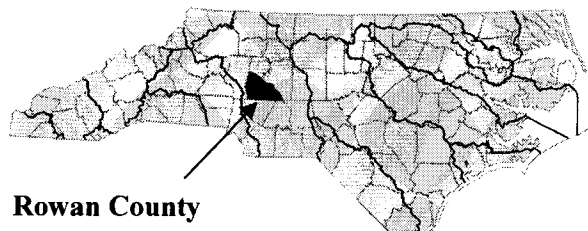


FLOOD INSURANCE STUDY

A Report of Flood Hazards in

ROWAN COUNTY, NORTH CAROLINA

AND INCORPORATED AREAS



Community Name	Community Number	River Basin
China Grove, Town of	370210	Yadkin
Cleveland, Town of	370097	Yadkin
East Spencer, Town of	370211	Yadkin
Faith, Town of	370352	Yadkin
Granite Quarry, Town of	370212	Yadkin
Landis, Town of	370213	Yadkin
Rockwell, Town of	370214	Yadkin
Rowan County (Unincorporated Areas)	370351	Yadkin
Salisbury, City of	370215	Yadkin
Spencer, Town of	370216	Yadkin



VOLUME 1 OF 3

June 16, 2009

**Federal Emergency Management Agency
State of North Carolina**

**Flood Insurance Study Number
37159CV001A**

www.fema.gov and www.ncfloodmaps.com



FOREWORD

This countywide Flood Insurance Study (FIS) Report was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long-term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the state level. As a part of this effort, the State of North Carolina has joined with FEMA in a Cooperating Technical State (CTS) agreement to produce and maintain this FIS Report and the accompanying digital Flood Insurance Rate Map (FIRM) for North Carolina.

NOTICE TO FLOOD INSURANCE STUDY USERS

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

Part 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.

The following is a list of the publication dates of this Countywide FIS Report starting with the initial Report accompanying the North Carolina Statewide FIRM:

June 16, 2009

This FIS has been produced as part of the North Carolina Floodplain Mapping Program. Rowan County, North Carolina, falls under the administrative jurisdiction of Region IV of the Federal Emergency Management Agency (FEMA). Questions concerning this FIS may be directed to the North Carolina Floodplain Mapping Program at www.ncfloodmaps.com, the FEMA Map Assistance Center by calling the toll-free information line at 1-877-FEMA MAP (1-877-336-2627), or by contacting the FEMA Regional Office at the following address:

FEMA, Federal Insurance and Mitigation Administration
Koger Center - Rutgers Building
3003 Chamblee Tucker Road
Atlanta, Georgia 30341
(770) 220-5400

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Section 1.0 - Introduction

1.1 The National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally backed flood insurance available in communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. Federally backed flood insurance is available in more than 19,000 communities across the United States and its territories.

The NFIP is managed by the Federal Insurance and Mitigation Administration of the Federal Emergency Management Agency (FEMA). The Federal Insurance and Mitigation Administration manages the insurance component of the NFIP and oversees the flood hazard mapping and the floodplain management aspects of the program.

The NFIP, through involvement with communities, the insurance industry, and the lending industry, helps reduce flood damage by nearly \$800 million a year. Further, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance. In addition, every \$3 paid in flood insurance claims saves \$1 in disaster assistance payments. The NFIP is self-supporting for the average historical loss year, which means that operating expenses and flood insurance claims are not paid by the taxpayer, but through premiums collected for flood insurance policies.

Additional information of interest to homeowners, community officials, insurance companies, lenders, and study contractors is available in Section 9.0 of this FIS Report and on the NFIP Internet homepage at <http://www.fema.gov/business/nfip/>.

1.2 Purpose of this Flood Insurance Study

Flood Insurance Studies (FISs) are one of the primary means by which the NFIP administers the National Flood Insurance Act of 1968, the Flood Disaster Protection Act of 1973, and the National Flood Insurance Reform Act of 1994. FISs develop flood risk data that are used to establish actuarial flood insurance rates. The information in this FIS Report will also be used by Rowan County and the jurisdictions therein (hereinafter referred to collectively as Rowan County) to facilitate the adoption and maintenance of floodplain management ordinances, which form the basis of communities' continued participation in the NFIP. Minimum requirements for participation in the NFIP are set forth in Title 44, Part 60, Section 3 of the Code of Federal Regulations (44 CFR 60.3). In some States and/or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. In such cases, the more restrictive criteria will take precedence, and the State and/or community (or other jurisdictional agency) will be able to explain them.

This FIS investigates the existence and severity of flood hazards in, or revises and updates previous FISs for, the geographic area of Rowan County, North Carolina, including the jurisdictions listed in Table 1.

Table 1—Jurisdictions in Rowan County

Community	Included in this FIS	Not Included in this FIS	If Not Included, Location of Flood Hazard/Flood Insurance Rate Data
Town of China Grove	X		
Town of Cleveland	X		
Town of East Spencer	X		
Town of Faith	X		
Town of Granite Quarry	X		
City of Kannapolis		X	Cabarrus County
Town of Landis	X		
Town of Rockwell	X		
Rowan County (Unincorporated Areas)	X		
City of Salisbury	X		
Town of Spencer	X		

1.3 FIS Components

A Flood Insurance Study (FIS) is an analysis of flood hazards, typically presented as a set of Flood Insurance Rate Map (FIRM) panels and the FIS Report, which includes a set of Flood Profiles.

Flood Insurance Rate Map

The FIRM shows 1% annual chance (100-year) and 0.2% annual chance (500-year) floodplains, using tints, screens, and symbols. Floodways, the locations of selected cross sections used in the hydraulic analyses and floodway computations, and Velocity Zones are shown where applicable. The FIRM for North Carolina has been produced digitally, and there are separate data layers that are available in the public domain via the Internet.

Flood Insurance Study Report

The FIS Report provides a context for the information shown on the FIRM, as well as a summary of the data upon which the analyses are based. It also includes an index of sources of additional information on the NFIP.

Flood Profiles

A Flood Profile is provided for every stream studied in detail, showing the continuum of calculated flood elevations of various recurrence periods along the studied reaches. Flood Profiles are the documents that serve as a basis for determining flood insurance rate zones.

Section 2.0 – Floodplain Management Applications

Flood events of a magnitude expected to occur with a 10%, 2%, 1%, or 0.2% annual chance have been selected as having special significance for developing sound floodplain management programs. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10%, 2%, 1%, and 0.2% chance, respectively, of being equaled in any given year. Therefore, FIS Reports typically determine water-surface elevations for floods with these probabilities. The FIRM delineates 1% and 0.2% annual chance floodplains and 1% annual chance floodway boundaries, and depicts 1% annual chance flood elevations, rounded to the nearest foot, to assist in developing floodplain management measures.

2.1 Floodplains

To provide a national standard without regional discrimination, the 1% annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. A 1% annual chance flood, or base flood, is defined as that having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance floodplains shown on the FIRM identify areas that are expected to be inundated by the 1% annual chance flood. This 1% annual chance floodplain is also called a Special Flood Hazard Area (SFHA), where the NFIP's floodplain management regulations must be enforced by the community as a condition of participation in the NFIP. The 0.2% annual chance floodplain is employed to indicate additional areas of flood risk associated with exceptionally severe floods.

2.2 Floodways

Encroachment on floodplains such as that caused by placement of structures and fill reduces flood-carrying capacity, increases flood heights and velocities, and increases 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 NFIP, floodways are provided as a tool to assist local communities in this aspect of floodplain management. Under this concept, the 1% annual chance riverine floodplain 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 so that the 1% annual chance flood can be carried without substantial increases in flood heights. Figure 1, "Floodway Schematic," illustrates this principle. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional encroachment studies.

Section 2.0 – Floodplain Management Applications

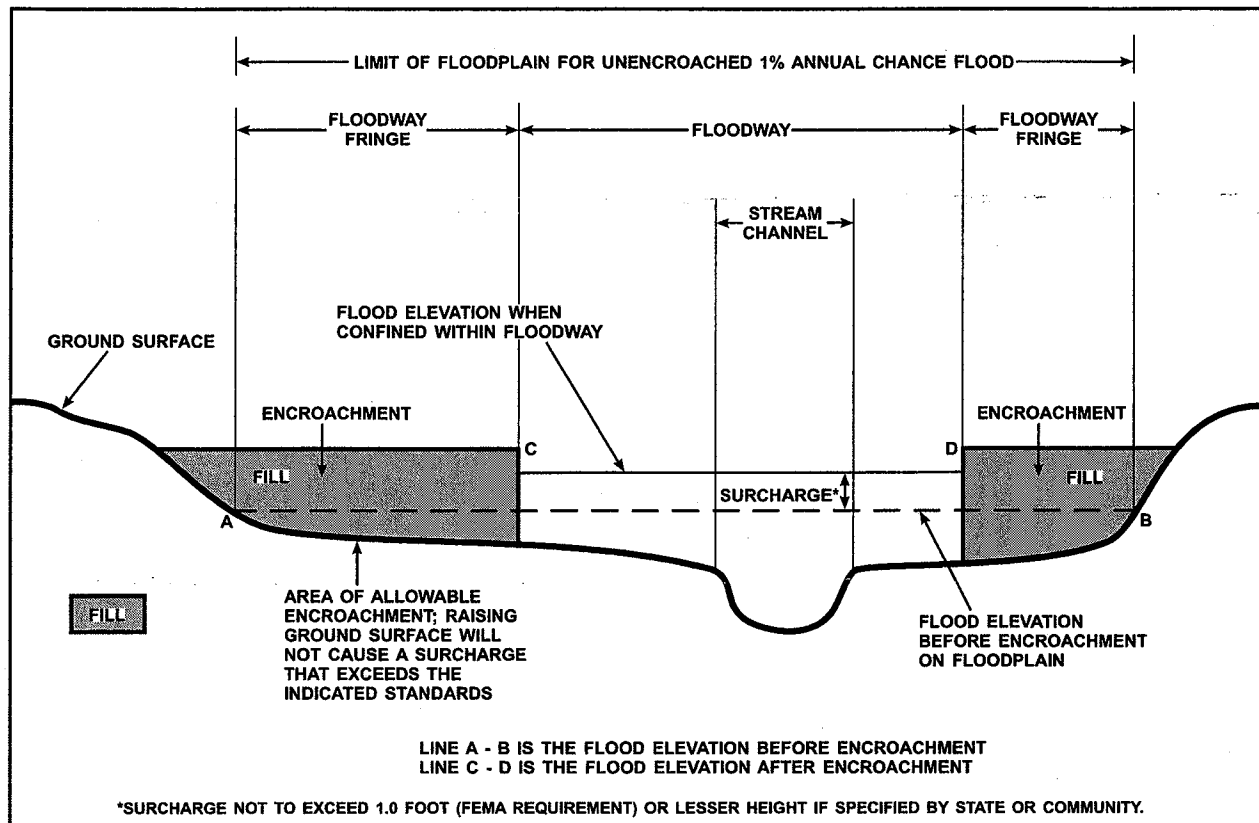


Figure 1—Floodway Schematic

2.3 Base Flood Elevations

Base Flood Elevations (BFEs) are shown on the FIRM and represent rounded, whole-foot elevations at selected locations along flooding sources that have been studied in detail. Flood Profiles in this FIS Report provide a comprehensive and definitive tool to determine specific flood elevations along a stream studied by detailed methods. In order to reduce the risk of damage from floods up to the base (1% annual chance) flood, communities are advised to consider these elevations when issuing building permits for structures.

2.4 Watershed Characteristics

Because a FIS is a probability analysis that may not account for some of the factors listed below, communities are strongly encouraged to consider adopting more restrictive or higher floodplain management criteria or ordinances than the minimum Federal requirements. Communities may also increase the validity of their flood hazard data by investing in continuous maintenance of river gages (see the **Data Validity and Reliability** paragraph below). If the U.S. Geological Survey (USGS) or other agencies do not maintain gages on the flooding sources of interest, partnerships with the USGS may be pursued, or local gages may be installed. For more information, see Section 9.0 of this report.

This flood hazard study represents an analysis of certain watershed characteristics, some of which are summarized as follows:

Section 2.0 – Floodplain Management Applications

Drainage Area

In general, streams that drain larger areas have greater flood hazards. FISs, in North Carolina, do not typically analyze flood hazards in places with rural drainage areas of less than one square mile and within urban drainage areas of less than ½ square mile.

Soil Permeability and Infiltration

Differences in the types of soil and the amount of vegetation in a watershed have a significant effect on the amount of water that the soil can absorb; soils with a high sand content absorb much more water than soils with a high clay content. The presence of vegetation increases infiltration; the presence of pavement decreases infiltration and also speeds runoff to receiving waters. As soil permeability and infiltration decrease, the volume and rate of overland flow increases.

Soil Moisture Conditions

In addition to soil permeability and infiltration, the level of the water table helps determine the saturation point, beyond which no water is absorbed. As rainfall duration increases, the height of the water table increases.

Channel and Floodplain Geometry

The geometric contour of a streambed, termed channel geometry, and the geometric contour of a floodplain determine the volume of water that a channel can hold and partially determine the rate at which water flows through it.

Channel and Floodplain Roughness

The roughness of a surface affects the characteristics of runoff whether the water is on the surface of the watershed or in the channel.

FIS Reports include analyses of how these factors will combine to produce overland flow patterns during floods that have a certain probability of occurring in any given year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at shorter intervals or even within the same year. The risk of experiencing a rare flood increases when longer periods are considered. For example, the risk of having a flood which equals or exceeds the 1% annual chance flood (1% chance of annual exceedence) in any 50-year period is approximately 40% (4 in 10), but for any 90-year period, the risk increases to approximately 60% (6 in 10).

It is important to note that the 1% annual chance flood is used as the national standard to allow a consistent approach to floodplain management, flood hazard assessment, and flood hazard mapping. In any given community, a number of factors may result in flooding characteristics that do not conform to predicted conditions. Therefore, the determination that an area is not shown on the FIRM as being within a Special Flood Hazard Area is no guarantee that it will not flood during a 1% annual chance flood. Examples of these factors include Data Validity and Reliability; Developmental and Topographic Changes Over Time; Erosion, Deposition, and Debris Flow; and Meandering and Lateral Migration.

Data Validity and Reliability

Certain types of analysis methods yield more justifiable characterizations of flood hazards. For example, a gage analysis, to determine peak discharges, is based on actual measurements of watershed conditions over time and, therefore, is typically considered the most accurate method of hydrologic analysis. However, it is not feasible to install enough gages to gather data on every stream. In addition, for many of the gage sites that do exist, there are interruptions in the period

Section 2.0 – Floodplain Management Applications

of record. The usefulness of gage data for the purpose of predicting flooding behavior decreases with interruptions in the period of record; predicted flooding conditions over a 100-year period based on 20 years of measurements spread over a 35-year period are less valid than those based on 30 years of continuous measurements. A regression analysis is typically considered the best method in the absence of gage data, as it uses gage data from watersheds with similar characteristics to estimate flood frequency and magnitude in an ungaged watershed. Regression equations reflect average conditions for a region; therefore, the results will not exactly match the results of a gage analysis at a particular location. The standard errors of the North Carolina rural regression equations range from 44 to 51 percent for estimates of the 1% annual chance flood. That means the difference between the results of the regression equation and the gage analysis for approximately two-thirds of the locations that gage data exists are within 44 to 51 percent of the gage analysis results. A rainfall-runoff hydrologic analysis may be used for gaged or ungaged watersheds, and can estimate the effects of storage areas and flood control structures and measures. This method is most valid when calibrated against historical data.

Developmental and Topographic Changes Over Time

A FIRM is based on the best topographic and planimetric information available to FEMA and the State of North Carolina at the time the study is produced. In time, however, development and/or natural phenomena can alter the physical characteristics of a watershed and its drainage channels, resulting in changes in the flood hazards in those areas. For example, constructing a housing subdivision reduces the amount of soil that is available to absorb water; this in turn causes an increase in the volume of surface water that flows into the channel.

Erosion, Deposition, and Debris Flow

The flood hazards shown on a FIRM are based on the assumption of unobstructed flow. The FIRM does not reflect an analysis of areas that are subject to erosion caused by the increased water-surface elevations and velocities that occur during flooding. In addition to the risks of landslides or a weakening of the ground underneath roads or structures, any sediment that is removed from one location will be deposited in another; accumulated deposits may have a pronounced effect on flood hazards in those areas. Similarly, debris such as fallen trees or branches, litter, or other items may obstruct stream channels or hydraulic structures, increasing water-surface elevations, velocities, and floodplain width.

Meandering and Lateral Migration

FISs are based on the assumption that channel geometry will remain stable during normal drainage and during flood events. This assumption is valid for most streams, which flow over bedrock or between bedrock outcroppings that form non-alluvial channels. However, alluvial streams change the channel geometry with time, significantly so during flood events. Alluvial streams are subject to erosion and deposition, which may result in braided or meandering channels. Streams of this type may be characterized by lateral migration, or channel shifting, in which the stream may change course entirely during a flood. Whenever clear evidence is available, a FIRM will identify the alluvial nature of a studied flooding source and designate wider floodways to allow for potential migration. However, these floodways are based on qualitative assessments and not on quantitative geomorphic and engineering analyses.

Section 3.0 – Insurance Applications

For flood insurance applications, the FIRM designates flood insurance rate zones and, in 1% annual chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies. Table 2, “Flood Zone Designations,” includes a description of each type of flood hazard zone.

Table 2—Flood Zone Designations

Zone	Description
A	Zone A is the flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined in the FIS Report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone.
AE	Zone AE is the flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined in the FIS Report 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.
AH	Zone AH is the flood insurance rate zone that corresponds to the areas of 1% 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.
AO	Zone AO is the flood insurance rate zone that corresponds to the areas of 1% 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.
AR	Zone AR is the flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood 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.
A99	Zone A99 is the flood insurance rate zone that corresponds to areas of the 1% 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.
V	Zone V is the flood insurance rate zone that corresponds to the 1% 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.
VE	Zone VE is the flood insurance rate zone that corresponds to the 1% 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.

Section 3.0 – Insurance Applications

Table 2—Flood Zone Designations

Zone	Description
X	Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2% annual chance floodplain, areas within the 0.2% annual chance floodplain, and to areas of 1% annual chance flooding where average depths are less than 1 foot, areas of 1% annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone.
X (Future)	Zone X (Future Base Flood) is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined based on future-conditions hydrology. No BFEs or base flood depths are shown within this zone.
D	Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

Section 4.0 – Area Studied

4.1 Basin Characteristics

Yadkin River Basin

The Yadkin River Basin drains from the Virginia border to South Carolina, cutting a swath through west central North Carolina. With 7,400 square miles, or 15.6% of the land area, this is the second largest drainage basin in the state. It also has the second largest number of stream miles - 5,855. The basin originates on the eastern slopes of the Blue Ridge Mountains in Caldwell, Wilkes, and Surry Counties. A small portion of the Yadkin River headwaters originates in Virginia and flows northeasterly for about 100 miles, then flows to the southeast until it joins the Uwharrie River to form the Pee Dee River. The Pee Dee River continues flowing southeasterly through South Carolina to the Atlantic Ocean. The North Carolina portion of the basin contains approximately 5,991 miles of freshwater streams and rivers.

Forest land covers approximately 50% of the basin and 95% of that forestry is privately owned. Agriculture (including cultivated and uncultivated cropland (15.6%) and pastureland (14.1%)) covers approximately 30% of the land area, while 13% of the land is developed. The urban and built-up category comprises roughly 11% and exhibited the most dramatic change between 1982 and 1992 (38% increase). Other categories that showed substantial changes during this period were pasturelands (19% increase) and the "Other" category, which includes rural transportation (26% increase).

Both cultivated and uncultivated cropland decreased by a total of 46% in the basin between 1982 and 1992. It is likely that some of this cropland was converted to pastureland and to urban and built-up areas. Major land use activities in the basin include agriculture (crops, swine, poultry and cattle operations) and construction activities related to growth. Iredell County has the largest dairy cattle population in the state. The map below shows a general area of the Yadkin River Basin, also known as the Yadkin-Pee Dee River Basin.

There are 28 counties and over 93 municipalities in this large drainage area. The basin includes all or portions of the following counties: Alexander, Allegheny, Anson, Ashe, Cabarrus, Caldwell, Davidson, Davie, Forsyth, Guilford, Iredell, Mecklenburg, Montgomery, Randolph, Richmond, Rowan, Scotland, Stanly, Stokes, Surry, Union, Watauga, Wilkes, and Yadkin. This is the second most densely populated watershed, with 1,193,353 people or 17.51 % of the state's total population. Based on 1990 census data, the population of the basin was 1.2 million people.

The most populated areas are in and near Winston-Salem and Charlotte. The overall population density is 163 persons per square mile versus a statewide average of 123 persons per square mile. While much of the basin contains rural areas surrounding small towns, many of the small to large cities have high density areas. The percent population growth over the ten year period between 1980 and 1990 was 10 percent.

This region is characterized by rolling hills and geologic formations consisting of crystalline or sedimentary rocks. Because of the moderate topography, more streams drain a smaller amount of land, creating moderate drainage density.

The Yadkin Basin serves as a corridor for plants and animals migrating from the mountains to the Coastal Plain, and vice-versa. This basin contains a variety of habitat types, as well as many rare plants and animals. Sportfishes in the Yadkin River upstream of the Kerr Scott Reservoir include smallmouth bass, redbreast sunfish and bullhead catfishes. A considerable amount of white and striped bass fish exist below Idols Dam (west of Clemmons – in Forsyth County) in the spring when the fish migrate from downstream reservoirs to spawn. In addition to being important

Section 4.0 – Area Studied

natural resources, these reservoir fisheries also help make the basin a popular place for recreation, significantly boosting the local economy.

4.2 Principal Flood Problems

Low-lying areas and road crossings in the Town of China Grove, the Town of East Spencer, the Town of Faith, the Town of Granite Quarry, the Town of Landis, the Town of Rockwell, and the Town of Spencer are subject to flooding by overflows of study streams. The most severe flooding on these streams is usually the result of heavy rains from local thunderstorms or from continuous rainfall which saturate the ground over an extended period. A search for information on past flooding, including information on the past maximum flood, failed to produce any useful results; however, a rainfall of 7.2 inches in a 24-hour period is expected to produce a 1% annual chance flood in the China Grove, Faith, Granite Quarry, Landis, and Rockwell areas (U.S. Department of Commerce, 1961).

Major flooding in the Rowan County and City of Salisbury areas is most likely to occur from June through September as a result of hurricanes and tropical storms. Local thunderstorms have also produced floods at other times of the year. For the Unincorporated Areas of Rowan County, a search for information on past flooding indicated that one of the highest floods in the area occurred in March 1952; however, not enough information was available to establish if this was the maximum flood in experienced in Rowan County. From information available, it appears that other major flooding occurred in 1924, 1928, May 1942, October 1954, June 1962, August 1964, and February 1973 (U.S. Army Corps of Engineer District, 1973).

4.3 Historic Flood Elevations

On July 3, 1997, a cluster of thunderstorms producing very heavy rain sank south in the Charlotte metro area shortly before midnight of the 23rd and continued to redevelop over the area through mid-morning. Severe flash flooding resulted as nearly 10 inches of rain fell in some spots. In Cabarrus County, 3 of the 4 injuries occurred when a plant roof collapsed due to the weight of the rain water. The fourth injury occurred in Mount Pleasant when a person drove into a wash-out.

On March 20, 2003, after morning flash flooding, moderating rainfall resulted in slower rises, but continued and additional flooding along creeks and streams into the evening hours. At least 6 roads were flooded by adjacent streams, and a herd of cows required rescue due to high water. The damage was estimated at \$100,000.

Flooding developed during the afternoon of April 10, 2003 along many creeks and streams across the county, including along Grants Creek. Some mobile homes and other structures were flooded, and a nursing home and a mobile home park required evacuation near Kannapolis. A motorist required rescue from his vehicle near Gold Hill. This flood caused an estimated \$200,000.

On July 29, 2003, an overflowing creek flooded a home, and its resident required rescuing. Fourth Creek flooded a bridge on Mt Vernon Road. Several other roads were flooded, and at least 2 were closed for several hours. Later, on August 10, 2003, numerous creeks overflowed their banks and flooded adjacent roads, including Fourth Creek near Needmore. In Granite Quarry, 3 to 4 feet of water entered some homes. The damage was estimated at \$50,000.

On August 16-17, 2003, several small streams and creeks overflowed their banks in the Granite Quarry and Rockwell areas, resulting in flooding of vehicles, homes, roads, and apartment

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buildings. Several homes in the Granite Quarry area flooded for the second time in a week. Several cars at an apartment complex were damaged severely by flood waters. Damage was estimated at \$100,000.

On September 22, 2003, heavy rainfall resulted in flash flooding along Grant's Creek between Salisbury and Spencer. A creek near China Grove overflowed its banks and flooded a portion of highway 152. Town Creek flooded in Salisbury, causing some damage at a construction site, and resulting in several road closures. Damage reports were at \$5,000.

On July 4, 2005, the City of Salisbury saw severe urban flooding, with at least 3 people trapped in flooded vehicles on Main and Innes Streets. Several small creeks flooded around town (including tributaries of Grants Creek and the creek itself in Spencer), with water entering the basement of at least one home. Severely flooded roads included 18th Street, Mahaley Avenue, and roads around Knox Middle School and Overton School. Damage estimates were at \$20,000.

September 13, 1984 (Hurricane Diana)

The landfall location of Diana was 38 miles south of Wilmington with 90 mph winds at its closest approach to Wilmington. Diana had 115 mph sustained winds before landfall. Storm surge was approximately 5-6 feet.

September 26, 1985 (Hurricane Gloria)

The landfall location of Gloria was Cape Hatteras, with 90 knot winds and a storm surge of approximately 6-8 feet.

July 12, 1996 (Hurricane Bertha)

1996 was a damaging year in the hurricane history of North Carolina. Tropical Storm Arthur, Hurricane Bertha, and Hurricane Fran all made direct landfall on the North Carolina coastline. It was the most active tropical cyclone season in the state since 1955, when Hurricanes Connie, Diane, and Ione all hit the coast. Bertha entered North Carolina in North Topsail Beach with 105 mph gust and a storm surge of approximately 5 feet.

September 5, 1996 (Hurricane Fran)

The landfall location of Fran near the city of Wilmington and its progression into the Raleigh-Durham area caused an estimated \$1.275 billion in damage in North Carolina alone. Fran hit with gusts up to 105 mph and a storm surge of approximately 16 feet. Over \$1 billion in damage was reported in North Topsail Beach and Surf City and 23 people were killed.

August 26, 1998 (Hurricane Bonnie)

The landfall location of Bonnie was in southern North Carolina near Cape Fear very close to landfall of both Hurricanes Bertha and Fran in 1996. Even though a powerful storm, damage from Bonnie was much less than Fran, which was also Category 3. Winds gusted up to 100 knots and storm tides of 5 to 8 feet above normal were reported mainly in eastern beaches of Brunswick County, while a storm surge of 6 feet was reported at Pasquotank and Camden Counties in the Albemarle Sound.

September 16, 1999 (Hurricane Floyd)

Hurricane Floyd made landfall near Wilmington with category two winds of 105 to 110 mph. Rainfall totals from Floyd were as high as 15 to 20 inches over portions of eastern North Carolina; with a record of 23.45 inches of rain falling in the month of September at Wilmington, NC. This breaks the previous record of 21.12 inches set in July 1886. These rains combined with

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saturated ground from previous rain events, including Hurricane Dennis, to produce an inland flood disaster. There were 74 deaths in the United States, including 52 in North Carolina, due to drowning from flood waters.

Data from the USGS indicate that eleven of their stream-gage monitoring sites in North Carolina (Ahoskie, Rocky Mount, Hilliardston, White Oak, Enfield, Tarboro, Lucama, Hookerton, Trenton, Chinquapin, and Freeland) exceeded 0.2% annual chance flood levels due to Floyd. Total losses in North Carolina approach \$5 billion with an estimated \$3.5 billion in damages to North Carolina homes, businesses, roads, and infrastructure.

Floyd passed relatively close to the entire U.S. east coast, justifying hurricane warnings from Florida to Massachusetts and requiring an estimated two million people to evacuate. The last hurricane to require warnings for as large a stretch of coastline was Hurricane Donna in 1960.

4.4 Flood Protection Measures

Flood protection measures may be structural (such as levees, dams, and reservoirs) or non-structural (such as land-use management ordinances, policies, or practices).

To provide safe flood protection and be mapped as such, FEMA specifies that all levees must: have a minimum of three feet of freeboard against the 1% annual chance flood event; be equipped with closure devices at every opening; be constructed with embankments and foundations that are certified not to fail due to erosion, seepage, or instability; and be certified against future loss of freeboard due to settling. For additional requirements, please refer to 44 CFR 65.10.

Flood protection measures are not known to exist in the Town of China Grove, the Town of East Spencer, the Town of Faith, Town of Granite Quarry, Town of Landis, the Town of Rockwell, the Unincorporated Areas of Rowan County, the City of Salisbury, and the Town of Spencer.

4.5 Scope of Study

In order to determine the areas studied by detailed and limited detailed methods in this FIS, initial research and community coordination was necessary. Initial scoping meetings were held in Rowan County to present the results of initial research to the county and communities within the county and to discuss their flood mapping needs. The county and communities were asked to provide input on proposed study priorities and analysis methods. Those meetings resulted in the identification of flooding sources having a flood mapping need. Draft basin plans were developed based on the results of the initial scoping meetings. Final scoping meetings were held by the State and FEMA to provide counties and communities an overview of the draft basin plans, including the proposed scope and schedule for the project, and to provide an opportunity for additional county and community input. After the final scoping meeting was held, the Final Basin Plans were produced.

This FIS covers the geographic area of Rowan County, North Carolina, and all jurisdictions therein. 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. Limits of detailed study are indicated on the Flood Profiles and/or the FIRM. Please see Table 3, "Flooding Sources Studied by Detailed Methods: Revised or Newly Studied," for a list of flooding sources that were revised or newly studied by detailed methods for this FIS.

