7.9	160.3	160.3	160.4	0.1
AM	65,885	183[3]	1,016	3.3	169.1	169.1	170.1	1.0
AN	67,535	98[3]	673	4.8	179.4	179.4	180.4	1.0
AO	68,395	100[3]	498	6.5	194.5	194.5	194.5	0.0
AP	70,335	170[3]	558	2.8	213.0	213.0	213.1	0.1
AQ	71,831	42[3]	191	8.2	226.1	226.1	226.1	0.0
AR	72,898	171[3]	321	4.9	236.0	236.0	236.0	0.0
AS	73,915	37[3]	127	9.1	248.0	248.0	248.1	0.1
AT	75,715	65[3]	194	6.0	265.0	265.0	265.7	0.7
AU	76,915	38[3]	145	8.0	287.3	287.3	287.4	0.1
AV	78,715	27[3]	108	10.7	343.4	343.4	343.5	0.1
AW	80,295	62[3]	82	5.7	376.0	376.0	376.0	0.0
AX	81,035	70[3]	176	2.7	381.2	381.2	381.2	0.0
AY	82,635	112[3]	262	1.8	387.4	387.4	387.5	0.1
AZ	83,635	130[3]	220	2.1	390.1	390.1	390.1	0.0
BA	84,890	157[3]	272	1.7	394.8	394.8	394.9	0.1

[1]Feet above confluence with Raritan River
[2]Width/width within county boundary
[3]Width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

GREEN BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Harrison Brook								
A	435[1]	200	656	3.1	219.8	218.2[3]	218.4	0.2
B	3,140[1]	374	1,674	1.2	223.0	223.0	223.3	0.3
C	5,198[1]	470	2,096	1.0	225.6	225.6	225.7	0.1
D	8,012[1]	230	724	2.3	229.2	229.2	229.2	0.0
E	10,840[1]	399	586	2.8	237.8	237.8	237.8	0.0
F	12,760[1]	180	688	2.4	249.4	249.4	249.6	0.2
G	14,510[1]	105	363	4.6	259.0	259.0	259.1	0.1
H	15,775[1]	199	414	4.0	263.9	263.9	264.0	0.1
I	18,800[1]	120	343	3.4	291.5	291.5	291.6	0.1
J	20,100[1]	80	294	3.9	308.7	308.7	308.8	0.1
Harrison Brook Branch 1								
A	1,060[2]	200	585	1.3	221.9	221.9	222.0	0.1
B	2,520[2]	43	77	9.8	228.5	228.5	228.5	0.0
Harrison Brook Branch 2								
A	735[2]	86	171	3.8	239.2	239.2	239.2	0.0
B	1,400[2]	80	136	4.7	242.5	242.5	242.5	0.0
C	1,850[2]	78	170	3.8	245.4	245.4	245.4	0.0
D	2,660[2]	52	94	6.9	249.8	249.8	249.8	0.0
E	3,375[2]	50	92	7.0	255.1	255.1	255.1	0.0
F	3,800[2]	68	185	3.5	258.1	258.1	258.1	0.0
G	4,850[2]	150	420	0.9	267.0	267.0	267.0	0.0
H	5,270[2]	60	76	4.9	270.7	270.7	270.7	0.0

[1]Feet above confluence with Dead River
[2]Feet above confluence with Harrison Brook
[3]Elevation computed without consideration of backwater effects from Dead River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

HARRISON BROOK- HARRISON BROOK BRANCH 1- HARRISON BROOK BRANCH 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Herzog Brook								
A	676[1]	170	704	2.5	198.4	198.4	198.4	0.0
B	2,090[1]	125	332	5.4	205.5	205.5	205.5	0.0
C	3,140[1]	185	385	4.6	214.1	214.1	214.1	0.0
D	3,812[1]	235	1,042	1.7	219.6	219.6	219.7	0.1
Holland Brook								
A	2,134[2]	460	1668	2.65	61.2	58.2[3]	58.3	0.1
B	3,544[2]	310	1361	3.25	61.2	61.1[3]	61.3	0.2
C	4,396[2]	440	1734	2.55	62.4	62.4	62.5	0.1
D	7,508[2]	210	1053	4.20	67.5	67.5	67.7	0.2
E	9,602[2]	245	1147	3.85	71.7	71.7	71.8	0.1
F	9,868[2]	110	782	5.65	73.8	73.8	73.8	0.0
G	10,769[2]	411	2333	1.76	75.3	75.3	75.4	0.1
H	12,908[2]	140	697	5.89	77.3	77.3	77.5	0.2
I	13,907[2]	275	1057	3.89	80.8	80.8	80.9	0.1
J	16,152[2]	200	951	4.32	86.3	86.3	86.4	0.1
K	16,531[2]	305	2241	1.83	89.5	89.5	89.5	0.0
L	17,241[2]	215	1133	3.63	89.8	89.8	89.9	0.1

[1]Feet above confluence with Lamington River
[2]Feet above confluence with South Branch Raritan River
[3]Elevation computed without consideration of backwater effects from South Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

HERZOG BROOK – HOLLAND BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hoopstick Brook								
A	390[1]	86	298	2.7	101.8	101.8	102.0	0.2
B	760[1]	139	403	2.0	104.3	104.3	104.4	0.1
C	1,480[1]	115	322	2.5	106.5	106.5	106.7	0.2
D	2,200[1]	37	152	5.3	108.0	108.0	108.2	0.2
E	3,700[1]	34	84	5.6	112.3	112.3	112.4	0.1
F	4,800[1]	17	65	7.2	119.2	119.2	119.3	0.1
G	5,900[1]	86	152	3.1	125.1	125.1	125.2	0.1
H	7,320[1]	99	261	1.8	135.4	135.4	135.5	0.1
Indian Grave Brook								
A	800[2]	109	476	2.8	313.9	313.9	313.9	0.0
B	2,430[2]	175	342	3.9	344.4	344.4	344.4	0.0
C	3,330[2]	117	378	3.6	355.6	355.6	355.6	0.0
D	5,710[2]	39	167	8.1	399.5	399.5	399.5	0.0
E	6,420[2]	60	160	8.5	417.8	417.8	417.8	0.0
F	7,590[2]	83	103	5.8	464.8	464.8	464.8	0.0
G	9,240[2]	55	77	7.8	582.9	582.9	582.9	0.0
H	11,030[2]	40	108	5.5	612.2	612.2	612.3	0.1
Lake Road Tributary D								
A	412[3]	40	60	5.6	237.2	237.2	237.2	0.0
B	539[3]	25	75	4.5	245.4	245.4	245.4	0.0
C	734[3]	45	60	5.7	259.1	259.1	259.1	0.0
D	892[3]	35	50	6.7	276.4	276.4	276.4	0.0
E	1,014[3]	20	130	2.6	292.4	292.4	292.4	0.0
F	1,109[3]	20	125	2.7	292.4	292.4	292.4	0.0

[1]Feet above confluence with Middle Brook to North Branch Raritan River
[2]Feet above confluence with Passaic River
[3]Feet above confluence with North Branch Raritan River Tributary C

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

HOOPSTICK BROOK – INDIAN GRAVE BROOK - LAKE ROAD TRIBUTARY D

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Lamington River								
A	1,360	442	3,690	3.3	88.3	88.3	88.5	0.2
B	2,840	998	6,500	1.9	89.6	89.6	89.8	0.2
C	3,830	901	3,890	3.1	90.1	90.1	90.3	0.2
D	4,280	946	4,520	2.7	90.6	90.6	90.8	0.2
E	5,120	1,940	8,150	1.5	91.6	91.6	91.8	0.2
F	6,220	1,560	6,170	1.9	92.3	92.3	92.4	0.1
G	6,650	1,000	4,060	3.0	92.6	92.6	92.7	0.1
H	7,250	736	3,830	3.1	93.1	93.1	93.1	0.0
I	7,570	733	5,030	2.4	93.4	93.4	93.5	0.1
J	8,140	812	4,750	2.5	93.7	93.7	93.8	0.1
K	8,710	986	5,570	2.2	94.1	94.1	94.1	0.0
L	9,300	1,130	3,570	3.4	94.3	94.3	94.4	0.1
M	10,360	1,030	4,790	2.5	95.6	95.6	95.6	0.0
N	12,170	921[2]	5,047	2.4	96.6	96.6	96.7	0.1
O	14,630	751[2]	3,842	1.5	98.1	98.1	98.3	0.2
P	17,430	594[2]	1,918	3.0	100.8	100.8	100.9	0.1
Q	19,540	821	1,806	3.2	103.2	103.2	103.4	0.2
R	21,940	477[2]	2,273	2.5	106.6	106.6	106.7	0.1
S	23,940	480[2]	1,676	3.4	109.7	109.7	109.9	0.2
T	25,600	400[2]	2,023	2.8	114.0	114.0	114.0	0.0
U	27,615	440[2]	1,430	4.0	117.1	117.1	117.2	0.1
V	30,120	469[2]	1,651	3.4	121.7	121.7	121.9	0.2
W	32,440	551[2]	2,416	2.4	127.7	127.7	127.8	0.1
X	34,730	240[2]	1,048	5.4	131.6	131.6	131.8	0.2
Y	37,000	435[2]	2,105	2.4	135.1	135.1	135.3	0.2
Z	38,230	517[2]	1,688	2.8	136.7	136.7	136.9	0.2

[1]Feet above confluence with North Branch Raritan River
[2]This width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

LAMINGTON RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Lamington River (continued)								
AA	40,700[1]	356[3]	941	5.0	144.5	144.5	144.7	0.2
AB	42,935[1]	380[3]	790	6.0	155.7	155.7	155.9	0.2
AC	45,010[1]	520[3]	2,389	2.0	161.2	161.2	161.2	0.0
AD	47,055[1]	237[3]	1,111	4.3	165.1	165.1	165.1	0.0
AE	48,900[1]	536[3]	1,170	3.8	170.8	170.8	171.0	0.2
AF	51,130[1]	518[3]	1,616	2.8	180.0	180.0	180.1	0.1
AG	53,680[1]	495[3]	1,208	3.7	190.9	190.9	191.1	0.2
AH	56,125[1]	466[3]	1,068	3.7	200.3	200.3	200.4	0.1
AI	57,450[1]	300[3]	807	4.9	209.5	209.5	209.5	0.0
AJ	59,215[1]	285[3]	967	3.7	221.3	221.3	221.4	0.1
AK	61,020[1]	59[3]	294	12.2	239.8	239.8	239.8	0.0
Mac's Brook								
A	140[2]	39	167	3.6	55.3	55.3	55.5	0.2
B	600[2]	65	166	3.6	56.8	56.8	56.8	0.0
C	970[2]	21	62	9.8	59.7	59.7	59.7	0.0
D*								
E*								
F*								

[1]Feet above confluence with North Branch Raritan River
[2]Feet above confluence with Peter's Brook
[3]This width extends beyond county boundary
* Data not computed.

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

LAMINGTON RIVER – MAC'S BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Middle Brook to North Branch Raritan River								
A	1,430	250	996	2.1	95.0	92.1[2]	92.2	0.1
B	2,500	220	479	4.3	96.2	96.2	96.2	0.0
C	4,170	110	184	7.4	101.4	101.4	101.4	0.0
D	4,860	110	312	4.4	106.1	106.1	106.1	0.0
E	5,680	255	357	3.8	109.5	109.5	109.6	0.1
F	6,760	215	563	2.4	114.8	114.8	114.9	0.1
G	8,090	110	227	6.0	119.3	119.3	119.3	0.0
H	8,600	180	508	2.7	122.0	122.0	122.1	0.1
I	9,530	240	894	1.5	127.3	127.3	127.3	0.0
J	10,320	170	435	3.1	128.3	128.3	128.4	0.1
K	11,050	105	325	4.2	131.8	131.8	131.9	0.1
L	11,920	220	624	1.9	136.9	136.9	137.1	0.2
M	12,780	65	177	6.7	140.4	140.4	140.5	0.1
N	13,540	65	204	5.8	146.0	146.0	146.1	0.1
O	14,000	155	293	4.0	150.0	150.0	150.0	0.0
P	14,960	105	252	4.7	155.0	155.0	155.2	0.2
Q	15,360	205	590	2.0	156.5	156.5	156.6	0.1
R	16,225	80	182	4.8	161.9	161.9	161.9	0.0
S	16,720	110	149	5.9	164.3	164.3	164.3	0.0
T	17,760	50	154	5.7	171.1	171.1	171.2	0.1
U	18,010	160	195	4.5	175.0	175.0	175.1	0.1
V	18,560	115	207	4.3	179.7	179.7	179.7	0.0
W	19,960	60	141	6.2	189.8	189.8	189.8	0.0
X	21,440	45	120	7.3	201.7	201.7	201.7	0.0
Y	22,180	40	120	7.3	209.7	209.7	209.7	0.0

[1]Feet above confluence with North Branch Raritan River
[2]Elevation computed without consideration of backwater effects from North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

MIDDLE BROOK TO NORTH BRANCH RARITAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Middle Brook To Raritan River								
A	2,300	467	2,075	4.7	37.9	35.5[2]	35.7	0.2
B	3,300	374	2,754	2.5	39.0	39.0	39.2	0.2
C	4,490	244	747	9.1	40.5	40.5	40.5	0.0
D	6,470	97	449	11.4	52.2	52.2	52.2	0.0
E	7,775	94	423	12.1	60.1	60.1	60.1	0.0
Millstone River								
A	434	1,680	24,770	0.97	41.2	39.5[2]	39.7	0.2
B	1,134	1,590	20,190	1.19	41.2	39.5[2]	39.7	0.2
C	1,634	1,190	15,520	1.55	41.2	39.6[2]	39.8	0.2
D	2,834	1,690	18,590	1.30	41.2	39.8[2]	40.0	0.2
E	3,784	1,360	18,000	1.34	41.2	39.9[2]	40.1	0.2
F	4,944	1,050	17,010	1.42	41.2	40.0[2]	40.2	0.2
G	5,804	1,700	19,650	1.23	41.2	40.2[2]	40.3	0.1
H	6,774	2,015	25,740	0.94	41.2	40.3[2]	40.5	0.2
I	8,134	2,270	17,500	1.30	41.2	40.4[2]	40.5	0.1
J	9,081	2,329	18,800	1.28	40.9	40.9	41.1	0.2
K	10,089	2,108	23,202	1.04	41.1	41.1	41.3	0.2
L	12,876	1,057	13,555	1.78	41.5	41.5	41.7	0.2
M	15,525	1,253	14,761	1.64	42.7	42.7	42.8	0.1
N	17,953	1,336	16,743	1.44	43.4	43.4	43.5	0.1

[1]Feet above confluence with Raritan River

[2]Elevation computed without consideration of backwater effects from Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

MIDDLE BROOK TO RARITAN RIVER - MILLSTONE RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Millstone River (continued)								
O	20,023	874	11,527	2.10	44.0	44.0	44.1	0.1
P	23,802	1,039	14,736	1.62	45.0	45.0	45.1	0.1
Q	26,290	1,284	18,491	1.29	45.5	45.5	45.7	0.2
R	28,779	1,393	20,061	1.19	45.8	45.8	46.0	0.2
S	31,270	1,131	16,354	1.46	46.3	46.3	46.4	0.1
T	33,578	1,383	19,378	1.22	46.7	46.7	46.9	0.2
U	35,368	1,225	17,552	1.29	46.9	46.9	47.1	0.2
V	37,856	1,060	15,450	1.47	47.4	47.4	47.5	0.1
W	40,409	1,299	18,915	1.20	47.8	47.8	48.0	0.2
X	45,443	1,236	18,671	1.20	48.5	48.5	48.7	0.2
Y	50,409	1,350	19,117	1.17	49.4	49.4	49.5	0.1
Z	55,734	1,352	18,774	1.19	49.9	49.9	50.0	0.1
AA	58,394	1,097	14,774	1.52	50.3	50.3	50.4	0.1
AB	60,822	1,375	19,045	1.17	50.8	50.8	51.0	0.2
AC	64,411	1,867	24,603	0.60	51.1	51.1	51.3	0.2
AD	66,965	1,359	17,807	0.84	51.3	51.3	51.5	0.2
AE	69,428	1,251	16,472	0.90	51.6	51.6	51.7	0.1
AF	72,534	918	10,950	1.36	52.1	52.1	52.2	0.1
AG	74,898	297	4,453	3.30	53.0	53.0	53.1	0.1
AH	78,231	527	7,633	1.92	54.3	54.3	54.5	0.2
AI	81,610	961	10,682	1.37	55.6	55.6	55.7	0.1
AJ	84,043	765	8,849	1.59	56.2	56.2	56.3	0.1

[1]Feet above confluence with Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

MILLSTONE RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mine Brook								
A	296	500	1,550	1.7	134.9	134.9	135.1	0.2
B	444	500	3,360	0.8	139.0	139.0	139.0	0.0
C	1,114	290	800	3.2	139.0	139.0	139.1	0.1
D	2,096	285	575	4.1	143.5	143.5	143.6	0.1
E	2,233	270	1,055	2.2	148.7	148.7	148.7	0.0
F	2,471	250	900	2.6	149.5	149.5	149.5	0.0
G	3,274	350	620	3.8	152.3	152.3	152.4	0.1
H	3,501	330	1,230	1.9	156.9	156.9	156.9	0.0
I	3,854	380	1,580	1.5	157.1	157.1	157.3	0.2
J	5,913	375	690	3.4	174.9	174.9	175.0	0.1
K	7,492	320	1,140	2.1	180.4	180.4	180.6	0.2
L	7,608	320	1,310	1.8	185.2	185.2	185.2	0.0
M	9,187	350	650	3.6	195.6	195.6	195.6	0.0
N	10,628	250	760	3.1	203.7	203.7	203.8	0.1
O	10,760	250	835	2.8	209.1	209.1	209.1	0.0
P	12,978	245	480	4.1	224.9	224.9	224.9	0.0
Q	16,431	50	180	7.2	254.3	254.3	254.4	0.1
R	16,574	50	195	6.7	256.7	256.7	256.7	0.0
S	18,744	310	435	3.0	279.0	279.0	279.0	0.0
T	18,865	280	610	2.1	281.0	281.0	281.2	0.2
U	20,581	180	320	4.1	296.6	296.6	296.6	0.0
V	20,703	180	510	2.5	298.7	298.7	298.7	0.0
W	23,005	140	260	5.0	322.9	322.9	322.9	0.0
X	23,158	140	430	3.0	331.0	331.0	331.0	0.0
Y	23,432	110	280	4.6	334.4	334.4	334.4	0.0
Z	23,559	110	330	3.9	337.8	337.8	337.8	0.0
AA	23,966	140	250	5.2	341.8	341.8	341.8	0.0

[1]Feet above confluence with North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

MINE BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mine Brook (continued)								
AB	24,504[1]	25	100	10.1	351.5	351.5	351.5	0.0
AC	24,615[1]	160	510	2.0	355.8	355.8	355.8	0.0
AD	25,048[1]	50	210	4.8	359.1	359.1	359.1	0.0
AE	25,439[1]	110	195	5.2	366.5	366.5	366.5	0.0
AF	26,014[1]	150	270	3.7	373.0	373.0	373.0	0.0
AG	26,363[1]	140	255	4.0	378.0	378.0	378.0	0.0
AH	26,579[1]	160	280	3.6	381.3	381.3	381.4	0.1
AI	26,938[1]	175	250	4.0	387.3	387.3	387.4	0.1
AJ	27,086[1]	30	175	5.8	392.6	392.6	392.6	0.0
AK	28,369[1]	38	70	8.2	408.7	408.7	408.7	0.0
AL	28,976[1]	15	30	5.5	418.0	418.0	418.0	0.0
AM	29,394[1]	7	18	8.9	435.1	435.1	435.1	0.0
Mine Brook Tributary B								
A	306[2]	150	80	3.9	141.5	141.5	141.5	0.0
B	433[2]	140	300	1.0	146.7	146.7	146.8	0.1
C	834[2]	60	140	2.2	146.8	146.8	147.0	0.2
D	929[2]	55	95	3.3	149.1	149.1	149.1	0.0
E	1,109[2]	80	470	0.7	157.4	157.4	157.4	0.0
F	1,204[2]	105	425	0.7	157.4	157.4	157.4	0.0
G	1,331[2]	105	135	2.3	157.7	157.7	157.7	0.0
H	1,663[2]	55	65	4.8	161.1	161.1	161.1	0.0
I	2,202[2]	130	150	2.1	170.2	170.2	170.4	0.2
J	2,392[2]	50	175	1.8	174.4	174.4	174.4	0.0
K	3,395[2]	30	60	5.2	203.7	203.7	203.7	0.0
L	3,575[2]	30	115	2.7	207.6	207.6	207.6	0.0

[1]Feet above confluence with North Branch Raritan River
[2]Feet above confluence with Mine Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

MINE BROOK – MINE BROOK TRIBUTARY B

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mine Brook Tributary B (continued)								
M	4,356[1]	40	50	6.3	216.4	216.4	216.4	0.0
N	4,636[1]	50	210	1.5	223.2	223.2	223.2	0.0
O	4,984[1]	30	60	5.2	252.0	252.0	252.0	0.0
P	5,079[1]	30	165	1.9	264.8	264.8	264.8	0.0
Moggy Brook								
A	465[2]	40	100	6.8	127.8	127.8	128.0	0.2
B	591[2]	30	130	3.4	131.5	131.5	131.5	0.0
C	1,267[2]	30	60	7.3	158.7	158.7	158.7	0.0
D	2,624[2]	20	40	7.2	234.7	234.7	234.7	0.0
E	2,761[2]	35	280	1.0	242.6	242.6	242.6	0.0
F	2,899[2]	80	560	0.5	242.7	242.7	242.7	0.0
G	3,210[2]	40	110	2.6	242.7	242.7	242.7	0.0
H	3,564[2]	60	70	4.1	247.4	247.4	247.4	0.0
I	5,623[2]	145	120	2.4	284.1	284.1	284.1	0.0
Moggy Brook Tributary								
A	570[3]	20	45	9.6	155.0	155.0	155.0	0.0
B	803[3]	25	60	7.2	164.0	164.0	164.0	0.0
C	1,220[3]	20	85	5.1	191.0	191.0	191.0	0.0
D	2,096[3]	20	135	3.2	232.1	232.1	232.2	0.1
E	2,994[3]	50	95	4.5	262.5	262.5	262.6	0.1
F	3,131[3]	50	95	4.5	266.9	266.9	267.0	0.1
G	3,326[3]	25	75	5.7	273.5	273.5	273.5	0.0
H	3,590[3]	25	60	7.2	280.0	280.0	280.0	0.0