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**Table 3—Flooding Sources Studied by
Detailed Methods: Revised or Newly Studied**

Source	Riverine Sources		Affected Communities
	From	To	
Back Creek	Approximately 4.1 miles upstream of the confluence of Sloans Creek	Approximately 6.1 miles upstream of the confluence of Sloans Creek	Rowan County (Unincorporated Areas)
Bostian Heights Branch	Approximately 185 feet upstream of Scercy Road (SR 1346)	Approximately 222 feet upstream of Daugherty Road (SR 1243)	Rowan County (Unincorporated Areas)
Church Creek	The confluence with Crane Creek/High Rock Lake	Approximately 1.0 mile upstream of U.S. Highway 52	Town of Granite Quarry, Rowan County (Unincorporated Areas)
Coddle Creek	The Rowan/Iredell/Cabarrus County boundary	The Rowan/Iredell County boundary	Rowan County (Unincorporated Areas)
Concord Road Creek*	The confluence with Town Creek	Approximately 1,100 feet upstream of the confluence with Town Creek	City of Salisbury
Crane Creek	Approximately 0.5 mile downstream of the confluence of Town Creek	Approximately 100 feet downstream of North Main Street	Town of Granite Quarry, Town of East Spencer, City of Salisbury, and Rowan County (Unincorporated Areas)
Draft Branch*	At the confluence with Grants Creek	Approximately 0.9 mile upstream of the confluence with Grants Creek	City of Salisbury
Fourth Creek	The Iredell/Rowan County boundary	Approximately 595 feet upstream of the Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Grants Creek	The confluence with Yadkin River	Approximately 481 feet downstream of West Ryder Ave	City of Salisbury, Towns of China Grove and Landis, Rowan County (Unincorporated Areas)
Henderson Branch*	At the confluence with Grants Creek	Approximately 1,760 feet upstream of the confluence with Grants Creek	City of Salisbury
Irish Buffalo Creek	Approximately 88 feet upstream of Cannon Farm Road	Approximately 1.3 miles upstream of Echo Hollow Drive	Rowan County (Unincorporated Areas)
Klutz Branch	The confluence with Legion Park Branch	Approximately 0.2 mile upstream of the confluence with Legion Park Branch	Town of Granite Quarry
Lake Wright Branch*	At the confluence with Grants Creek	Approximately 1,500 feet upstream of the confluence with Grants Creek	Rowan County (Unincorporated Areas); Town of China Grove

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**Table 3—Flooding Sources Studied by
Detailed Methods: Revised or Newly Studied**

Source	Riverine Sources		Affected Communities
	From	To	
Legion Park Branch	The confluence with Trexler Creek	Approximately 0.4 mile upstream of the confluence of Klutz Branch	Town of Granite Quarry, Rowan County (Unincorporated Areas)
Little Creek*	At the confluence with Grants Creek	Approximately 0.5 mile upstream of the confluence with Grants Creek	Rowan County (Unincorporated Areas)
Lomax Creek*	At the confluence with Grants Creek	Approximately 800 feet upstream of the confluence with Grants Creek	Town of Spencer, Rowan County (Unincorporated Areas)
Mahaley Branch*	At the confluence with Grants Creek	East Park Road	City of Salisbury
Petrea Branch	The confluence with Grants Creek	Approximately 1.0 mile upstream of the confluence with Grants Creek	Town of China Grove
Rocky Branch*	The confluence with Grants Creek	Approximately 1,400 feet upstream of confluence with Grants Creek	Town of Spencer
Rowan Avenue Park Stream*	The confluence with Grants Creek	Approximately 500 feet upstream of Charles Street	Town of Spencer, Rowan County (Unincorporated Areas)
Sixth Street Branch*	The confluence with Grants Creek	Approximately 1,090 feet upstream of the confluence with Grants Creek	Town of Spencer, Rowan County (Unincorporated Areas)
Swearington Branch*	At the confluence with Grants Creek	Approximately 700 feet upstream of the confluence with Grants Creek	Town of China Grove
Tar Branch*	The confluence with Crane Creek	Approximately 1,440 feet upstream of the confluence with Crane Creek	City of Salisbury
Third Street Creek*	The confluence with Grants Creek	Approximately 1,380 feet upstream of the confluence with Grants Creek	Town of Spencer, Rowan County (Unincorporated Areas)
Town Creek* (downstream)	The confluence with Crane Creek	Approximately 1,500 feet upstream of the confluence with Crane Creek	Rowan County (Unincorporated Areas)
Town Creek (upstream)	Approximately 190 feet downstream of Bringle Ferry Road	Approximately 140 feet upstream of Julian Road	City of Salisbury, Rowan County (Unincorporated Areas)
Town Creek Tributary 1	The confluence with Town Creek	Approximately 110 feet upstream of Tanglewood Drive	Town of East Spencer, Rowan County (Unincorporated Areas)

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Table 3—Flooding Sources Studied by Detailed Methods: Revised or Newly Studied

Source	Riverine Sources		Affected Communities
	From	To	
Trexler Creek	The confluence with Crane creek	Approximately 0.2 mile upstream of U.S. Highway 52 (North Salisbury Avenue)	Town of Granite Quarry
Woodleaf Branch (East) **	The confluence with Grants Creek	Approximately 1,700 feet downstream of Lincolnton Road	City of Salisbury

* Revised to reflect backwater effects from new detailed study.

** Revised to reflect flooding controlled by Grants Creek and backwater effects from new detailed study.

Table 4, “Flooding Sources Studied by Detailed Methods: Redelineated,” contains a list of flooding sources that were studied by detailed methods for previous FISs, but were only partially revised in the current study. Their effective analyses remain valid; however, their floodplain delineations have been revised on the current FIRM.

Table 4—Flooding Sources Studied by Detailed Methods: Redelineated

Source	Riverine Sources		Affected Communities
	From	To	
Beaver Creek	The confluence with Cold Water Creek	Approximately 1,750 feet upstream of Milton Street	Rowan County (Unincorporated Areas), Town of Landis
Bostian Heights Branch	The confluence with Dutch Buffalo Creek	Approximately 185 feet upstream of Scercy Road (SR 1346)	Rowan County (Unincorporated Areas)
Cold Water Creek	Approximately 0.5 mile upstream of Moose Road (SR 1308)	Approximately 0.5 mile upstream of Lentz Road	Rowan County (Unincorporated Areas)
Crane Creek	Approximately 100 feet downstream of North Main Street	Old Concord Road (SR 1002)	Rowan County (Unincorporated Areas), Town of Granite Quarry
Draft Branch	Approximately 0.9 mile upstream of the confluence with Grants Creek	Neel Road (SR 1729)	Rowan County (Unincorporated Areas), City of Salisbury
Dutch Buffalo Creek	The Rowan/Cabarrus County boundary	Approximately 130 feet upstream of Rogers Road (SR 2573)	Rowan County (Unincorporated Areas)
Julian Tributary	The confluence with Town Creek	Approximately 60 feet upstream of Julian Road	City of Salisbury
Lake Wright Branch*	Approximately 1,500 feet upstream of the confluence with Grants Creek	Approximately 0.6 mile upstream of Brown Road (SR 1211)	Rowan County (Unincorporated Areas), Town of China Grove

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Table 4—Flooding Sources Studied by Detailed Methods: Redelineated

Source	Riverine Sources		Affected Communities
	From	To	
Little Creek*	Approximately 0.5 mile upstream of the confluence with Grants Creek	Weaver Road (SR 1535)	Rowan County (Unincorporated Areas)
Town Creek (downstream)	Approximately 1,500 feet upstream of the confluence with Crane Creek	Approximately 190 feet downstream of Bringle Ferry Road	Rowan County (Unincorporated Areas), City of Salisbury, Town of East Spencer
Town Creek (upstream)	Approximately 140 feet upstream of Julian Road	Approximately 0.4 mile downstream Interstate 85	Rowan County (Unincorporated Areas), City of Salisbury
Wildlife Tributary	The confluence with Draft Branch	Approximately 0.6 mile upstream of Harrison Road	Rowan County (Unincorporated Areas), City of Salisbury

* Backwater from Grants Creek has been revised

Table 5, “Flooding Sources Studied by Detailed Methods: Modified Detailed,” contains a list of flooding sources that were studied by detailed methods for previous FISs, but were only partially revised in the current study. Their effective analyses remain valid; however, their floodplain delineations have been revised on the current FIRM.

Table 5—Flooding Sources Studied by Detailed Methods: Modified Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Baker Branch	Approximately 560 feet upstream of 22 nd Street	Approximately 0.4 mile upstream of West 22 nd Street	Town of Landis, Rowan County (Unincorporated Areas)
Beaver Creek	Approximately 1,750 feet upstream of Milton Street	Approximately 1,260 feet upstream of South Chapel Street (SR 1464)	Town of Landis, Rowan County (Unincorporated Areas)
Beaver Creek Tributary	The confluence with Beaver Creek	Approximately 1,300 feet upstream of the confluence with Beaver Creek	Rowan County (Unincorporated Areas)
Bost Branch	Approximately 0.3 mile upstream of the confluence with Second Creek	Approximately 200 feet upstream of NC Highway 52 (China Grove Highway)	Town of Rockwell

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Table 5—Flooding Sources Studied by Detailed Methods: Modified Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Byrd Road Tributary	The confluence with Crane Creek	Approximately 150 feet upstream of Legion Club Road	Town of Granite Quarry
Cemetery Creek	The confluence of Quarry Creek	Approximately 50 feet downstream of Lakeview Street	Town of Faith
Cold Water Creek Tributary	The confluence with Cold Water Creek	Approximately 250 feet downstream of U.S. Highway 29	Town of China Grove, Rowan County (Unincorporated Areas)
Concord Road Creek	Approximately 1,100 feet upstream of the confluence with Town Creek	Approximately 1,200 feet upstream of Interstate 85	City of Salisbury
Correll Creek	The confluence with Beaver Creek	Approximately 108 feet upstream of East Mills Drive	Town of Landis
Crane Creek	Approximately 50 feet downstream of Old Concord Road (SR 1002)	Approximately 50 feet upstream of Mt Hope Church Road (SR 1505)	Rowan County (Unincorporated Areas)
Draft Branch	Neel Road (SR 1729)	Approximately 0.6 mile upstream of Cauble Farm Road	Rowan County (Unincorporated Areas)
Draft Branch Tributary	The confluence with Draft Branch	Approximately 0.2 mile upstream of Neel Road (SR 1729)	Rowan County (Unincorporated Areas)
Dutch Buffalo Creek Tributary	The confluence with Dutch Buffalo Creek	Approximately 180 feet upstream of Roy Cline Road	Rowan County (Unincorporated Areas)
East Centerview Branch	The confluence with Cold Water Creek	South Bostian Street	Rowan County (Unincorporated Areas), Town of China Grove
East Spencer High Creek	The confluence with Ice Plant Creek	Approximately 134 feet upstream of Grant Street	Town of East Spencer
Faith Road Branch	The confluence with Crane Creek	Approximately 150 feet upstream of Ted Lane (SR 2534)	Rowan County (Unincorporated Areas)
Five Forks Tributary	The confluence with Lake Wright Branch	Approximately 0.9 mile upstream of Stirewalt Road (SR 1541)	Town of China Grove, Rowan County (Unincorporated Areas)
Gravel Pit Branch	The confluence with Julian Tributary	Approximately 0.9 mile upstream of Interstate 85	City of Salisbury
Henderson Branch	Approximately 1,760 feet upstream of the confluence with Grants Creek	Approximately 150 feet upstream of North Church Street	City of Salisbury
Henderson Branch Tributary	The confluence with Henderson Branch	Approximately 500 feet upstream of West Lafayette Street	City of Salisbury
Hopkins Street Branch	The confluence with Town Creek	Approximately 600 feet upstream of South Boundary Street	City of Salisbury

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**Table 5—Flooding Sources Studied by
Detailed Methods: Modified Detailed**

Source	Riverine Sources		Affected Communities
	From	To	
Ice Plant Creek	The confluence with Town Creek	Approximately 0.3 mile upstream of Grant Street	Town of East Spencer, Rowan County (Unincorporated Areas)
Innis Street Creek	The confluence with Town Creek	Approximately 250 feet upstream of North Shaver Street	City of Salisbury
Jackson Branch	The confluence with Railroad Branch	Approximately 136 feet upstream of Shaver Street	Town of East Spencer
Julian Tributary	Approximately 60 feet upstream of Julian Road	Approximately 0.4 mile upstream of Interstate 85	City of Salisbury, Rowan County (Unincorporated Areas)
Lake Wright Branch	Approximately 0.6 mile upstream of Brown Road (SR 1211)	Approximately 1.5 miles upstream of Lake Wright Road	Rowan County (Unincorporated Areas)
Little Creek	Weaver Road (SR 1535)	Approximately 1.7 miles upstream of Weaver Road (SR 1535)	Rowan County (Unincorporated Areas)
Lomax Creek	Approximately 800 feet upstream of the confluence with Grants Creek	Approximately 0.3 mile upstream of confluence with Grants Creek	Town of Spencer
Mahaley Branch	East Park Road	Approximately 350 feet upstream of South Craige Street	City of Salisbury
Mahaley Branch Tributary	The confluence with Mahaley Branch	Approximately 338 feet upstream of South West Street	City of Salisbury
Main Street Tributary	The confluence with Thomas Street Creek	Approximately 750 feet upstream of Military Avenue	City of Salisbury
Maple Avenue Branch	The confluence with Woodleaf Branch (East)	Approximately 900 feet upstream of Wilson Road	City of Salisbury
Mill Creek (into Grants Creek)	The confluence with Grants Creek	Approximately 264 feet upstream of West Ryder Avenue	Town of Landis
Moose Branch	Approximately 1,500 feet upstream of the confluence with Beaver Creek Tributary	Approximately 1600 feet upstream of the confluence with Beaver Creek Tributary	Rowan County (Unincorporated Areas)
North Fork Tributary	The confluence with Lake Wright Branch	Approximately 200 feet downstream of Fellowship Park Road	Rowan County (Unincorporated Areas)
Park Avenue Branch	The confluence with Town Creek	Approximately 80 feet downstream of North Boundary Street	City of Salisbury
Park Creek (into Quarry Creek)	The confluence with Quarry Creek	Approximately 600 feet upstream of School Street	Town of Faith

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Table 5—Flooding Sources Studied by Detailed Methods: Modified Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Peeler Branch	Approximately 500 feet upstream of Sides Road	Approximately 1400 feet upstream of Market Street	Rowan County (Unincorporated Areas), Town of Rockwell
Pine Ridge Branch	The confluence with Cold Water Creek	Approximately 120 feet upstream of Lentz Road	Town of China Grove, Rowan County (Unincorporated Areas)
Quarry Creek	The confluence with Crane Creek	Approximately 1,900 feet upstream of North Main Street	Town of Faith
Railroad Branch	The confluence with Town Creek	Approximately 157 feet upstream of Shaver Street	Town of East Spencer, Rowan County (Unincorporated Areas)
Rocky Branch	Approximately 1,400 feet upstream of confluence with Grants Creek	Approximately 118 feet upstream of South Yadkin Avenue	Town of Spencer
Rowan Avenue Park Stream	Approximately 500 feet upstream of Charles Street	Approximately 656 feet upstream of South Salisbury Avenue	Town of Spencer
Sides Branch	The confluence with Peeler Branch	Approximately 1,500 feet upstream of confluence with Peeler Branch	Town of Rockwell, Rowan County (Unincorporated Areas)
Sixth Street Branch	Approximately 1,090 feet upstream of the confluence with Grants Creek	Approximately 100 feet upstream of South Spencer Avenue	Town of Spencer
Southern Railroad Branch	The confluence with Rowan Avenue Park Stream	Approximately 624 feet upstream of North Salisbury Avenue	Town of Spencer
Southside Tributary	The confluence with Faith Road Branch	Approximately 1,500 feet of Webb Road	Rowan County (Unincorporated Areas)
Spring Hill Branch	The confluence with Rocky Branch Tributary 1	Approximately 1,030 feet upstream of South Rowan Avenue	Town of Spencer
Swearington Branch	Approximately 700 feet upstream of the confluence with Grants Creek	Approximately 117 feet upstream of Clinton Street	Town of China Grove
Tar Branch	Approximately 1,440 feet upstream of the confluence with Crane Creek	Approximately 600 feet upstream of Jake Alexander Boulevard	City of Salisbury
Tar Branch Tributary	The confluence of Tar Branch	Approximately 550 feet downstream of Carolina Boulevard	City of Salisbury
Third Street Creek	Approximately 1,380 feet upstream of the confluence with Grants Creek	Approximately 150 feet upstream of Jordan Avenue	Town of Spencer
Thomas Street Creek	The confluence with Town Creek	Approximately 300 feet upstream of South Railroad Street	City of Salisbury

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Table 5—Flooding Sources Studied by Detailed Methods: Modified Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Town Branch	The confluence with Cold Water Creek	Approximately 0.6 mile upstream of U.S. Highway 29	Town of Landis, Rowan County (Unincorporated Areas)
Town Creek	Approximately 0.4 mile downstream of Interstate 85	Approximately 800 feet upstream of Interstate 85	Rowan County (Unincorporated Areas)
Town Creek Tributary	The confluence with Town Creek	Approximately 0.85 mile upstream of Ed Weaver Road	Rowan County (Unincorporated Areas)
Vance Avenue Branch	The confluence with Town Creek	Approximately 10 feet upstream of South Railroad Street	City of Salisbury
Walnut Street Branch	The confluence of Cold Water Creek	Approximately 1200 feet upstream of Pine Ridge Road	Town of China Grove
Walton Branch	The confluence with Rowan Avenue Park Branch	Approximately 550 feet upstream of N Yadkin Avenue	Town of Spencer
Wildlife Tributary	Approximately 0.6 mile upstream of Harrison Road	Approximately 0.6 mile upstream of Majolica Road	City of Salisbury, Rowan County (Unincorporated Areas)
Wiley Avenue Branch	The confluence with Maple Avenue Branch	Approximately 300 feet upstream of Crosby Street	City of Salisbury
Woodleaf Branch (East)	Approximately 1,700 feet downstream of Lincolnton Road	Lincolnton Road	City of Salisbury
Wright Branch	The confluence with Lake Wright Branch	Approximately 0.8 mile upstream of confluence with Lake Wright Branch	Rowan County (Unincorporated Areas)

Table 6, “Flooding Sources Studied by Detailed Methods: Limited Detailed” contains a list of flooding sources that were studied by approximate methods in previous FISs but were revised using limited detailed methods for this FIS.

Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Back Creek (downstream)	The confluence with North Second Creek	Approximately 4.1 miles upstream of the confluence of Sloans Creek	Rowan County (Unincorporated Areas)
Back Creek (upstream)	Approximately 6.1 miles upstream of the confluence of Sloans Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)

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Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Back Creek Tributary 1	The confluence with Back Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Beaverdam Creek (East)	The confluence with North Second Creek	Approximately 0.4 mile upstream of NC Highway 801	Rowan County (Unincorporated Areas)
Beaverdam Creek (West)	The confluence with Withrow Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Bell Branch	The confluence with South Yadkin River	Approximately 1,500 feet upstream of the confluence with South Yadkin River	Rowan County (Unincorporated Areas)
Bost Branch	The confluence with Second Creek	Approximately 0.3 mile upstream of the confluence with Second Creek	Town of Rockwell
Cedar Creek	The confluence with Yadkin River	Approximately 0.4 mile upstream of River Road (SR 2152)	Rowan County (Unincorporated Areas)
Church Creek Tributary 1	The confluence with Church Creek	Approximately 417 feet downstream of U.S. Highway 52	Town of Granite Quarry, Rowan County (Unincorporated Areas)
Church Creek Tributary 1A	The confluence with Church Creek Tributary 1	Approximately 0.5 mile upstream Fish Pond Road (SR 2309)	Rowan County (Unincorporated Areas)
Church Creek Tributary 2	The confluence with Church Creek	Approximately 0.8 mile upstream of Stone Road	Rowan County (Unincorporated Areas)
Cold Water Creek	Just upstream of Moose Road (SR 1308)	Approximately 0.5 mile upstream of Moose Road (SR 1308)	Rowan County (Unincorporated Areas)
Cold Water Creek Tributary 1	The confluence with Cold Water Creek	Approximately 0.3 mile upstream of Interstate 85	Rowan County (Unincorporated Areas)
Crane Creek (High Rock Lake)	The entire shoreline within Rowan County		Rowan County (Unincorporated Areas)
Crane Creek Tributary 1	The confluence with Crane Creek	Approximately 0.9 mile upstream of Lake Fork Road (SR 2170)	Rowan County (Unincorporated Areas)
Crane Creek Tributary 2	The confluence with Crane Creek	Approximately 220 feet upstream of Cemetery Drive	Rowan County (Unincorporated Areas), Town of Faith
Dutch Buffalo Creek	The Cabarrus/Rowan County boundary	The Cabarrus/Rowan County boundary	Rowan County (Unincorporated Areas)
Dutch Buffalo Creek Tributary 1	The Cabarrus/Rowan County boundary	Approximately 20 feet downstream of SR 2658	Rowan County (Unincorporated Areas)

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Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
East Fork Creek	The confluence with Coddle Creek	Approximately 6.0 miles upstream of the confluence with Coddle Creek	Rowan County (Unincorporated Areas)
Fisher Branch	The confluence with Second Creek	Approximately 50 feet downstream of Fisher Road (SR 2320)	Town of Rockwell, Rowan County (Unincorporated Areas)
Flat Creek	The confluence with Yadkin River	Approximately 1.3 miles upstream of River Road (SR 2152)	Rowan County (Unincorporated Areas)
Flat Rock Branch	The confluence with Grants Creek	Approximately 800 feet downstream of Flat Rock Road (SR 1210)	Town of Landis, Rowan County (Unincorporated Areas)
Fourth Creek	The confluence with South Yadkin River	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Fourth Creek Tributary 4	The confluence with Fourth Creek	Approximately 0.5 mile upstream of the confluence with Fourth Creek	Rowan County (Unincorporated Areas)
Fourth Creek Tributary 5	The confluence with Fourth Creek	Approximately 360 feet upstream of Baker Mill Road (SR 1957)	Rowan County (Unincorporated Areas)
Grants Creek Tributary 2	The confluence with Grants Creek	Approximately 870 feet downstream of the Par Drive	City of Salisbury
Grants Creek Tributary 3	The confluence with Grants Creek	Approximately 0.4 mile upstream of the confluence with Grants Creek	City of Salisbury
Grants Creek Tributary 4	The confluence with Grants Creek	Approximately 0.6 mile upstream of the confluence with Grants Creek	City of Salisbury
Irish Buffalo Creek Tributary 4	Approximately 0.7 mile upstream of the confluence with Irish Buffalo Creek	Approximately 0.9 mile upstream of the confluence with Irish Buffalo Creek	Town of Landis, Rowan County (Unincorporated Areas)
Irish Buffalo Creek Tributary 5	Approximately 0.7 mile upstream of the confluence with Irish Buffalo Creek	Approximately 0.8 mile upstream of the confluence with Irish Buffalo Creek	Town of Landis
Jump and Run Branch	The confluence with Grants Creek	Approximately 385 feet upstream of Willow Road	Rowan County (Unincorporated Areas), City of Salisbury
Kerr Creek	The confluence with Sloans Creek	Approximately 1.4 miles upstream of Corriher Springs Road (SR 1554)	Rowan County (Unincorporated Areas)
Little Creek (South)	The confluence with Third Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)

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Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Mill Creek	The Rowan/Cabarrus County boundary	Approximately 385 feet upstream of Smith Road (SR 1361)	Rowan County (Unincorporated Areas)
North Second Creek	The confluence with South Yadkin River	The confluence with Sloan Creek and Back Creek	Rowan County (Unincorporated Areas)
Park Creek	The Rowan/Cabarrus County boundary	Approximately 0.5 mile upstream of Smith Road (SR 1360)	Rowan County (Unincorporated Areas)
Peeler Branch	The confluence with Second Creek Tributary 1	Approximately 500 feet upstream of Sides Road	Town of Rockwell, Rowan County (Unincorporated Areas)
Riles Creek	The confluence with Yadkin River	Approximately 430 feet upstream of Stokes Ferry Road	Rowan County (Unincorporated Areas)
Rocky Branch Tributary 1	The confluence with Rocky Branch	Approximately 0.5 mile upstream of Pickett Avenue	Rowan County (Unincorporated Areas), Town of Spencer, City of Salisbury
Second Creek	The confluence with Yadkin River	Approximately 0.6 mile upstream of the confluence of Second Creek Tributary 3	Town of Rockwell, Rowan County (Unincorporated Areas)
Second Creek Tributary 1	The confluence with Second Creek	Approximately 200 feet upstream of the confluence of Peeler Branch	Rowan County (Unincorporated Areas)
Second Creek Tributary 2	The confluence with Second Creek	Approximately 440 feet upstream of Miller Street	Rowan County (Unincorporated Areas), Town of Rockwell
Second Creek Tributary 3	The confluence with Second Creek	Approximately 0.5 mile upstream of Winding Brook Lane	Rowan County (Unincorporated Areas)
Sills Creek	The confluence with Back Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Sills Creek Tributary 1	The confluence with Sills Creek	Approximately 0.6 mile upstream of the confluence with Sills Creek	Rowan County (Unincorporated Areas)
Sloans Creek	The confluence with North Second Creek	Approximately 0.4 mile upstream of Brown Road (SR 1211)	Rowan County (Unincorporated Areas)
South Yadkin River	The confluence with Yadkin River	The Iredell/Rowan/Davie County boundary	Rowan County (Unincorporated Areas), City of Salisbury

Section 4.0 – Area Studied

Table 6—Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communities
	From	To	
Third Creek	The confluence with Fourth Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas), Town of Cleveland
Unnamed Stream 1	The confluence with Fourth Creek	Approximately 0.9 mile upstream of Mount Vernon Road (SR 1986)	Rowan County (Unincorporated Areas)
Unnamed Stream 2	The confluence with Fourth Creek	Approximately 0.5 mile downstream of Rary Road (SR 1978)	Rowan County (Unincorporated Areas)
Withrow Creek	The confluence with North Second Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Woodleaf Branch (East)	Lincolnton Road	Approximately 100 feet upstream of Fourth Street	City of Salisbury
Woodleaf Branch (West)	The confluence with Withrow Creek	The Iredell/Rowan County boundary	Rowan County (Unincorporated Areas)
Yadkin River	The Davidson/Montgomery/Rowan/Stanly County boundary	The confluence of South Yadkin River	Town of Spencer, Rowan County (Unincorporated Areas)

Table 7, “Stream Name Changes” contains a list of flooding sources that have been renamed since the previous FIS was published.

Table 7—Stream Name Changes

Community	Old Name	New Name
Rowan County (Unincorporated Areas)	Beaverdam Creek	Beaverdam Creek (East)
Rowan County (Unincorporated Areas)	Beaverdam Creek	Beaverdam Creek (West)
Rowan County (Unincorporated Areas)	East Fork	East Fork Creek
Rowan County (Unincorporated Areas)	Little Creek	Little Creek (South)
Town of Landis	Mill Creek	Mill Creek (into Grants Creek)
Rowan County (Unincorporated Areas)	Second Creek Tributary	Second Creek Tributary 3
Rowan County (Unincorporated Areas)	Unnamed Stream	Unnamed Stream 1
City of Salisbury	Woodleaf Branch	Woodleaf Branch (East)
Rowan County (Unincorporated Areas)	Woodleaf Branch	Woodleaf Branch (West)

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For the flooding sources studied in detail in the county, standard hydrologic and hydraulic methods were used to determine the flood hazard data required for this FIS.

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationship for each flooding source studied in detail affecting the county.

Pre-Countywide Analyses

Each jurisdiction within Rowan County, with the exceptions of the Town of Cleveland, had previously printed FIS Reports describing each community's hydrologic analyses. Those analyses have been compiled from the FIS Reports and are summarized below. These analyses remain valid for those flooding sources listed in Table 4, "Flooding Sources Studied by Detailed Methods: Redelineated."

Hydrologic analyses were carried out in the Town of China Grove, the Town of East Spencer, the Town of Faith, the Town of Granite Quarry, the Town of Landis, the Town of Rockwell, the Unincorporated Areas of Rowan County, the City of Salisbury, and the Town of Spencer to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each stream studied in detail in the community.

Peak discharge-frequency relationships were established using a method which considers watershed urbanization and was developed by Putnam (U.S. Department of the Interior, 1972). The results from the Putnam method were then checked and compared with a method given in U.S. Geological Survey Publication No. 76-17 (U.S. Department of the Interior, 1976). The Putnam report related flood peak discharges for recurrence intervals ranging up to 100 years (1% annual chance) to drainage area, stream length, stream slope, and percent of basin covered by impervious surfaces. The relations were based on statistical analysis of flood information for approximately 200 sites, 42 of which were in metropolitan areas of the North Carolina Piedmont province. The estimating relations were limited to providing flood discharge at open-channel sites in the Piedmont province of North Carolina where runoff was unaffected by artificial storage or diversion. The U.S. Geological Survey publication No. 76-17 estimated the magnitude and frequency of floods on natural North Carolina streams with drainage areas greater than 0.5 square miles (1.3 square kilometers). For 257 gage sites, the magnitudes of floods having recurrence intervals from 2 to 100 years (50% to 1% annual chance) were provided in the tables. For ungaged sites, equations, graphs, and maps were presented for estimating flood magnitudes. Multiple regression techniques were used to define the relation between flood peak discharges and seven basins and climatic variables. Through regression analysis, stations were divided into Coastal Plain section and the mountains and Piedmont section. The statistical equations were developed for each geographic area. The log-Pearson Type III method was used, based on 22 stream gages in the surrounding area, to provide guidelines for hydrologic analyses (U.S. Water Resources Council, 1976).

Additionally in the Town of East Spencer, Ice Plant Creek, East Spencer High Creek, Railroad Branch, and Jackson Branch have drainage areas that are less than one square mile; therefore only recurrence intervals of the 10% and 1% annual chance floods were evaluated. For Town Creek in the Town of East Spencer, for Crane Creek, Town Creek, and Grants Creek in the City of Salisbury, and for Grants Creek in the Town of Spencer, the hydrologic analyses developed by the U.S. Army Corps of Engineers were incorporated with unpublished data received from the North Carolina Soil and Water Conservation Commission, which included the HEC-2 and WSP-2

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computer programs and unit hydrograph methods, to obtain the peak discharge-drainage area relationships for selected flood frequencies (U.S. Army Corps of Engineers, 1976 and North Carolina Department of Natural Resources and Community Development, unpublished).

Revised Analyses for Countywide FIS

The hydrologic analyses for the Yadkin River basin, except for flooding sources with stream gages, were performed using the urban and rural regression equations developed by the USGS. The urban equations were published in “Estimation of Flood-Frequency Characteristics of Small Urban Streams in North Carolina,” Water Resources Investigations Report 96-4084 (U.S. Department of the Interior, 1996). The rural equations were published in “Estimating the Magnitude and Frequency of Floods in Rural Basins in North Carolina, - Revised,” Water Resources Investigations Report 01-4207 (U.S. Department of the Interior, 2001). Regression equations are mathematical formulas that relate the flow in the stream to physical factors such as the area of the basin and the percentage of the surface that is impervious (paved). Regression equations are developed by fitting a line through the center of the points on a graph that compares flood flows to basin area. The results reflect the “statistical average” of the data. If a gage station is located on the stream being studied, data from that station can be used to adjust the regression results to more accurately estimate the flood flow. There are three separate regional regression equations that cover North Carolina. Rowan County is located in the hydrologic region known as the Piedmont region. Analyses of historical high-water marks obtained from interviews of county residents were used to confirm the accuracy of the regression equation estimates.

A number of basins for the detailed and limited detailed studied streams in Rowan County contained sufficient urbanization to require application of the USGS North Carolina urban equations. Percents imperviousness for these basins were estimated using a combination of digital orthophotographic data and street centerline data. The recurrence interval discharges for streams draining these urbanized basins were computed using the USGS North Carolina urban regression equations for the Piedmont hydrologic region (WRIR 96-4084). The recurrence interval discharges for all other streams in Rowan County were determined using the USGS North Carolina rural regression equations for the Piedmont hydrologic area (WRIR 01-4207).

A summary of the drainage area-peak discharge relationships for the flooding sources studied by detailed methods is shown in Table 8, “Summary of Discharges.”