[1]Feet above confluence with Mine Brook
[2]Feet above Bedminister/ Far Hills corporate limits
[3]Feet above confluence with Moggy Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

MINE BROOK TRIBUTARY B – MOGGY BROOK – MOGGY BROOK TRIBUTARY

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Neshanic River								
A	222	646	6492	3.3	82.1	82.1	82.3	0.2
B	2,499	660	5611	3.8	83.7	83.7	83.8	0.1
C	4,839	560	5523	3.8	86.8	86.8	86.9	0.1
D	5,060	590	5705	3.7	87.1	87.1	87.2	0.1
E	7,251	300	2814	7.5	90.0	90.0	90.0	0.0
F	7,506	310	3977	5.3	92.8	92.8	93.0	0.2
G	9,683	620	7436	2.8	94.5	94.5	94.7	0.2
H	12,391	550	5398	3.9	95.8	95.8	96.0	0.2
I	12,573	500	5751	3.7	97.3	97.3	97.5	0.2
J	13,266	440	5090	4.1	97.6	97.6	97.8	0.2
K	15,150	480	5055	4.2	99.2	99.2	99.4	0.2
L	16,697	2702	3285	6.5	100.7	100.7	100.9	0.2

[1]Feet above confluence with Raritan River
[2]Width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

NESHANIC RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North Branch Raritan River								
A	458	969	6,343	5.08	61.2	58.4	58.6	0.2
B	492	937	5,657	5.69	61.2	58.3	58.5	0.2
C	1,409	1,314	10,043	3.21	61.2	60.4	60.5	0.1
D	3,640	1,028	9,459	3.40	62.7	62.7	62.8	0.1
E	4,802	1,328	13,535	2.38	63.6	63.6	63.8	0.2
F	6,228	1,215	13,468	2.39	64.4	64.4	64.6	0.2
G	6,771	1,370	11,004	2.93	64.6	64.6	64.8	0.2
H	7,176	950	11,873	2.71	68.5	68.5	68.6	0.1
I	8,803	1,194	14,577	2.20	68.9	68.9	69.0	0.1
J	11,888	1,198	11,033	2.91	69.7	69.7	69.9	0.2
K	14,503	226	2,969	10.81	70.4	70.4	70.6	0.2
L	14,545	228	3,067	10.47	71.4	71.4	71.6	0.2
M	14,648	1,400	16,246	1.98	73.7	73.7	73.7	0.0
N	16,135	1,380	14,775	2.17	73.8	73.8	74.0	0.2
O	17,858	630	6,783	4.73	74.4	74.4	74.4	0.0
P	18,082	202	4,052	7.92	75.7	75.7	75.9	0.2
Q	18,848	1,442	15,446	2.08	77.0	77.0	77.2	0.2
R	19,256	1,368	12,951	2.48	77.1	77.1	77.3	0.2
S	19,404	1,853	18,719	1.71	77.4	77.4	77.6	0.2
T	21,693	1,791	14,804	2.59	78.1	78.1	78.3	0.2
U	24,923	1,490	14,840	2.58	79.1	79.1	79.3	0.2
V	27,646	1,290	9,588	3.09	80.5	80.5	80.7	0.2
W	30,918	1,408	12,147	2.44	82.8	82.8	82.9	0.1
X	33,692	1,170	8,527	3.47	85.0	85.0	85.1	0.1
Y	36,539	1,787	8,343	3.55	88.1	88.1	88.2	0.1
Z	38,421	800	4,928	2.86	89.9	89.9	90.1	0.2
AA	39,566	750	4,618	3.05	90.9	90.9	91.0	0.1

[1]Feet above confluence with Raritan River
[2] Elevation computed without consideration of the backwater effects from Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

NORTH BRANCH RARITAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North Branch Raritan River (continued)								
AB	39,932	943	7,293	1.93	94.8	94.8	95.0	0.2
AC	42,431	1,580	9,960	1.42	95.5	95.5	95.7	0.2
AD	44,473	690	3,875	3.28	96.8	96.8	97.0	0.2
AE	44,619	602	3,611	3.52	97.2	97.2	97.4	0.2
AF	46,187	645	4,066	3.12	99.0	99.0	99.2	0.2
AG	48,119	975	4,051	3.13	101.2	101.2	101.4	0.2
AH	50,190	715	2,422	5.24	103.9	103.9	104.0	0.1
AI	51,613	1,100	3,027	4.20	107.9	107.9	108.0	0.1
AJ	54,006	690	2,353	5.40	115.2	115.2	115.4	0.2
AK	55,849	777	4,850	2.62	118.1	118.1	118.1	0.0
AL	56,969	605	5,833	2.18	121.0	121.0	121.1	0.1
AM	60,097	850	2,959	4.29	126.2	126.2	126.4	0.2
AN	63,075	820	3,103	4.09	134.6	134.6	134.7	0.1
AO	64,493	565	2,712	3.65	139.4	139.4	139.6	0.2
AP	67,776	487	2,299	4.31	149.6	149.6	149.7	0.1
AQ	69,159	580	2,848	2.61	154.9	154.9	155.1	0.2
AR	71,440	768	2,338	3.17	163.8	163.8	163.9	0.1
AS	73,958	769	1,965	3.78	175.5	175.5	175.6	0.1
AT	75,605	767	1,878	3.95	180.5	180.5	180.7	0.2
AU	78,516	340	1,883	3.94	195.2	195.2	195.3	0.1
AV	80,240	141	832	8.92	203.6	203.6	203.8	0.2
AW	83,804	581	6,732	1.03	233.5	233.5	233.6	0.1
AX	86,967	380	1,778	3.89	238.1	238.1	238.3	0.2
AY	89,452	525	2,215	3.12	249.0	249.0	249.1	0.1
AZ	92,049	500	1,967	3.52	260.2	260.2	260.4	0.2
BA	94,631	230	1,030	6.03	274.4	274.4	274.5	0.1
BB	96,927	378	1,161	5.35	287.8	287.8	287.9	0.1

[1]Feet above confluence with Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

NORTH BRANCH RARITAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North Branch Raritan River Tributary B								
A	1,051	50	125	7.0	281.1	281.1	281.1	0.0
B	1,267	70	340	2.6	285.2	285.2	285.2	0.0
C	1,737	70	145	6.0	287.7	287.7	287.7	0.0
D	1,843	115	190	4.6	290.9	290.9	290.9	0.0
E	2,096	70	255	3.4	296.0	296.0	296.0	0.0
F	2,450	160	215	4.0	297.1	297.1	297.2	0.1
G	2,661	100	185	4.7	304.6	304.6	304.8	0.2
H	2,899	70	160	5.4	312.6	312.6	312.8	0.2
I	3,099	50	120	7.2	324.6	324.6	324.6	0.0
J	4,066	115	190	3.1	338.7	338.7	338.8	0.1
K	4,382	75	130	4.5	348.5	348.5	348.6	0.1
L	4,541	30	65	9.1	353.6	353.6	353.7	0.1
M	5,227	50	95	6.2	373.8	373.8	373.8	0.0
N	5,338	150	490	1.2	381.5	381.5	381.6	0.1
O	5,470	185	180	3.3	382.0	382.0	382.0	0.0
P	5,634	150	210	2.8	386.8	386.8	386.9	0.1
Q	5,829	80	400	1.5	395.7	395.7	395.7	0.0
R	5,945	10	30	9.3	403.8	403.8	403.8	0.0
S	6,473	15	35	8.0	420.3	420.3	420.3	0.0
T	8,448	15	35	8.0	623.3	623.3	623.3	0.0
U	10,687	25	40	4.9	690.9	690.9	690.9	0.0
V	10,872	30	45	4.3	697.5	697.5	697.5	0.0
W	11,035	30	125	1.6	700.6	700.6	700.6	0.0

[1]Feet above confluence with North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

NORTH BRANCH RARITAN RIVER TRIBUTARY B

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North Branch Raritan River Tributary C								
A	201	235	230	2.7	196.5	196.5	196.5	0.0
B	327	170	170	3.6	204.7	204.7	204.7	0.0
C	359	70	160	3.8	205.5	205.5	205.5	0.0
D	486	45	95	6.5	210.1	210.1	210.1	0.0
E	1,225	55	95	4.2	227.2	227.2	227.2	0.0
F	2,825	25	55	7.2	317.9	317.9	317.9	0.0
G	5,227	30	70	5.6	467.5	467.5	467.6	0.1
North Branch Raritan River Tributary E								
A	333	20	45	9.1	240.1	240.1	240.1	0.0
B	465	30	85	4.8	248.4	248.4	248.4	0.0
C	1,056	30	65	6.3	264.9	264.9	264.9	0.0
D	1,626	30	65	6.3	280.2	280.2	280.2	0.0
E	1,795	30	60	6.8	285.5	285.5	285.5	0.0
F	2,788	290	200	2.0	325.2	325.2	325.5	0.3
G	3,759	50	80	5.1	354.6	354.6	354.7	0.1
H	3,854	40	120	3.4	363.5	363.5	363.5	0.0
I	4,504	20	55	7.4	380.7	380.7	380.7	0.0
J	5,322	20	55	7.4	414.1	414.1	414.1	0.0
K	5,808	20	55	7.4	436.3	436.3	436.3	0.0

[1]Feet above confluence with North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ
(ALL JURISDICTIONS)

FLOODWAY DATA

NORTH BRANCH RARITAN RIVER TRIBUTARY C - NORTH BRANCH RARITAN RIVER TRIBUTARY E

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Passaic River								
A	845	542	3,934	0.9	212.3	212.3	212.5	0.2
B	2,746	480	3,386	1.0	212.4	212.4	212.6	0.2
C	6,706	758	4,246	0.8	212.6	212.6	212.8	0.2
D	9,134	648	3,989	0.8	213.0	213.0	213.2	0.2
E	12,355	950	5,752	0.5	213.1	213.1	213.3	0.2
F	15,312	1,915	10,533	0.3	213.2	213.2	213.4	0.2
G	19,378	2,100	11,493	0.3	213.2	213.2	213.4	0.2
H	21,806	2,520	14,186	0.2	213.2	213.2	213.4	0.2
I	24,974	2,925	9,107	0.3	213.2	213.2	213.4	0.2
J	26,991	2,820	7,089	0.3	213.2	213.2	213.4	0.2
K	30,716	2,250	3,970	0.6	213.3	213.3	213.5	0.2
L	33,496	300	1,133	1.9	214.1	214.1	214.3	0.2
M	37,206	480	1,066	2.1	216.4	216.4	216.5	0.1
N	39,496	250	725	3.0	217.8	217.8	217.9	0.1
O	41,396	85	392	5.6	219.7	219.7	219.8	0.1
P	43,126	82	427	5.1	222.7	222.7	222.8	0.1
Q	44,716	107	693	3.0	226.4	226.4	226.4	0.0
R	48,076	410	1,903	1.1	228.3	228.3	228.5	0.2
S	51,946	498	3,070	0.7	228.9	228.9	229.1	0.2
T	55,216	5,177	10,138	0.3	229.1	229.1	229.3	0.2

[1]Feet above county boundary

[2]Width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PASSAIC RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Passaic River (continued)								
U	58,636	6,700	31,067	0.1	229.1	229.1	229.3	0.2
V	61,116	6,600	10,756	0.2	229.1	229.1	229.3	0.2
W	64,216	4,900	10,447	0.3	229.7	229.7	229.8	0.1
X	67,696	1,450	2,077	1.4	235.6	235.6	235.7	0.1
Y	70,836	328	3,104	1.1	245.6	245.6	245.8	0.2
Z	73,956	900	2,408	1.4	246.0	246.0	246.2	0.2
AA	75,576	194	881	3.7	251.4	251.4	251.4	0.0
AB	76,821	310	2,077	1.6	259.5	259.5	259.5	0.0
AC	77,756	500	1,619	2.0	268.4	268.4	268.6	0.2
AD	80,116	214	780	4.2	280.6	280.6	280.8	0.2
AE	82,256	105	650	5.0	301.7	301.7	301.8	0.1
AF	82,576	100	600	3.1	303.5	303.5	303.7	0.2
AG	89,384	110	302	4.2	416.2	416.2	416.4	0.2
AH	90,255	190	622	2.1	426.3	426.3	426.3	0.0

[1]Feet above county boundary
[2]Width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PASSAIC RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Passaic River Branch 1								
A	3,345[1]	241	597	1.1	214.2	214.2	214.4	0.2
B	4,641[1]	265	433	1.5	216.0	216.0	216.2	0.2
C	5,814[1]	70	134	4.9	225.4	225.4	225.6	0.2
Passaic River Branch 2								
A	50[2]	290	819	0.4	214.0	214.0	214.2	0.2
B	1,734[2]	16	40	9.0	233.0	233.0	233.0	0.0
Peapack Brook								
A	290[3]	245	1,261	3.1	154.1	154.1	154.1	0.0
B	520[3]	170	835	4.6	154.2	154.2	154.2	0.0
C	1,900[3]	100	507	7.7	157.4	157.4	157.5	0.1
D	3,230[3]	380	1,000	3.9	161.9	161.9	162.0	0.1
E	6,080[3]	235	1,125	3.2	175.4	175.4	175.4	0.0
F	6,192[3]	75	400	9.0	176.8	176.8	177.0	0.2
G	7,338[3]	520	1,650	2.2	186.2	186.2	186.2	0.0
H	8,940[3]	330	670	5.4	192.4	192.4	192.4	0.0
I	9,090[3]	320	1,910	1.9	195.9	195.9	195.9	0.0
J	10,569[3]	120	430	8.4	202.9	202.9	203.0	0.1
K	12,153[3]	390	700	5.1	213.1	213.1	213.1	0.0
L	12,248[3]	380	765	4.7	216.6	216.6	216.6	0.0
M	12,327[3]	380	1,100	3.3	217.7	217.7	217.7	0.0
N	12,607[3]	430	710	5.1	220.0	220.0	220.0	0.0
O	12,734[3]	320	940	3.8	221.2	221.2	221.8	0.0

[1]Feet above confluence with Passaic River
[2]Feet above confluence with Passaic River Branch 1
[3]Feet above confluence with North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PASSAIC RIVER BRANCH 1 – PASSAIC RIVER BRANCH 2 PEAPACK BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Peapack Brook (continued)								
P	13,684	160	710	5.1	223.5	223.5	223.7	0.2
Q	13,806	100	620	5.8	223.8	223.8	224.0	0.2
R	14,740	65	330	10.9	226.6	226.6	226.7	0.1
S	14,899	100	560	6.4	232.8	232.8	232.8	0.0
T	15,231	200	530	6.8	235.0	235.0	235.0	0.0
U	15,374	270	1,280	2.2	237.4	237.4	237.4	0.0
V	16,129	185	420	6.7	238.4	238.4	238.5	0.1
W	16,266	190	800	3.5	242.5	242.5	242.5	0.0
X	17,935	235	460	4.4	252.3	252.3	252.4	0.1
Y	19,413	500	570	3.5	268.5	268.5	268.5	0.0
Z	19,530	500	1,940	1.0	272.0	272.0	272.0	0.0

[1]Feet above confluence with North Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PEAPACK BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Peapack Brook Tributary A								
A	280[1]	80	150	3.9	177.7	177.7	177.7	0.0
B	481[1]	80	255	1.6	181.1	181.1	181.1	0.0
C	1,114[1]	20	50	8.0	198.5	198.5	198.5	0.0
Peapack Brook Tributary B								
A	211[2]	25	45	6.5	179.5	179.5	179.5	0.0
B	1,901[2]	30	85	3.6	193.0	193.0	193.2	0.2
Peapack Brook Tributary C								
A	1,141[1]	30	60	9.4	245.9	245.9	245.9	0.0
B	1,251[1]	40	120	4.7	247.6	247.6	247.6	0.0
C	1,700[1]	90	140	4.0	253.2	253.2	253.2	0.0
D	1,991[1]	120	165	3.4	259.2	259.2	259.3	0.1
E	2,138[1]	120	400	1.4	261.2	261.2	261.3	0.1
F	3,231[1]	160	190	3.0	272.7	272.7	272.7	0.0
G	4,826[1]	30	80	7.1	292.8	292.8	292.8	0.0
Penn's Brook								
A	6,130[3]	21[4]	27	6.5	258.6	258.6	258.8	0.2
B	7,050[3]	21[4]	27	6.5	278.8	278.8	278.8	0.0
C	7,370[3]	78[4]	380	0.3	289.2	289.2	289.2	0.0
D	8,060[3]	13[4]	18	6.7	307.7	307.7	307.7	0.0
E	8,640[3]	41[4]	40	3.0	321.9	321.9	321.9	0.0
F	8,770[3]	23[4]	26	4.7	323.9	323.9	324.0	0.1
G	8,910[3]	81[4]	316	0.4	328.5	328.5	328.7	0.2

[1]Feet above confluence with Peapack Brook
[2]Feet above confluence with Peapack Brook Tributary A
[3]Feet above confluence with Passaic River
[4]Floodway is too narrow to show on FIRM

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PEAPACK BROOK TRIBUTARY A - PEAPACK BROOK TRIBUTARY B - PEAPACK BROOK TRIBUTARY C - PENN'S BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Peter's Brook								
A	1,790	93	496	5.8	48.0	36.6[2]	36.8	0.2
B	2,595	90	644	4.5	48.0	38.2[2]	38.4	0.2
C	3,510	149	737	3.9	48.0	39.7[2]	39.8	0.1
D	4,655	222	1,025	2.8	48.0	41.4[2]	41.6	0.2
E	5,810	78	570	5.1	48.0	42.7[2]	42.9	0.2
F	6,725	120	680	4.2	48.0	43.6[2]	43.6	0.0
G	7,530	140	584	4.2	48.0	45.5[2]	45.6	0.0
H	8,420	187	717	3.4	48.2	48.2	48.3	0.1
I	9,680	70	384	6.4	50.4	50.4	50.6	0.2
J	10,730	185	732	3.4	53.2	53.2	53.2	0.0
K	11,705	67	381	6.5	54.6	54.6	54.6	0.0
L	12,160	58	299	6.8	56.4	56.4	56.6	0.2
M	13,360	193	540	3.7	59.3	59.3	59.5	0.2
N	15,305	250	1,040	1.9	63.5	63.5	63.6	0.1
O	16,405	154	535	3.8	65.2	65.2	65.4	0.2
P	17,840	200	579	2.4	72.1	72.1	72.1	0.0
Q	19,015	89	287	4.8	73.9	73.9	74.0	0.1
R	20,375	169	540	2.5	77.1	77.1	77.1	0.0
S	23,140	184	270	3.6	86.1	86.1	86.1	0.0
T	25,310	103	267	3.6	92.7	92.7	92.7	0.0
U	26,505	188	264	3.7	95.9	95.9	95.9	0.0
V	28,930	178	395	2.4	104.2	104.2	104.4	0.2
W	31,285	225	406	1.3	112.7	112.7	112.7	0.0
X	32,900	150	208	2.6	123.2	123.2	123.3	0.1

[1]Feet above confluence with Raritan River
[2]Elevation computed without consideration of backwater effects from Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PETER'S BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pike Run								
A	950	500	6,766	1.5	51.1	51.0[2]	51.2	0.2
B	1,410	510	6,470	1.5	51.1	51.1	51.3	0.2
C	2,130	534	6,696	1.5	51.3	51.3	51.5	0.2
D	2,640	499	6,135	1.6	51.4	51.4	51.6	0.2
E	3,560	360	4,083	2.4	51.7	51.7	51.9	0.2
F	3,920	400	4,238	2.3	51.9	51.9	52.1	0.2
G	4,490	310	3,416	2.8	52.2	52.2	52.4	0.2
H	5,050	300	3,228	3.0	52.7	52.7	52.9	0.2
I	5,490	230	2,236	4.3	53.2	53.2	53.4	0.2
J	5,910	237	2,730	3.5	54.2	54.2	54.3	0.2
K	6,142	247	2,397	4.0	54.3	54.3	54.5	0.2
L	6,600	275	2,587	3.7	54.4	54.4	54.6	0.2
M	7,020	284	2,359	4.1	54.5	54.5	54.7	0.2
N	7,430	330	2,685	3.6	54.8	54.8	55.0	0.2
O	7,890	488	3,766	2.5	55.1	55.1	55.3	0.2
P	8,310	510	5,182	1.9	55.3	55.3	55.5	0.2
Q	8,920	283	2,604	3.0	55.4	55.4	55.6	0.2
R	9,280	312	2,792	2.8	55.5	55.5	55.7	0.2
S	10,040	243	1,612	4.8	55.8	55.8	56.0	0.2
T	10,512	377	1,955	3.9	56.4	56.4	56.6	0.2
U	11,550	165	1,262	6.1	58.4	58.4	58.6	0.2
V	12,030	258	2,114	3.6	59.6	59.6	59.8	0.2
W	12,650	212	1,626	4.7	60.2	60.2	60.4	0.2
X	12,890	196	1,677	4.6	60.5	60.5	60.7	0.2
Y	13,150	263	2,184	3.5	60.9	60.9	61.0	0.1
Z	13,750	337	2,202	3.2	61.3	61.3	61.5	0.2
AA	14,210	376	2,488	2.8	61.9	61.9	62.1	0.2