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Back Creek	The confluence with North Second Creek	38.6	*	*	7,309	*
	Approximately 1.2 miles upstream of the confluence with North Second Creek	19.4	*	*	4,754	*
	Approximately 2.1 miles upstream of the confluence with North Second Creek	18.4	*	*	4,597	*
	Approximately 3.1 miles upstream of the confluence with North Second Creek	17.4	*	*	4,438	*
	Approximately 3.8 miles upstream of the confluence with North Second Creek	16.5	2,132	3,563	4,287	6,312
	Approximately 5.8 miles upstream of the confluence with North Second Creek	15.4	2,042	3,418	4,116	6,067
	Approximately 6.5 miles upstream of the confluence with North Second Creek	14.4	1,952	3,273	3,944	5,822
	Approximately 7.4 miles upstream of the confluence with North Second Creek	13.4	*	*	3,777	*
	Approximately 8.0 miles upstream of the confluence with North Second Creek	11.9	*	*	3,504	*
	Approximately 8.8 miles upstream of the confluence with North Second Creek	10.7	*	*	3,411	*
	Approximately 9.4 miles upstream of the confluence with North Second Creek	9.7	*	*	3,293	*
	The Iredell/Rowan County boundary	8.6	*	*	3,164	*
Back Creek Tributary 1	The confluence with Back Creek	1.7	*	*	1,019	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Back Creek Tributary 1	Approximately 0.6 mile upstream of the confluence with Back Creek	1.2	*	*	812	*
Baker Branch	*	*	*	*	*	*
Beaver Creek	At China Grove Road (SR 1238)	3.8	1,125	1,875	2,225	3,050
	Below the confluence of Beaver Creek Tributary	3.2	1,050	1,725	2,100	2,800
	At Ebenezer Road (SR 1322)	1.8	800	1,350	1,630	2,250
	Approximately 1,750 feet upstream of Milton Street	1.3	680	1,180	1,425	1,980
Beaver Creek Tributary	*	*	*	*	*	*
Beaverdam Creek (East)	At the confluence with North Second Creek	5.6	*	*	2,176	*
	Approximately 0.7 mile upstream of the confluence with North Second Creek	3.5	*	*	1,633	*
	Approximately 1.6 miles upstream of the confluence with North Second Creek	2.9	*	*	1,457	*
	Approximately 0.5 mile downstream of State Highway 801	2.1	*	*	1,176	*
	Approximately 0.2 mile upstream of State Highway 801	0.5	*	*	500	*
Beaverdam Creek (West)	At the confluence with Withrow Creek	9.6	*	*	3,062	*
	Approximately 257 feet upstream of the confluence with Withrow Creek	8.3	*	*	2,791	*
	Approximately 0.8 mile upstream of the confluence with Withrow Creek	7.4	*	*	2,593	*
	Approximately 1.4 miles upstream of the confluence with Withrow Creek	6.3	*	*	2,357	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Beaverdam Creek (West)	Approximately 2.6 miles upstream of the confluence with Withrow Creek	5.0	*	*	2,037	*
	Approximately 3.3 miles upstream of the confluence with Withrow Creek	4.1	*	*	1,801	*
	Approximately 4.1 miles upstream of the confluence with Withrow Creek	3.0	*	*	1,490	*
	Approximately 5.1 miles upstream of the confluence with Withrow Creek	2.0	*	*	1,134	*
	Approximately 6.0 miles upstream of the confluence with Withrow Creek	1.0	*	*	737	*
Bell Branch	*	*	*	*	*	*
Bost Branch	At the confluence with Second Creek	0.4	*	*	647	*
Bostian Heights Branch	At the mouth	4.1	920	1,620	1,950	2,750
	At Old Concord Road (SR 1002)	3.6	875	1,560	1,870	2,640
	Approximately 0.6 mile downstream of Daugherty Road (SR 1243)	2.0	864	1,498	1,827	2,764 ¹
	Approximately 0.5 mile downstream of Daugherty Road (SR 1243)	1.9	507	898	1,104	1,698
	Approximately 739 feet downstream of Daugherty Road (SR 1243)	0.4	191	353	440	697
Byrd Road Tributary	*	*	*	*	*	*
Cedar Creek	At the confluence with Yadkin River	5.0	*	*	2,030	*
	Approximately 0.2 mile upstream of River Road (SR 2156)	4.6	*	*	1,919	*
Cemetery Creek	*	*	*	*	*	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Church Creek	Approximately 0.7 mile downstream of Bringle Ferry Road (SR 1002)	18.8	2,331	3,881	4,664	6,848
	Approximately 0.2 mile upstream of Bringle Ferry Road (SR 1002)	16.5	2,139	3,575	4,301	6,332
	Approximately 0.8 mile upstream of Bringle Ferry Road (SR 1002)	13.4	1,859	3,124	3,767	5,569
	Approximately 0.5 mile downstream of the confluence of Church Creek Tributary 1	12.5	1,781	2,998	3,618	5,356
	At the confluence of Church Creek Tributary 1	8.5	1,378	2,344	2,839	4,235
	Approximately 0.9 mile upstream of the confluence of Church Creek Tributary 1	7.7	1,288	2,198	2,665	3,983
	Approximately 1.2 miles upstream of the confluence of Church Creek Tributary 1	7.1	1,223	2,090	2,536	3,797
	Approximately 1.5 miles upstream of the confluence of Church Creek Tributary 1	6.9	1,199	2,052	2,491	3,731
	Approximately 2.1 miles upstream of the confluence of Church Creek Tributary 1	6.5	1,156	1,981	2,406	3,608
	Approximately 2.7 miles upstream of the confluence of Church Creek Tributary 1	5.4	1,013	1,745	2,124	3,198
	Approximately 1.0 mile downstream of the confluence of Church Creek Tributary 2	5.2	990	1,707	2,078	3,131
	Approximately 0.8 mile downstream of the confluence of Church Creek Tributary 2	4.7	926	1,602	1,952	2,947

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Church Creek	Approximately 0.6 mile downstream of the confluence of Church Creek Tributary 2	4.4	884	1,532	1,868	2,824
	At the confluence of Church Creek Tributary 2	1.3	402	720	888	1,375
	Approximately 0.3 mile upstream of the confluence of Church Creek Tributary 2	1.0	340	612	758	1,179
	Approximately 0.6 mile upstream of the confluence of Church Creek Tributary 2	0.6	230	421	524	825
	Approximately 0.64 mile upstream of the confluence of Church Creek Tributary 2	0.6	225	412	513	809
	Approximately 0.8 mile upstream of the confluence of Church Creek Tributary 2	0.5	208	381	476	751
	Approximately 1.0 mile upstream of the confluence of Church Creek Tributary 2	0.2	112	211	265	427
	Approximately 1.2 miles upstream of the confluence of Church Creek Tributary 2	0.2	97	185	233	376
	Approximately 1.5 miles upstream of the confluence of Church Creek Tributary 2	0.1	74	142	180	294
Church Creek Tributary 1	At the confluence with Church Creek	1.5	*	*	962	*
	Approximately 330 feet upstream of Stokes Ferry Road (SR 1004)	1.4	*	*	927	*
	Approximately 0.3 mile downstream of Fish Pond Road (SR 2309)	1.3	*	*	887	*
	Approximately 260 feet upstream of Fish Pond Road (SR 2309)	1.2	*	*	842	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Church Creek Tributary 1	Approximately 0.4 mile upstream of Fish Pond Road (SR 2309)	1.1	*	*	792	*
	Approximately 0.6 mile upstream of Fish Pond Road (SR 2309)	1.0	*	*	736	*
	Approximately 0.9 mile upstream of Fish Pond Road (SR 2309)	0.9	*	*	696	*
	Approximately 0.9 mile downstream of U.S. Highway 52 / Salisbury Avenue	0.8	*	*	645	*
	Approximately 0.8 mile downstream of U.S. Highway 52 / Salisbury Avenue	0.7	*	*	621	*
	Approximately 0.5 mile downstream of US Highway 52 / Salisbury Avenue	0.6	*	*	580	*
	Approximately 0.3 mile downstream of US Highway 52 / Salisbury Avenue	0.5	*	*	551	*
	Approximately 840 feet downstream of US Highway 52 / Salisbury Avenue	0.3	*	*	465	*
Church Creek Tributary 1A	At the confluence with Church Creek Tributary 1	2.1	*	*	1,192	*
	Approximately 520 feet upstream of Union Church Road (SR 2132)	2.0	*	*	1,160	*
	Approximately 450 feet upstream of Stokes Ferry Road (SR 1004)	1.8	*	*	1,086	*
	Approximately 0.5 mile upstream of Stokes Ferry Road (SR 1004)	1.6	*	*	989	*
	Approximately 0.3 mile downstream of Unnamed Road	1.3	*	*	866	*
	Approximately 330 feet upstream of Unnamed Road	1.2	*	*	826	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Church Creek Tributary 1A	Approximately 540 feet downstream of Fish Pond Road (SR 2309)	0.7	*	*	579	*
	Approximately 110 feet downstream of Fish Pond Road (SR 2309)	0.6	*	*	556	*
	Approximately 0.2 mile upstream of Fish Pond Road (SR 2309)	0.6	*	*	535	*
	Approximately 0.3 mile upstream of Fish Pond Road (SR 2309)	0.5	*	*	479	*
	Approximately 0.5 mile upstream of Fish Pond Road (SR 2309)	0.3	*	*	314	*
Church Creek Tributary 2	At the confluence with Church Creek	2.7	*	*	1,403	*
	Approximately 0.2 mile downstream of Stone Road	2.2	*	*	1,238	*
	Approximately 400 feet upstream of Stone Road	2.0	*	*	1,188	*
	Approximately 0.5 mile upstream of Stone Road	1.2	*	*	906	*
	Approximately 0.2 mile downstream of Percy Lane	1.1	*	*	855	*
	Approximately 750 feet downstream of Percy Lane	0.9	*	*	815	*
	Approximately 545 feet downstream of Percy Lane	0.9	*	*	797	*
	Approximately 335 feet upstream of Percy Lane	0.8	*	*	780	*
Coddle Creek	At the Cabarrus/Iredell/Rowan County boundary	15.6	2,903	4,791	5,738	8,370
Cold Water Creek	Approximately 0.5 mile upstream of Moose Road (SR 1308)	12.8	2,300	3,630	4,170	5,480
	At Old Beatty Ford Road (SR 1211)	7.2	1,675	2,700	3,120	4,190

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cold Water Creek	At Daugherty Road (SR 1243)	4.2	1,230	2,040	2,400	3,220
	At Pine Ridge Road (SR 1232)	3.4	1,100	1,850	2,200	2,960
	Approximately 0.5 mile upstream of Lentz Road	3.2	600	1,350	1,700	2,460
Cold Water Creek Tributary	*	*	*	*	*	*
Cold Water Creek Tributary 1	At the confluence with Cold Water Creek	1.3	*	*	892	*
	Approximately 653 feet upstream of the confluence with Cold Water Creek	1.2	*	*	850	*
	Approximately 0.2 mile upstream of the confluence with Cold Water Creek	1.2	*	*	841	*
Concord Road Creek	*	*	*	*	*	*
Correll Creek	*	*	*	*	*	*
Crane Creek	Approximately 1.3 miles upstream of the confluence with Church Creek	46.9	9,238	12,040	12,860	14,966
	At the confluence of Town Creek	25.1	7,093	9,240	9,819	11,293
	Approximately 1.1 miles upstream of the confluence of Town Creek	24.0	7,026	9,131	9,693	11,121
	Approximately 2.4 miles upstream of the confluence of Town Creek	22.1	6,879	8,912	9,444	10,793
	Approximately 4.7 miles upstream of the confluence of Town Creek	19.7	6,710	8,647	9,139	10,382
	Approximately 1.1 miles downstream of US Highway 52 / East Innes Street	18.6	6,122	8,011	8,506	9,763
	Approximately 0.2 miles downstream of US Highway 52 / East Innes Street	18.3	6,077	7,952	8,442	9,687

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Crane Creek	At the confluence of Tar Branch	17.3	5,756	7,586	8,068	9,297
	At North Main Street	14.7	3,100	5,400	6,700	11,200
	At Faith Road	13.1	2,850	4,950	6,200	10,200
	At St. Pauls Church Road	9.4	2,300	3,900	4,800	7,700
	At Glover Road (downstream crossing)	6.6	2,100	3,500	4,300	6,800
	At Glover Road (upstream crossing)	4.8	1,700	2,800	3,500	5,200
Crane Creek Tributary 1	At the confluence with Crane Creek	2.9	*	*	1,837	*
	Approximately 0.2 mile upstream of the confluence with Crane Creek	2.8	*	*	1,776	*
	Approximately 0.5 mile upstream of the confluence with Crane Creek	2.7	*	*	1,755	*
	Approximately 0.3 mile downstream of Lake Fork Road	2.3	*	*	1,620	*
	Approximately 930 feet downstream of Lake Fork Road	2.2	*	*	1,600	*
	Approximately 0.3 mile upstream of Lake Fork Road	2.0	*	*	1,568	*
	Approximately 0.4 mile upstream of Lake Fork Road	1.8	*	*	1,495	*
	Approximately 0.8 mile upstream of Lake Fork Road	1.6	*	*	1,466	*
Crane Creek Tributary 2	At the confluence with Crane Creek	0.7	*	*	1,232	*
	Approximately 0.3 mile upstream of the confluence with Crane Creek	0.7	*	*	1,199	*
	Approximately 0.5 mile upstream of the confluence with Crane Creek	0.6	*	*	1,126	*
	Approximately 0.3 mile downstream of Private Road	0.5	*	*	1,085	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Crane Creek Tributary 2	Approximately 70 feet downstream of Private Road	0.4	*	*	1,058	*
	Approximately 600 feet downstream of Lippard Road	0.3	*	*	901	*
	Approximately 410 feet upstream of Lippard Road	0.3	*	*	741	*
	Approximately 0.3 mile upstream of Lippard Road	0.2	*	*	700	*
	Approximately 370 feet downstream of Mt. Hope Church Road	0.2	*	*	592	*
	Approximately 150 feet upstream of Mt. Hope Church Road	0.1	*	*	514	*
	Approximately 0.3 mile downstream of Cemetery Drive	0.1	*	*	470	*
	Approximately 0.2 mile downstream of Cemetery Drive	0.1	*	*	417	*
Draft Branch	At the confluence with Grants Creek	10.7	1,600	2,710	3,190	4,940
	At Sherrills Ford Road (SR 1526)	5.0	1,050	1,830	2,160	3,150
	At Neel Road (SR 1729)	1.4	525	970	1,190	1,720
Draft Branch Tributary	*	*	*	*	*	*
Dutch Buffalo Creek	At the Cabarrus/Rowan County boundary	9.8	*	*	3,400	*
	Below the confluence of Bostian Heights Branch	9.7	1,500	2,560	3,010	3,810
	Above the confluence of Bostian Heights Branch	2.5	580	1,100	1,340	1,930
	At Rogers Road (SR 2573)	1.1	317	670	850	1,300
Dutch Buffalo Creek Tributary 1	At the Cabarrus/Rowan County boundary	3.9	*	*	1,747	*
East Centerview Branch	*	*	*	*	*	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
East Fork Creek	At the Cabarrus/Rowan County boundary	10.6	*	*	3,253	*
	Approximately 0.6 mile upstream of the Cabarrus/Rowan County boundary	9.8	*	*	3,093	*
	Approximately 1.2 miles upstream of the Cabarrus/Rowan County boundary	7.1	*	*	2,534	*
	Approximately 4.0 miles upstream of the Cabarrus/Rowan County boundary	6.4	*	*	2,369	*
	Approximately 4.8 miles upstream of the Cabarrus/Rowan County boundary	3.4	*	*	1,603	*
	Approximately 5.2 miles upstream of the Cabarrus/Rowan County boundary	3.1	*	*	1,504	*
	Approximately 5.7 miles upstream of the Cabarrus/Rowan County boundary	2.5	*	*	1,307	*
	Approximately 6.2 miles upstream of the Cabarrus/Rowan County boundary	1.6	*	*	1,006	*
	Approximately 6.5 miles upstream of the Cabarrus/Rowan County boundary	1.5	*	*	957	*
	Approximately 6.9 miles upstream of the Cabarrus/Rowan County boundary	1.0	*	*	751	*
	Approximately 7.2 miles upstream of the Cabarrus/Rowan County boundary	0.9	*	*	672	*
	Approximately 7.2 miles upstream of the Cabarrus/Rowan County boundary	0.5	*	*	490	*
East Spencer High Creek	*	*	*	*	*	*

Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Faith Road Branch	*	*	*	*	*	*
Fisher Branch	At the confluence with Second Creek	5.2	*	*	2,084	*
	Approximately 0.2 mile upstream of Lower Stone Church Road	4.9	*	*	2,015	*
	At Cannon Street	4.5	*	*	1,910	*
	Approximately 0.3 mile downstream of NC Highway 152 / China Grove Highway	4.2	*	*	1,823	*
	Approximately 84 feet upstream of NC Highway 152 / China Grove Highway	3.8	*	*	1,705	*
	Approximately 0.3 mile upstream of NC Highway 152 / China Grove Highway	3.3	*	*	1,572	*
	Approximately 0.7 mile upstream of NC Highway 152 / China Grove Highway	2.8	*	*	1,429	*
	Approximately 1.0 mile upstream of NC Highway 152 / China Grove Highway	2.6	*	*	1,367	*
	Approximately 1.2 miles upstream of NC Highway 152 / China Grove Highway	2.2	*	*	1,224	*
Five Forks Tributary	*	*	*	*	*	*
Flat Creek	At the confluence with Yadkin River	9.0	*	*	2,936	*
	Approximately 0.6 mile downstream of River Road (SR 2152)	8.6	*	*	2,852	*
	Approximately 75 feet upstream of River Road (SR 2152)	6.6	*	*	2,432	*
	Approximately 0.3 mile upstream of River Road (SR 2152)	5.9	*	*	2,250	*
	Approximately 0.9 mile upstream of River Road (SR 2152)	5.5	*	*	2,150	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Flat Creek	Approximately 1.0 mile upstream of River Road (SR 2152)	5.4	*	*	2,129	*
Flat Rock Branch	At the confluence with Grants Creek	2.2	*	*	1,216	*
	Approximately 264 feet upstream of the confluence with Grants Creek	2.1	*	*	1,188	*
	Approximately 0.4 mile upstream of the confluence with Grants Creek	1.8	*	*	1,058	*
	Approximately 0.6 mile upstream of the confluence with Grants Creek	1.5	*	*	968	*
	Approximately 0.8 mile upstream of the confluence with Grants Creek	1.4	*	*	931	*
Fourth Creek	At the confluence with South Yadkin River	190.0	*	*	19,315	*
	At the confluence of Third Creek	83.3	*	*	12,763	*
	Approximately 0.2 mile downstream of the confluence of Unnamed Stream 1	78.6	*	*	12,591	*
	At the confluence of Unnamed Stream 1	74.6	*	*	12,433	*
	At the confluence of Fourth Creek Tributary 4	72.7	*	*	12,351	*
	At the confluence of Fourth Creek Tributary 5	69.2	*	*	12,202	*
	Approximately 1.0 mile downstream of the confluence of Unnamed Stream 2	65.7	*	*	12,030	*
	At the confluence of Unnamed Stream 2	61.2	*	*	11,826	*
	Approximately 0.8 mile downstream of the confluence of Fourth Creek Tributary 6	58.6	*	*	11,691	*
Fourth Creek Tributary 4	At the confluence with Fourth Creek	0.6	*	*	524	*

Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Fourth Creek Tributary 4	Approximately 0.3 mile upstream of the confluence with Fourth Creek	0.4	*	*	425	*
Fourth Creek Tributary 5	At the confluence with Fourth Creek	3.1	*	*	1,501	*
	Approximately 0.5 mile upstream of the confluence with Fourth Creek	2.6	*	*	1,352	*
Grants Creek	At the confluence with Yadkin River	68.5	8,234	11,440	12,510	15,364
	At the confluence of Rowan Avenue Park Stream	65.2	7,937	11,066	12,110	14,899
	At the confluence of Third Street Creek	63.8	7,874	10,976	12,009	14,766
	At the confluence of Lomax Creek	63.7	7,860	10,960	11,991	14,747
	At the confluence of Sixth Street Branch	62.5	7,790	10,864	11,884	14,611
	At the confluence of Rocky Branch	61.3	7,638	10,680	11,692	14,399
	At the confluence of Henderson Branch	59.5	7,313	10,298	11,296	13,976
	At the confluence of Mahaley Branch	55.9	6,888	9,775	10,744	13,354
	At the confluence of Jump and Run Branch	51.3	6,592	9,371	10,299	12,795
	At the confluence of Woodleaf Branch (East)	48.1	6,008	8,671	9,571	12,328
	At the confluence of Draft Branch	37.6	5,298	7,683	8,476	10,626
	At the confluence of Grants Creek Tributary 2	36.8	5,154	7,505	8,290	10,421
	At the confluence of Grants Creek Tributary 3	35.4	4,948	7,246	8,015	10,110
	At the confluence of Grants Creek Tributary 4	33.7	4,783	7,025	7,776	9,819
	Approximately 0.6 mile downstream of Airport Road	32.1	4,569	6,750	7,482	9,482
	Approximately 0.3 mile upstream of Airport Road	29.0	4,307	6,387	7,082	8,982

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Grants Creek	Approximately 0.2 mile downstream of the confluence of Little Creek	28.0	4,240	6,290	6,973	8,841
	At the confluence of Little Creek	19.4	3,946	5,739	6,305	7,827
	Approximately 0.2 mile upstream of the confluence of Little Creek	19.2	3,876	5,655	6,219	7,736
	Approximately 0.9 mile upstream of the confluence of Little Creek	17.9	3,417	5,097	5,641	7,122
	Approximately 1.5 miles upstream of the confluence of Little Creek	16.6	2,957	4,528	5,051	6,493
	Approximately 2.0 miles upstream of the confluence of Little Creek	15.5	2,741	4,242	4,745	6,140
	Approximately 2.3 miles upstream of the confluence of Little Creek	14.7	2,654	4,116	4,605	5,961
	Approximately 0.3 mile downstream of the confluence of Petrea Branch	13.7	2,471	3,871	4,342	5,655
	At the confluence of Petrea Branch	12.9	2,287	3,625	4,081	6,037 ²
	At the confluence of Lake Wright Branch	5.3	1,881	2,856	3,148	3,938
	Approximately 0.2 mile downstream of Church Street / State Highway 152	4.9	1,791	2,729	3,009	3,769
	Approximately 0.5 mile upstream of Church Street / State Highway 152	4.1	1,526	2,372	2,629	3,331
	Approximately 0.9 mile upstream of Church Street / State Highway 152	3.9	1,462	2,283	2,532	3,215
	Approximately 0.4 mile downstream of the confluence of Flat Rock Branch	3.2	1,353	2,113	2,341	2,963

Section 5.0 – Engineering Methods

Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Grants Creek	At the confluence of Flat Rock Branch	0.9	891	1,343	1,456	1,752
	Approximately 0.1 mile downstream of Mount Moriah Church Road	0.8	851	1,291	1,402	1,694
	At Mount Moriah Church Road	0.7	714	1,113	1,217	1,496
	Approximately 0.2 mile upstream of Mount Moriah Church Road	0.6	542	881	976	1,233
	Approximately 0.3 mile upstream of Mount Moriah Church Road	0.5	468	779	868	1,114
	Approximately 0.4 mile upstream of Mount Moriah Church Road	0.5	420	710	794	1,029
	Approximately 0.6 mile upstream of Mount Moriah Church Road	0.4	391	665	745	968
	Approximately 0.8 mile upstream of Mount Moriah Church Road	0.2	256	441	493	636
Grants Creek Tributary 2	At the confluence with Grants Creek	0.4	*	*	812	*
	Approximately 0.2 mile upstream of the confluence with Grants Creek	0.4	*	*	786	*
	Approximately 0.3 mile upstream of the confluence with Grants Creek	0.3	*	*	763	*
Grants Creek Tributary 3	At the confluence with Grants Creek	1.1	*	*	1,204	*
	Approximately 920 feet upstream of the confluence with Grants Creek	1.1	*	*	1,194	*
	Approximately 0.4 mile upstream of the confluence with Grants Creek	1.0	*	*	1,159	*
Grants Creek Tributary 4	At the confluence with Grants Creek	0.9	*	*	933	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Grants Creek Tributary 4	Approximately 0.4 mile upstream of the confluence with Grants Creek	0.8	*	*	890	*
	Approximately 0.5 mile upstream of the confluence with Grants Creek	0.7	*	*	878	*
	Approximately 0.7 mile upstream of the confluence with Grants Creek	0.6	*	*	848	*
Gravel Pit Branch	*	*	*	*	*	*
Henderson Branch	*	*	*	*	*	*
Henderson Branch Tributary	*	*	*	*	*	*
Hopkins Street Branch	*	*	*	*	*	*
Ice Plant Creek	*	*	*	*	*	*
Innis Street Creek	*	*	*	*	*	*
Irish Buffalo Creek	At Lake Kannapolis Dam	9.0	1,450	2,450	2,800	4,490
	Approximately 250 feet upstream of Cannon Farm Road	5.7	1,052	1,809	2,200	3,309
	Approximately 712 feet upstream of Cannon Farm Road	4.8	937	1,620	1,974	2,979
	Approximately 0.6 mile upstream of Cannon Farm Road	4.5	902	1,561	1,903	2,876
	Approximately 0.5 mile downstream of Saw Road	3.6	782	1,362	1,664	2,525
	Approximately 899 feet downstream of Saw Road	3.1	711	1,242	1,519	2,312
	Approximately 324 feet upstream of Saw Road	2.6	634	1,113	1,364	2,083
	Approximately 356 feet downstream of Echo Hollow Drive	1.2	381	682	843	1,307

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Irish Buffalo Creek	Approximately 1,065 feet upstream of Echo Hollow Drive	0.4	170	314	393	625
	Approximately 1.0 mile upstream of Echo Hollow Drive	0.2	114	215	270	434
Irish Buffalo Creek Tributary 4	Approximately 0.5 mile upstream of the confluence with Irish Buffalo Creek	0.6	*	*	641	*
Irish Buffalo Creek Tributary 5	At the confluence with Irish Buffalo Creek	0.6	*	*	545	*
Jackson Branch	*	*	*	*	*	*
Julian Tributary	At the confluence with Town Creek	3.2	810	1,450	1,750	2,480
	At Julian Road	1.3	470	855	1,070	1,580
Jump and Run Branch	At the confluence with Grants Creek	3.5	*	*	1,615	*
	Approximately 0.5 mile upstream of the confluence with Grants Creek	2.9	*	*	1,550	*
	Approximately 0.7 mile upstream of the confluence with Grants Creek	2.8	*	*	1,525	*
	Approximately 0.2 mile downstream of N. Jake Alexander Boulevard / U.S. Highway 601	2.6	*	*	1,336	*
	Approximately 290 feet downstream of N. Jake Alexander Boulevard / U.S. Highway 601	1.8	*	*	1,268	*
	Approximately 650 feet upstream of N. Jake Alexander Boulevard / U.S. Highway 601	1.3	*	*	1,092	*
	Approximately 0.5 mile upstream of N. Jake Alexander Boulevard / U.S. Highway 601	1.1	*	*	1,028	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Jump and Run Branch	Approximately 570 feet downstream of Woodleaf Road	0.9	*	*	972	*
	Approximately 170 feet upstream of Woodleaf Road	0.9	*	*	958	*
	Approximately 980 feet upstream of Woodleaf Road	0.7	*	*	862	*
	Approximately 0.4 mile upstream of Woodleaf Road	0.6	*	*	816	*
	Approximately 0.3 mile downstream of Ashbrook Road	0.5	*	*	771	*
	Approximately 890 feet downstream of Ashbrook Road	0.5	*	*	755	*
	Just upstream of Ashbrook Road	0.4	*	*	643	*
	Approximately 920 feet downstream of White Oaks Drive	0.3	*	*	565	*
	Just upstream of White Oaks Drive	0.2	*	*	448	*
Kerr Creek	At the confluence with Sloans Creek	11.9	*	*	3,509	*
	Approximately 0.6 mile downstream of Mooresville Road / NC Highway 150	10.9	*	*	3,314	*
	At Mooresville Road / NC Highway 150	9.9	*	*	3,123	*
	Approximately 0.8 mile upstream of Mooresville Road / NC Highway 150	8.9	*	*	2,919	*
	Approximately 1.6 miles upstream of Mooresville Road / NC Highway 150	7.9	*	*	2,713	*
	Approximately 2.1 miles upstream of Mooresville Road / NC Highway 150	6.9	*	*	2,486	*
	Approximately 2.6 miles upstream of Mooresville Road / NC Highway 150	5.8	*	*	2,230	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Kerr Creek	Approximately 3.1 miles upstream of Mooresville Road / NC Highway 150	4.2	*	*	1,823	*
	Approximately 3.6 miles upstream of Mooresville Road / NC Highway 150	2.2	*	*	1,202	*
	Approximately 4.2 miles upstream of Mooresville Road / NC Highway 150	1.4	*	*	906	*
	Approximately 4.4 miles upstream of Mooresville Road / NC Highway 150	0.8	*	*	651	*
	Approximately 4.9 miles upstream of Mooresville Road / NC Highway 150	0.5	*	*	488	*
Klutz Branch	At the confluence with Legion Park Branch	0.2	219	391	441	584
	Approximately 528 feet upstream of the confluence with Legion Park Branch	0.2	199	361	409	546
	Approximately 0.2 mile upstream of the confluence with Legion Park Branch	0.1	177	325	370	497
	Approximately 0.23 mile upstream of the confluence with Legion Park Branch	0.1	95	192	224	321
Lake Wright Branch	At Mouth	8.1	1,280	2,300	2,650	4,150
	At Barnhart Road (SR 1542)	5.8	1,040	1,780	2,200	3,410
	At Stirewalt Road (SR 1541)	4.9	920	1,610	2,000	3,110
	At Brown Road (SR 1211)	3.5	740	1,330	1,670	2,600
	At Lake Wright Road (SR 1638)	2.7	640	1,160	1,470	2,270
Legion Park Branch	At the confluence with Trexler Creek	0.5	500	820	909	1,154
	Approximately 0.3 mile upstream of the confluence with Trexler Creek	0.5	469	772	856	1,087