[1]Feet above confluence with Beden Brook
[2]Elevation computed without consideration of backwater effects from the Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PIKE RUN

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pike Run (continued)								
AB	14,450	280	1,886	3.7	62.1	62.1	62.3	0.2
AC	14,730	351	2,904	2.4	62.6	62.6	62.8	0.2
AD	15,120	252	1,766	4.0	62.7	62.7	62.9	0.2
AE	15,719	230	1,627	2.9	64.1	64.1	64.2	0.1
AF	16,620	193	1,310	3.6	65.6	65.6	65.7	0.1
AG	17,120	210	1,258	3.8	66.1	66.1	66.3	0.2
AH	17,520	252	1,488	3.2	66.7	66.7	66.9	0.2
AI	18,080	345	2,200	2.2	67.4	67.4	67.6	0.2
AJ	18,560	168	1,098	4.3	67.8	67.8	68.0	0.2
AK	18,980	213	1,273	3.8	68.5	68.5	68.7	0.2
AL	19,500	250	1,489	3.2	69.3	69.3	69.5	0.2
AM	20,000	330	1,748	2.5	69.9	69.9	70.1	0.2
AN	20,539	245	1,497	2.9	70.4	70.4	70.6	0.1
AO	20,751	248	1,568	2.7	71.5	71.5	71.7	0.2
AP	22,532	206	1,336	3.2	73.0	73.0	73.2	0.2
AQ	23,755	307	1,953	2.2	74.3	74.3	74.5	0.2
AR	25,492	203	1,119	3.8	76.5	76.5	76.7	0.2
AS	26,604	56	431	9.9	79.0	79.0	79.2	0.2
AT	26,806	154	1,321	3.3	81.1	81.1	81.2	0.1
AU	27,263	222	1,704	2.5	81.5	81.5	81.6	0.1
AV	27,497	237	2,052	2.1	82.3	82.3	82.4	0.1
AW	30,175	224	1,425	3.0	84.4	84.4	84.5	0.1
AX	32,975	106	686	2.9	89.6	89.6	89.7	0.1
AY	34,938	160	621	3.2	91.8	91.8	92.0	0.2
AZ	35,143	136	798	2.5	93.9	93.9	94.1	0.2
BA	37,158	192	745	2.7	96.8	96.8	97.0	0.2

[1] Feet above confluence with Beden Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PIKE RUN

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pike Run (continued)								
BB	38,876	144	520	3.9	103.6	103.6	103.8	0.2
BC	40,774	193	612	3.3	113.6	113.6	113.8	0.2

[1] Feet above confluence with Beden Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PIKE RUN

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pike Run Tributary								
A	120	224	1,236	1.0	87.4	85.4[2]	85.6	0.2
B	440	216	1,037	1.2	87.4	85.5[2]	85.7	0.2
C	920	153	747	1.6	87.4	85.7[2]	85.9	0.2
D	1,140	135	577	2.1	87.4	85.9[2]	86.1	0.2
E	1,540	151	532	2.3	87.4	86.4[2]	86.6	0.2
F	2,235	180	540	2.3	88.7	88.7	88.9	0.2
G	2,555	102	381	3.2	90.6	90.6	90.7	0.1
H	2,910	97	420	2.5	91.6	91.6	91.7	0.1
I	3,305	109	432	2.4	93.1	93.1	93.1	0.0
J	3,695	130	661	1.6	93.5	93.5	93.6	0.1
K	4,015	114	570	1.8	93.7	93.7	93.8	0.1
L	4,335	190	523	2.0	93.8	93.8	94.0	0.2
M	4,545	102	384	2.7	94.1	94.1	94.2	0.1
N	4,865	133	380	2.8	94.5	94.5	94.6	0.1
O	5,185	106	359	2.9	95.2	95.2	95.3	0.1
P	5,425	92	350	3.0	95.6	95.6	95.7	0.1
Q	5,635	100	295	3.6	96.0	96.0	96.2	0.2

[1]Feet above confluence with Pike Run
[2]Elevation computed without consideration of backwater effects from Pike Run

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PIKE RUN TRIBUTARY

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Pleasant Run								
A	2,420	395	2,546	1.3	73.9	73.9	74.1	0.2
B	3,040	315	1,842	1.8	74.1	74.1	74.3	0.2
C	3,460	400	2,409	1.3	74.3	74.3	74.5	0.2
D	4,400	360	1,602	2.0	74.5	74.5	74.7	0.2
E	5,000	300	1,350	2.4	74.7	74.7	74.9	0.2
F	5,520	235	765	4.2	75.5	75.5	75.7	0.2
G	5,950	220	782	4.1	76.8	76.8	76.9	0.1
H	6,640	325	1,095	3.0	78.7	78.7	78.8	0.1
I	6,960	254	1,030	3.1	80.1	80.1	80.3	0.2
J	7,450	235	1,532	2.1	83.8	83.8	83.9	0.1

[1]Feet above confluence with South Branch Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

PLEASANT RUN

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Raritan River								
A	78,155	806[2]	8,966	5.8	18.2	18.2	18.4	0.2
B	83,650	501[2]	7,350	6.4	21.3	21.3	21.5	0.2
C	89,055	719[2]	8,876	5.3	24.5	24.5	24.7	0.2
D	94,956	765[2]	9,590	4.9	29.5	29.5	29.7	0.2
E	97,341	927[2]	12,269	3.8	30.4	30.4	30.6	0.2
F	102,591	774[2]	10,479	4.5	33.8	33.8	34.0	0.2
G	103,481	877	11,576	4.1	35.2	35.2	35.4	0.2
H	105,991	406	6,985	6.7	36.4	36.4	36.6	0.2
I	108,569	1,209	16,848	2.8	38.0	38.0	38.2	0.2
J	115,712	1,474	21,235	1.9	40.6	40.6	40.8	0.2
K	119,039	1,000	11,825	3.4	42.0	42.0	42.2	0.2
L	121,220	583	10,052	4.0	43.3	43.3	43.5	0.2
M	124,262	991	16,449	2.5	46.5	46.5	46.7	0.2
N	129,712	2,160	32,365	1.3	47.0	47.0	47.2	0.2
O	136,182	800	12,234	3.3	48.5	48.5	48.7	0.2
P	143,428	2,516	20,984	1.9	51.3	51.3	51.4	0.1
Q	155,382	1,648	13,285	3.1	57.5	57.5	57.6	0.1
R	159,002	1,248	10,608	3.8	60.0	60.0	60.3	0.3

[1]Feet above confluence with Raritan Bay
[2]Width extends beyond County boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

RARITAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Rock Brook								
A	470	208	985	4.6	65.0	65.0	65.2	0.2
B	990	235	1,317	3.5	65.9	65.9	66.1	0.2
C	2,010	317	2,507	1.8	66.8	66.8	67.0	0.2
D	2,420	240	1,620	2.8	67.1	67.1	67.3	0.2
E	2,850	220	1,384	3.3	68.0	68.0	68.0	0.0
F	3,130	319	1,242	3.7	68.8	68.8	69.0	0.2
G	3,430	246	1,080	4.2	70.3	70.3	70.5	0.2
H	4,005	200	972	4.7	73.0	73.0	73.2	0.2
I	4,395	173	745	6.1	74.5	74.5	74.7	0.2
J	4,745	85	507	9.0	76.4	76.4	76.5	0.1
K	5,055	130	895	5.1	78.4	78.4	78.6	0.2
L	5,345	140	912	5.0	78.8	78.8	79.0	0.2
M	5,755	140	883	5.1	79.7	79.7	79.9	0.2
N	6,165	140	814	5.6	80.8	80.8	80.8	0.0
O	6,565	200	748	6.1	81.7	81.7	81.8	0.1
P	7,075	171	977	4.7	83.3	83.3	83.5	0.2
Q	7,255	336	4,522	0.9	91.1	91.1	91.3	0.2
R	8,275	295	2,886	1.5	91.1	91.1	91.3	0.2
S	8,675	249	1,329	3.2	91.1	91.1	91.3	0.2
T	9,150	280	998	4.2	92.9	92.9	93.1	0.2
U	9,475	233	1,019	4.1	93.2	93.2	93.3	0.1
V	10,095	198	831	5.1	94.7	94.7	94.9	0.2
W	10,855	285	1,059	4.0	96.6	96.6	96.8	0.2
X	11,195	231	880	4.8	97.6	97.6	97.8	0.2
Y	11,495	218	781	5.4	98.8	98.8	99.0	0.2
Z	12,595	260	818	4.7	102.3	102.3	102.4	0.1
AA	12,775	256	723	5.3	103.3	103.3	103.3	0.0

[1]Feet above confluence with Beden Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROCK BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Rock Brook (continued)								
AB	13,245[1]	216	875	4.4	105.5	105.5	105.7	0.2
AC	14,125[1]	270	836	4.6	108.6	108.6	108.8	0.2
AD	14,455[1]	202	604	6.4	110.8	110.8	111.0	0.2
AE	14,825[1]	314	1,017	3.8	113.8	113.8	113.8	0.0
AF	15,280[1]	310	1,416	2.7	118.6	118.6	118.7	0.1
AG	15,455[1]	140	543	5.1	119.0	119.0	119.1	0.1
AH	15,665[1]	133	532	3.2	119.7	119.7	119.9	0.2
AI	16,055[1]	91	241	7.1	123.4	123.4	123.4	0.0
AJ	16,415[1]	80	246	6.9	127.2	127.2	127.2	0.0
AK	17,115[1]	57	241	7.1	132.9	132.9	132.9	0.0
Ross Brook								
A	180[2]	45	161	5.8	48.0	46.1[3]	46.2	0.1
B	615[2]	65	220	4.2	48.0	46.1[3]	46.1	0.0
C	1,460[2]	54	185	5.0	50.8	50.8	50.9	0.1
D	2,275[2]	85	244	3.8	54.3	54.3	54.5	0.2
E	2,815[2]	31	101	9.2	58.5	58.5	58.5	0.0
F	3,300[2]	35	139	6.7	62.8	62.8	63.0	0.2

[1]Feet above confluence with Beden Brook
[2]Feet above confluence with Peter's Brook
[3] Elevation computed without consideration of backwater effects from Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROCK BROOK – ROSS BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook								
A	2,500	250	2,080	1.70	40.5	40.5	40.7	0.2
B	2,800	270	2,130	1.70	40.6	40.6	40.8	0.2
C	3,300	250	2,810	1.30	40.7	40.7	40.9	0.2
D	3,800	301	3,430	1.00	40.7	40.7	40.9	0.2
E	4,375	237	2,160	1.70	40.7	40.7	40.9	0.2
F	5,110	362	3,430	1.00	40.8	40.8	41.0	0.2
G	6,500	390	3427	1.54	40.8	40.8	41.0	0.2
H	7,677	369	3028	1.74	41.5	41.5	41.7	0.2
I	8,456	475	3867	1.36	42.1	42.1	42.3	0.2
J	9,433	547	4221	1.25	42.6	42.6	42.8	0.2
K	10,335	668	4333	1.22	43.0	43.0	43.2	0.2
L	11,541	228	1402	3.76	43.5	43.5	43.7	0.2
M	11,755	449	3361	1.57	45.6	45.6	45.7	0.2
N	12,726	652	4662	1.13	46.2	46.2	46.3	0.1
O	13,598	437	3239	1.63	46.7	46.7	46.9	0.2
P	14,191	242	1826	2.89	47.1	47.1	47.3	0.2
Q	14,440	382	3306	1.59	48.0	48.0	48.2	0.2
R	15,279	452	3554	1.48	48.5	48.5	48.7	0.2
S	17,140	329	2557	2.06	49.8	49.8	50.0	0.2
T	19,121	513	3911	1.02	51.4	51.4	51.6	0.2
U	20,240	397	2417	1.64	52.0	52.0	52.2	0.2
V	21,300	61	620	6.41	53.1	53.1	53.3	0.2
W	21,449	276	1766	2.25	54.5	54.5	54.7	0.2
X	22,374	303	2326	1.71	55.4	55.4	55.6	0.2
Y	23,582	209	1225	3.24	56.4	56.4	56.6	0.2
Z	23,728	66	701	5.67	56.8	56.8	57.0	0.2
AA	24,621	300	2394	1.66	58.2	58.2	58.4	0.2
AB	24,804	425	4280	0.93	59.8	59.8	60.0	0.2

[1]Feet above confluence with Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook (continued)								
AC	25,883	217	1,831	2.17	60.2	60.2	60.4	0.2
AD	28,015	221	1,730	2.30	62.0	62.0	62.2	0.2
AE	29,333	41	377	6.50	63.4	63.4	63.6	0.2
AF	29,478	117	940	2.61	64.1	64.1	64.2	0.1
AG	30,478	291	1,905	1.29	64.9	64.9	65.1	0.2
AH	32,757	156	974	2.51	66.7	66.7	66.9	0.2
AI	34,207	85	429	5.71	69.6	69.6	69.7	0.1
AJ	34,374	41	370	6.66	69.9	69.9	70.1	0.2
AK	34,455	168	979	2.50	70.6	70.6	70.7	0.1
AL	35,594	38	322	7.60	72.5	72.5	72.7	0.2
AM	35,833	168	1,451	1.69	76.3	76.3	76.5	0.2
AN	36,969	136	817	3.00	77.1	77.1	77.2	0.1
AO	37,493	260	1,009	2.43	78.3	78.3	78.5	0.2
AP	37,599	120	890	2.75	82.3	82.3	82.3	0.0
AQ	37,690	377	3,730	0.66	82.5	82.5	82.6	0.1
AR	39,316	165	1,146	2.14	83.5	83.5	83.6	0.1
AS	41,152	260	1,108	2.21	86.9	86.9	86.9	0.0
AT	41,274	320	1,247	1.96	88.7	88.7	88.7	0.0
AU	41,549	119	635	3.86	89.4	89.4	89.4	0.0
AV	41,698	227	1,901	1.29	89.9	89.9	89.9	0.0
AW	42,348	73	243	10.1	89.2	89.2	89.3	0.1
AX	42,514	465	4,058	0.60	97.3	97.3	97.4	0.1
AY	43,555	329	2,449	1.00	97.3	97.3	97.4	0.1
AZ	45,789	155	582	4.21	99.2	99.2	99.4	0.2
BA	47,534	98	433	5.66	108.5	108.5	108.7	0.2
BB	47,627	55	293	8.36	111.0	111.0	111.1	0.1
BC	47,733	216	1,519	1.61	115.2	115.2	115.4	0.2
BD	49,721	125	643	3.81	120.3	120.3	120.5	0.2

[1] Feet above confluence with Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook (continued)								
BE	50,537	228	902	2.72	127.40	127.40	127.60	0.2
BF	51,455	75	508	4.82	136.70	136.70	136.90	0.2

[1] Feet above confluence with Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ
(ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook Tributary A								
A	200	159	870	1.2	70.8	70.8	71.0	0.2
B	720	123	497	2.2	71.0	71.0	71.2	0.2
C	1,020	92	321	3.3	71.3	71.3	71.4	0.1
D	1,325	74	170	6.2	72.2	72.2	72.4	0.2
E	1,450	80	304	3.5	74.3	74.3	74.3	0.0
F	1,715	81	309	2.6	74.7	74.7	74.7	0.0
G	2,165	85	230	3.6	75.2	75.2	75.4	0.2
H	2,585	63	154	5.3	76.6	76.6	76.8	0.2
I	3,085	63	187	4.4	79.4	79.4	79.4	0.0
J	3,605	61	143	4.5	81.6	81.6	81.8	0.2
K	4,135	50	159	4.1	83.9	83.9	84.1	0.2
L	4,355	37	123	5.3	84.9	84.9	84.9	0.0
M	4,690	122	300	2.2	86.1	86.1	86.2	0.1
N	4,890	65	198	3.3	86.4	86.4	86.5	0.1
O	5,250	70	150	4.3	87.5	87.5	87.6	0.1
P	5,690	61	178	3.7	89.5	89.5	89.5	0.0
Q	6,090	66	161	4.0	90.7	90.7	90.8	0.1
R	6,490	50	112	3.1	92.2	92.2	92.4	0.2
S	6,840	55	119	2.9	93.1	93.1	93.3	0.2
T	7,080	38	89	3.9	93.8	93.8	94.0	0.2
U	7,320	33	75	4.6	95.0	95.0	95.0	0.0
V	7,720	23	59	3.8	96.9	96.9	96.9	0.0
W	8,010	33	83	2.7	97.9	97.9	97.9	0.0
X	8,230	35	63	3.5	98.4	98.4	98.5	0.1
Y	8,460	38	77	2.9	99.1	99.1	99.3	0.2
Z	8,770	36	72	3.1	100.0	100.0	100.1	0.1

[1]Feet above confluence with Royce Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK TRIBUTARY A

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook Tributary B								
A	320	220	1,419	1.0	50.5	50.5	50.7	0.2
B	982	132	685	2.1	52.4	52.4	52.6	0.2
C	1,390	166	1,029	1.4	52.6	52.6	52.8	0.2
D	1,810	130	626	2.3	52.7	52.7	52.9	0.2
E	2,210	145	560	2.5	53.1	53.1	53.3	0.2
F	2,680	151	495	2.9	53.6	53.6	53.8	0.2
G	3,060	158	471	3.0	54.3	54.3	54.5	0.2
H	3,640	252	1,538	0.9	57.9	57.9	58.1	0.2
I	4,175	188	1,139	1.2	58.0	58.0	58.2	0.2
J	4,495	181	803	1.6	58.0	58.0	58.2	0.2
K	5,045	102	405	3.2	60.1	60.1	60.1	0.0
L	5,415	66	370	3.5	60.5	60.5	60.5	0.0
M	5,735	104	425	3.1	60.8	60.8	60.8	0.0
N	6,210	40	162	8.1	61.7	61.7	61.9	0.2
O	6,620	82	294	4.5	63.8	63.8	64.0	0.2
P	6,860	56	200	6.5	64.7	64.7	64.9	0.2
Q	7,150	68	217	6.0	66.6	66.6	66.7	0.1
R	7,490	104	369	3.6	68.1	68.1	68.2	0.1
S	7,970	99	246	5.3	69.6	69.6	69.7	0.1
T	8,450	64	215	6.1	72.4	72.4	72.5	0.1
U	8,695	47	202	6.5	73.6	73.6	73.8	0.2
V	8,880	49	173	7.6	74.5	74.5	74.7	0.2

[1]Feet above confluence with Royce Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK TRIBUTARY B

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook Tributary C								
A	515	249	1,147	1.4	43.0	42.4[2]	42.6	0.2
B	1,080	253	942	1.7	43.0	42.5[2]	42.7	0.2
C	1,420	314	1,017	1.5	43.0	42.7[2]	42.9	0.2
D	1,860	224	813	1.9	43.0	43.0	43.2	0.2
E	2,480	239	690	2.3	43.5	43.5	43.7	0.2
F	2,980	185	493	3.2	44.3	44.3	44.4	0.1
G	3,390	70	284	5.5	45.3	45.3	45.5	0.2
H	3,820	95	385	4.1	46.8	46.8	47.0	0.2
I	4,160	117	491	3.2	47.4	47.4	47.6	0.2
J	4,520	119	323	4.9	47.8	47.8	48.0	0.2
K	4,878	130	330	4.8	48.9	48.9	49.0	0.1
L	5,172	126	466	3.4	49.8	49.8	50.0	0.2
M	5,373	120	486	3.2	50.4	50.4	50.4	0.0
N	5,615	86	443	3.5	50.7	50.7	50.8	0.1
O	5,790	95	306	5.1	50.8	50.8	51.0	0.2
P	5,995	102	402	3.9	51.5	51.5	51.7	0.2
Q	6,165	123	444	3.5	51.9	51.9	52.1	0.2
R	6,405	96	390	4.0	52.4	52.4	52.6	0.2
S	6,821	201	983	1.3	54.7	54.7	54.9	0.2
T	7,125	138	785	1.6	54.8	54.8	55.0	0.2
U	7,605	136	629	2.0	54.9	54.9	55.1	0.2
V	8,045	153	516	2.4	55.3	55.3	55.5	0.2
W	8,455	137	329	3.8	56.1	56.1	56.3	0.2
X	8,915	115	387	3.2	57.3	57.3	57.5	0.2
Y	9,215	111	270	4.6	58.1	58.1	58.3	0.2
Z	9,615	101	373	3.4	59.5	59.5	59.7	0.2
AA	10,025	132	410	3.1	60.2	60.2	60.4	0.2

[1]Feet above confluence with Royce Brook
[2]Elevation computed without consideration of backwater effects from Royce Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK TRIBUTARY C

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Royce Brook Tributary C (continued)								
AB	10,602[1]	78	268	4.7	61.3	61.3	61.5	0.2
AC	11,005[1]	96	320	3.9	62.7	62.7	62.9	0.2
AD	11,436[1]	123	424	3.0	63.7	63.7	63.9	0.2
AE	11,695[1]	126	356	3.5	64.3	64.3	64.5	0.2
AF	12,105[1]	126	317	3.9	65.8	65.8	65.9	0.1
AG	12,425[1]	107	287	4.4	67.5	67.5	67.5	0.0
Seeley's Brook								
A	700[2]	67	539	2.9	20.6	20.6	20.8	0.2
B	2,260[2]	100	553	2.8	26.2	26.2	26.4	0.2
C	3,510[2]	65	437	2.8	33.7	33.7	33.7	0.0
D	4,510[2]	30	159	7.8	38.2	38.2	38.2	0.0
E	5,790[2]	68	393	1.8	49.1	49.1	49.1	0.0
F	7,000[2]	44	211	3.4	55.9	55.9	55.9	0.0
G	7,950[2]	30	112	6.4	62.7	62.7	62.7	0.0
Seeley's Brook Tributary A								
A	255[3]	47	303	1.8	34.8	34.8	34.8	0.0
B	1,010[3]	29	87	6.3	40.9	40.9	40.9	0.0
Seeley's Brook Tributary B								
A	230[3]	19	130	2.8	50.2	50.2	50.2	0.0