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Legion Park Branch	Approximately 0.5 mile upstream of the confluence with Trexler Creek	0.4	445	733	813	1,032
	Approximately 0.6 mile upstream of the confluence with Trexler Creek	0.4	430	710	787	997
	Approximately 0.7 mile upstream of the confluence with Trexler Creek	0.4	422	696	771	975
	Approximately 0.2 mile downstream of the confluence of Klutz Branch	0.3	393	652	723	918
	Approximately 445 feet downstream of the confluence of Klutz Branch	0.3	358	600	667	852
	At the confluence of Klutz Branch	0.1	204	349	388	493
	Approximately 0.2 mile upstream of the confluence of Klutz Branch	0.1	140	249	279	361
Little Creek	At the confluence with Grants Creek	8.2	1,290	2,180	2,680	4,185
	At Shue Road (SR 1506)	7.6	1,220	2,100	2,550	3,970
	At Miller Road (SR 1509)	6.1	1,110	1,955	2,335	3,475
	At Cooper Road (SR 1534)	3.3	780	1,410	1,710	2,425
	At Weaver Road (SR 1535)	1.5	510	960	1,175	1,720
Little Creek (South)	At the confluence with Third Creek	3.5	*	*	1,630	*
	Approximately 0.8 mile upstream of the confluence with Third Creek	2.9	*	*	1,448	*
	Approximately 1.3 miles upstream of the confluence with Third Creek	2.4	*	*	1,278	*
Lomax Creek	*	*	*	*	*	*
Mahaley Branch	*	*	*	*	*	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Mahaley Branch Tributary	*	*	*	*	*	*
Main Street Tributary	*	*	*	*	*	*
Maple Avenue Branch	*	*	*	*	*	*
Mill Creek (into Grants Creek)	*	*	*	*	*	*
Mill Creek	Approximately 250 feet downstream of Tuckaseegee Road	3.7	*	*	1,688	*
	Approximately 0.4 mile upstream of the Rowan/Cabarrus County boundary	2.6	*	*	1,353	*
	Approximately 1.2 miles upstream of the Rowan/Cabarrus County boundary	1.6	*	*	1,016	*
	Approximately 1.8 miles upstream of the Rowan/Cabarrus County boundary	1.2	*	*	820	*
	Approximately 2.3 miles upstream of the Rowan/Cabarrus County boundary	0.8	*	*	664	*
	Approximately 2.4 miles upstream of the Rowan/Cabarrus County boundary	0.4	*	*	434	*
Moose Branch	*	*	*	*	*	*
North Fork Tributary	*	*	*	*	*	*
North Second Creek	At the confluence with South Yadkin river	141.2	*	*	12,683	*
	Approximately 4.6 miles upstream of the confluence with South Yadkin River	133.7	*	*	11,844	*
	Approximately 1.1 miles downstream of the confluence of Beaverdam Creek (East)	123.7	*	*	10,745	*
	At the confluence of Beaverdam Creek (East)	117.9	*	*	10,130	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
North Second Creek	At U.S. Highway 70 / Statesville Boulevard	113.3	*	*	10,112	*
	Approximately 1.2 miles upstream of U.S. Highway 70 / Statesville Boulevard	63.4	*	*	8,780	*
	Approximately 2.0 miles upstream of U.S. Highway 70 / Statesville Boulevard	59.9	*	*	8,593	*
Park Avenue Branch	*	*	*	*	*	*
Park Creek	Approximately 0.5 mile downstream of the Cabarrus / Rowan County boundary	4.5	*	*	1,920	*
	Approximately 865 feet upstream of the Cabarrus / Rowan County boundary	4.0	*	*	1,785	*
	Approximately 0.8 mile upstream of the Cabarrus / Rowan County boundary	3.1	*	*	1,507	*
	Approximately 1,171 feet downstream of Wright Road (SR 1363)	2.6	*	*	1,366	*
	Approximately 1,814 feet upstream of Wright Road (SR 1363)	2.1	*	*	1,198	*
	Approximately 0.5 mile downstream of Smith Road (SR 1360)	1.7	*	*	1,052	*
	Approximately 384 feet downstream of Smith Road (SR 1360)	1.4	*	*	903	*
	Approximately 207 feet upstream of Smith Road (SR 1360)	0.7	*	*	597	*
	Approximately 0.4 mile upstream of Smith Road (SR 1360)	0.6	*	*	514	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Park Creek (into Quarry Creek)	*	*	*	*	*	*
Peeler Branch	At the confluence with Second Creek Tributary 1	1.1	*	*	1,132	*
	Approximately 0.6 mile upstream of Troxler Road	0.8	*	*	904	*
	Approximately 450 feet upstream of Sides Road	0.6	*	*	904	*
Petrea Branch	At the confluence with Grants Creek	0.7	533	884	986	1,267
	Approximately 0.3 mile upstream of the confluence with Grants Creek	0.6	508	846	944	1,216
	Approximately 0.5 mile upstream of the confluence with Grants Creek	0.4	370	636	714	934
	Approximately 0.53 mile upstream of the confluence with Grants Creek	0.4	331	575	648	851
	Approximately 0.7 mile upstream of the confluence with Grants Creek	0.3	298	524	592	784
	Approximately 0.9 mile upstream of the confluence with Grants Creek	0.2	251	446	505	670
Pine Ridge Branch	*	*	*	*	*	*
Quarry Creek	*	*	*	*	*	*
Railroad Branch	*	*	*	*	*	*
Riles Creek	At the confluence with Yadkin River	31.0	*	*	6,370	*
	Approximately 0.2 mile upstream of the confluence with Yadkin River	30.1	*	*	6,259	*
	Approximately 1.2 miles downstream of Stokes Ferry Road (SR 1004)	28.0	*	*	5,975	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Riles Creek	Approximately 60 feet upstream of the Stanly / Rowan County boundary	26.5	*	*	5,774	*
Rocky Branch	*	*	*	*	*	*
Rocky Branch Tributary 1	At the confluence with Rocky Branch	0.3	*	*	607	*
	Approximately 60 feet downstream of Private Road	0.3	*	*	590	*
	Approximately 283 feet upstream of Private Road	0.2	*	*	549	*
	Approximately 0.2 mile upstream of Private Road	0.1	*	*	430	*
	Approximately 0.3 mile upstream of Private Road	0.1	*	*	418	*
Rowan Avenue Park Stream	*	*	*	*	*	*
Second Creek	At the confluence with Yadkin River	54.0	*	*	9,014	*
	Approximately 0.4 mile upstream of Bringle Ferry Road (SR 1002)	44.3	*	*	7,963	*
	Approximately 0.7 mile upstream of Bringle Ferry Road (SR 1002)	42.6	*	*	7,767	*
	Approximately 1.3 miles downstream of Stokes Ferry Road (SR 1004)	40.5	*	*	7,531	*
	Approximately 460 feet downstream of Stokes Ferry Road (SR 1004)	36.7	*	*	7,080	*
	Approximately 320 feet upstream of Stokes Ferry Road (SR 1004)	34.2	*	*	6,771	*
	Approximately 0.8 mile downstream of St. Peters Church Road (SR 2370)	30.6	*	*	6,315	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Second Creek	Approximately 137 feet downstream of St. Peters Church Road (SR 2370)	25.2	*	*	5,599	*
	At St. Peters Church Road (SR 2370)	24.2	*	*	5,459	*
	Approximately 0.2 mile downstream of US Highway 52	21.6	*	*	5,090	*
	Approximately 0.3 mile upstream of Emanuel Church Road	15.5	*	*	4,131	*
	At the confluence of Second Creek Tributary 2	15.2	*	*	4,088	*
	At the confluence of Bost Branch	14.6	*	*	3,978	*
	At the confluence of Fisher Branch	9.3	*	*	2,993	*
	Approximately 850 feet upstream of Lower Stone Church Road	7.5	*	*	2,633	*
	Approximately 0.8 mile upstream of Lower Stone Church Road	6.8	*	*	2,460	*
	Approximately 1.2 miles upstream of Lower Stone Church Road	5.5	*	*	2,154	*
	Approximately 0.5 mile downstream of Organ Church Road (SR 1006)	5.2	*	*	2,087	*
	Approximately 210 feet downstream of Organ Church Road (SR 1006)	3.1	*	*	1,517	*
	Approximately 390 feet upstream of Shive Road (SR 2564)	2.5	*	*	1,307	*
	Approximately 0.3 mile upstream of Shive Road (SR 2564)	2.2	*	*	1,209	*
	Approximately 0.3 mile downstream of the confluence of Second Creek Tributary 3	2.1	*	*	1,174	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Second Creek	At the confluence of Second Creek Tributary 3	0.3	*	*	358	*
	Approximately 770 feet upstream of the confluence of Second Creek Tributary 3	0.2	*	*	283	*
	Approximately 0.4 mile upstream of the confluence of Second Creek Tributary 3	0.1	*	*	158	*
Second Creek Tributary 1	At the confluence with Second Creek	5.0	*	*	2,030	*
	Approximately 0.4 mile upstream of Linker Road (SR 2368)	4.2	*	*	1,931	*
	At the confluence of Peeler Branch	2.6	*	*	1,931	*
Second Creek Tributary 2	At the confluence with Second Creek	0.2	*	*	396	*
	Approximately 0.4 mile downstream of Miller Street	0.1	*	*	293	*
Second Creek Tributary 3	At the confluence with Second Creek	1.6	*	*	1,002	*
	Approximately 220 feet upstream of Shive Road (SR 2564)	1.5	*	*	955	*
	Approximately 0.4 mile upstream of Shive Road (SR 2564)	1.3	*	*	859	*
	Approximately 0.5 mile upstream of Shive Road (SR 2564)	0.9	*	*	719	*
	Approximately 0.4 mile downstream of Winding Brook Lane	0.6	*	*	542	*
	Approximately 1,257 feet downstream of Winding Brook Lane	0.5	*	*	480	*
	Approximately 550 feet downstream of Winding Brook Lane	0.4	*	*	415	*
Sides Branch	*	*	*	*	*	*
Sills Creek	At the confluence with Back Creek	18.0	*	*	4,537	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sills Creek	Approximately 1.3 miles upstream of the confluence with Back Creek	17.0	*	*	4,370	*
	Approximately 2.2 miles upstream of the confluence with Back Creek	16.1	*	*	4,224	*
	Approximately 0.4 mile downstream of the confluence of Sills Creek Tributary 1	15.1	*	*	4,070	*
	At the confluence of Sills Creek Tributary 1	13.7	*	*	3,815	*
	Approximately 1.3 miles upstream of the confluence of Sills Creek Tributary 1	12.6	*	*	3,629	*
	Approximately 0.9 mile downstream of Mooresville Road / NC Highway 150	11.7	*	*	3,465	*
	Approximately 0.4 mile downstream of Mooresville Road / NC Highway 150	9.7	*	*	3,076	*
	Approximately 0.2 mile downstream of Mooresville Road / NC Highway 150	8.9	*	*	2,923	*
	Approximately 0.2 mile upstream of Mooresville Road / NC Highway 150	7.7	*	*	2,658	*
	Approximately 1.0 mile upstream of Mooresville Road / NC Highway 150	6.9	*	*	2,487	*
	Approximately 1.2 miles upstream of Mooresville Road / NC Highway 150	4.2	*	*	1,819	*
	Approximately 1.5 miles upstream of Mooresville Road / NC Highway 150	2.4	*	*	1,299	*
	Approximately 2.5 miles upstream of Mooresville Road / NC Highway 150	1.4	*	*	923	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sills Creek	Approximately 3.1 miles upstream of Mooresville Road / NC Highway 150	0.6	*	*	537	*
	Approximately 0.1 mile downstream of the Iredell/Rowan County boundary	0.3	*	*	346	*
Sills Creek Tributary 1	At the confluence with Sills creek	1.3	*	*	885	*
	Approximately 0.5 mile upstream of the confluence with Sills Creek	0.8	*	*	666	*
Sixth Street Branch	*	*	*	*	*	*
Sloans Creek	At the confluence with North Second Creek	20.7	*	*	4,953	*
	Approximately 0.6 mile downstream of the confluence of Kerr Creek	19.7	*	*	4,798	*
	Approximately 0.3 mile downstream of the confluence of Kerr Creek	17.4	*	*	4,446	*
	At the confluence of Kerr Creek	5.2	*	*	2,091	*
	Approximately 0.2 mile downstream of State Highway 150 / Mooresville Road	4.5	*	*	1,913	*
	Approximately 0.2 mile upstream of State Highway 150 / Mooresville Road	3.4	*	*	1,591	*
	Approximately 1.3 miles upstream of State Highway 150 / Mooresville Road	2.5	*	*	1,305	*
	Approximately 1.8 miles upstream of State Highway 150 / Mooresville Road	1.8	*	*	1,071	*
	Approximately 2.1 miles upstream of State Highway 150 / Mooresville Road	1.5	*	*	960	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sloans Creek	Approximately 3.1 miles upstream of State Highway 150 / Mooresville Road	0.8	*	*	644	*
	Approximately 3.3 miles upstream of State Highway 150 / Mooresville Road	0.5	*	*	496	*
South Yadkin River	At the confluence with Yadkin River	906.7	*	*	52,548	*
	At the confluence of North Second Creek	762.6	*	*	41,707	*
	Approximately 0.8 mile downstream of the confluence of Fourth Creek	758.9	*	*	41,336	*
	Approximately 0.3 mile downstream of the confluence of South Yadkin River Tributary 1	568.5	*	*	24,015	*
	Approximately 85 feet upstream of the confluence of South Yadkin River Tributary 1	568.1	*	*	23,987	*
	Approximately 96 feet upstream of the confluence of South Yadkin River Tributary 2	564.7	*	*	23,708	*
	Approximately 0.9 mile downstream of State Highway 801	564.3	*	*	23,680	*
	Approximately 0.3 mile downstream of State Highway 801	563.8	*	*	23,636	*
	Approximately 291 feet upstream of State Highway 801	563.4	*	*	23,601	*
	Approximately 0.7 mile upstream of State Highway 801	560.4	*	*	23,588	*
	Approximately 0.7 mile downstream of railroad	559.9	*	*	23,585	*
	Approximately 0.4 mile downstream of railroad	559.4	*	*	23,583	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Yadkin River	Approximately 0.7 mile upstream of railroad	558.9	*	*	23,581	*
	Approximately 248 feet upstream of the confluence of Bear Creek	529.1	*	*	23,415	*
	Approximately 0.3 mile upstream of the confluence of Bear Creek	523.0	*	*	23,373	*
	At the confluence of Hunting Creek	316.8	*	*	18,531	*
	Approximately 1.7 miles downstream of Powell Road (SR 1983)	316.5	*	*	18,506	*
	Approximately 1.6 miles downstream of Powell Road (SR 1983)	316.1	*	*	18,477	*
	Approximately 0.8 mile downstream of Powell Road (SR 1983)	315.9	*	*	18,462	*
	Approximately 182 feet upstream of Powell Road (SR 1983)	314.9	*	*	18,393	*
	Approximately 48 feet upstream of the confluence of Little Creek (North)	307.4	*	*	17,860	*
	Approximately 0.3 mile upstream of the confluence of Little Creek (North)	307.1	*	*	17,836	*
	Approximately 0.3 mile downstream of Foster Road (SR 1972)	305.5	*	*	17,729	*
	Approximately 343 feet downstream of Foster Road (SR 1972)	305.2	*	*	17,703	*
	Approximately 0.5 mile upstream of Foster Road (SR 1972)	304.7	*	*	17,702	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Yadkin River	Approximately 0.7 mile upstream of Foster Road (SR 1972)	302.9	*	*	17,698	*
	Approximately 1.1 miles upstream of Foster Road (SR 1972)	302.7	*	*	17,698	*
	Approximately 1.6 miles upstream of Foster Road (SR 1972)	302.2	*	*	17,697	*
	Approximately 267 feet downstream of the confluence of South Yadkin River Tributary 3	301.8	*	*	17,696	*
	At the confluence of South Yadkin River Tributary 3	301.5	*	*	17,695	*
	Approximately 0.6 mile upstream of the confluence of South Yadkin River Tributary 3	300.7	*	*	17,693	*
	At the confluence of South Yadkin River Tributary 4	299.2	*	*	17,688	*
	Approximately 0.3 mile downstream of the confluence of South Yadkin River Tributary 5	299.0	*	*	17,688	*
	At the confluence of South Yadkin River Tributary 5	298.4	*	*	17,686	*
	Approximately 0.44 mile downstream of the confluence of Bell Branch	297.3	*	*	17,682	*
Southern Railroad Branch	*	*	*	*	*	*
Southside Tributary	*	*	*	*	*	*
Spring Hill Branch	*	*	*	*	*	*
Swearington Branch	*	*	*	*	*	*
Tar Branch	*	*	*	*	*	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Tar Branch Tributary	*	*	*	*	*	*
Third Creek	At the confluence with Fourth Creek	190.0	*	*	19,315	*
	Approximately 4.8 miles upstream of the confluence with Fourth Creek	100.5	*	*	12,323	*
	Approximately 7.3 miles upstream of the confluence with Fourth Creek	94.9	*	*	11,809	*
	Approximately 3.7 miles downstream of U.S. Highway 70 / Statesville Boulevard	89.6	*	*	11,300	*
	Approximately 2.1 miles downstream of U.S. Highway 70 / Statesville Boulevard	88.5	*	*	11,190	*
	Approximately 0.8 mile downstream of U.S. Highway 70 / Statesville Boulevard	86.1	*	*	10,953	*
	Approximately 1.7 miles upstream of U.S. Highway 70 / Statesville Boulevard	81.8	*	*	10,521	*
	Approximately 0.8 mile downstream of the Iredell \ Rowan County boundary	77.4	*	*	10,067	*
Third Street Creek	*	*	*	*	*	*
Thomas Street Creek	*	*	*	*	*	*
Town Branch	*	*	*	*	*	*
Town Creek	Approximately 1,500 feet upstream of the confluence with Crane Creek/High Rock Lake	18.4	3,200	4,720	5,570	12,400
	At Interstate 85	17.0	2,920	4,220	4,960	11,700
	At Andrews Street	16.3	2,820	4,050	4,760	11,100
	At Correll Street	15.1	2,640	3,850	4,510	10,300
	Approximately 620 feet downstream of Bringle Ferry Road	14.1	3,433 ¹	4,997 ¹	5,476 ¹	6,762
	The confluence of Park Avenue Branch	13.7	3,288	4,820	5,294	6,568
	At East Innes Street	12.8	2,837	4,276	4,735	5,988

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Town Creek	At the confluence of Thomas Street Creek	12.2	2,531	3,896	4,342	5,571
	At the confluence of Hopkins Street Branch	11.7	2,358	3,677	4,114	5,325
	At the confluence of Vance Avenue Branch	11.6	2,289	3,589	4,022	5,227
	At the confluence of Concord Road Creek	10.9	1,991	3,206	3,621	5,375
	At the confluence of Town Creek Tributary 2	8.4	1,564	2,593	2,950	4,403
	Approximately 0.2 mile upstream of South Jake Alexander Boulevard	8.2	1,345	2,291	2,776	4,144
	At Henderson Grove Church Road	7.4	1,690	2,410	2,770	5,350 ¹
	At Peach Orchard Road (SR 2539)	6.2	1,660	2,380	2,790	5,200
	At Peeler Road (SR 2538)	5.0	1,610	2,270	2,600	5,100
	At Webb Road (SR 1500)	3.3	1,620 ¹	2,250	2,560	5,000
	Approximately 0.6 mile downstream of Interstate 85	1.7	1,500	2,180	2,400	4,600
Town Creek Tributary	*	*	*	*	*	*
Town Creek Tributary 1	At the confluence with Town Creek	0.2	184	340	389	528
	Approximately 0.2 mile upstream of the confluence with Town Creek	0.1	172	312	354	471
	Approximately 0.5 mile upstream of the confluence with Town Creek	0.1	112	210	238	320
Trexler Creek	At the confluence with Crane Creek	1.8	1,182	1,797	1,964	2,410
	Approximately 0.1 mile upstream of the confluence Crane Creek	1.3	961	1,480	1,620	1,994
	Approximately 0.5 mile upstream of the confluence Crane Creek	1.1	913	1,409	1,543	1,900

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Trexler Creek	At U.S. Highway 52 (North Salisbury Avenue)	1.1	832	1,302	1,431	1,778
	Approximately 0.1 mile upstream of U.S. Highway 52 (North Salisbury Avenue)	0.5	686	1,038	1,121	1,339
	Approximately 0.3 mile upstream of U.S. Highway 52 (North Salisbury Avenue)	0.4	603	927	1,005	1,211
	Approximately 0.4 mile upstream of Highway 52 (North Salisbury Avenue)	0.4	549	854	929	1,128
	Approximately 1,579 feet upstream of Railroad Street	0.3	415	678	748	938
	Approximately 0.5 mile upstream of Railroad Street	0.3	319	545	609	787
	Approximately 0.6 mile upstream of Railroad Street	0.2	294	506	566	734
	Approximately 0.8 mile upstream of Railroad Street	0.2	285	486	542	696
	Approximately 0.9 mile upstream of Railroad Street	0.1	158	286	323	426
	Approximately 1.3 miles upstream of Railroad Street	0.1	81	160	185	258
Unnamed Stream 1	At the confluence with Fourth Creek	3.9	*	*	1,738	*
	Approximately 0.3 mile upstream of the confluence with Fourth Creek	3.2	*	*	1,529	*
	Approximately 0.7 mile upstream of the confluence with Fourth Creek	2.8	*	*	1,404	*
	Approximately 1.3 miles upstream of the confluence with Fourth Creek	1.7	*	*	1,047	*
Unnamed Stream 2	At the confluence with Fourth Creek	3.0	*	*	1,479	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Unnamed Stream 2	Approximately 0.5 mile upstream of the confluence with Fourth Creek	2.7	*	*	1,386	*
Vance Avenue Branch	*	*	*	*	*	*
Walnut Street Branch	*	*	*	*	*	*
Walton Branch	*	*	*	*	*	*
Wildlife Tributary	At the confluence with Draft Branch	2.8	680	1,260	1,540	2,200
	At Harrison Road	2.5	650	1,200	1,460	2,100
	Approximately 0.6 mile upstream of Harrison Road	1.7	540	1,000	1,250	1,800
Wiley Avenue Branch	*	*	*	*	*	*
Withrow Creek	At the confluence with North Second Creek	49.9	*	*	8,575	*
	Approximately 1.3 miles upstream of the confluence with North Second Creek	47.1	*	*	8,276	*
	At State Highway 801 / Barber Junction Road	44.6	*	*	7,992	*
	Approximately 0.4 mile downstream of the confluence of Beaverdam Creek	42.6	*	*	7,773	*
	At the confluence of Beaverdam Creek (West)	32.8	*	*	6,604	*
	Approximately 1.2 miles upstream of the confluence of Beaverdam Creek (West)	31.2	*	*	6,396	*
	Approximately 2.2 miles upstream of the confluence of Beaverdam Creek (West)	29.0	*	*	6,115	*
	Approximately 3.3 miles upstream of the confluence of Beaverdam Creek (West)	27.4	*	*	5,900	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Withrow Creek	Approximately 1.6 miles downstream of the confluence of Woodleaf Branch (West)	25.7	*	*	5,665	*
	Approximately 0.6 miles downstream of the confluence of Woodleaf Branch (West)	24.2	*	*	5,454	*
	At the confluence of Woodleaf Branch (West)	21.4	*	*	5,057	*
	Approximately 0.2 mile downstream of the Iredell/Rowan County boundary	20.3	*	*	4,887	*
Woodleaf Branch (East)	*	*	*	*	*	*
Woodleaf Branch (West)	At the confluence with Withrow Creek	2.0	*	*	1,130	*
	Approximately 0.7 mile upstream of the confluence with Withrow Creek	1.4	*	*	935	*
	Approximately 1.2 miles upstream of the confluence with Withrow Creek	1.1	*	*	811	*
	Approximately 1.3 miles upstream of the confluence with Withrow Creek	0.9	*	*	687	*
Wright Branch	*	*	*	*	*	*
Yadkin River	Approximately 1.1 miles downstream of Falls Dam	4,168.6	*	*	162,800	*
	Approximately 400 feet downstream of Bringle Ferry Road (SR 1002)	3,979.4	*	*	157,500	*
	Approximately 2.9 miles upstream of Bringle Ferry Road (SR 1002)	3,692.9	*	*	149,300	*
	Approximately 5.7 miles upstream of Bringle Ferry Road (SR 1002)	3,546.5	*	*	145,100	*

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Table 8—Summary of Discharges

Flooding Source	Location	Drainage Area (square miles)	Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Yadkin River	Approximately 38 feet downstream of railroad	3,451.0	*	*	142,300	*
	Approximately 2.1 miles upstream of railroad	3,377.5	*	*	139,100	*
	Approximately 4.9 miles upstream of railroad	2,455.7	*	*	99,500	*

*Data Not Available

¹ Discharges increase due to inconsistencies between new and previously effective studies. The lower discharge is a result from an older study that is based on less accurate data.

² Discharges increased by urbanization in the watershed

The stillwater elevations have been determined for the 1% annual chance flood for the flooding sources studied by detailed methods and are summarized in Table 9, “Summary of Stillwater Elevations.”

Table 9—Summary of Stillwater Elevations

Flooding Source	FIRM Panel Number(s)	Elevations (feet NAVD)			
		10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Crane Creek (High Rock Lake)	5699, 5790, 6609, 6619, 6700	*	*	625.7	*

*Data not available

Table 10, “Gage Information,” lists the stream gages located in Rowan County, including the drainage area of the flooding source at the gage and the period of record available at the time of the publication of this FIS Report.

Table 10—Gage Information

Gage Number or Identifier	Flooding Source	Site Name	Drainage Area (square miles)	Period of Record	
				From	To
02122720	Beaverdam Creek Tributary	Denton, NC	2.9	1954	1971
02122560	Cabin Creek	Jackson Hill, NC	13.7	1954	1971
02120820	Deal Branch	Salisbury, NC	3.9	1954	1971

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Table 10—Gage Information

Gage Number or Identifier	Flooding Source	Site Name	Drainage Area (square miles)	Period of Record	
				From	To
02120780	Second Creek	Barber, NC	117.9	1980	Present
02119000	South Yadkin River	Cooleemee, NC	563.65	1929	1965
0211800	South Yadkin River	Mocksville, NC	305.2	1930	2005
02119400	Third Creek	Stony Point, NC	4.77	1957	1969
02120500	Third Creek	Cleveland, NC	88.5	1941	1971

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the flood elevations for the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles. For stream segments for which BFEs were computed, selected cross-section locations are also shown on the FIRM. Flood profiles were developed showing computed water-surface elevations for floods of the selected recurrence intervals.

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 the FIS in conjunction with the data shown on the FIRM.

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

Pre-Countywide Analyses

Each jurisdiction within Rowan County, with the exceptions of the Town of Cleveland, had previously printed FIS Reports describing each community's hydraulic analyses. Those analyses have been compiled and are summarized below. These analyses remain valid for those flooding sources listed in Table 4, "Flooding Sources Studied by Detailed Methods: Redelineated."

Cross section data for streams were obtained from field surveys for the Town of China Grove, the Town of East Spencer, the Town of Faith, the Town of Granite Quarry, the Town of Landis, the Town of Rockwell, the Unincorporated Areas of Rowan County, and the Town of Spencer, as were elevation data and structural geometry on bridges and culverts. Water-surface profiles for the 10% and 1% annual chance floods in the Town of China Grove, the Town of Faith, the Town of Granite Quarry, the Town of Landis, the Town of Rockwell, the Unincorporated Areas of Rowan County, and the Town of Spencer, as well as the 2% and 0.2% annual chance floods in the Unincorporated Areas of Rowan County were developed using the U.S. Army Corps of Engineers HEC-2 computer program (U.S. Army Corps of Engineers, October 1973). The starting water-surface elevations were determined using the slope area method.

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In the Town of East Spencer, water-surface profiles for the 10% and 1% annual chance floods were developed for the modified detailed studied streams, Ice Plant Creek, East Spencer High Creek, Railroad Branch, and Jackson Branch, using the U.S. Army Corps of Engineers HEC-2 computer program. The Town Creek water-surface profiles for the 10%, 2%, and 1% annual chance floods were adopted from unpublished data received from the North Carolina Soil and Water Conservation Commission and incorporated with the 0.2% annual chance flood profile developed jointly by the U.S. Army Corps of Engineers and Moore, Gardner & Associates as the base datum (U.S. Department of Natural Resources and Community Development, unpublished, and U.S. Army Corps of Engineers, June 1973).

In the Town of East Spencer, the slope method stated in the U.S. Army Corps of Engineers HEC-2 computer program was used for calculating the starting water-surface elevations for East Spencer High Creek and Jackson Branch (U.S. Army Corps of Engineers, October 1973). This was also the case for Quarry Creek and Park Creek in the Town of Faith, for Sides Branch in the Town of Rockwell, and for all studied streams in the Unincorporated Areas of Rowan County.

Additionally in the Town of Landis, the starting water-surface elevations for Town Branch, Grants Creek, and Beaver Creek were established by adopting the water-surface elevations at the corporate limits which were shown in the Flood Insurance Study for the unincorporated areas of Rowan County. This was also the case for Cemetery Creek in the Town of Faith, for Ice Plant Creek and Railroad Branch in the Town of East Spencer, and for Peeler Branch and Bost Branch in the Town of Rockwell.

In the City of Salisbury, the Town of Spencer, and the Unincorporated Areas of Rowan County, the water-surface profiles for Crane Creek for the 10%, 2%, 1%, and 0.2% annual chance floods were adopted from the U.S. Army Corps of Engineers data (U.S. Army Corps of Engineers, 1976). In the City of Salisbury and the Unincorporated Areas of Rowan County, the Town and Grants Creek water-surface profiles for the 10%, 2%, and 1% annual chance floods were adopted from the unpublished data received from the North Carolina Soil and Water Conservation Commission and incorporated with the 0.2% annual chance profile developed by the U.S. Army Corps of Engineers as the base datum (North Carolina Department of Natural Resources and Community Development, unpublished, and U.S. Army Corps of Engineers, June 1973). Starting elevations in the City of Salisbury were computed by the slope-area method, using energy gradients for Town Creek, Crane Creek, and Grants Creek.

Revised Analyses for Countywide FIS

For the streams studied by detailed methods, water-surface elevations of floods of the selected recurrence intervals were computed through use of the Army Corps of Engineers' HEC-RAS step-backwater computer program version 3.0 (U.S. Army Corps of Engineers, 2001). 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. The computer models were calibrated using historic high water data collected during field investigations.

The cross section geometries were obtained from a combination of digital elevation data obtained by Light Detection and Ranging (LIDAR) and field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry. Natural floodplain cross sections were surveyed approximately every 3000 - 4000 feet along the detail study reaches to obtain the

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channel geometry between bridges and culverts. Overbank cross section data for the backwater analyses were obtained from recently flown LIDAR data.

Channel roughness factors (Manning's "n") used in the hydraulic computations were made in the field by an engineer where stream access was possible, with orthophotos used to supplement areas that could not be accessed. The channel and overbank "n" values for all of the streams studied by detailed methods are shown in Table 11, "Roughness Coefficients."

Table 11—Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Back Creek	0.042 – 0.048	0.050 – 0.130
Back Creek Tributary 1	0.050	0.080 – 0.150
Baker Branch	0.025 – 0.070	0.025 – 0.100
Beaver Creek	0.025 – 0.070	0.025 – 0.100
Beaver Creek Tributary	0.025 – 0.070	0.025 – 0.100
Beaverdam Creek (East)	0.042 – 0.052	0.080 – 0.140
Beaverdam Creek (West)	0.035 – 0.040	0.060 – 0.100
Bell Branch	0.025 – 0.070	0.025 – 0.100
Bost Branch	0.050	0.100 – 0.150
Bostian Heights Branch	0.050	0.080 – 0.140
Byrd Road Tributary	0.025 – 0.070	0.025 – 0.100
Cedar Creek	0.040	0.120 – 0.130
Cemetery Creek	0.025 – 0.070	0.025 – 0.100
Church Creek	0.035 – 0.050	0.080 – 0.150
Church Creek Tributary 1	0.050	0.080 – 0.130
Church Creek Tributary 1A	0.045	0.080 – 0.130
Church Creek Tributary 2	0.045	0.090 – 0.120
Coddle Creek	0.040 – 0.050	0.080 – 0.150
Cold Water Creek	0.025 – 0.070	0.025 – 0.100
Cold Water Creek Tributary	0.025 – 0.070	0.025 – 0.100
Cold Water Creek Tributary 1	0.050	0.080 – 0.140
Concord Road Creek	0.025 – 0.070	0.025 – 0.100
Correll Creek	0.025 – 0.040	0.025 – 0.060
Crane Creek	0.040 – 0.045	0.045 – 0.130
Crane Creek Tributary 1	0.040 – 0.045	0.080 – 0.120
Crane Creek Tributary 2	0.045	0.090 – 0.130
Draft Branch	0.025 – 0.070	0.025 – 0.100
Draft Branch Tributary	0.025 – 0.070	0.025 – 0.100
Dutch Buffalo Creek	0.035 – 0.045	0.080 – 0.140
Dutch Buffalo Creek Tributary	0.025 – 0.070	0.025 – 0.100
Dutch Buffalo Creek Tributary 1	0.045	0.080 – 0.150
East Centerview Branch	0.025 – 0.070	0.025 – 0.100
East Fork Creek	0.035 – 0.050	0.050 – 0.140

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Table 11—Roughness Coefficients

Stream	Channel "n"	Overbank "n"
East Spencer High Creek	0.025 – 0.060	0.025 – 0.085
Faith Road Branch	0.025 – 0.070	0.025 – 0.100
Fisher Branch	0.050	0.100 – 0.160
Five Forks Tributary	0.025 – 0.070	0.025 – 0.010
Flat Creek	0.040 – 0.045	0.080 – 0.130
Flat Rock Branch	0.035 – 0.050	0.100 – 0.150
Fourth Creek	0.040 – 0.052	0.080 – 0.150
Fourth Creek Tributary 4	0.045	0.080 – 0.140
Fourth Creek Tributary 5	0.048	0.100 – 0.130
Grants Creek	0.035 – 0.045	0.035 – 0.150
Grants Creek Tributary 2	0.045	0.090
Grants Creek Tributary 3	0.050	0.100 – 0.150
Grants Creek Tributary 4	0.050	0.090 – 0.150
Gravel Pit Branch	0.025 – 0.070	0.025 – 0.100
Henderson Branch	0.025 – 0.070	0.025 – 0.100
Henderson Branch Tributary	0.025 – 0.070	0.025 – 0.100
Hopkins Street Branch	0.025 – 0.070	0.025 – 0.100
Ice Plant Creek	0.025 – 0.070	0.025 – 0.100
Innis Street Branch	0.025 – 0.070	0.025 – 0.100
Irish Buffalo Creek	0.050	0.080 – 0.140
Irish Buffalo Creek Tributary 4	0.035 – 0.050	0.080 – 0.140
Irish Buffalo Creek Tributary 5	0.035 – 0.050	0.080 – 0.140
Jackson Branch	0.025 – 0.060	0.025 – 0.085
Julian Tributary	0.025 – 0.070	0.025 – 0.100
Jump and Run Branch	0.0450	0.090 – 0.130
Kerr Creek	0.035 – 0.050	0.070 – 0.120
Klutz Branch	0.050	0.080 – 0.140
Lake Wright Branch	0.025 – 0.070	0.025 – 0.100
Legion Park Branch	0.050	0.080 – 0.150
Little Creek	0.025 – 0.070	0.025 – 0.100
Little Creek (South)	0.045	0.080 – 0.140
Lomax Creek	0.050	0.120 – 0.150
Mahaley Branch	0.025 – 0.070	0.025 – 0.100
Mahaley Branch Tributary	0.025 – 0.065	0.025 – 0.100
Main Street Tributary	0.025 – 0.070	0.025 – 0.100
Maple Avenue Branch	0.025 – 0.070	0.025 – 0.100
Mill Creek	0.040 – 0.050	0.080 – 0.140
Mill Creek (into Grants Creek)	0.025 – 0.040	0.025 – 0.060
Moose Branch	0.025 – 0.070	0.025 – 0.100
North Fork Tributary	0.025 – 0.070	0.025 – 0.100
North Second Creek	0.048	0.040 – 0.150

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Table 11—Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Park Avenue Branch	0.025 – 0.070	0.025 – 0.100
Park Creek	0.040 – 0.048	0.080 – 0.130
Park Creek (into Quarry Creek)	0.025 – 0.070	0.025 – 0.100
Peeler Branch	0.040 – 0.045	0.080 – 0.140
Petrea Branch	0.045 – 0.060	0.080 – 0.140
Pine Ridge Branch	0.025 – 0.070	0.025 – 0.100
Quarry Creek	0.025 – 0.070	0.025 – 0.100
Railroad Branch	0.025 – 0.060	0.025 – 0.085
Riles Creek	0.040 – 0.045	0.080 – 0.130
Rocky Branch	0.050	0.135 – 0.150
Rocky Branch Tributary 1	0.050	0.130 – 0.140
Rowan Avenue Park Stream	0.050	0.090 – 0.160
Second Creek	0.040	0.090 – 0.160
Second Creek Tributary 1	0.045	0.080 – 0.140
Second Creek Tributary 2	0.050	0.090 – 0.150
Second Creek Tributary 3	0.050	0.100 – 0.150
Sides Branch	0.025 – 0.070	0.025 – 0.100
Sills Creek	0.048	0.048 – 0.140
Sills Creek Tributary 1	0.048 – 0.050	0.100 – 0.150
Sixth Street Branch	0.050	0.125 – 0.150
Sloans Creek	0.048	0.035 – 0.150
South Yadkin River	0.040 – 0.055	0.110 – 0.200
Southside Tributary	0.025 – 0.070	0.025 – 0.100
Southern Railroad Branch	0.050	0.120 – 0.140
Spring Hill Branch	0.050	0.110 – 0.150
Swearington Branch	0.025 – 0.035	0.025 – 0.055
Tar Branch	0.025 – 0.070	0.025 – 0.100
Tar Branch Tributary	0.025 – 0.070	0.025 – 0.100
Third Creek	0.040 – 0.050	0.035 – 0.150
Third Street Creek	0.025 – 0.065	0.025 – 0.100
Thomas Street Creek	0.025 – 0.065	0.025 – 0.100
Town Branch	0.025 – 0.070	0.025 – 0.100
Town Creek	0.035 – 0.055	0.060 – 0.160
Town Creek Tributary	0.025 – 0.070	0.025 – 0.100
Town Creek Tributary 1	0.035 – 0.050	0.070 – 0.150
Trexler Creek	0.035 – 0.050	0.080 – 0.150
Unnamed Stream 1	0.045	0.050 – 0.130
Unnamed Stream 2	0.045	0.130
Vance Avenue Branch	0.025 – 0.065	0.025 – 0.100
Walnut Street Branch	0.025 – 0.070	0.025 – 0.100
Walton Branch	0.025 – 0.070	0.025 – 0.100

Section 5.0 – Engineering Methods

Table 11—Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Wildlife Tributary	0.025 – 0.070	0.025 – 0.100
Withrow Creek	0.050	0.075 – 0.150
Woodleaf Branch (East)	0.048	0.090 – 0.140
Woodleaf Branch (West)	0.050	0.012 – 0.150
Wright Branch	0.025 – 0.070	0.025 – 0.100
Wiley Avenue Branch	0.025 – 0.070	0.025 – 0.100
Yadkin River	0.035 – 0.046	0.035 – 0.150

For flooding sources studied by limited detailed methods in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this report and the FIRM panels. This method entails developing a HEC-RAS hydraulic model, resulting in the calculation of BFEs and the delineation of the 1% annual chance floodplain (designated as Zone AE). Cross sections for the flooding sources studied by limited detailed methods were obtained using digital elevation data obtained with LIDAR technology developed as part of the North Carolina Statewide Floodplain Mapping Program. The hydraulic model is prepared using this digital elevation data, without surveying bathymetric or structural data. Where bridge or culvert data are readily available, such as from the North Carolina Department of Transportation, these data have been reflected in the hydraulic model. If these structural data are not readily available, field measurements of these structures were made to approximate their geometry in the hydraulic models. In addition, this method does not include field surveys that determine specifics on channel and floodplain characteristics. A limited detailed study is a "buildable" product that can be upgraded to a fully detailed study at a later date by verifying stream channel characteristics, bridge and culvert opening geometry, and by analyzing multiple recurrence intervals.