[1]Feet above confluence with Royce Brook
[2]Feet above confluence with Raritan River
[3]Feet above confluence with Seeley's Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

ROYCE BROOK TRIBUTARY C - SEELEY'S BROOK – SEELEY'S BROOK TRIBUTARY A – SEELEY'S BROOK TRIBUTARY B

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Simonson Brook								
A	1,730[1]	140	655	2.53	49.4	44.1[3]	44.3	0.2
B	2,660[1]	100	419	3.96	49.4	49.2[3]	49.2	0.0
C	3,120[1]	100	385	4.31	52.0	52.0	52.0	0.0
D	3,800[1]	100	297	5.59	58.9	58.9	58.9	0.0
E	4,460[1]	100	366	4.53	65.1	65.1	65.2	0.1
F	5,790[1]	110	324	3.49	77.8	77.8	77.8	0.0
G	7,200[1]	110	288	3.92	88.3	88.3	88.5	0.2
H	7,960[1]	110	221	5.12	98.5	98.5	98.6	0.1
South Branch Raritan River								
A	0[2]	2,100	7,175	4.07	61.3	54.9[4]	55.1	0.2
B	4,010[2]	1,248	6,551	4.46	61.3	60.4[4]	60.4	0.0
C	4,630[2]	1,174	8,596	3.40	61.5	61.5	61.6	0.1
D	8,490[2]	992	6,842	4.27	63.6	63.6	63.7	0.1
E	12,431[2]	1,495	10,494	2.78	66.1	66.1	66.2	0.1
F	15,068[2]	1,517	8,093	3.61	67.2	67.2	67.4	0.2
G	17,755[2]	1,055	7,257	4.02	69.0	69.0	69.1	0.1
H	22,361[2]	1,040	8,009	3.65	71.8	71.8	71.9	0.1
I	23,638[2]	800	7,247	4.03	72.9	72.9	73.1	0.2
J	26,310[2]	1,476	12,699	2.30	74.4	74.4	74.5	0.1
K	28,208[2]	330	4,341	6.73	75.4	75.4	75.5	0.1
L	28,728[2]	740	7,867	3.71	76.9	76.9	77.0	0.1
M	29,184[2]	597	7,184	4.06	77.3	77.3	77.5	0.2
N	30,342[2]	875	8,583	3.40	78.3	78.3	78.5	0.2
O	33,073[2]	540	6,190	4.72	80.0	80.0	80.2	0.2

[1]Feet above confluence with the Millstone River
[2]Feet above confluence with Raritan River
[3]Elevation computed without consideration of backwater effects from the Millstone River
[4]Elevation computed without consideration backwater effects from Raritan River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

SIMONSON BROOK – SOUTH BRANCH RARITAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Branch Raritan River (continued)								
P	35,186	1,098	9,338	3.13	81.5	81.5	81.7	0.2
Q	36,070	1,182	10,767	2.00	82.3	82.3	82.5	0.2
R	38,949	980	8,757	2.46	83.2	83.2	83.4	0.2
S	42,036	1,495	9,614	2.24	84.8	84.8	84.9	0.1
T	42,725	1,400	8,945	2.40	85.3	85.3	85.5	0.2
U	46,652	530[2]	4,444	4.84	87.9	87.9	88.0	0.1
V	49,553	760[2]	5,749	3.74	91.5	91.5	91.7	0.2
W	49,736	785[2]	6,660	3.23	92.2	92.2	92.3	0.1
X	51,962	840[2]	6,015	3.57	93.5	93.5	93.7	0.2
Y	53,846	430[2]	4,072	5.28	95.4	95.4	95.6	0.2

[1]Feet above confluence with Raritan River
[2]Width extends beyond county boundary

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

SOUTH BRANCH RARITAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Stony Brook								
A	815	191	1,108	5.3	62.2	62.2	62.4	0.2
B	1,915	168	1,087	5.4	66.6	66.6	66.7	0.1
C	3,000	341	2,836	2.1	68.5	68.5	68.6	0.1
D	4,440	464	3,943	1.5	69.4	69.4	69.5	0.1
E	6,710	206	1,187	5.0	70.7	70.7	70.9	0.2
F	7,800	282	1,943	3.0	75.4	75.4	75.6	0.2
G	9,540	356	994	5.9	82.5	82.5	82.7	0.2
H	10,880	238	1,216	4.9	99.9	99.9	99.9	0.0
I	11,720	198	660	8.9	106.2	106.2	106.2	0.0
J	12,440	68	470	12.5	113.4	113.4	113.5	0.1
K	12,455	56	553	10.7	114.4	114.4	114.6	0.2
L	12,935	52	381	15.5	120.1	120.1	120.1	0.0
M	13,220	74	649	9.1	125.3	125.3	125.3	0.0
N	14,880	227	1,248	4.7	161.8	161.8	162.0	0.2
O	15,505	80	478	12.3	170.1	170.1	170.2	0.1
P	16,465	222	985	6.0	185.2	185.2	185.4	0.2
Q	16,675	281	1,138	5.2	186.7	186.7	186.9	0.2

[1]Feet above confluence with Green Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

STONY BROOK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Stony Brook East Branch								
A	565	58	274	5.8	189.8	189.8	190.0	0.2
B	1,350	330	2,082	0.8	199.5	199.5	199.6	0.1
C	1,895	107	252	6.4	202.0	202.0	202.2	0.2
D	2,700	117	384	4.1	209.3	209.3	209.5	0.2
E	3,628	171	817	1.9	220.1	220.1	220.3	0.2
F	4,255	179	695	2.3	225.9	225.9	226.1	0.2
G	4,580	105	421	3.7	228.7	228.7	228.9	0.2
H	5,095	117	494	3.2	233.8	233.8	234.0	0.2
I	5,495	119	497	3.2	237.5	237.5	237.7	0.2
Stony Brook West Branch								
A	680	152	660	6.2	189.2	189.2	189.4	0.2
B	2,808	56	442	9.3	206.0	206.0	206.2	0.2
C	2,871	56	460	8.9	206.6	206.6	206.8	0.2
D	3,389	217	460	3.7	215.4	215.4	215.6	0.2
E	4,116	147	343	5.0	224.0	224.0	224.2	0.2
F	5,266	66	239	7.2	254.3	254.3	254.3	0.0

[1]Feet above confluence with Stony Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

STONY BROOK EAST BRANCH – STONY BROOK WEST BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Stony Brook West Branch Tributary A								
A	290	217	774	2.4	210.3	210.3	210.5	0.2
B	439	195	672	2.9	210.6	210.6	210.8	0.2
C	1,790	261	866	2.3	219.6	219.6	219.8	0.2
D	2,194	102	353	5.5	221.7	221.7	221.9	0.2
E	2,463	130	509	3.8	225.3	225.3	225.5	0.2
F	2,724	207	770	2.5	226.5	226.5	226.7	0.2
G	2,949	218	873	2.2	226.9	226.9	227.1	0.2
H	3,491	102	324	6.0	228.6	228.6	228.8	0.2
I	3,949	254	729	2.7	233.3	233.3	233.5	0.2
J	4,146	134	372	5.2	234.3	234.3	234.4	0.1
K	5,760	180	620	3.2	250.0	250.0	250.2	0.2
L	6,102	112	386	5.0	251.6	251.6	251.8	0.2
M	6,818	229	697	2.8	258.1	258.1	258.3	0.2
N	7,232	82	359	5.4	264.3	264.3	264.5	0.2
O	7,624	135	627	3.1	268.7	268.7	268.9	0.2
Stony Brook West Branch Tributary B								
A	1,888	87	260	2.1	366.5	366.5	366.5	0.0
B	3,260	112	172	3.2	372.8	372.8	372.9	0.1
C	4,242	126	123	2.6	375.7	375.7	375.9	0.2
D	4,859	176	301	1.1	378.6	378.6	378.8	0.2
E	5,141	54	65	5.0	380.7	380.7	380.9	0.2

[1]Feet above confluence with Stony Brook West Branch

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

STONY BROOK WEST BRANCH TRIBUTARY A - STONY BROOK WEST BRANCH TRIBUTARY B

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tenmile Run								
A	2,020[1]	170	1141	1.7	48.0	45.4[5]	45.6	0.2
B	2,880[1]	170	715	2.7	48.0	46.5[5]	46.6	0.1
C	4,040[1]	170	714	2.7	49.1	49.1	49.1	0.0
D	5,590[1]	170	698	2.8	55.4	55.4	55.5	0.1
E	6,230[1]	170	743	2.6	57.8	57.8	58.0	0.2
F	6,840[1]	170	493	4.0	60.6	60.6	60.7	0.1
G	7,760[1]	170	487	4.0	67.1	67.1	67.3	0.2
Tributary A in Bernardsville								
A	855[2]	30	45	4.6	394.4	394.4	394.4	0.0
B	1,109[2]	10	25	8.2	404.7	404.7	404.7	0.0
C	2,550[2]	20	35	5.9	500.3	500.3	500.3	0.0
D	3,253[2]	40	50	4.1	569.0	569.0	569.0	0.0
E	3,274[2]	40	45	4.6	574.5	574.5	574.6	0.1
F	3,907[2]	25	30	6.8	619.7	619.7	619.7	0.0
Tributary C in Bernardsville								
A	132[3]	55	65	5.6	340.6	340.6	340.7	0.1
B	1,890[3]	20	45	8.1	408.5	408.5	408.5	0.0
C	2,001[3]	10	50	7.3	416.4	416.4	416.4	0.0
Tributary D in Bernardsville								
A	1,521[4]	40	70	4.9	440.2	440.2	440.2	0.0

[1]Feet above confluence with Millstone River
[2]Feet above confluence with North Branch Raritan River Tributary E
[3]Feet above confluence with North Branch Raritan River Tributary B
[4]Feet above confluence with North Branch Raritan River Tributary B
[5]Elevation computed without considering the backwater effects from Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