The results of the HEC-RAS computations are tabulated for all cross sections (Table 12, "Limited Detailed Flood Hazard Data"). Flood Profiles have not been developed for streams studied by limited detailed methods. In addition, floodways for streams studied by limited detailed methods are not delineated on the FIRM. However, the 1% annual chance water-surface elevations, flood discharges, and non-encroachment widths from the limited detailed studies for every modeled cross section are given in Table 12. The non-encroachment widths given at modeled cross sections can be used by communities to enforce floodplain management ordinances that meet the requirement defined in 44 CFR 60.3(c)(10).

Between cross sections for streams studied by limited detailed methods, 1% annual chance water-surface elevations should be calculated by mathematical interpolation using the distance along the stream centerline. Non-encroachment widths and, therefore, the location of a non-encroachment area boundary between cross sections should be determined based on either 1) mathematical interpolation, or 2) the non-encroachment width at the upstream or downstream cross section, whichever is larger. If the width determined by this second method is wider than the Special Flood Hazard Area (SFHA) or the 1% annual chance floodplain delineated on the FIRM for this location along the stream, the non-encroachment area shall be considered to be coincident with the SFHA. A full detailed study incorporating field survey data in the HEC-RAS hydraulic model may be submitted for a Letter of Map Revision (LOMR) request to map a regulatory floodway along a section of a stream in lieu of applying the non-encroachment widths listed in

Section 5.0 – Engineering Methods

Table 12. FEMA's current (as of August 2001) map revision structure exempts submittal fees for map revision requests based solely on the submission of more detailed data.

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
BACK CREEK				
000	0	8,593	672.0	48 / 127
008	777	7,309	673.1	245 / 85
015	1,515	7,309	673.4	368 / 266
020	2,044	7,309	673.7	457 / 35
028	2,808	7,309	674.3	972 / 239
035	3,500	7,309	674.5	423 / 389
043	4,322	7,309	677.6	35 / 570
050	5,000	7,309	677.8	307 / 311
057	5,738	7,309	677.8	252 / 65
061	6,093	7,309	679.2	55 / 218
067	6,714	4,754	680.2	184 / 62
074	7,388	4,754	680.7	220 / 90
077	7,690	4,754	680.8	116 / 90
081	8,068	4,754	681.7	72 / 120
088	8,758	4,754	682.7	92 / 131
092	9,152	4,754	683.5	296 / 72
096	9,609	4,754	683.6	217 / 343
104	10,419	4,754	683.7	235 / 46
109	10,938	4,754	684.2	173 / 28
115	11,538	4,597	685.9	277 / 71
120	11,958	4,597	686.3	155 / 33
125	12,500	4,597	687.1	327 / 35
130	13,000	4,597	687.5	149 / 303
135	13,500	4,597	687.9	27 / 386
140	14,000	4,597	688.3	167 / 47
145	14,538	4,597	690.1	304 / 46
150	15,000	4,597	690.5	136 / 67
154	15,444	4,597	691.6	59 / 311
158	15,800	4,597	691.9	95 / 388
166	16,600	4,438	692.2	116 / 125
170	17,000	4,438	694.2	238 / 31
173	17,327	4,438	694.4	327 / 29
180	18,000	4,438	694.8	382 / 239
185	18,534	4,438	695.1	347 / 430
190	19,032	4,438	695.3	407 / 80
195	19,462	4,438	695.6	350 / 40
200	19,966	4,438	696.1	261 / 26
206	20,575	4,438	697.3	144 / 206
210	20,999	4,287	698.3	85 / 100

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
BACK CREEK				
Cross sections shown on Floodway Data Table and Profile for this portion				
329	32,876	3,944	721.7	239 / 105
335	33,500	3,944	722.5	260 / 169
340	34,000	3,944	723.1	305 / 128
345	34,500	3,777	723.7	315 / 198
350	35,037	3,777	724.4	145 / 184
355	35,500	3,777	725.6	140 / 152
359	35,940	3,777	726.4	110 / 161
363	36,311	3,777	727.1	125 / 25
370	37,000	3,777	730.2	250 / 185
374	37,446	3,777	730.6	173 / 171
380	37,953	3,777	731.1	25 / 213
387	38,657	3,777	731.9	25 / 328
392	39,203	3,777	732.4	23 / 168
398	39,752	3,504	734.0	23 / 105
403	40,333	3,504	736.0	183 / 76
409	40,890	3,504	736.7	184 / 23
414	41,372	3,504	737.7	219 / 23
419	41,916	3,504	738.3	123 / 23
424	42,395	3,504	740.6	95 / 23
429	42,906	3,411	742.0	161 / 23
438	43,802	3,411	744.8	187 / 54
442	44,243	3,411	745.7	84 / 83
448	44,779	3,411	746.9	24 / 90
456	45,591	3,411	749.2	24 / 141
461	46,075	3,411	749.9	39 / 71
470	47,024	3,293	751.9	23 / 117
475	47,474	3,293	753.3	23 / 88
479	47,943	3,293	753.8	82 / 22
485	48,500	3,164	755.4	27 / 27
490	49,041	3,164	757.2	27 / 27
497	49,680	3,164	759.0	30 / 57
503	50,327	2,946	760.2	21 / 109
BACK CREEK TRIBUTARY 1				
002	178	1,019	759.2 ⁴	70 / 60
005	459	1,019	759.6	289 / 25
009	918	1,019	762.1	196 / 10
BEAVERDAM CREEK (EAST)				
015	1,483	2,176	655.3 ⁴	68 / 90
025	2,451	2,176	655.3 ⁴	38 / 138
029	2,860	1,633	655.3 ⁴	77 / 225

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
BEAVERDAM CREEK (EAST)				
034	3,386	1,633	655.3 ⁴	147 / 17
040	4,042	1,633	655.3 ⁴	12 / 282
047	4,685	1,633	656.4	136 / 24
051	5,116	1,633	658.4	17 / 214
056	5,626	1,633	659.6	17 / 168
061	6,121	1,633	661.3	17 / 188
066	6,646	1,633	663.0	17 / 231
071	7,096	1,633	664.2	12 / 218
076	7,645	1,633	665.8	17 / 145
085	8,476	1,457	668.6	64 / 85
092	9,161	1,457	669.7	39 / 36
096	9,555	1,457	671.7	113 / 29
100	9,986	1,457	672.0	16 / 137
105	10,472	1,457	672.7	16 / 200
111	11,107	1,457	674.1	83 / 72
116	11,583	1,176	676.4	34 / 64
119	11,888	1,176	678.2	50 / 14
124	12,357	1,176	679.6	35 / 26
129	12,902	1,176	682.8	55 / 22
134	13,388	1,176	685.6	32 / 12
138	13,822	1,176	690.6	14 / 25
146	14,636	1,176	698.9	20 / 190
150	14,999	1,176	699.4	70 / 14
156	15,616	500	702.9	28 / 13
160	15,963	500	711.0	13 / 13
163	16,326	500	718.2	13 / 13
BEAVERDAM CREEK (WEST)				
004	400	2,791	684.4 ⁴	223 / 158
008	800	2,791	684.4 ⁴	158 / 53
011	1,121	2,791	684.4 ⁴	19 / 112
016	1,600	2,791	684.4 ⁴	68 / 109
020	2,000	2,791	684.5	52 / 246
025	2,474	2,791	684.9	70 / 193
029	2,941	2,791	685.6	175 / 125
033	3,323	2,791	686.1	108 / 265
036	3,600	2,791	686.4	125 / 196
041	4,106	2,791	687.0	182 / 231
044	4,400	2,593	687.3	252 / 250
048	4,800	2,593	687.6	257 / 201
050	5,017	2,593	687.8	308 / 109
052	5,200	2,593	687.9	313 / 22
064	6,400	2,593	691.3	66 / 342
068	6,800	2,593	691.6	18 / 293

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
BEAVERDAM CREEK (WEST)				
072	7,200	2,593	692.2	18 / 180
075	7,513	2,593	693.9	63 / 145
081	8,065	2,357	695.6	219 / 18
084	8,400	2,357	696.4	184 / 147
088	8,800	2,357	697.3	69 / 247
092	9,200	2,357	698.1	32 / 148
096	9,600	2,357	699.6	202 / 18
100	10,000	2,357	700.6	128 / 147
104	10,400	2,357	701.4	88 / 124
106	10,591	2,357	702.4	110 / 115
108	10,800	2,357	702.7	59 / 217
112	11,200	2,357	703.8	75 / 362
116	11,600	2,357	704.2	151 / 141
121	12,051	2,357	705.3	343 / 18
124	12,400	2,357	705.6	180 / 21
128	12,776	2,357	706.3	150 / 22
131	13,097	2,357	707.2	84 / 26
137	13,712	2,037	710.7	60 / 24
140	14,000	2,037	710.7	21 / 23
144	14,443	2,037	711.3	21 / 28
150	14,991	2,037	713.6	37 / 47
152	15,200	2,037	713.8	18 / 65
156	15,600	2,037	715.7	140 / 17
160	16,000	2,037	716.6	130 / 55
164	16,400	2,037	717.2	50 / 45
167	16,651	2,037	718.0	17 / 32
168	16,800	2,037	719.1	39 / 23
170	17,009	2,037	719.7	70 / 26
172	17,200	2,037	720.4	90 / 80
176	17,600	2,037	720.9	63 / 96
181	18,102	1,801	722.0	16 / 90
184	18,400	1,801	723.1	16 / 40
188	18,800	1,801	724.8	16 / 20
190	19,038	1,801	726.9	38 / 31
194	19,447	1,801	727.6	75 / 16
196	19,600	1,801	728.8	124 / 16
200	20,000	1,801	729.8	35 / 181
204	20,400	1,801	730.5	16 / 188
208	20,800	1,801	731.1	15 / 112
212	21,200	1,801	733.5	67 / 158
215	21,545	1,801	734.4	144 / 14
217	21,727	1,490	735.2	128 / 14
221	22,110	1,490	736.5	131 / 14

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
BEAVERDAM CREEK (WEST)				
224	22,400	1,490	738.4	16 / 69
228	22,800	1,490	740.0	58 / 90
232	23,175	1,490	741.0	67 / 155
236	23,600	1,490	742.0	17 / 120
238	23,780	1,490	742.6	14 / 130
240	24,000	1,490	743.5	14 / 170
244	24,400	1,490	744.9	14 / 190
249	24,913	1,490	746.6	25 / 45
251	25,142	1,490	749.4	50 / 90
254	25,358	1,490	749.7	30 / 85
255	25,536	1,490	750.0	41 / 17
258	25,781	1,490	751.2	35 / 16
260	26,000	1,490	752.4	73 / 16
264	26,400	1,490	753.0	50 / 19
268	26,800	1,490	753.5	28 / 28
273	27,313	1,134	760.4	51 / 20
276	27,600	1,134	760.6	25 / 110
280	28,000	1,134	760.8	85 / 49
284	28,400	1,134	761.4	56 / 13
288	28,824	1,134	763.6	20 / 25
293	29,311	1,134	766.7	85 / 13
296	29,600	1,134	768.0	101 / 40
300	30,000	1,134	769.4	70 / 45
305	30,525	1,134	771.3	10 / 18
309	30,935	1,134	775.7	55 / 20
312	31,200	1,134	776.9	51 / 55
316	31,600	737	779.8	59 / 7
321	32,080	737	783.3	13 / 24
324	32,400	737	784.9	12 / 50
328	32,800	737	787.0	12 / 50
330	33,041	737	789.1	20 / 23
332	33,184	737	790.6	50 / 16
336	33,600	737	792.8	12 / 50
338	33,812	737	794.0	15 / 20
340	34,000	737	796.3	12 / 49
344	34,400	737	798.9	12 / 37
348	34,800	737	800.7	38 / 12
352	35,200	737	802.9	20 / 12
354	35,412	737	805.7	12 / 15
356	35,608	737	809.8	12 / 40
358	35,790	737	811.6	15 / 15
359	35,925	737	813.9	12 / 35
361	36,096	737	814.7	12 / 34

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
BEAVERDAM CREEK (WEST)				
362	36,244	737	816.1	12 / 45
364	36,401	737	818.1	12 / 59
366	36,580	737	822.3	12 / 25
367	36,735	737	825.0	12 / 25
369	36,883	737	826.8	15 / 46
370	37,019	737	829.5	11 / 25
372	37,171	737	833.3	9 / 11
373	37,324	737	836.1	12 / 9
375	37,500	737	838.2	7 / 7
377	37,659	737	841.0	11 / 7
379	37,923	737	847.6	18 / 18
381	38,092	737	850.7	12 / 21
BELL BRANCH				
005	545	2,635	697.3 ⁴	276 / 147
011	1,070	2,635	697.3 ⁴	177 / 231
015	1,500	2,635	697.3 ⁴	143 / 180
BOST BRANCH				
003	263	647	668.8 ⁴	26 / 142
007	656	647	668.8 ⁴	42 / 104
011	1,122	647	669.3	32 / 32
014	1,350	647	671.7	32 / 32
CEDAR CREEK				
006	579	2,030	577.6 ⁴	40 / 56
011	1,134	2,030	577.6 ⁴	35 / 50
017	1,683	2,030	577.6 ⁴	112 / 33
022	2,249	2,030	577.6 ⁴	36 / 52
028	2,791	2,030	577.6 ⁴	137 / 25
033	3,329	1,919	577.6 ⁴	139 / 16
038	3,798	1,919	577.6 ⁴	103 / 16
CHURCH CREEK TRIBUTARY 1				
006	561	962	659.8 ⁴	190 / 184
011	1,099	962	660.7	40 / 150
014	1,419	962	666.6	8 / 25
016	1,584	962	668.7	11 / 10
021	2,145	927	678.0	76 / 50
025	2,538	927	678.0	44 / 17
031	3,112	927	682.8	15 / 20
036	3,590	927	687.2	15 / 55
040	4,018	927	689.9	51 / 65
045	4,458	887	692.2	15 / 20
049	4,935	887	695.2	15 / 20
054	5,423	887	699.6	10 / 51
061	6,062	842	704.1	18 / 20

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
CHURCH CREEK TRIBUTARY 1				
064	6,385	842	706.6	30 / 33
066	6,634	842	709.0	48 / 59
072	7,163	842	713.4	12 / 31
075	7,481	842	715.9	26 / 58
079	7,870	792	718.3	12 / 28
082	8,206	792	720.9	55 / 24
088	8,831	792	725.3	50 / 14
094	9,382	736	729.0	12 / 108
097	9,719	736	730.2	12 / 109
101	10,123	696	732.3	12 / 96
108	10,802	696	736.8	84 / 12
114	11,395	645	740.9	17 / 12
119	11,946	621	744.6	24 / 21
125	12,540	621	747.9	19 / 12
129	12,931	580	750.9	40 / 35
136	13,552	580	753.8	63 / 12
142	14,169	580	757.5	27 / 12
146	14,630	551	760.9	39 / 12
153	15,258	551	765.2	66 / 22
157	15,729	465	769.6	20 / 12
CHURCH CREEK TRIBUTARY 1A				
002	169	1,192	659.6 ⁴	135 / 172
003	321	1,192	659.6 ⁴	106 / 62
007	699	1,192	663.0	27 / 58
012	1,183	1,192	666.8	43 / 73
018	1,818	1,160	670.9	85 / 17
024	2,359	1,160	674.4	257 / 11
026	2,599	1,160	677.4	30 / 8
032	3,208	1,086	686.9	185 / 64
034	3,433	1,086	688.5	28 / 13
040	4,025	1,086	694.0	13 / 106
045	4,477	1,086	697.7	13 / 17
049	4,902	1,086	701.8	21 / 96
054	5,407	1,086	704.2	44 / 34
059	5,868	866	706.9	74 / 12
064	6,407	866	709.5	54 / 12
070	6,973	866	714.0	26 / 30
074	7,413	826	716.6	49 / 12
076	7,599	826	717.5	27 / 55
078	7,809	826	720.0	30 / 35
082	8,159	826	722.8	30 / 57
088	8,827	579	728.9	55 / 14
094	9,403	556	733.4	47 / 12

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
CHURCH CREEK TRIBUTARY 1A				
100	9,965	556	738.0	12 / 29
104	10,379	535	741.3	12 / 26
108	10,767	479	744.5	48 / 12
112	11,207	479	746.9	13 / 11
117	11,742	479	751.9	12 / 17
CHURCH CREEK TRIBUTARY 2				
007	726	1,403	732.9 ⁴	97 / 55
015	1,515	1,403	733.5	47 / 187
020	1,998	1,238	734.8	44 / 188
025	2,457	1,238	737.0	86 / 127
030	2,964	1,238	740.6	129 / 32
033	3,322	1,188	741.0	109 / 84
039	3,876	1,188	742.3	49 / 83
044	4,355	1,188	744.2	36 / 83
048	4,805	1,188	746.0	106 / 63
051	5,074	906	747.0	46 / 128
053	5,343	906	747.8	32 / 56
059	5,911	855	750.4	32 / 60
063	6,285	815	752.3	32 / 74
068	6,828	797	756.5	14 / 32
COLD WATER CREEK				
776	77,617	3,940	650.0	867 / 483
779	77,931	4,015	650.0	325 / 210
785	78,489	4,015	650.0	340 / 447
791	79,099	4,015	650.0	365 / 435
806	80,575	3,784	650.2	420 / 170
811	81,083	3,784	650.4	200 / 40
815	81,454	3,784	650.9	200 / 40
820	81,970	3,784	651.7	85 / 84
COLD WATER CREEK TRIBUTARY 1				
000	25	892	654.8 ⁴	160 / 45
007	696	892	660.7	110 / 8
009	900	850	660.7	50 / 90
014	1,370	841	662.5	72 / 50
017	1,679	841	662.5	90 / 20
CRANE CREEK TRIBUTARY 1				
005	475	1,837	625.7 ⁴	448 / 148
009	932	1,837	625.7 ⁴	121 / 148
014	1,409	1,776	625.7 ⁴	214 / 212
019	1,945	1,776	625.7 ⁴	254 / 182
022	2,246	1,776	625.7 ⁴	94 / 196
027	2,678	1,776	625.7 ⁴	162 / 189
032	3,218	1,755	625.7 ⁴	100 / 116
037	3,697	1,755	625.7 ⁴	153 / 150

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
CRANE CREEK TRIBUTARY 1				
042	4,181	1,755	625.7 ⁴	219 / 149
046	4,647	1,755	625.7 ⁴	14 / 175
048	4,818	1,755	625.7 ⁴	94 / 59
051	5,069	1,755	626.3	70 / 66
056	5,622	1,620	627.7	166 / 20
062	6,202	1,600	628.8	83 / 83
068	6,774	1,600	630.3	85 / 13
073	7,348	1,600	632.6	15 / 123
078	7,816	1,600	633.9	109 / 13
082	8,156	1,568	635.1	36 / 112
085	8,536	1,568	636.5	51 / 95
089	8,924	1,495	638.7	13 / 122
095	9,498	1,495	641.7	41 / 101
098	9,789	1,495	643.3	17 / 45
101	10,145	1,495	645.8	23 / 41
106	10,597	1,466	648.2	73 / 17
112	11,169	1,466	650.5	163 / 12
CRANE CREEK TRIBUTARY 2				
024	2,353	1,199	734.5 ⁵	60 / 35
031	3,050	1,085	737.1	75 / 15
036	3,627	1,085	740.2	28 / 22
041	4,135	1,085	746.6	15 / 85
046	4,615	1,058	750.5	50 / 55
051	5,050	901	754.7	25 / 28
055	5,460	901	761.3	12 / 12
059	5,944	901	771.0	72 / 30
064	6,423	741	771.2	19 / 12
068	6,827	741	776.3	36 / 12
072	7,248	700	783.0	12 / 17
076	7,572	592	790.7	12 / 46
081	8,079	592	804.1	12 / 12
083	8,330	514	814.4	40 / 3
085	8,493	514	816.9	50 / 12
090	8,959	470	827.9	18 / 12
094	9,427	417	836.7	22 / 12
098	9,788	417	845.6	3 / 30
099	9,928	417	849.5	12 / 12
106	10,560	417	861.9	23 / 12
DUTCH BUFFALO CREEK				
1130	112,973	3,400	684.0	200 / 110
DUTCH BUFFALO CREEK TRIBUTARY 1				
061	6,133	1,747	687.6	121 / 36

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
EAST FORK CREEK				
002	221	3,253	674.2 ⁴	240 / 18
006	572	3,253	674.3	90 / 90
008	845	3,253	675.3	50 / 140
013	1,301	3,253	675.8	60 / 110
016	1,607	3,253	676.9	160 / 25
022	2,232	3,253	678.2	130 / 100
024	2,444	3,253	678.5	63 / 168
027	2,728	3,253	678.9	120 / 190
031	3,063	3,093	679.1	40 / 185
037	3,656	3,093	680.3	119 / 97
039	3,891	3,093	680.6	114 / 40
044	4,388	3,093	681.3	75 / 140
049	4,875	3,093	681.9	224 / 15
054	5,383	3,093	682.6	130 / 22
058	5,831	3,093	683.4	97 / 95
068	6,834	2,534	686.1	200 / 40
073	7,318	2,534	687.0	195 / 86
076	7,578	2,534	687.5	240 / 18
081	8,098	2,534	688.8	263 / 60
089	8,921	2,534	691.1	260 / 14
093	9,330	2,534	692.2	299 / 18
099	9,884	2,534	693.7	296 / 30
103	10,284	2,534	695.0	250 / 18
107	10,748	2,534	696.9	305 / 38
112	11,229	2,534	698.6	255 / 18
115	11,458	2,534	699.7	230 / 25
118	11,761	2,534	701.4	295 / 14
125	12,500	2,534	704.1	370 / 50
129	12,898	2,534	705.8	249 / 14
131	13,136	2,534	707.4	287 / 14
135	13,514	2,534	708.9	266 / 46
140	13,974	2,369	710.9	95 / 145
143	14,296	2,369	711.6	75 / 180
149	14,882	2,369	712.9	14 / 260
151	15,145	2,369	713.5	50 / 300
156	15,625	2,369	714.0	155 / 260
161	16,117	2,369	714.9	60 / 200
166	16,589	2,369	717.8	120 / 310
170	17,000	2,369	718.9	165 / 217
175	17,500	2,369	720.9	130 / 165
182	18,151	2,369	723.8	100 / 185
187	18,671	1,603	725.4	15 / 230
191	19,120	1,603	726.3	160 / 202

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
EAST FORK CREEK				
195	19,545	1,603	727.4	250 / 14
199	19,853	1,603	728.7	235 / 60
202	20,182	1,603	730.1	120 / 85
204	20,405	1,504	731.8	28 / 124
207	20,662	1,504	733.2	30 / 90
208	20,793	1,504	733.8	30 / 60
213	21,278	1,504	739.0	90 / 90
216	21,634	1,504	739.1	100 / 25
222	22,152	1,504	740.4	60 / 25
225	22,494	1,504	742.8	42 / 55
229	22,926	1,307	744.3	40 / 25
235	23,532	1,307	747.2	21 / 17
238	23,766	1,307	748.9	14 / 13
242	24,165	1,307	752.6	25 / 15
245	24,532	1,307	754.3	25 / 18
250	25,002	1,307	755.7	19 / 35
256	25,601	1,006	757.3	26 / 16
258	25,837	1,006	758.5	13 / 16
262	26,202	1,006	762.1	17 / 12
264	26,447	1,006	764.4	22 / 18
268	26,755	1,006	767.3	24 / 26
271	27,099	957	769.2	50 / 12
276	27,603	957	771.5	50 / 12
279	27,913	957	772.7	20 / 12
281	28,142	957	774.3	15 / 8
285	28,451	957	777.7	32 / 8
288	28,848	957	780.4	30 / 22
292	29,204	751	782.0	15 / 15
295	29,497	751	783.9	20 / 8
297	29,678	751	785.4	25 / 20
299	29,866	751	787.0	50 / 25
301	30,099	751	789.2	43 / 12
303	30,286	751	789.8	19 / 15
306	30,589	751	791.7	20 / 9
308	30,798	672	794.3	20 / 43
310	31,007	672	795.9	25 / 20
312	31,224	672	796.8	8 / 15
315	31,489	672	801.3	22 / 22
316	31,632	672	801.9	19 / 19
FISHER BRANCH				
002	239	2,084	669.6 ⁴	169 / 212
005	475	2,084	669.6 ⁴	80 / 165
009	882	2,084	669.6 ⁴	68 / 166

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
FISHER BRANCH				
015	1,530	2,084	671.5	107 / 27
019	1,940	2,084	672.0	90 / 203
024	2,433	2,015	672.3	37 / 37
028	2,821	2,015	674.0	50 / 195
034	3,363	2,015	674.5	261 / 37
038	3,817	2,015	675.3	39 / 39
047	4,659	1,910	680.9	37 / 30
050	5,002	1,910	682.5	53 / 61
055	5,467	1,910	683.5	37 / 135
061	6,096	1,910	685.0	36 / 36
065	6,525	1,910	687.3	74 / 68
069	6,935	1,910	688.9	154 / 36
077	7,708	1,823	690.9	21 / 216
081	8,088	1,823	692.4	130 / 29
090	8,999	1,705	695.1	22 / 75
092	9,207	1,705	697.3	50 / 45
094	9,430	1,705	698.6	63 / 26
099	9,925	1,705	701.7	80 / 25
103	10,268	1,572	703.5	21 / 84
108	10,765	1,572	705.8	35 / 156
112	11,222	1,572	707.2	35 / 154
116	11,567	1,572	708.6	114 / 66
120	12,043	1,572	711.7	74 / 35
126	12,567	1,572	715.4	35 / 68
130	12,996	1,429	718.1	42 / 34
134	13,427	1,429	721.2	34 / 71
139	13,875	1,429	723.5	208 / 34
145	14,524	1,367	726.4	138 / 39
149	14,884	1,367	728.5	34 / 36
153	15,306	1,367	733.6	33 / 34
157	15,716	1,224	737.3	80 / 22
160	15,954	1,224	738.4	90 / 81
163	16,304	1,224	740.0	165 / 40
FLAT CREEK				
014	1,385	2,936	574.1 ⁴	117 / 264
019	1,905	2,936	574.1 ⁴	293 / 334
026	2,622	2,852	574.1 ⁴	333 / 424
033	3,291	2,852	574.1 ⁴	249 / 311
039	3,911	2,852	574.1 ⁴	386 / 445
045	4,471	2,852	574.1 ⁴	344 / 426
049	4,908	2,852	574.1 ⁴	169 / 191
056	5,613	2,432	574.1 ⁴	195 / 149
063	6,255	2,432	574.1 ⁴	218 / 89

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
FLAT CREEK				
068	6,843	2,432	574.1 ⁴	113 / 112
075	7,515	2,250	574.1 ⁴	56 / 99
081	8,126	2,250	576.2	58 / 70
086	8,634	2,250	578.8	117 / 87
092	9,200	2,250	580.9	112 / 106
099	9,925	2,250	583.3	98 / 138
105	10,455	2,150	584.8	170 / 17
110	11,008	2,150	586.4	151 / 137
117	11,720	2,129	587.9	84 / 345
121	12,071	2,129	588.7	224 / 55
FLAT ROCK BRANCH				
002	211	1,216	760.2 ⁴	58 / 15
004	394	1,188	760.3	18 / 17
010	956	1,188	764.9	31 / 50
015	1,500	1,188	767.3	31 / 20
017	1,738	1,188	768.8	87 / 23
029	2,913	1,058	783.7	305 / 281
036	3,557	1,058	783.7	187 / 162
039	3,926	968	783.7	259 / 248
046	4,565	968	783.7	194 / 194
048	4,806	931	783.7	172 / 204
053	5,303	931	783.8	144 / 47
057	5,696	931	787.1	44 / 173
FOURTH CREEK				
007	692	19,315	655.9 ⁴	275 / 592
013	1,253	19,315	655.9 ⁴	413 / 190
017	1,655	19,315	655.9 ⁴	362 / 114
024	2,397	19,315	655.9 ⁴	227 / 179
031	3,081	19,315	655.9 ⁴	645 / 224
035	3,534	19,315	655.9 ⁴	389 / 222
042	4,212	19,315	655.9 ⁴	150 / 453
047	4,737	19,315	655.9 ⁴	75 / 695
054	5,447	19,315	655.9 ⁴	52 / 547
059	5,910	19,315	655.9 ⁴	132 / 920
064	6,446	19,315	655.9 ⁴	174 / 1,192
070	7,021	19,315	655.9 ⁴	70 / 979
075	7,483	19,315	655.9 ⁴	188 / 733
080	8,013	19,315	655.9 ⁴	442 / 484
086	8,604	19,315	655.9 ⁴	694 / 298
096	9,574	19,315	655.9 ⁴	147 / 840
109	10,887	19,315	655.9 ⁴	800 / 696
117	11,679	19,315	655.9 ⁴	508 / 763
121	12,092	19,315	655.9 ⁴	457 / 539

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
FOURTH CREEK				
126	12,574	19,315	655.9 ⁴	159 / 395
131	13,121	19,315	655.9 ⁴	70 / 284
135	13,498	19,315	655.9 ⁴	110 / 222
141	14,072	19,315	655.9 ⁴	111 / 63
145	14,507	19,315	655.9 ⁴	106 / 115
149	14,927	19,315	655.9 ⁴	44 / 246
153	15,326	19,315	655.9 ⁴	98 / 126
157	15,656	19,315	655.9 ⁴	124 / 56
163	16,334	19,315	656.4	145 / 91
169	16,888	19,315	657.6	53 / 249
176	17,565	19,315	658.8	130 / 413
182	18,217	19,315	659.3	38 / 483
185	18,528	19,315	659.4	134 / 407
189	18,930	19,315	659.5	158 / 196
193	19,296	19,315	659.7	161 / 109
199	19,879	19,315	660.1	275 / 41
206	20,638	19,315	661.2	231 / 180
213	21,307	19,315	661.5	184 / 39
222	22,208	19,315	664.6	181 / 121
227	22,664	19,315	664.9	110 / 118
230	22,965	19,315	665.2	56 / 160
233	23,346	19,315	665.6	126 / 100
237	23,717	19,315	665.9	104 / 78
241	24,082	19,315	666.8	158 / 55
245	24,488	19,315	667.5	66 / 196
248	24,837	19,315	667.7	184 / 189
256	25,627	19,315	668.2	100 / 274
263	26,343	19,315	668.6	372 / 439
269	26,886	19,315	668.6	389 / 134
277	27,729	19,315	668.8	261 / 51
282	28,165	19,315	669.5	329 / 260
285	28,465	19,315	669.5	323 / 238
290	28,972	12,763	669.6	78 / 103
292	29,208	12,763	670.0	129 / 173
297	29,746	12,763	670.3	175 / 184
303	30,268	12,763	670.6	480 / 187
308	30,752	12,763	670.6	832 / 257
313	31,345	12,763	670.6	926 / 290
321	32,149	12,763	670.6	728 / 292
326	32,592	12,763	670.6	615 / 237
332	33,217	12,763	670.7	460 / 271
342	34,245	12,763	670.9	357 / 56
348	34,815	12,763	671.0	214 / 108

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
FOURTH CREEK				
354	35,431	12,763	671.4	93 / 307
361	36,064	12,763	671.5	166 / 109
365	36,493	12,763	671.9	61 / 120
371	37,143	12,763	672.7	51 / 203
376	37,555	12,763	672.9	66 / 141
381	38,058	12,763	673.6	249 / 110
384	38,430	12,763	673.8	238 / 87
390	38,993	12,763	674.1	555 / 63
396	39,614	12,763	674.3	444 / 114
401	40,050	12,763	674.3	164 / 121
407	40,706	12,763	674.6	56 / 274
414	41,428	12,763	675.3	160 / 84
420	41,952	12,763	676.0	196 / 145
424	42,352	12,763	676.5	396 / 277
428	42,832	12,763	676.6	133 / 468
435	43,480	12,763	676.8	201 / 272
440	44,023	12,763	677.1	351 / 148
445	44,545	12,763	677.3	298 / 74
450	44,980	12,763	677.7	258 / 337
458	45,831	12,591	678.0	101 / 414
467	46,718	12,433	678.4	552 / 95
473	47,278	12,433	678.5	290 / 62
480	48,019	12,433	679.5	161 / 69
486	48,586	12,433	680.6	70 / 73
491	49,092	12,433	682.6	86 / 119
496	49,573	12,433	683.7	138 / 166
500	50,046	12,433	684.4	46 / 226
505	50,525	12,433	684.6	141 / 39
511	51,127	12,433	686.1	165 / 34
519	51,900	12,433	691.1	40 / 99
522	52,183	12,433	691.6	38 / 122
526	52,602	12,433	692.7	38 / 147
531	53,106	12,433	693.4	36 / 142
537	53,721	12,433	694.2	64 / 50
542	54,207	12,433	695.2	71 / 34
549	54,875	12,433	698.0	40 / 71
555	55,532	12,433	700.6	154 / 39
560	55,993	12,433	701.3	67 / 75
565	56,532	12,433	702.7	102 / 46
571	57,056	12,433	704.7	103 / 76
580	57,953	12,433	707.6	122 / 180
585	58,517	12,433	707.8	69 / 151
589	58,864	12,351	708.6	135 / 217

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
FOURTH CREEK				
594	59,426	12,351	709.0	293 / 372
602	60,160	12,351	709.1	265 / 110
605	60,493	12,351	709.3	399 / 341
611	61,147	12,351	709.4	624 / 315
616	61,584	12,202	709.5	426 / 140
620	61,993	12,202	709.5	250 / 53
625	62,493	12,202	709.8	133 / 117
631	63,113	12,202	710.4	171 / 330
637	63,674	12,202	710.8	109 / 235
644	64,395	12,202	711.3	347 / 212
650	64,993	12,202	711.5	166 / 336
655	65,456	12,202	711.6	229 / 307
662	66,205	12,202	714.3	110 / 74
665	66,533	12,202	715.0	177 / 104
668	66,848	12,202	715.3	281 / 216
675	67,485	12,202	715.3	433 / 252
679	67,916	12,202	715.4	554 / 95
684	68,412	12,202	715.5	541 / 59
692	69,193	12,202	715.6	692 / 33
699	69,866	12,202	715.7	513 / 309
706	70,588	12,202	715.8	229 / 240
710	70,958	12,202	716.1	362 / 261
719	71,873	12,030	719.0	519 / 513
724	72,427	12,030	719.0	395 / 844
729	72,902	12,030	719.1	411 / 502
735	73,493	12,030	719.2	386 / 566
740	73,979	12,030	719.2	424 / 314
745	74,493	12,030	719.3	651 / 559
750	74,993	12,030	719.4	424 / 838
757	75,664	12,030	719.4	179 / 608
761	76,131	12,030	719.6	177 / 256
769	76,868	11,826	719.6	57 / 160
774	77,423	11,826	721.5	54 / 180
779	77,925	11,826	722.3	63 / 258
786	78,576	11,826	722.4	122 / 42
789	78,945	11,826	723.0	52 / 42
796	79,592	11,826	725.6	78 / 107
801	80,112	11,826	726.5	44 / 192
807	80,678	11,826	727.4	241 / 293
810	80,993	11,826	727.4	290 / 169
814	81,364	11,826	727.4	201 / 47
819	81,894	11,826	728.0	140 / 356
823	82,270	11,826	728.1	130 / 395

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
FOURTH CREEK				
829	82,927	11,826	728.2	64 / 283
836	83,641	11,826	728.6	333 / 104
841	84,090	11,691	728.9	188 / 516
845	84,539	11,691	728.9	35 / 352
850	84,987	11,691	729.2	165 / 475
855	85,464	11,691	729.4	535 / 349
859	85,907	11,691	729.5	497 / 303
FOURTH CREEK TRIBUTARY 4				
008	800	524	707.7 ⁴	39 / 13
011	1,073	524	707.7 ⁴	13 / 14
013	1,314	524	707.7 ⁴	13 / 14
018	1,793	524	710.6	23 / 15
021	2,120	524	710.7	13 / 37
024	2,422	425	711.0	15 / 24
FOURTH CREEK TRIBUTARY 5				
007	680	1,501	709.4 ⁴	9 / 251
010	1,005	1,501	709.4 ⁴	13 / 198
015	1,500	1,501	709.4 ⁴	34 / 98
020	2,000	1,501	709.4 ⁴	88 / 17
025	2,500	1,501	709.4 ⁴	88 / 15
030	3,000	1,352	709.4 ⁴	127 / 9
035	3,500	1,352	709.4 ⁴	158 / 9
038	3,764	1,352	709.4 ⁴	114 / 43
040	4,035	1,352	709.4 ⁴	11 / 11
044	4,377	1,352	712.5	114 / 43
045	4,500	1,352	712.5	100 / 74
GRANTS CREEK TRIBUTARY 2				
007	675	812	674.2 ⁴	92 / 23
012	1,186	812	676.2	23 / 20
017	1,712	786	683.1	26 / 20
023	2,327	763	687.8	11 / 89
GRANTS CREEK TRIBUTARY 3				
006	595	1,204	676.9 ⁴	32 / 50
011	1,078	1,194	676.9 ⁴	38 / 46
014	1,430	1,194	676.9 ⁴	32 / 32
019	1,909	1,194	678.8	16 / 130
023	2,317	1,159	680.2	15 / 35
GRANTS CREEK TRIBUTARY 4				
007	654	933	679.9 ⁴	203 / 114
010	1,042	933	679.9 ⁴	250 / 32
015	1,531	933	679.9 ⁴	102 / 32
021	2,061	890	680.8	57 / 66
025	2,505	890	683.4	32 / 32

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
GRANTS CREEK TRIBUTARY 4				
030	3,019	878	687.2	62 / 32
034	3,379	878	688.9	40 / 32
034	3,371	641	742.8	26 / 12
036	3,552	641	744.7	11 / 12
038	3,763	641	749.5	17 / 4
040	3,997	641	753.5	18 / 21
043	4,273	641	756.9	12 / 38
045	4,497	641	760.0	23 / 12
IRISH BUFFALO CREEK TRIBUTARY 4				
034	3,371	641	742.8	26 / 12
036	3,552	641	744.7	11 / 12
038	3,763	641	749.5	17 / 4
040	3,997	641	753.5	18 / 21
043	4,273	641	756.9	12 / 38
045	4,497	641	760.0	23 / 12
IRISH BUFFALO CREEK TRIBUTARY 5				
032	3,157	545	746.7	73 / 44
033	3,319	545	746.7	62 / 43
035	3,466	545	747.7	50 / 10
036	3,628	545	749.3	25 / 50
038	3,754	545	749.8	15 / 40
039	3,925	545	751.2	25 / 28
041	4,083	545	752.2	25 / 14
JUMP AND RUN BRANCH				
004	433	1,615	658.4 ⁴	144 / 110
009	929	1,615	658.4 ⁴	76 / 23
015	1,462	1,615	658.4 ⁴	180 / 89
017	1,700	1,615	658.4 ⁴	119 / 21
020	1,977	1,615	658.4 ⁴	52 / 21
027	2,655	1,550	660.0	21 / 102
033	3,290	1,550	662.9	20 / 23
040	3,989	1,525	664.6	196 / 27
043	4,319	1,525	665.3	20 / 8
050	4,998	1,336	669.0	15 / 52
055	5,497	1,336	671.4	7 / 35
064	6,388	1,268	677.4	13 / 23
070	6,961	1,092	681.0	158 / 12
073	7,338	1,092	682.2	147 / 12
076	7,552	1,028	682.8	50 / 97
078	7,820	1,028	684.0	14 / 12
082	8,239	1,028	687.9	71 / 12
085	8,480	972	690.0	52 / 27
087	8,701	972	692.6	12 / 51

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
JUMP AND RUN BRANCH				
090	9,013	972	695.9	23 / 12
094	9,394	972	700.5	46 / 59
099	9,882	958	701.2	93 / 12
103	10,281	958	703.2	91 / 12
107	10,691	862	705.3	73 / 18
113	11,293	862	708.6	12 / 57
118	11,781	816	711.3	72 / 12
123	12,336	771	714.1	14 / 12
131	13,118	755	720.9	46 / 18
136	13,629	755	726.9	15 / 12
140	14,006	643	728.7	49 / 12
144	14,438	643	730.7	17 / 11
149	14,900	565	733.5	17 / 12
152	15,212	565	736.4	51 / 12
157	15,659	448	740.3	12 / 12
160	15,980	448	746.9	30 / 12
163	16,285	448	750.8	12 / 22
169	16,895	448	763.4	12 / 12
KERR CREEK				
007	745	3,509	680.4 ⁴	165 / 21
009	898	3,509	680.4 ⁴	220 / 21
015	1,511	3,509	681.1	180 / 224
020	2,024	3,509	681.6	246 / 21
023	2,348	3,509	682.1	177 / 21
028	2,815	3,509	683.2	250 / 21
040	4,003	3,509	686.0	150 / 50
045	4,493	3,509	686.6	193 / 217
050	5,000	3,509	687.2	282 / 66
053	5,330	3,509	687.7	189 / 21
057	5,748	3,509	689.2	166 / 90
062	6,226	3,509	690.1	52 / 78
069	6,901	3,509	692.5	21 / 186
075	7,519	3,314	693.7	222 / 94
085	8,504	3,314	696.3	210 / 230
091	9,137	3,314	699.4	119 / 120
096	9,629	3,314	699.4	70 / 100
100	10,000	3,314	699.7	154 / 173
104	10,420	3,123	699.5	115 / 66
111	11,137	3,123	701.7	192 / 20
115	11,495	3,123	702.3	165 / 20
118	11,764	3,123	702.7	123 / 84
122	12,212	3,123	703.6	40 / 60
127	12,726	3,123	706.1	160 / 106

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
KERR CREEK				
135	13,497	3,123	707.5	119 / 192
140	13,998	3,123	707.9	155 / 37
143	14,289	3,123	708.1	168 / 20
150	14,994	2,919	709.4	198 / 100
153	15,333	2,919	709.6	182 / 69
155	15,498	2,919	709.5	80 / 50
158	15,814	2,919	710.3	19 / 45
162	16,177	2,919	712.0	42 / 50
165	16,497	2,919	712.6	70 / 104
170	17,000	2,919	712.8	100 / 99
175	17,515	2,919	715.5	55 / 65
178	17,793	2,919	716.0	160 / 19
182	18,242	2,919	717.9	71 / 80
185	18,490	2,919	718.4	25 / 50
190	18,999	2,713	719.3	13 / 30
200	19,998	2,713	722.6	50 / 50
203	20,342	2,713	723.0	40 / 35
210	20,996	2,713	724.7	54 / 98
215	21,515	2,486	726.2	35 / 65
220	21,999	2,486	727.0	18 / 35
226	22,629	2,486	728.9	18 / 55
230	22,993	2,486	730.0	18 / 29
235	23,493	2,486	731.8	18 / 75
240	24,001	2,486	733.6	23 / 75
243	24,315	2,486	733.9	17 / 22
250	25,041	2,230	737.4	10 / 35
255	25,543	2,230	741.4	45 / 43
257	25,700	2,230	742.6	59 / 13
260	26,015	2,230	747.3	8 / 35
263	26,275	2,230	750.7	18 / 63
265	26,502	2,230	751.2	35 / 98
270	27,003	2,230	752.5	65 / 64
275	27,501	1,823	753.8	110 / 43
280	28,014	1,823	755.0	40 / 40
285	28,499	1,823	756.8	16 / 103
290	29,013	1,823	758.8	16 / 70
295	29,516	1,202	761.0	14 / 136
300	30,004	1,202	762.8	72 / 20
305	30,511	1,202	765.5	65 / 23
310	31,013	1,202	767.9	30 / 25
315	31,500	1,202	770.0	31 / 69
325	32,503	1,202	778.2	85 / 25
331	33,116	906	778.6	70 / 50

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
KERR CREEK				
335	33,480	906	779.7	30 / 35
339	33,856	906	781.4	12 / 17
342	34,175	651	783.3	16 / 12
345	34,518	651	785.3	12 / 11
350	35,000	651	790.1	5 / 10
353	35,335	651	791.3	12 / 12
358	35,783	651	795.1	6 / 16
360	36,011	651	798.6	12 / 12
365	36,504	651	802.1	12 / 17
368	36,807	488	804.1	10 / 18
369	36,929	488	805.5	10 / 7
372	37,210	488	810.5	13 / 18
374	37,366	488	813.3	5 / 12
375	37,499	488	814.1	8 / 8
377	37,696	488	817.4	20 / 10
380	37,999	488	819.5	4 / 12
382	38,224	488	822.9	4 / 15
385	38,481	488	826.6	6 / 11
389	38,887	488	835.8	140 / 54
390	38,995	488	835.8	110 / 51
393	39,331	488	837.7	8 / 30
395	39,530	488	841.1	51 / 12
397	39,712	488	842.8	17 / 12
399	39,867	488	845.0	41 / 10
LITTLE CREEK (SOUTH)				
008	800	1,630	719.8 ⁴	15 / 193
012	1,190	1,630	720.0	117 / 86
017	1,650	1,630	721.1	69 / 46
020	2,037	1,630	723.1	86 / 97
025	2,502	1,630	724.5	134 / 29
029	2,913	1,630	725.6	142 / 25
034	3,414	1,630	727.0	174 / 12
038	3,824	1,630	728.4	133 / 15
043	4,316	1,448	730.4	129 / 14
048	4,822	1,448	732.9	102 / 14
054	5,409	1,448	735.7	31 / 73
057	5,699	1,448	736.3	78 / 40
060	6,000	1,448	737.0	143 / 14
064	6,366	1,448	737.7	128 / 14
068	6,800	1,448	738.8	14 / 193
072	7,200	1,448	739.8	20 / 138
076	7,627	1,278	742.7	100 / 41
080	8,000	1,278	743.8	104 / 14

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
LITTLE CREEK (SOUTH)				
084	8,400	1,278	745.5	110 / 14
087	8,710	1,278	746.9	94 / 14
090	9,012	1,278	748.2	47 / 14
MILL CREEK				
252	25,154	1,688	713.6	20 / 70
255	25,546	1,688	715.4	60 / 35
263	26,262	1,688	718.7	25 / 35
268	26,767	1,688	721.0	13 / 17
271	27,120	1,688	724.3	25 / 32
276	27,600	1,688	726.3	65 / 22
283	28,295	1,353	729.3	15 / 60
287	28,683	1,353	731.1	19 / 21
293	29,273	1,353	734.5	13 / 50
297	29,736	1,353	736.5	50 / 40
302	30,187	1,353	738.0	80 / 18
307	30,742	1,353	741.6	15 / 55
311	31,143	1,353	743.1	12 / 34
317	31,691	1,353	747.4	13 / 30
320	32,040	1,016	750.1	24 / 10
321	32,123	1,016	750.7	25 / 10
322	32,192	1,016	751.2	22 / 6
325	32,476	1,016	757.1	72 / 16
329	32,944	1,016	759.2	34 / 12
334	33,352	1,016	763.0	50 / 9
342	34,249	1,016	768.6	45 / 55
349	34,865	820	771.9	20 / 31
357	35,685	820	780.0	30 / 10
364	36,429	820	783.3	22 / 22
367	36,733	820	784.8	35 / 8
372	37,176	820	788.4	35 / 22
376	37,600	664	792.9	12 / 30
381	38,109	664	798.5	20 / 20
383	38,264	664	798.7	20 / 30
NORTH SECOND CREEK				
015	1,500	12,683	650.9 ⁴	1,150 / 172
020	2,000	12,683	650.9 ⁴	1,240 / 41
025	2,500	12,683	650.9 ⁴	938 / 315
030	3,000	12,683	650.9 ⁴	900 / 316
035	3,500	12,683	650.9 ⁴	826 / 240
040	4,000	12,683	650.9 ⁴	580 / 201
045	4,500	12,683	650.9 ⁴	509 / 256
050	5,003	12,683	650.9 ⁴	449 / 191
054	5,393	12,683	650.9 ⁴	300 / 272

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
NORTH SECOND CREEK				
058	5,801	12,683	650.9 ⁴	170 / 248
061	6,142	12,683	650.9 ⁴	300 / 171
065	6,500	12,683	650.9 ⁴	423 / 115
070	7,000	12,683	650.9 ⁴	431 / 303
074	7,389	12,683	650.9 ⁴	480 / 133
082	8,175	12,683	650.9 ⁴	166 / 404
085	8,450	12,683	650.9 ⁴	166 / 451
090	9,000	12,683	650.9 ⁴	255 / 371
095	9,500	12,683	650.9 ⁴	100 / 421
100	10,000	12,683	650.9 ⁴	192 / 278
105	10,500	12,683	650.9 ⁴	94 / 246
110	11,000	12,683	650.9 ⁴	228 / 201
115	11,500	12,683	650.9 ⁴	260 / 401
120	11,967	12,683	650.9 ⁴	241 / 316
125	12,500	12,683	650.9 ⁴	399 / 191
130	13,000	12,683	650.9 ⁴	328 / 126
135	13,500	12,683	650.9 ⁴	525 / 40
140	13,977	12,683	650.9 ⁴	463 / 54
145	14,500	12,683	650.9 ⁴	467 / 51
150	15,000	12,683	650.9 ⁴	342 / 351
155	15,500	12,683	650.9 ⁴	64 / 637
161	16,144	12,683	650.9 ⁴	46 / 643
165	16,500	12,683	650.9 ⁴	130 / 657
170	17,000	12,683	650.9 ⁴	104 / 668
175	17,500	12,683	650.9 ⁴	32 / 950
180	18,000	12,683	650.9 ⁴	168 / 876
185	18,500	12,683	650.9 ⁴	159 / 1,007
190	19,000	12,683	650.9 ⁴	145 / 1,000
195	19,500	12,683	650.9 ⁴	40 / 1,066
200	20,000	12,683	650.9 ⁴	58 / 1,124
205	20,500	12,683	650.9 ⁴	492 / 530
210	21,000	12,683	650.9 ⁴	836 / 253
215	21,500	12,683	650.9 ⁴	897 / 160
220	22,000	12,683	650.9 ⁴	842 / 118
225	22,500	12,683	650.9 ⁴	728 / 64
230	23,000	12,683	650.9 ⁴	662 / 40
235	23,500	12,683	650.9 ⁴	541 / 29
238	23,821	12,683	650.9 ⁴	329 / 81
240	24,000	12,683	650.9 ⁴	467 / 36
245	24,500	11,844	650.9 ⁴	352 / 102
250	25,000	11,844	650.9 ⁴	436 / 100
255	25,500	11,844	650.9 ⁴	339 / 273
260	26,000	11,844	650.9 ⁴	344 / 251

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
NORTH SECOND CREEK				
264	26,420	11,844	650.9 ⁴	271 / 222
271	27,077	11,844	653.9	152 / 260
273	27,287	11,844	654.0	103 / 431
277	27,659	11,844	654.2	132 / 500
280	28,000	11,844	654.3	324 / 450
285	28,500	11,844	654.4	542 / 213
288	28,765	11,844	654.4	689 / 31
290	29,000	11,844	654.4	545 / 278
295	29,500	11,844	654.6	338 / 304
300	30,000	10,745	655.0	384 / 283
310	31,000	10,745	655.3	569 / 298
315	31,500	10,745	655.4	549 / 350
318	31,825	10,745	655.5	546 / 320
322	32,159	10,745	655.5	481 / 195
324	32,400	10,745	655.8	538 / 307
325	32,542	10,745	656.0	550 / 351
330	33,000	10,745	656.1	483 / 404
335	33,500	10,745	656.2	549 / 351
340	34,000	10,745	656.2	450 / 501
345	34,500	10,745	656.3	499 / 509
347	34,709	10,745	656.4	634 / 481
350	35,000	10,745	656.5	708 / 301
354	35,405	10,745	656.6	927 / 34
356	35,634	10,745	656.7	515 / 267
360	36,000	10,745	656.8	156 / 459
362	36,191	10,745	656.8	81 / 386
364	36,354	10,745	657.1	138 / 218
368	36,808	10,745	657.7	388 / 146
370	37,000	10,745	657.9	470 / 139
375	37,500	10,745	658.2	349 / 350
380	38,000	10,745	658.4	264 / 546
385	38,500	10,745	658.6	310 / 387
390	39,000	10,745	658.9	579 / 105
395	39,500	10,745	659.2	599 / 174
400	40,000	10,745	659.3	591 / 147
405	40,500	10,745	659.6	388 / 182
415	41,500	10,130	661.3	449 / 151
420	42,000	10,130	661.5	540 / 44
428	42,834	10,130	662.5	500 / 26
430	43,000	10,130	662.5	510 / 47
435	43,500	10,130	662.7	484 / 46
439	43,911	10,130	662.8	289 / 139
445	44,500	10,130	662.7	107 / 129

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
NORTH SECOND CREEK				
450	45,000	10,130	663.4	46 / 151
455	45,540	10,130	663.8	325 / 96
460	46,000	10,130	664.5	457 / 66
465	46,500	10,130	664.8	590 / 46
470	47,000	10,130	665.0	585 / 46
475	47,500	10,112	665.3	597 / 267
480	48,000	8,780	665.3	646 / 293
485	48,500	8,780	665.4	951 / 185
490	49,025	8,780	665.4	980 / 247
495	49,500	8,780	665.5	910 / 150
500	50,000	8,780	665.5	388 / 180
501	50,147	8,780	665.6	249 / 250
507	50,744	8,780	668.1	362 / 39
511	51,080	8,780	668.2	380 / 219
515	51,500	8,780	668.3	324 / 356
520	52,000	8,780	668.4	303 / 357
525	52,500	8,780	668.4	267 / 505
530	53,000	8,593	668.6	207 / 539
535	53,500	8,593	668.8	280 / 326
539	53,853	8,593	668.8	285 / 168
544	54,406	8,593	669.6	69 / 270
550	55,000	8,593	670.5	289 / 160
555	55,500	8,593	671.0	307 / 150
560	56,000	8,593	671.5	296 / 168
565	56,500	8,593	671.8	161 / 152
567	56,716	8,593	672.0	48 / 127
PARK CREEK				
092	9,191	1,920	678.5	109 / 12
096	9,629	1,920	679.9	105 / 21
099	9,925	1,920	681.2	11 / 58
105	10,501	1,785	684.0	23 / 100
111	11,129	1,785	686.0	25 / 31
116	11,629	1,785	688.9	22 / 49
121	12,129	1,785	691.6	53 / 72
126	12,612	1,785	693.7	57 / 60
131	13,129	1,785	695.6	11 / 54
136	13,629	1,507	698.4	19 / 140
141	14,129	1,507	699.6	13 / 117
144	14,385	1,507	701.0	27 / 72
148	14,750	1,507	702.7	111 / 28
152	15,222	1,507	705.8	45 / 9
156	15,629	1,507	708.6	10 / 85
159	15,902	1,507	709.7	21 / 42

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
PARK CREEK				
161	16,120	1,507	714.9	8 / 27
163	16,313	1,507	722.0	20 / 22
166	16,629	1,507	732.2	25 / 12
168	16,849	1,366	738.2	14 / 23
172	17,171	1,366	742.1	23 / 34
180	18,039	1,366	747.7	14 / 119
184	18,380	1,366	749.4	45 / 70
186	18,634	1,366	750.5	9 / 83
188	18,845	1,366	751.2	14 / 54
192	19,152	1,366	753.7	18 / 68
196	19,634	1,198	755.6	42 / 69
199	19,880	1,198	756.2	32 / 35
201	20,089	1,198	756.8	20 / 70
204	20,359	1,198	758.0	11 / 60
206	20,618	1,198	759.7	6 / 106
211	21,139	1,198	761.8	13 / 34
217	21,680	1,198	764.9	30 / 12
221	22,137	1,198	767.6	176 / 9
226	22,640	1,198	769.8	96 / 8
231	23,148	1,052	772.5	31 / 12
236	23,638	1,052	775.0	22 / 12
241	24,128	1,052	777.7	20 / 17
246	24,640	1,052	780.9	21 / 13
247	24,740	1,052	781.6	30 / 8
251	25,136	1,052	785.4	15 / 7
261	26,083	597	792.1	14 / 29
266	26,643	597	793.7	10 / 8
271	27,120	597	800.0	13 / 7
274	27,420	597	803.2	9 / 30
276	27,602	597	803.9	10 / 10
281	28,110	514	810.1	21 / 5
PEELER BRANCH				
001	91	1,132	656.2 ⁴	11 / 10
004	370	1,132	658.2	13 / 7
006	576	1,132	664.0	11 / 26
008	794	1,132	668.3	15 / 21
010	958	1,132	671.8	17 / 14
014	1,357	1,132	679.3	10 / 20
018	1,845	1,132	685.1	19 / 42
025	2,534	1,132	689.4	25 / 35
029	2,910	1,132	691.0	10 / 45
034	3,448	1,132	694.6	56 / 8
041	4,101	904	698.2	9 / 88

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
PEELER BRANCH				
045	4,498	904	701.0	99 / 38
050	4,979	904	703.6	10 / 70
056	5,554	904	707.1	30 / 10
060	6,016	904	711.1	22 / 37
063	6,272	904	711.3	10 / 15
RILES CREEK				
017	1,729	6,259	571.6 ⁴	237 / 223
024	2,372	6,259	571.6 ⁴	133 / 299
030	2,963	6,259	571.6 ⁴	229 / 296
037	3,718	6,259	571.6 ⁴	237 / 94
042	4,196	6,259	571.6 ⁴	229 / 296
049	4,872	6,259	571.6 ⁴	307 / 307
057	5,656	5,975	571.6 ⁴	328 / 296
063	6,302	5,975	571.6 ⁴	170 / 108
068	6,836	5,975	571.6 ⁴	128 / 155
075	7,492	5,975	571.6 ⁴	179 / 199
081	8,065	5,975	571.6 ⁴	109 / 204
087	8,691	5,975	571.6 ⁴	160 / 145
092	9,209	5,975	571.6 ⁴	114 / 173
099	9,926	5,975	571.6 ⁴	292 / 279
105	10,461	5,975	571.6 ⁴	283 / 346
110	10,994	5,975	571.6 ⁴	274 / 225
119	11,857	5,975	571.6 ⁴	306 / 502
ROCKY BRANCH TRIBUTARY 1				
001	95	603	648.9 ⁴	11 / 5
005	468	603	654.6	7 / 37
012	1,222	590	669.5	32 / 32
019	1,869	549	681.6	4 / 40
029	2,918	430	701.7	12 / 15
032	3,162	418	707.5	30 / 45
SECOND CREEK				
037	3,731	9,014	625.5 ⁴	1,107 / 1,287
053	5,297	9,014	625.5 ⁴	779 / 599
067	6,731	9,014	625.5 ⁴	505 / 766
078	7,752	9,014	625.5 ⁴	444 / 666
088	8,836	9,014	625.5 ⁴	774 / 588
096	9,591	9,014	625.5 ⁴	570 / 524
109	10,937	9,014	625.5 ⁴	556 / 465
129	12,946	9,014	625.5 ⁴	921 / 694
141	14,059	7,963	625.5 ⁴	1,072 / 1,373
150	14,973	7,963	625.5 ⁴	1,337 / 1,418
162	16,194	7,767	625.5 ⁴	1,202 / 925
175	17,469	7,767	625.5 ⁴	692 / 1,044