TENMILE RUN – TRIBUTARY A IN BERNARDSVILLE – TRIBUTARY C IN BERNARDSVILLE – TRIBUTARY D IN BERNARDSVILLE

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary F								
A	269[1]	20	80	9.6	220.5	220.5	220.5	0.0
B	385[1]	180	360	2.1	224.2	224.2	224.2	0.0
C	570[1]	120	620	1.2	226.5	226.5	226.5	0.0
D	1,003[1]	70	120	6.4	230.4	230.4	230.4	0.0
E	1,162[1]	70	155	5.0	234.7	234.7	234.7	0.0
F	1,705[1]	120	190	3.4	239.3	239.3	239.5	0.2
G	2,175[1]	20	70	9.1	252.3	252.3	252.3	0.0
H	2,313[1]	30	160	4.0	256.6	256.6	256.6	0.0
I	2,814[1]	70	140	4.6	264.9	264.9	264.9	0.0
J	2,941[1]	70	440	1.4	269.2	269.2	269.2	0.0
K	4,250[1]	40	75	6.5	289.1	289.1	289.1	0.0
L	4,984[1]	40	80	6.1	334.7	334.7	334.7	0.0
M	5,037[1]	50	130	3.7	335.9	335.9	335.9	0.0
Tributary G								
A	248[2]	130	140	2.4	272.8	272.8	272.8	0.0
B	354[2]	100	105	3.1	279.6	279.6	279.8	0.2
C	549[2]	60	180	1.8	283.2	283.2	283.2	0.0
D	660[2]	25	45	7.3	283.6	283.6	283.6	0.0
E	776[2]	35	155	2.1	290.6	290.6	290.6	0.0
F	1,727[2]	30	50	6.6	366.8	366.8	366.8	0.0
Tributary H								
A	174[2]	40	75	4.3	242.4	242.4	242.4	0.0
B	2,640[2]	40	75	4.3	325.7	325.7	325.7	0.0

[1]Feet above confluence with Mine Brook
[2]Feet above confluence with Tributary F

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

TRIBUTARY F - TRIBUTARY G – TRIBUTARY H

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary I								
A	1,082	40	85	6.4	269.9	269.9	269.9	0.0
B	1,172	40	95	5.7	271.3	271.3	271.3	0.0
C	1,204	50	90	6.1	277.5	277.5	277.5	0.0
D	2,413	25	65	8.4	301.9	301.9	301.9	0.0
E	3,368	40	90	6.1	333.8	333.8	333.9	0.1
F	4,551	45	90	6.1	376.7	376.7	376.8	0.1
G	5,042	45	100	5.4	410.2	410.2	410.4	0.2
H	6,072	30	65	5.7	449.4	449.4	449.4	0.0
I	6,626	15	40	9.2	467.7	467.7	467.7	0.0
J	8,100	25	40	7.4	511.6	511.6	511.6	0.0
K	8,316	40	75	3.9	518.6	518.6	518.6	0.0
L	8,411	70	80	3.7	523.0	523.0	523.1	0.1
M	9,018	55	70	4.2	568.4	568.4	568.5	0.1
N	9,176	35	115	2.6	572.4	572.4	572.5	0.1
O	9,293	80	400	0.7	588.4	588.4	588.4	0.0

[1]Feet above confluence with Mine Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

TRIBUTARY I

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary J								
A	438[1]	30	45	6.0	379.9	379.9	379.9	0.0
B	660[1]	30	135	2.0	385.2	385.2	385.2	0.0
C	1,162[1]	30	60	4.5	449.5	449.5	449.6	0.1
D	2,006[1]	20	35	7.7	492.3	492.3	492.4	0.1
Tributary K								
A	0[2]	107	940	0.9	455.4	455.4	455.6	0.2
B	1,275[2]	54	128	6.7	485.4	485.4	485.4	0.0
C	2,737[2]	100	178	4.8	509.5	509.5	509.5	0.0
D	3,767[2]	90	182	4.9	530.1	530.1	530.2	0.1
E	4,617[2]	45	102	5.0	540.5	540.5	540.7	0.2
F	5,392[2]	180	369	1.4	560.8	560.8	560.8	0.0
Tributary L								
A	0[3]	75	100	2.3	291.5	291.5	291.7	0.2
B	158[3]	55	90	2.5	292.1	292.1	292.3	0.2
C	407[3]	20	40	5.7	298.4	298.4	298.5	0.1
D	549[3]	15	80	2.9	303.9	303.9	303.9	0.0
E	993[3]	15	30	7.7	313.4	313.4	313.4	0.0

[1]Feet above confluence with Tributary I
[2]Feet above confluence with Indian Grave Brook
[3]Feet above Bernardsville corporate limits

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

TRIBUTARY J – TRIBUTARY K – TRIBUTARY L

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary MB								
A	111	20	36	7.7	415.1	415.1	415.1	0.0
B	422	66	93	4.5	422.2	422.2	422.3	0.1
C	512	7	25	11.0	423.6	423.6	423.6	0.0
D	787	11	51	5.5	428.1	428.1	428.3	0.2
E	1,014	39	110	6.7	432.0	432.0	432.0	0.0
F	1,684	60	130	5.6	444.5	444.5	444.5	0.0
G	2,064	30	90	8.0	450.9	450.9	451.0	0.1
H	2,180	155	240	3.0	456.1	456.1	456.1	0.0
I	2,476	180	200	2.6	463.7	463.7	463.7	0.0
J	2,719	100	130	4.0	473.3	473.3	473.4	0.1
K	2,952	30	130	4.0	482.6	482.6	482.6	0.0

[1]Feet above confluence with Mine Brook

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

TRIBUTARY MB

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Van Horn Brook								
A	175[1]	204	587	3.2	52.5	42.9[3]	43.1	0.2
B	655[1]	78	261	7.3	52.5	47.9[3]	47.9	0.0
C	1,255[1]	45	202	9.3	53.9	53.9	53.9	0.0
D	1,585[1]	44	210	9.0	58.0	58.0	58.1	0.1
E	2,075[1]	76	319	6.0	64.8	64.8	65.0	0.2
F	2,695[1]	62	282	6.7	71.3	71.3	71.3	0.0
G	3,205[1]	80	241	7.8	76.4	76.4	76.5	0.1
H	3,715[1]	80	199	8.1	81.4	81.4	81.5	0.1
I	4,225[1]	100	248	6.5	88.2	88.2	88.4	0.2
J	4,985[1]	101	328	4.9	96.2	96.2	96.2	0.0
K	5,235[1]	98	171	9.5	97.9	97.9	98.1	0.2
L	5,795[1]	51	173	4.0	102.0	102.0	102.2	0.2
M	6,285[1]	39	113	6.2	105.0	105.0	105.1	0.1
N	6,785[1]	25	83	8.4	109.2	109.2	109.4	0.2
O	7,275[1]	80	190	2.7	112.1	112.1	112.3	0.2
West Branch Middle Brook								
A	4,575[2]	510	11,058	0.4	203.0	203.0	203.0	0.0
B	6,175[2]	270	4406	0.9	203.0	203.0	203.0	0.0
C	9,490[2]	185	901	2.7	206.3	206.3	206.5	0.2
D	11,005[2]	87	362	6.8	214.1	214.1	214.1	0.0
E	13,315[2]	145	456	5.4	229.3	229.3	229.3	0.0
F	14,875[2]	137	314	4.9	237.4	237.4	237.5	0.1
G	18,055[2]	121	391	4.0	260.0	260.0	260.1	0.1
H	20,285[2]	245	548	2.8	271.6	271.6	271.7	0.1

[1]Feet above confluence with Millstone River
[2]Feet above confluence with Middle Brook to Raritan River
[3]Elevation computed without consideration of backwater effects from Millstone River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ (ALL JURISDICTIONS)

FLOODWAY DATA

VAN HORN BROOK – WEST BRANCH MIDDLE BROOK

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 1-percent annual chance 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.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone AR

Area of special flood hazard formerly protected from the 1-percent annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 1-percent annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 1-percent annual chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent annual chance floodplain, areas within the percent annual chance floodplain, and areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent annual chance floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent annual chance floodplains. On selected FIRM panels, floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIS/FIRM presents flooding information for the entire geographic area of Somerset County. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps, where applicable. Historical

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Bedminister, Township of	July 26, 1974	June 24, 1977	January 5, 1984	September 28, 2007
Bernards, Township of	January 9, 1974	None	September 1, 1978	March 4, 2002 September 28, 2007
Bernardsville, Borough of	December 28, 1973	None	March 1, 1978	April 17, 1984 March 17, 2003 September 28, 2007
Bound Brook, Borough of	July 13, 1973	March 19, 1976	August 15, 1983	July 4, 1988 September 28, 2007
Branchburg, Township of	April 12, 1974	September 3, 1976	June 1, 1078	September 28, 2007
Bridgewater, Township of	June 28, 1974	April 2, 1976	December 1, 1978	August 19, 1987 September 29, 1989 June 5, 1997 September 28, 2007
Far Hills, Borough of	September 7, 1973	None	July 3, 1978	September 28, 2007
Franklin, Township of	October 12, 1973	September 17, 1976	May 15, 1980	March 16, 1989 September 28, 2007
Green Brook, Township of	June 21, 1974	None	March 15, 1977	April 5, 1988 September 28, 2007
Hillsborough, Township of	July 26, 1974	January 14, 1977	March 2, 1981	September 28, 2007

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Manville, Borough of	April 13, 1973	December 24, 1976	February 15, 1978	September 28, 2007
Millstone, Borough of	March 22, 1974	July 30, 1976	April 3, 1978	September 28, 2007
Montgomery, Township of,	July 26, 1974	June 4, 1976	April 1, 1981	September 28, 2007
North Plainfield, Borough of	August 20, 1971	None	August 20, 1971	July 1, 1974 February 13, 1976 March 1, 1984 September 28, 2007
Peapack and Gladstone, Borough of	March, 1974	March 19, 1976	December 15, 1977	September 28, 2007
Raritan, Borough of	May 3, 1974	March 19, 1976	December 15, 1981	September 28, 2007
Rocky Hill, Borough of	June 28, 1974	April 16, 1976	December 16, 1980	August 21, 1981 September 28, 2007
Somerville, Borough of	July 26, 1974	October 24, 1975 March 31, 1981	January 6, 1983	September 28, 2007
South Bound Brook, Borough of	June 21, 1974	October 22, 1976	September 30, 1982	September 28, 2007
Warren, Township of	January 16, 1974	None	January 5, 1978	January 4, 2002 September 28, 2007
Watchung, Borough of	January 25, 1974	June 4, 1976	December 4, 1979	August 20, 2002 September 28, 2007

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOMERSET COUNTY, NJ
(ALL JURISDICTIONS)

COMMUNITY MAP HISTORY

data relating to the maps prepared for each flood prone community are presented in Table 9, "Community Map History."

7.0 OTHER STUDIES

FISs are being prepared for Mercer County, (All Jurisdictions), Morris County (All Jurisdictions), and FISs were prepared for Middlesex County (All Jurisdictions) effective July 06, 2010 and Hunterdon County (All Jurisdictions) effective date May 02, 2012.

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Somerset County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS reports.

This FIS is a multi-volume FIS. Each volume may be revised separately, in which case it supersedes the previously printed volume. Users should refer to the Table of Contents in Volume 1 for the current effective date of each volume; volumes bearing these dates contain the most up-to-date flood hazard data.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Administration, 26 Federal Plaza, Room 1351, and New York, New York 10278.

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