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SECOND CREEK				
184	18,432	7,767	625.5 ⁴	993 / 938
195	19,538	7,767	625.5 ⁴	613 / 783
208	20,807	7,531	625.5 ⁴	657 / 720
220	22,013	7,531	625.5 ⁴	446 / 425
227	22,651	7,531	625.5 ⁴	362 / 376
234	23,362	7,531	625.5 ⁴	460 / 535
240	23,962	7,531	625.5 ⁴	674 / 606
248	24,801	7,531	625.5 ⁴	253 / 430
256	25,607	7,531	625.5 ⁴	337 / 439
262	26,170	7,531	625.5 ⁴	247 / 297
268	26,828	7,531	625.5 ⁴	255 / 246
280	27,973	6,771	625.5 ⁴	291 / 365
285	28,477	6,771	625.5 ⁴	219 / 222
291	29,071	6,771	625.5 ⁴	252 / 146
295	29,473	6,771	625.5 ⁴	220 / 89
301	30,077	6,771	625.5 ⁴	220 / 145
306	30,591	6,771	625.6	220 / 53
311	31,103	6,771	628.1	53 / 205
315	31,467	6,771	628.9	82 / 220
320	31,968	6,771	629.5	291 / 318
323	32,286	6,771	629.6	353 / 81
328	32,803	6,771	629.8	353 / 81
335	33,496	6,771	630.2	297 / 53
340	33,953	6,771	630.6	261 / 53
345	34,534	6,771	631.1	227 / 74
350	35,025	6,771	631.7	53 / 254
355	35,457	6,771	632.3	27 / 395
359	35,898	6,771	632.8	53 / 405
365	36,505	6,771	633.4	232 / 329
370	36,968	6,771	633.7	523 / 225
375	37,454	6,771	633.9	492 / 53
380	38,011	6,771	634.3	222 / 26
385	38,529	6,315	635.2	68 / 107
390	39,033	6,315	636.2	213 / 311
396	39,610	6,315	636.5	288 / 52
402	40,157	6,315	637.0	256 / 52
405	40,515	6,315	637.2	165 / 133
410	40,997	6,315	637.9	52 / 471
413	41,336	6,315	638.1	52 / 446
425	42,479	5,599	640.6	49 / 69
430	43,010	5,599	641.4	46 / 125
434	43,409	5,599	641.8	37 / 117
439	43,948	5,599	642.5	367 / 136

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Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK				
445	44,494	5,599	642.6	364 / 256
450	44,978	5,599	642.8	741 / 49
455	45,534	5,599	643.0	750 / 49
460	45,998	5,599	643.0	669 / 49
465	46,494	5,599	643.2	335 / 49
468	46,837	5,599	643.4	130 / 49
475	47,495	5,459	644.5	405 / 61
480	48,026	5,459	644.9	333 / 145
486	48,566	5,459	645.3	49 / 258
487	48,743	5,459	645.2	41 / 136
492	49,153	5,459	645.6	25 / 136
495	49,490	5,459	646.3	41 / 49
500	50,025	5,459	647.8	143 / 81
504	50,366	5,459	648.2	92 / 246
510	51,017	5,459	648.7	327 / 36
515	51,513	5,459	649.2	132 / 81
519	51,876	5,459	649.6	152 / 73
525	52,484	5,459	650.3	30 / 257
530	52,988	5,459	650.8	256 / 49
534	53,448	5,459	651.1	398 / 87
540	53,964	5,459	651.4	320 / 155
545	54,482	5,459	651.7	877 / 81
551	55,066	5,090	652.0	724 / 97
555	55,464	5,090	652.0	204 / 150
566	56,609	5,090	655.3	224 / 70
570	56,993	5,090	655.5	238 / 47
576	57,590	5,090	655.8	383 / 47
580	57,989	5,090	655.9	212 / 47
585	58,457	5,090	656.2	47 / 243
589	58,918	5,090	656.5	47 / 199
599	59,949	5,090	658.5	221 / 97
606	60,633	5,090	658.9	96 / 66
611	61,115	5,090	659.6	141 / 47
616	61,554	5,090	660.3	396 / 75
623	62,327	5,090	661.8	175 / 407
626	62,558	5,090	661.8	47 / 516
629	62,939	5,090	661.9	126 / 322
633	63,270	5,090	662.0	363 / 87
636	63,590	5,090	662.1	376 / 47
639	63,911	4,131	662.4	102 / 222
644	64,365	4,131	662.9	81 / 423
650	64,964	4,088	663.3	99 / 201
655	65,453	4,088	663.9	43 / 76

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SECOND CREEK				
658	65,755	4,088	665.5	464 / 43
660	66,015	4,088	665.6	217 / 100
665	66,493	4,088	666.3	320 / 164
674	67,422	3,978	669.3	345 / 255
679	67,906	3,978	669.4	374 / 43
686	68,602	2,993	669.7	266 / 192
691	69,125	2,993	670.0	40 / 235
697	69,680	2,993	670.7	65 / 150
700	70,011	2,993	671.4	184 / 49
706	70,616	2,993	672.7	104 / 82
710	71,015	2,993	673.7	194 / 106
716	71,613	2,993	674.4	513 / 175
725	72,500	2,993	677.4	40 / 40
729	72,922	2,993	679.5	117 / 40
735	73,469	2,633	680.5	83 / 117
739	73,876	2,633	680.7	39 / 36
744	74,390	2,633	682.9	108 / 148
749	74,887	2,633	683.6	39 / 90
756	75,572	2,633	685.1	207 / 193
760	75,982	2,633	685.6	113 / 39
765	76,502	2,633	687.0	16 / 141
770	76,998	2,460	689.7	38 / 203
775	77,463	2,460	689.7	34 / 38
780	77,999	2,460	692.7	9 / 26
785	78,472	2,460	697.9	38 / 101
790	79,044	2,154	698.9	44 / 203
795	79,456	2,154	699.1	105 / 37
800	79,980	2,087	701.4	67 / 37
803	80,301	2,087	702.2	37 / 37
809	80,938	2,087	705.6	124 / 70
815	81,511	2,087	707.0	125 / 103
820	81,953	2,087	707.9	37 / 43
829	82,911	1,517	714.0	57 / 34
834	83,431	1,517	716.3	120 / 34
840	84,008	1,517	718.0	34 / 34
845	84,503	1,517	720.6	7 / 84
857	85,654	1,307	724.4	37 / 120
860	86,028	1,307	726.1	35 / 100
865	86,494	1,209	728.5	33 / 107
870	87,007	1,209	730.6	47 / 47
875	87,528	1,209	734.8	33 / 33
880	88,002	1,209	738.6	34 / 33
885	88,530	1,174	741.5	33 / 82

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Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SECOND CREEK				
890	88,995	1,174	743.7	65 / 54
894	89,431	1,174	746.3	85 / 143
900	89,983	358	747.8	10 / 12
905	90,457	358	754.1	65 / 41
910	91,009	283	761.5	32 / 32
915	91,489	283	769.7	32 / 32
921	92,069	158	781.3	16 / 15
925	92,533	158	796.1	29 / 16
931	93,070	158	809.8	32 / 20
SECOND CREEK TRIBUTARY 1				
003	326	2,030	640.1 ⁴	70 / 17
006	644	2,030	640.1 ⁴	42 / 17
010	1,001	2,030	640.8	34 / 43
016	1,601	2,030	645.8	158 / 17
019	1,948	2,030	646.2	136 / 69
024	2,440	2,030	646.7	88 / 82
030	3,045	2,030	647.8	73 / 132
035	3,472	2,030	648.8	24 / 153
040	3,985	1,931	649.9	140 / 142
044	4,421	1,931	650.7	128 / 30
048	4,829	1,931	652.4	17 / 74
054	5,432	1,931	655.8	49 / 62
057	5,689	1,931	657.1	55 / 15
SECOND CREEK TRIBUTARY 2				
003	267	396	663.1 ⁴	30 / 27
007	733	396	668.3	42 / 10
012	1,239	396	676.7	40 / 17
019	1,913	293	690.7	12 / 10
024	2,443	293	701.3	21 / 17
029	2,946	293	715.9	30 / 30
038	3,816	293	735.3	32 / 32
SECOND CREEK TRIBUTARY 3				
001	106	1,002	746.6 ⁴	32 / 57
005	509	1,002	748.9	49 / 32
009	909	1,002	751.5	32 / 32
017	1,650	955	756.1	32 / 32
020	2,022	955	759.3	32 / 32
024	2,437	955	761.9	15 / 32
029	2,861	955	765.5	32 / 32
033	3,322	719	767.1	115 / 27
040	3,996	719	769.3	34 / 33
044	4,443	719	773.1	32 / 7
049	4,911	719	777.2	33 / 19

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SECOND CREEK TRIBUTARY 3				
054	5,376	719	780.7	32 / 32
057	5,736	542	782.0	82 / 32
060	6,000	542	782.5	32 / 32
062	6,234	542	784.6	24 / 32
069	6,929	415	796.7	105 / 106
072	7,199	415	797.9	6 / 12
074	7,357	415	814.1	32 / 32
074	7,442	415	815.9	32 / 32
080	8,000	415	826.9	45 / 4
SILLS CREEK				
005	450	4,537	679.7 ⁴	83 / 51
009	900	4,537	679.7 ⁴	310 / 43
014	1,350	4,537	679.7 ⁴	271 / 252
018	1,800	4,537	679.7 ⁴	145 / 447
023	2,250	4,537	679.7 ⁴	32 / 461
027	2,700	4,537	679.7	25 / 363
032	3,150	4,537	680.1	157 / 112
036	3,600	4,537	680.9	88 / 102
038	3,828	4,537	681.2	36 / 76
041	4,050	4,537	682.5	134 / 27
046	4,576	4,537	683.4	63 / 147
048	4,767	4,537	683.8	55 / 180
054	5,400	4,537	685.7	40 / 353
060	5,950	4,537	685.7	57 / 310
062	6,172	4,537	685.8	226 / 191
068	6,750	4,537	686.1	277 / 236
072	7,200	4,370	686.2	233 / 287
077	7,650	4,370	686.5	218 / 216
078	7,803	4,370	686.6	291 / 74
082	8,246	4,370	687.1	260 / 165
086	8,550	4,370	687.3	179 / 192
088	8,820	4,370	687.6	136 / 308
090	9,000	4,370	687.7	30 / 369
095	9,450	4,370	688.3	68 / 336
099	9,900	4,370	689.1	176 / 314
104	10,350	4,370	689.7	102 / 389
108	10,800	4,370	690.2	213 / 249
113	11,250	4,370	690.9	300 / 262
117	11,700	4,370	691.6	246 / 142
122	12,150	4,224	692.4	313 / 36
126	12,600	4,224	693.0	109 / 129
131	13,050	4,224	694.0	183 / 183
140	13,950	4,224	696.1	373 / 185

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Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SILLS CREEK				
144	14,400	4,070	696.4	429 / 77
149	14,850	4,070	696.8	426 / 80
153	15,300	4,070	697.2	154 / 370
162	16,200	4,070	701.5	351 / 30
167	16,650	3,815	701.7	34 / 427
171	17,063	3,815	701.9	24 / 453
174	17,402	3,815	702.0	47 / 415
180	18,000	3,815	702.5	52 / 285
183	18,282	3,815	702.9	230 / 60
186	18,600	3,815	703.9	175 / 187
188	18,838	3,815	704.1	219 / 87
192	19,171	3,815	704.6	195 / 189
197	19,730	3,815	705.1	29 / 179
203	20,250	3,815	705.7	158 / 131
205	20,486	3,815	706.1	280 / 74
208	20,782	3,815	706.4	208 / 34
212	21,150	3,815	706.9	35 / 142
216	21,600	3,815	707.4	73 / 307
221	22,050	3,815	708.0	44 / 216
225	22,500	3,815	708.5	99 / 116
230	22,950	3,629	709.5	236 / 122
239	23,940	3,629	713.4	37 / 86
243	24,300	3,629	713.9	178 / 67
248	24,847	3,629	714.3	120 / 89
252	25,200	3,629	714.7	183 / 140
257	25,650	3,629	715.0	150 / 172
261	26,100	3,629	715.1	32 / 89
266	26,550	3,629	715.5	35 / 45
270	27,000	3,465	715.9	39 / 28
275	27,450	3,465	716.3	38 / 31
279	27,900	3,465	716.9	44 / 36
284	28,350	3,465	717.4	33 / 36
288	28,800	3,465	718.0	31 / 35
293	29,250	3,465	718.7	34 / 31
297	29,700	3,465	719.5	38 / 25
302	30,150	3,076	720.8	29 / 27
306	30,600	2,923	722.4	22 / 38
310	31,030	2,923	723.0	29 / 35
320	31,950	2,923	724.6	40 / 18
324	32,400	2,658	725.2	14 / 27
329	32,850	2,658	726.4	14 / 35
333	33,300	2,658	727.4	31 / 29
338	33,750	2,658	727.9	29 / 32

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SILLS CREEK				
340	33,980	2,658	728.0	26 / 28
342	34,200	2,658	728.4	24 / 35
347	34,650	2,658	730.3	25 / 30
351	35,100	2,658	731.9	32 / 30
356	35,550	2,658	732.8	18 / 24
360	36,000	2,658	734.2	27 / 36
365	36,450	2,658	734.7	28 / 31
369	36,900	2,487	735.2	29 / 30
374	37,350	2,487	736.1	31 / 22
377	37,709	2,487	737.1	21 / 40
378	37,800	2,487	736.3	16 / 17
381	38,071	1,819	739.2	21 / 31
383	38,250	1,819	739.5	18 / 22
387	38,700	1,819	741.0	14 / 15
396	39,600	1,299	746.1	11 / 25
401	40,050	1,299	747.0	12 / 18
405	40,500	1,299	748.2	15 / 9
410	40,950	1,299	750.9	10 / 16
414	41,400	1,299	753.3	8 / 14
419	41,850	1,299	756.3	10 / 86
423	42,300	1,299	758.2	15 / 13
425	42,548	1,299	759.6	8 / 97
428	42,750	1,299	760.1	11 / 93
432	43,200	1,299	761.8	13 / 14
437	43,650	1,299	763.4	81 / 9
441	44,100	1,299	767.5	82 / 80
446	44,550	1,299	768.5	8 / 128
450	45,000	923	771.2	133 / 7
455	45,450	923	772.5	50 / 7
459	45,900	923	775.3	76 / 7
464	46,350	923	777.8	87 / 7
468	46,800	923	779.2	65 / 7
473	47,250	923	781.2	9 / 9
477	47,700	537	785.1	13 / 43
482	48,150	537	786.5	9 / 9
486	48,600	537	789.3	12 / 7
492	49,185	537	792.5	32 / 7
495	49,500	537	794.5	11 / 11
500	49,950	537	797.7	15 / 12
504	50,400	537	800.4	7 / 14
509	50,850	537	805.6	7 / 7
513	51,300	346	810.4	7 / 7
518	51,750	346	813.2	7 / 7

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
SILLS CREEK TRIBUTARY 1				
010	988	885	701.7 ⁴	295 / 8
012	1,200	885	701.7 ⁴	155 / 8
016	1,600	885	703.1	131 / 8
020	2,000	885	704.8	160 / 8
024	2,400	885	706.7	130 / 8
024	2,425	885	706.7	96 / 8
026	2,631	885	708.4	166 / 8
028	2,800	885	708.9	177 / 59
031	3,141	666	710.1	88 / 37
SLOANS CREEK				
003	302	4,953	672.1 ⁴	408 / 47
005	495	4,953	672.1 ⁴	105 / 277
008	829	4,953	672.1 ⁴	27 / 234
012	1,181	4,953	672.1 ⁴	35 / 385
018	1,814	4,953	672.1 ⁴	75 / 125
023	2,308	4,953	673.1	100 / 300
028	2,808	4,953	673.3	27 / 429
035	3,478	4,953	673.5	27 / 329
040	4,015	4,953	674.4	27 / 256
044	4,371	4,953	675.2	27 / 433
046	4,644	4,798	675.7	115 / 477
050	4,988	4,798	676.0	229 / 461
053	5,305	4,798	676.1	162 / 165
065	6,486	4,446	679.7	200 / 200
070	6,976	4,446	679.9	310 / 280
075	7,486	4,446	680.1	312 / 180
080	7,963	4,446	680.6	423 / 17
083	8,280	4,446	680.9	550 / 17
086	8,580	2,091	681.1	239 / 17
092	9,202	2,091	681.5	194 / 57
095	9,476	2,091	682.0	153 / 53
099	9,910	2,091	683.1	66 / 183
104	10,357	2,091	684.1	17 / 238
109	10,898	2,091	685.3	72 / 224
112	11,208	2,091	686.1	178 / 17
114	11,399	2,091	687.0	184 / 17
116	11,600	2,091	687.0	78 / 25
121	12,100	2,091	689.6	130 / 124
126	12,556	2,091	690.2	38 / 128
132	13,164	1,913	691.4	91 / 110
135	13,456	1,913	692.1	100 / 100
140	13,978	1,913	693.6	25 / 25
141	14,070	1,913	694.8	50 / 50

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SLOANS CREEK				
141	14,127	1,913	694.8	75 / 85
145	14,468	1,913	695.8	176 / 75
151	15,139	1,591	697.6	185 / 73
155	15,483	1,591	698.8	139 / 15
160	16,003	1,591	702.0	102 / 15
165	16,483	1,591	704.5	136 / 37
169	16,937	1,591	705.9	89 / 21
173	17,282	1,591	707.2	196 / 76
176	17,578	1,591	707.7	114 / 173
185	18,495	1,591	712.5	15 / 59
189	18,877	1,591	713.8	34 / 105
195	19,493	1,591	714.8	184 / 20
200	19,986	1,591	715.9	60 / 82
204	20,398	1,591	717.6	75 / 53
207	20,653	1,305	718.8	13 / 106
210	21,019	1,305	720.3	8 / 171
215	21,513	1,305	721.9	13 / 131
220	22,031	1,305	723.9	13 / 128
225	22,477	1,305	725.5	13 / 117
229	22,853	1,305	726.6	13 / 180
235	23,476	1,071	728.0	13 / 157
240	23,985	1,071	730.3	13 / 110
244	24,366	1,071	732.3	13 / 120
248	24,764	960	734.5	12 / 110
255	25,532	960	739.4	47 / 15
258	25,802	960	741.2	25 / 46
265	26,482	960	744.5	67 / 12
269	26,946	960	746.9	20 / 23
271	27,146	960	748.6	12 / 31
273	27,260	960	749.9	35 / 22
275	27,452	960	751.6	17 / 14
278	27,847	960	756.8	10 / 8
281	28,062	960	758.9	12 / 7
282	28,187	960	762.1	6 / 25
283	28,302	960	763.4	10 / 50
288	28,806	960	763.3	30 / 70
292	29,221	960	765.3	45 / 30
298	29,785	644	768.2	20 / 36
303	30,274	644	771.4	12 / 58
308	30,772	644	775.7	12 / 31
310	31,028	496	777.7	12 / 12
314	31,428	496	781.8	12 / 12
317	31,686	496	786.1	13 / 16

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
SLOANS CREEK				
321	32,149	496	792.1	12 / 5
324	32,407	496	798.7	8 / 8
326	32,608	496	803.7	12 / 12
332	33,230	496	824.3	25 / 35
335	33,474	496	824.3	20 / 30
337	33,738	496	823.7	5 / 14
342	34,239	496	831.8	18 / 18
347	34,698	496	838.4	13 / 5
350	34,974	496	843.8	4 / 5
SOUTH YADKIN RIVER				
029	2,872	52,548	648.6 ⁴	1,254 / 626
033	3,337	52,548	648.6 ⁴	1,096 / 448
036	3,647	52,548	648.6 ⁴	1,155 / 327
041	4,130	52,548	648.6 ⁴	1,051 / 171
047	4,717	52,548	648.6 ⁴	993 / 75
051	5,146	52,548	648.6 ⁴	847 / 75
055	5,544	52,548	648.6 ⁴	850 / 254
063	6,311	52,548	648.6 ⁴	551 / 673
069	6,883	52,548	648.6 ⁴	178 / 710
074	7,420	52,548	648.6 ⁴	161 / 543
079	7,885	52,548	648.6 ⁴	174 / 425
085	8,475	52,548	648.6 ⁴	136 / 456
092	9,186	52,548	648.6 ⁴	98 / 392
097	9,748	52,548	648.6 ⁴	183 / 309
103	10,319	52,548	648.6 ⁴	272 / 291
107	10,667	52,548	648.6 ⁴	360 / 344
112	11,232	52,548	649.0	211 / 493
118	11,764	52,548	649.0	182 / 607
124	12,365	52,548	649.2	128 / 700
128	12,847	52,548	649.3	108 / 662
132	13,171	52,548	649.4	182 / 534
137	13,698	52,548	649.7	340 / 626
143	14,345	52,548	650.1	491 / 719
147	14,722	52,548	650.2	603 / 558
152	15,204	52,548	650.4	921 / 313
157	15,721	52,548	650.5	1,251 / 241
163	16,313	52,548	650.7	1,661 / 422
170	17,047	52,548	650.8	2,257 / 167
183	18,289	52,548	650.9	3,190 / 58
194	19,377	52,548	650.9	2,563 / 1,457
208	20,786	41,707	651.0	1,294 / 1,712
217	21,724	41,707	651.0	441 / 1,658
223	22,295	41,707	651.1	154 / 2,154

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SOUTH YADKIN RIVER				
229	22,876	41,707	651.1	66 / 2,001
236	23,565	41,707	651.1	255 / 1,967
241	24,101	41,707	651.1	66 / 1,652
247	24,675	41,707	651.2	66 / 1,381
251	25,058	41,707	651.2	66 / 1,321
257	25,664	41,707	651.3	66 / 1,288
261	26,098	41,707	651.4	86 / 1,330
266	26,605	41,707	651.5	104 / 1,358
272	27,232	41,707	651.7	572 / 1,320
280	27,995	41,707	651.7	549 / 407
285	28,527	41,707	651.7	574 / 252
289	28,947	41,707	651.9	237 / 380
300	30,040	41,707	653.0	729 / 80
304	30,403	41,707	653.1	921 / 66
310	31,035	41,707	653.3	928 / 288
315	31,466	41,707	653.3	650 / 430
320	31,963	41,707	653.4	512 / 544
323	32,296	41,707	653.5	564 / 383
327	32,696	41,707	653.5	536 / 199
330	33,037	41,707	653.7	713 / 80
336	33,553	41,707	653.8	470 / 375
342	34,156	41,707	653.9	251 / 445
345	34,511	41,707	654.0	223 / 316
348	34,826	41,707	654.0	203 / 302
353	35,282	41,707	654.5	115 / 513
356	35,556	41,707	654.5	85 / 615
359	35,941	41,707	654.6	66 / 682
364	36,358	41,707	654.8	80 / 681
368	36,772	41,707	654.9	162 / 561
374	37,350	41,336	655.0	249 / 304
379	37,887	41,336	655.3	659 / 94
383	38,273	41,336	655.5	1,112 / 52
386	38,558	41,336	655.6	1,198 / 153
391	39,086	41,336	655.7	1,031 / 417
397	39,663	41,336	655.7	837 / 135
399	39,929	41,336	655.8	923 / 175
407	40,682	24,015	656.0	787 / 206
410	41,033	24,015	656.1	553 / 571
412	41,233	24,015	656.1	392 / 658
418	41,806	24,015	656.1	149 / 692
423	42,298	24,015	656.2	76 / 1,007
430	42,978	23,987	656.3	950 / 723
438	43,815	23,708	656.3	2,001 / 162

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
SOUTH YADKIN RIVER				
450	45,044	23,708	656.4	1,306 / 75
455	45,518	23,708	656.4	1,045 / 75
460	46,031	23,708	656.4	772 / 177
465	46,489	23,708	656.5	417 / 419
470	46,956	23,708	656.6	368 / 748
476	47,562	23,680	656.6	108 / 845
482	48,181	23,680	656.7	75 / 1,041
489	48,887	23,680	656.7	250 / 942
494	49,426	23,680	656.7	295 / 530
502	50,213	23,680	656.9	255 / 227
516	51,614	23,636	657.2	325 / 106
529	52,936	23,601	657.5	158 / 106
538	53,827	23,601	657.9	293 / 274
546	54,614	23,601	658.5	385 / 220
554	55,371	23,601	659.1	169 / 206
564	56,416	23,588	659.2	323 / 75
569	56,905	23,588	660.0	343 / 79
576	57,585	23,588	661.3	197 / 266
580	57,957	23,588	662.3	139 / 349
584	58,432	23,588	663.4	309 / 800
590	59,035	23,588	663.8	394 / 650
596	59,603	23,588	664.3	440 / 554
601	60,134	23,585	664.6	243 / 288
605	60,509	23,585	665.1	282 / 75
611	61,064	23,585	666.1	384 / 75
617	61,664	23,583	666.8	236 / 555
623	62,317	23,583	667.2	187 / 573
628	62,810	23,583	667.5	143 / 272
643	64,296	23,583	669.2	113 / 330
650	64,963	23,583	669.7	75 / 442
654	65,418	23,583	670.0	75 / 643
676	67,580	23,581	670.7	1,250 / 145
686	68,604	23,581	670.8	1,417 / 127
696	69,603	23,581	671.0	988 / 251
704	70,364	23,415	671.0	292 / 154
710	70,988	23,415	671.4	205 / 100
716	71,638	23,415	672.0	113 / 274
723	72,260	23,373	672.4	90 / 579
730	72,994	23,373	672.8	148 / 434
734	73,421	23,373	673.0	72 / 343
739	73,888	23,373	673.3	72 / 399
751	75,136	18,531	673.8	1,840 / 53
783	78,260	18,531	674.0	1,930 / 396

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
SOUTH YADKIN RIVER				
788	78,787	18,531	674.0	1,950 / 169
794	79,428	18,531	674.1	1,838 / 474
805	80,479	18,531	674.1	1,853 / 675
812	81,167	18,506	674.2	1,716 / 602
829	82,867	18,477	674.3	298 / 1,062
832	83,175	18,477	674.4	101 / 1,120
837	83,692	18,477	674.5	53 / 1,074
844	84,424	18,477	674.6	257 / 987
850	85,047	18,477	674.8	435 / 471
856	85,583	18,477	675.0	441 / 384
863	86,305	18,462	675.3	286 / 135
869	86,917	18,462	675.9	292 / 94
875	87,530	18,462	676.5	258 / 68
880	88,049	18,462	677.2	53 / 597
887	88,691	18,462	677.5	55 / 694
892	89,230	18,462	677.7	90 / 465
903	90,259	18,393	679.1	158 / 406
910	90,988	18,393	679.4	583 / 124
914	91,410	18,393	679.6	636 / 122
920	91,994	18,393	679.8	529 / 142
927	92,695	18,393	680.1	172 / 267
932	93,217	18,393	680.4	97 / 271
937	93,715	18,393	680.7	123 / 241
943	94,330	18,393	681.2	308 / 52
950	94,957	18,393	681.6	308 / 54
957	95,736	17,860	682.1	169 / 340
963	96,337	17,860	682.4	420 / 168
969	96,873	17,860	682.6	671 / 52
976	97,558	17,836	682.8	678 / 359
982	98,179	17,836	682.9	635 / 281
988	98,808	17,836	683.1	321 / 342
996	99,578	17,836	683.4	151 / 235
1000	100,001	17,836	683.8	236 / 94
1006	100,590	17,836	684.3	291 / 52
1016	101,570	17,729	685.1	230 / 368
1033	103,272	17,703	687.0	108 / 279
1039	103,944	17,703	687.4	238 / 155
1045	104,494	17,703	687.8	161 / 291
1049	104,938	17,703	688.0	176 / 314
1059	105,939	17,702	688.6	917 / 74
1067	106,661	17,698	688.9	1,094 / 98
1074	107,440	17,698	689.1	1,161 / 54
1081	108,050	17,698	689.4	560 / 573

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
SOUTH YADKIN RIVER				
1088	108,801	17,698	689.5	75 / 834
1095	109,470	17,698	689.7	51 / 1,098
1105	110,497	17,698	689.9	51 / 1,485
1116	111,558	17,697	690.0	756 / 879
1125	112,459	17,696	690.1	428 / 1,460
1150	115,016	17,695	690.4	1,216 / 604
1158	115,768	17,695	690.5	1,175 / 387
1162	116,235	17,693	690.6	1,056 / 163
1168	116,813	17,693	690.7	466 / 96
1176	117,568	17,693	691.4	304 / 171
1183	118,312	17,693	692.0	78 / 196
1190	118,994	17,693	692.9	51 / 695
1197	119,666	17,688	693.2	510 / 518
1202	120,189	17,688	693.4	525 / 456
1208	120,769	17,688	693.6	550 / 281
1217	121,703	17,688	693.9	202 / 154
1227	122,703	17,688	694.9	641 / 51
1238	123,786	17,688	695.5	55 / 784
1263	126,329	17,686	696.2	1,402 / 51
1274	127,350	17,682	696.4	683 / 223
1284	128,364	17,682	696.9	401 / 51
THIRD CREEK				
004	371	12,323	669.6 ⁴	100 / 173
010	960	12,323	669.6 ⁴	70 / 231
015	1,463	12,323	669.6 ⁴	204 / 150
020	1,968	12,323	669.6 ⁴	139 / 88
025	2,509	12,323	669.6 ⁴	131 / 100
029	2,915	12,323	669.6 ⁴	170 / 194
032	3,233	12,323	669.6 ⁴	170 / 121
036	3,562	12,323	669.6 ⁴	64 / 164
039	3,902	12,323	669.6 ⁴	29 / 278
041	4,149	12,323	669.6 ⁴	228 / 195
050	4,992	12,323	669.6 ⁴	192 / 127
054	5,393	12,323	669.9	329 / 98
058	5,822	12,323	670.3	508 / 32
066	6,647	12,323	670.6	243 / 103
069	6,948	12,323	670.8	41 / 133
076	7,589	12,323	671.4	115 / 32
083	8,267	12,323	672.5	117 / 69
092	9,174	12,323	673.4	56 / 566
100	10,036	12,323	673.5	253 / 52
104	10,433	12,323	673.8	89 / 115
109	10,898	12,323	674.5	99 / 90

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water- Surface Elevation (feet NAVD 88)	Non- Encroachment Width³ (feet)
THIRD CREEK				
113	11,313	12,323	675.3	506 / 33
118	11,752	12,323	675.8	294 / 127
123	12,254	12,323	676.1	86 / 91
127	12,703	12,323	676.8	65 / 99
133	13,257	12,323	677.6	78 / 70
138	13,840	12,323	678.6	135 / 88
146	14,561	12,323	679.9	74 / 128
151	15,149	12,323	680.8	117 / 141
155	15,516	12,323	681.0	169 / 214
159	15,884	12,323	681.0	38 / 179
164	16,352	12,323	681.7	168 / 32
170	16,971	12,323	682.3	88 / 349
174	17,406	12,323	682.6	392 / 308
182	18,170	12,323	683.0	590 / 48
192	19,230	12,323	683.9	143 / 80
196	19,610	12,323	684.3	110 / 45
199	19,904	12,323	685.3	57 / 254
204	20,395	12,323	685.7	187 / 79
211	21,114	12,323	686.3	50 / 235
216	21,562	12,323	686.5	59 / 113
220	21,968	12,323	687.0	48 / 130
223	22,327	12,323	687.7	50 / 191
227	22,738	12,323	688.1	41 / 170
233	23,297	12,323	688.6	115 / 96
238	23,804	12,323	688.8	130 / 46
248	24,787	12,323	690.7	118 / 108
252	25,242	12,323	691.2	121 / 80
256	25,574	11,809	691.9	170 / 93
262	26,234	11,809	692.3	313 / 55
268	26,847	11,809	692.6	537 / 352
275	27,523	11,809	692.6	57 / 810
277	27,703	11,809	692.6	57 / 734
286	28,568	11,809	692.8	412 / 252
289	28,893	11,809	692.8	379 / 138
297	29,699	11,809	693.0	397 / 491
304	30,388	11,809	693.1	389 / 420
308	30,767	11,809	693.1	551 / 505
313	31,342	11,809	693.2	485 / 487
319	31,936	11,809	693.3	129 / 620
324	32,436	11,809	693.4	33 / 597
333	33,286	11,809	693.7	193 / 273
340	34,047	11,809	694.3	217 / 286
345	34,508	11,809	694.5	281 / 104

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
THIRD CREEK				
353	35,309	11,809	695.2	112 / 56
358	35,797	11,809	696.2	176 / 89
365	36,521	11,809	697.0	80 / 137
370	37,017	11,809	697.5	122 / 48
374	37,447	11,809	698.4	333 / 114
381	38,052	11,809	698.6	208 / 152
384	38,367	11,809	698.9	133 / 213
386	38,603	11,300	699.0	114 / 295
394	39,359	11,300	699.4	389 / 58
396	39,625	11,300	699.4	488 / 57
401	40,071	11,300	699.5	381 / 46
405	40,498	11,300	699.6	316 / 35
413	41,341	11,300	699.8	378 / 416
418	41,802	11,300	699.9	264 / 407
429	42,853	11,300	700.3	320 / 246
434	43,403	11,300	700.6	226 / 91
439	43,857	11,300	701.3	166 / 77
442	44,230	11,300	702.0	181 / 88
450	44,988	11,300	703.1	46 / 109
455	45,525	11,300	704.0	148 / 83
460	46,009	11,300	705.1	92 / 159
464	46,407	11,300	705.3	92 / 58
468	46,803	11,300	706.2	79 / 300
473	47,281	11,190	707.5	174 / 78
479	47,902	11,190	707.8	43 / 93
487	48,682	11,190	708.7	176 / 116
495	49,463	11,190	709.0	378 / 381
502	50,182	11,190	709.1	289 / 515
511	51,068	11,190	709.2	445 / 387
517	51,705	11,190	709.2	254 / 510
522	52,209	11,190	709.3	301 / 434
531	53,105	11,190	709.5	28 / 437
537	53,708	10,953	709.7	195 / 226
545	54,467	10,953	710.0	473 / 277
552	55,205	10,953	710.2	664 / 306
558	55,822	10,953	710.3	293 / 295
573	57,254	10,953	711.7	431 / 135
578	57,792	10,953	714.4	911 / 177
585	58,509	10,953	715.1	960 / 46
591	59,126	10,953	715.1	857 / 167
595	59,494	10,953	715.1	748 / 175
603	60,270	10,953	715.2	425 / 323
609	60,853	10,953	715.3	160 / 365

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
THIRD CREEK				
614	61,377	10,953	715.6	113 / 132
620	62,022	10,953	716.4	340 / 78
624	62,403	10,953	716.7	341 / 269
627	62,685	10,953	716.9	508 / 412
637	63,674	10,953	717.3	349 / 45
642	64,188	10,953	717.7	226 / 330
650	65,030	10,953	718.0	446 / 334
657	65,708	10,953	718.2	394 / 35
663	66,330	10,953	718.6	78 / 293
670	66,980	10,521	719.1	406 / 267
673	67,287	10,521	719.1	443 / 150
680	68,008	10,521	719.4	351 / 311
688	68,794	10,521	719.7	483 / 307
693	69,258	10,067	720.0	501 / 211
700	69,970	10,067	720.3	562 / 413
707	70,690	10,067	720.6	431 / 280
713	71,317	10,067	721.1	265 / 235
719	71,890	10,067	721.7	296 / 391
725	72,540	10,067	722.2	498 / 150
UNNAMED STREAM 1				
011	1,116	1,738	678.1 ⁴	47 / 52
014	1,392	1,738	678.1 ⁴	27 / 85
020	1,962	1,529	678.1 ⁴	15 / 83
023	2,283	1,529	678.1 ⁴	16 / 140
026	2,560	1,529	678.1 ⁴	16 / 131
030	3,009	1,529	678.1 ⁴	47 / 78
033	3,253	1,529	678.1 ⁴	57 / 120
036	3,568	1,529	678.1 ⁴	35 / 108
040	3,963	1,404	678.4	18 / 200
043	4,298	1,404	678.7	20 / 135
048	4,823	1,404	680.5	120 / 46
053	5,300	1,404	681.6	274 / 14
057	5,677	1,047	684.3	19 / 152
059	5,906	1,047	685.6	42 / 49
063	6,291	1,047	687.5	160 / 11
UNNAMED STREAM 2				
004	442	1,479	719.6 ⁴	21 / 29
009	879	1,479	719.6 ⁴	67 / 29
012	1,200	1,479	719.6 ⁴	14 / 43
016	1,567	1,479	719.6 ⁴	25 / 20
019	1,926	1,479	719.8	17 / 34
022	2,159	1,479	720.5	14 / 46
025	2,548	1,479	721.9	67 / 50

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
UNNAMED STREAM 2				
028	2,750	1,479	722.2	131 / 14
032	3,166	1,386	722.9	107 / 80
WITHROW CREEK				
012	1,210	8,575	665.3 ⁴	180 / 580
015	1,486	8,575	665.3 ⁴	125 / 178
017	1,717	8,575	665.4	246 / 40
020	2,012	8,575	665.7	130 / 39
024	2,391	8,575	666.7	150 / 50
029	2,860	8,575	667.9	270 / 100
031	3,096	8,575	668.0	300 / 65
036	3,600	8,575	668.3	250 / 350
040	4,000	8,575	668.5	272 / 421
046	4,597	8,575	668.8	47 / 448
051	5,126	8,575	669.3	185 / 285
055	5,480	8,575	669.6	339 / 37
062	6,195	8,575	669.9	450 / 213
067	6,659	8,575	670.0	370 / 70
069	6,943	8,276	670.2	201 / 234
076	7,564	8,276	670.8	283 / 55
079	7,899	8,276	671.2	333 / 228
084	8,413	8,276	671.5	389 / 33
088	8,795	8,276	671.8	507 / 33
091	9,140	8,276	672.0	402 / 36
096	9,575	8,276	672.2	200 / 180
102	10,156	8,276	672.2	137 / 33
104	10,403	8,276	673.8	103 / 47
108	10,757	8,276	674.8	39 / 115
110	11,043	8,276	675.4	68 / 160
115	11,509	8,276	675.8	88 / 227
120	12,028	8,276	679.1	100 / 150
123	12,327	8,276	679.1	64 / 68
128	12,764	8,276	679.9	65 / 160
132	13,246	7,992	680.2	150 / 225
137	13,740	7,992	680.2	355 / 175
142	14,211	7,992	680.2	175 / 450
147	14,673	7,992	680.3	100 / 435
154	15,415	7,992	680.3	151 / 260
160	15,986	7,992	680.8	88 / 301
165	16,476	7,992	681.1	164 / 143
168	16,807	7,992	681.4	299 / 37
172	17,179	7,992	681.9	320 / 124
175	17,546	7,992	682.2	325 / 420
179	17,944	7,992	682.3	465 / 420

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
WITHROW CREEK				
186	18,552	7,992	682.3	135 / 440
188	18,824	7,773	682.5	90 / 600
191	19,120	7,773	682.5	225 / 475
197	19,733	7,773	682.5	145 / 60
204	20,386	7,773	684.3	146 / 330
210	20,995	6,604	684.5	263 / 101
214	21,365	6,604	684.8	215 / 171
217	21,725	6,604	685.2	132 / 430
224	22,365	6,604	685.4	42 / 459
227	22,702	6,604	685.7	37 / 379
232	23,208	6,604	686.1	230 / 255
236	23,574	6,604	686.2	200 / 107
239	23,860	6,604	686.4	65 / 100
244	24,427	6,604	688.0	175 / 225
248	24,753	6,604	688.1	169 / 208
252	25,194	6,604	689.6	113 / 157
255	25,524	6,604	689.9	98 / 342
260	26,006	6,604	690.2	181 / 390
264	26,359	6,604	690.4	158 / 424
267	26,680	6,604	690.6	33 / 319
270	27,036	6,396	691.0	45 / 297
275	27,481	6,396	691.6	137 / 122
278	27,798	6,396	691.9	70 / 264
285	28,535	6,396	692.8	400 / 125
290	28,961	6,396	693.0	550 / 210
296	29,620	6,396	693.4	252 / 286
300	29,972	6,396	693.8	308 / 359
305	30,544	6,396	694.1	276 / 193
310	30,976	6,396	694.5	403 / 34
314	31,366	6,396	695.3	250 / 200
318	31,802	6,396	695.8	110 / 80
320	32,037	6,396	696.6	50 / 35
325	32,505	6,115	701.0	270 / 135
328	32,800	6,115	701.1	169 / 285
332	33,234	6,115	701.1	308 / 237
336	33,555	6,115	701.2	37 / 197
340	34,016	6,115	701.9	220 / 240
344	34,352	6,115	702.1	56 / 352
348	34,802	6,115	702.3	65 / 221
353	35,284	6,115	702.7	96 / 204
356	35,551	6,115	702.9	70 / 150
359	35,912	6,115	703.5	215 / 80
364	36,361	6,115	704.3	198 / 181

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment-Width ³ (feet)
WITHROW CREEK				
367	36,657	6,115	704.4	140 / 190
372	37,190	6,115	704.8	50 / 120
376	37,594	6,115	705.5	70 / 55
382	38,190	6,115	706.8	250 / 40
389	38,870	5,900	707.8	235 / 345
393	39,308	5,900	708.0	155 / 530
398	39,807	5,900	708.3	30 / 405
404	40,433	5,900	709.1	75 / 350
407	40,679	5,900	709.3	110 / 135
413	41,306	5,900	713.4	224 / 30
416	41,640	5,900	713.6	88 / 228
420	42,026	5,900	713.7	32 / 208
423	42,289	5,900	713.7	176 / 129
428	42,796	5,900	714.2	257 / 151
433	43,257	5,665	714.5	333 / 72
439	43,851	5,665	715.0	35 / 327
444	44,434	5,665	715.9	368 / 34
448	44,845	5,665	716.7	350 / 175
453	45,290	5,665	717.1	60 / 350
457	45,659	5,665	717.1	100 / 135
460	45,978	5,665	718.2	175 / 210
463	46,336	5,665	718.7	139 / 36
468	46,771	5,665	719.4	108 / 84
472	47,190	5,665	720.2	116 / 65
476	47,605	5,665	721.0	260 / 57
480	48,025	5,665	721.9	224 / 68
483	48,322	5,454	722.6	33 / 150
487	48,693	5,454	723.2	47 / 48
493	49,317	5,454	724.4	45 / 105
496	49,618	5,454	725.0	122 / 33
500	49,991	5,454	725.7	31 / 89
503	50,266	5,454	726.3	33 / 36
508	50,799	5,454	729.6	150 / 125
513	51,309	5,454	729.9	33 / 174
516	51,601	5,454	729.9	50 / 145
522	52,202	5,057	731.1	130 / 205
526	52,551	5,057	731.4	31 / 197
528	52,814	5,057	732.1	29 / 269
532	53,213	5,057	733.0	156 / 120
537	53,735	5,057	734.0	112 / 31
540	54,021	5,057	734.8	27 / 146
543	54,276	5,057	735.7	27 / 61
549	54,862	5,057	737.0	48 / 31

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section¹	Stream Station²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width³ (feet)
WITHROW CREEK				
554	55,408	5,057	738.6	35 / 70
557	55,682	5,057	739.3	45 / 65
562	56,153	5,057	741.1	150 / 40
565	56,509	4,887	741.9	116 / 128
568	56,817	4,887	742.2	115 / 125
573	57,257	4,887	742.8	230 / 185
WOODLEAF BRANCH (EAST)				
044	4,407	894	680.3	31 / 12
053	5,334	830	690.2	32 / 178
069	6,894	533	695.6	17 / 21
071	7,148	533	698.8	6 / 12
075	7,475	533	707.1	17 / 32
WOODLEAF BRANCH (WEST)				
007	740	1,130	730.5 ⁴	13 / 24
010	1,000	1,130	730.8	30 / 13
015	1,500	1,130	736.3	30 / 25
019	1,911	1,130	737.7	15 / 15
025	2,500	1,130	740.7	30 / 13
027	2,707	1,130	741.6	13 / 17
031	3,094	1,130	743.0	18 / 18
032	3,234	1,130	745.7	30 / 30
036	3,582	935	746.6	37 / 32
040	4,000	935	751.0	60 / 12
046	4,569	935	753.2	80 / 12
050	5,000	935	757.3	21 / 12
055	5,500	935	760.4	59 / 12
060	6,000	935	762.7	25 / 44
062	6,160	935	763.7	50 / 50
066	6,601	811	765.7	10 / 160
068	6,844	687	766.9	75 / 75
YADKIN RIVER				
3762	376,165	162,800	568.3	414 / 406
3782	378,165	162,800	570.2	639 / 643
3802	380,165	162,800	570.7	517 / 517
3816	381,606	162,800	571.4	826 / 826
3833	383,343	162,800	571.6	581 / 581
3852	385,217	162,800	572.1	691 / 691
3865	386,531	162,800	572.4	816 / 816
3884	388,390	162,800	572.4	604 / 604
3902	390,165	162,800	572.4	313 / 305
3922	392,165	162,800	573.6	445 / 438
3942	394,165	162,800	574.8	963 / 963
3962	396,165	162,800	574.9	683 / 683

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
YADKIN RIVER				
3982	398,165	162,800	575.3	784 / 784
4002	400,165	162,800	575.6	799 / 799
4022	402,165	162,800	575.9	920 / 920
4042	404,165	162,800	576.1	765 / 765
4062	406,165	162,800	576.4	1,395 / 530
4082	408,165	162,800	576.8	1,006 / 461
4100	409,998	162,800	577.5	573 / 571
4122	412,165	162,800	578.1	831 / 533
4149	414,920	157,500	582.4	370 / 370
4182	418,165	157,500	624.7	711 / 701
4202	420,165	157,500	625.1	2,431 / 2,437
4222	422,165	157,500	625.1	2,345 / 2,345
4242	424,165	157,500	625.1	2,424 / 2,424
4264	426,379	157,500	625.2	2,656 / 2,656
4286	428,552	157,500	625.2	3,039 / 3,044
4307	430,650	157,500	625.2	2,230 / 2,230
4322	432,165	149,300	625.3	2,488 / 2,490
4342	434,165	149,300	625.3	1,633 / 1,633
4362	436,165	149,300	625.4	1,837 / 1,845
4382	438,165	149,300	625.5	2,853 / 2,853
4402	440,165	149,300	625.5	1,517 / 1,510
4422	442,165	149,300	625.6	1,569 / 1,569
4442	444,165	149,300	625.6	1,304 / 1,304
4462	446,227	149,300	625.8	2,512 / 2,512
4482	448,165	145,100	625.8	1,571 / 1,571
4502	450,165	145,100	625.9	1,740 / 1,740
4516	451,596	145,100	625.9	1,565 / 1,565
4531	453,148	145,100	625.9	796 / 788
4560	456,048	145,100	626.4	1,028 / 1,028
4582	458,165	145,100	626.6	1,123 / 1,123
4602	460,165	145,100	626.8	1,150 / 1,158
4622	462,165	145,100	627.0	1,208 / 1,211
4642	464,242	145,100	627.1	1,318 / 1,325
4662	466,165	145,100	627.3	1,384 / 1,392
4682	468,165	145,100	627.4	1,656 / 1,656
4702	470,165	145,100	627.5	2,465 / 2,455
4722	472,165	145,100	627.5	845 / 2,257
4742	474,165	145,100	627.8	623 / 2,865
4769	476,858	145,100	628.4	551 / 2,872
4798	479,755	145,100	629.3	1,407 / 761
4819	481,877	145,100	629.8	1,779 / 418
4842	484,165	145,100	630.7	1,556 / 502
4862	486,165	145,100	631.7	991 / 516

Section 5.0 – Engineering Methods

Table 12—Limited Detailed Flood Hazard Data

Cross Section ¹	Stream Station ²	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width ³ (feet)
YADKIN RIVER				
4883	488,311	145,100	632.7	1,059 / 336
4902	490,165	145,100	633.9	1,340 / 274
4922	492,165	145,100	635.1	1,674 / 164
4934	493,417	145,100	636.1	2,112 / 321
4952	495,187	145,100	636.5	1,852 / 915
4974	497,412	145,100	637.2	280 / 858
4975	497,517	145,100	637.2	266 / 585
4985	498,477	142,300	642.3	763 / 435
5000	500,045	142,300	642.3	979 / 299
5022	502,165	142,300	642.9	1,214 / 485
5042	504,165	142,300	643.6	752 / 1,437
5059	505,943	142,300	643.9	646 / 1,536
5077	507,695	139,100	644.3	961 / 1,479
5093	509,295	139,100	644.3	575 / 693
5108	510,750	139,100	644.6	1,080 / 416
5123	512,321	139,100	645.1	1,619 / 321
5142	514,165	139,100	645.3	1,022 / 571
5165	516,456	139,100	645.8	867 / 190
5182	518,188	139,100	646.6	1,504 / 214
5202	520,165	139,100	647.4	977 / 491
5220	522,029	139,100	648.0	837 / 619
5242	524,165	99,500	648.6	333 / 2,056

¹ This table reflects all modeled cross sections. Some cross sections shown in this table may not appear on the map.

² Feet above mouth

³ Left/right distance from the mapped center of stream to encroachment boundary based on a 1.0 foot or less surcharge (looking downstream).

⁴ Elevation includes backwater effects

⁵ Flooding controlled by Crane Creek

Section 6.0 – Mapping Methods

6.1 Vertical and Horizontal Control

Vertical Datum

All FISs 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 was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FISs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown on the FIRM for Rowan County are referenced to NAVD 88. Structure and ground elevations in the county must, therefore, be referenced to NAVD 88. It is important to note that FISs for adjacent communities may be referenced to NGVD 29. This may result in BFE differences across political boundaries between the communities.

Prior versions of this FIS were referenced to NGVD 29. When a datum conversion is effected for an FIS, the Flood Profiles, BFEs, and bench marks reflect the new datum values. To compare structural and ground elevations to 1% annual chance flood elevations shown in this FIS, the subject structural and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in this FIS are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor for Rowan County is -0.75 feet. The locations used to establish the conversion factor were USGS quadrangle corners that fell within the county, as well as those that were within 2.5 miles outside the county. The benchmarks are referenced to NAVD 88. Table 13, "Datum Conversion Locations and Values," is shown below.

Table 13—Datum Conversion Locations and Values

Latitude	Longitude	Conversion from NGVD 29 to NAVD 88 (feet)
35.875	80.625	-0.69
35.750	80.750	-0.71
35.750	80.625	-0.71
35.750	80.500	-0.68
35.750	80.375	-0.70
35.625	80.750	-0.71
35.625	80.625	-0.74
35.625	80.500	-0.76
35.625	80.375	-0.79
35.625	80.250	-0.82
35.500	80.750	-0.74
35.500	80.625	-0.77
35.500	80.500	-0.80

Section 6.0 – Mapping Methods

Table 13—Datum Conversion Locations and Values

Latitude	Longitude	Conversion from NGVD 29 to NAVD 88 (feet)
35.500	80.375	-0.80
35.500	80.250	-0.80
Average conversion in Rowan County from NGVD 29 to NAVD 88 = -0.75 feet		

The BFEs shown on the FIRM represent whole-foot rounded values. For example, a 1% annual chance water-surface elevation of 102.4 feet will appear as 102 on the FIRM and 102.6 feet will appear as 103. Therefore, users who wish to convert the elevations in this FIS to NGVD 29 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.

For more information on NAVD 88, see *Converting the National Flood Insurance Program to the North American Vertical Datum of 1988*, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (<http://www.ngs.noaa.gov>).

Vertical Control Monuments

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

The National Geodetic Survey establishes precisely located monuments on the North Carolina Grid System and Bench Marks referenced to a vertical datum (NGVD 1929 and NAVD 1988).

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, when local jurisdictions have established their own vertical monument network, these monuments may also be shown on the FIRM with the appropriate designations. Local monuments will be placed on the FIRM if the community has requested that they be included and if the monuments meet the aforementioned criteria.

Section 6.0 – Mapping Methods

North Carolina Geodetic Survey (NCGS) and contractor surveyed vertical control monuments will be shown on the FIRM panels. Those cataloged by NCGS meet similar requirements to the NGS monuments as described above. Most monuments that have been cataloged by NCGS have been established to NGS standards, but have not been submitted to NGS for inclusion into the NSRS. The qualifying criteria for depicting bench marks established by the State's contractors on the new digital FIRM panels include:

- GPS surveying of permanent 3-D survey monuments to 5-centimeter or better local network accuracy guidelines, in accordance with NOAA Technical Memorandum NOS NGS-58 "Guidelines for Establishing GPS-Derived Ellipsoid Heights (Standards: 2 cm and 5 cm)," and conversion to NAVD 88 orthometric heights using NGS' latest geoid mode;
- Requiring a stability classification of "C" or better; and
- Submitting GPS files and station descriptions to NCGS.

To obtain current information for cataloging local bench marks in the NSRS, please visit the Data Sheet page of the NGS website at <http://www.ngs.noaa.gov/datasheet.html>, or contact the NGS Information Services Branch at:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Information regarding the NCGS or State contractor bench marks can be obtained through the NCGS website at www.ncgs.state.nc.us, or by phone at (919) 733-3836.

It is important to note that temporary vertical monuments, sometimes called Elevation Reference Marks, 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, interested individuals may contact FEMA to access this information.

Horizontal Datum and Control

The digital files that comprise the FIRM are georeferenced to an established coordinate system. The coordinate system used for the production of this FIRM is North Carolina State Plane (FIPSZONE 3200) referenced to the North American Datum of 1983 (NAD83), GRS80 ellipsoid.

6.2 Base Map

County orthophotos, based on 2005 aerial imagery, are used as the base maps for digital FIRM production for Rowan County. The base maps are supplemented with stream centerlines, shoreline, and political boundaries, and road name data from other sources; this includes locally available GIS data.

Section 6.0 – Mapping Methods

The projection used in the preparation of this map was the North Carolina State Plane Coordinate System. The horizontal datum was NAD83, GRS80 spheroid. Differences in datum, spheroid, or projection used in the production of FIRMs for adjacent states may result in slight positional differences in map features across the state boundary. These differences do not affect the accuracy of this FIRM.

As part of the North Carolina CTS Initiative, North Carolina digital FIRM panel numbers are consistent with the North Carolina Land Records Management Program (LRMP).

The 11-digit digital FIRM panel numbering system for North Carolina is: SS MM LLLL PP X, where SS = State Federal Information Processing Code (37); MM = Easting-Northing (EN) 1,000,000-foot coordinates; LLLL = LRMP map numbers to include the EN 100,000-foot coordinates, and the EN 10,000-foot coordinates; PP = place holders for additional EN 1,000-foot coordinates; and X = suffix ("J" for the initial edition). North Carolina's State Plane Coordinate System origin is outside the State boundary to the southwest (in Georgia), the eastings range from approximately 0,404,000 (Tennessee border) to 3,040,000 (Atlantic Ocean); and the northings range from approximately 0,045,000 (South Carolina border) to 1,043,000 (Virginia border). Digital FIRM panels were compiled at either 1"=1,000', covering an area of 20,000 feet x 20,000 feet (20" x 20" panels); or at 1"=500', covering an area of 10,000 feet x 10,000 feet (20" x 20" panels). An additional 2 digits (both zeros) are held in reserve as a "place holder" in the event that future FIRMs are printed at a larger scale; e.g., 1"=250', covering an area of 5,000 feet x 5,000 feet for which the 1,000-foot coordinates would either be 0 or 5.

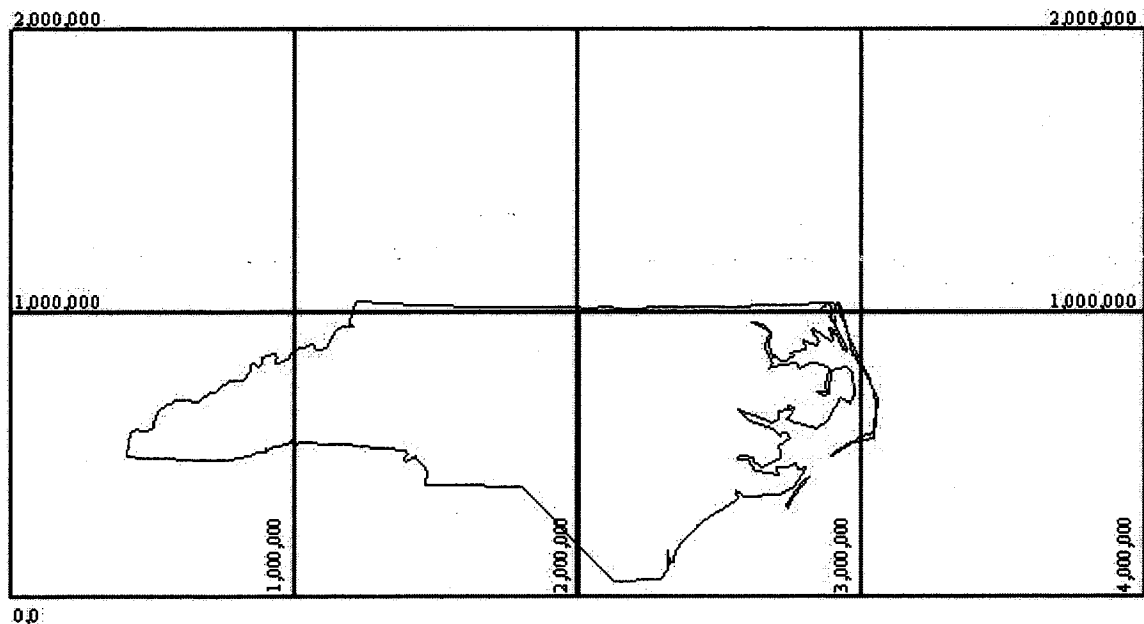


Figure 2—North Carolina's State Plane Coordinate System

Section 6.0 – Mapping Methods

6.3 Floodplain and Floodway Delineation

Floodplain Delineation

For streams restudied by detailed and limited detailed methods, the 1% and 0.2% annual chance floodplains were delineated using flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic data acquired using airborne Light Detection and Ranging (LIDAR). This LIDAR data was acquired during the winter 2002-2003 flying season.

The topographic data satisfies a vertical root-mean-square error (RMSE) accuracy standard of 20 cm (1.3 feet accuracy at the 95% confidence limit) for the Outer Banks and 25 cm (1.6 feet accuracy at the 95% confidence limit) for those portions of the basin lying west of the Outer Banks. These data could be contoured at roughly a 2-foot vertical contour interval. All elevations were referenced to the NAVD 88 and reflect orthometric heights. Variably spaced, bare-earth digital topographic data in ASCII point file format were combined with imagery (either flown concurrently with the LIDAR data or using existing digital orthophotos) to establish a Triangulated Irregular Network (TIN) of digital elevation points, which include selected breaklines to be used for hydraulic modeling. Furthermore, a uniformly spaced sampling of the TIN resulted in uniformly spaced Digital Elevation Models (DEMs), with 20 ft x 20 ft post spacing, which was generated in multiple file formats.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones VE, AO, AH, A99, AR, A, and AE), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundaries have been shown.

Floodway Delineation

The floodways presented in this 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. The results of the floodway computations are tabulated for selected cross sections (Table 14, "Floodway Data"). The computed floodway is shown on the FIRM. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown. In areas where the top of the bridge or road is higher than the 1.0-percent annual chance (100-year) flood, the FIRM will show the flood discharge as contained within the structure for emergency management purposes. It is important to note that FEMA and community floodway regulations still apply in and around those areas.

Floodways were not computed for the entire stream reach or portions of the following stream reaches: Baker Branch, Beaver Creek Tributary, Bost Branch, Byrd Road Tributary, Cemetery Creek, Cold Water Creek Tributary, Concord Road Creek, Correll Creek, Crane Creek, Draft Branch, Draft Branch Tributary, Dutch Buffalo Creek Tributary, East Centerview Branch, East Spencer High Creek, Faith Road Branch, Five Forks Tributary, Gravel Pit Branch, Henderson Branch, Henderson Branch Tributary, Hopkins Street Branch, Ice Plant Creek, Innis Street Creek, Jackson Branch, Julian Tributary, Lake Wright Branch, Little Creek, Lomax Creek, Mahaley Branch, Mahaley Branch Tributary, Main Street Tributary, Maple Avenue Branch, Mill Creek (into Grants Creek), Moose Branch, North Fork Tributary, Park Avenue Branch, Park Creek (into Quarry Creek), Peeler Branch, Pine Ridge Branch, Quarry Creek, Railroad Branch, Rocky Branch, Rowan Avenue Park Stream, Sides Branch, Sixth Street Branch, Southern Railroad

Section 6.0 – Mapping Methods

Branch, Southside Tributary, Spring Hill Branch, Swearington Branch, Tar Branch, Tar Branch Tributary, Third Street Creek, Thomas Street Creek, Town Branch, Town Creek Tributary, Vance Avenue Branch, Walnut Street Branch, Walton Branch, Wiley Avenue Branch, Woodleaf Branch (East) and Wright Branch.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Back Creek								
215	21,460	325	1,903	2.3	700.1	700.1	701.1	1.0
230	23,000	485	3,176	1.4	702.3	702.3	703.3	1.0
240	24,000	565	2,960	1.5	703.1	703.1	704.1	1.0
251	25,060	338	1,352	3.2	704.6	704.6	705.6	1.0
260	26,000	195	1,198	3.4	707.9	707.9	708.9	1.0
271	27,064	170	1,234	3.3	710.8	710.8	711.8	1.0
283	28,253	310	2,110	2.0	712.4	712.4	713.4	1.0
295	29,493	280	1,530	2.7	714.2	714.2	715.2	1.0
310	30,954	100	798	4.9	717.8	717.8	718.8	1.0
320	32,000	290	1,855	2.1	720.0	720.0	721.0	1.0
Beaver Creek								
009	875	255	512	4.4	653.3	650.5 ²	650.5 ²	0.0
011	1,093	165	691	3.2	653.3	653.1 ²	653.4 ²	0.3
036	3,565	360 ⁴	520	4.0	662.2	662.2	662.2	0.0
066	6,615	85	198	8.2	697.1	697.1	697.1	0.0
068	6,815	135 ⁴	427	4.0	702.4	702.4	702.4	0.0
100	9,970	95	212	6.7	718.2	718.2	718.2	0.0
140 ³ -171 ³								

¹Feet above mouth

² Elevation computed without backwater effects from Cold Water Creek

³ Floodway data not computed

⁴ Value is inaccurate, as the floodway has been adjusted in this area to match topographic-based floodplain redelineation

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

BACK CREEK – BEAVER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Bostian Heights Branch								
011	1,085	130	254	7.7	707.6	707.6	707.6	0.0
043	4,270	100	392	4.8	719.3	719.3	719.8	0.5
045	4,491	100	344	5.4	720.7	720.7	720.8	0.1
071	7,080	195	536	3.3	730.0	730.0	730.8	0.8
098	9,765	115	195	7.4	739.7	739.7	739.7	0.0
104	10,350	110	310	4.7	741.2	741.2	741.5	0.3
110	10,976	205	847	2.2	743.9	743.9	744.9	1.0
118	11,796	99	387	2.9	748.1	748.1	748.2	0.1
129	12,941	50	182	2.4	751.2	751.2	752.2	1.0
139	13,865	53	415	1.1	763.0	763.0	763.5	0.5
Church Creek								
096	9,553	108	524	8.9	625.7	620.3 ²	621.0	0.7
101	10,067	216	953	4.9	625.7	623.7 ²	623.7	0.0
110	11,049	103	800	5.8	625.7	625.0 ²	625.1	0.1
118	11,811	86	682	6.8	625.8	625.8	625.9	0.1
137	13,708	182	1,235	3.8	628.9	628.9	629.6	0.7
145	14,542	71	611	7.6	630.4	630.4	631.1	0.7
157	15,724	107	656	7.1	633.0	633.0	633.8	0.8
163	16,254	58	640	7.3	638.9	638.9	639.2	0.3
169	16,888	125	955	4.9	640.4	640.4	640.8	0.4
178	17,826	151	1,316	3.5	642.2	642.2	642.8	0.6

¹ Feet above mouth

²Elevation computed without consideration of backwater effects from Crane Creek (High Rock Lake)

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

**BOSTIAN HEIGHTS BRANCH – CHURCH
CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Church Creek								
187	18,711	137	1,116	4.2	642.9	642.9	643.7	0.8
198	19,824	62	710	6.1	644.4	644.4	645.3	0.9
214	21,387	187	1,320	3.3	646.9	646.9	647.8	0.9
230	23,043	124	1,003	4.3	649.1	649.1	649.9	0.8
240	24,031	172	1,570	2.7	651.5	651.5	652.4	0.9
253	25,281	237	1,909	2.0	652.3	652.3	653.2	0.9
269	26,948	251	1,760	2.1	654.7	654.7	655.7	1.0
282	28,205	165	1,066	3.4	656.0	656.0	656.9	0.9
297	29,667	480	3,335	1.1	659.4	659.4	660.3	0.9
307	30,747	310	1,872	1.5	659.9	659.9	660.9	1.0
319	31,938	87	560	5.1	661.9	661.9	662.8	0.9
335	33,549	202	1,041	2.7	667.2	667.2	667.9	0.7
345	34,464	139	969	2.9	667.8	667.8	668.6	0.8
352	35,204	190	1,168	2.4	668.7	668.7	669.7	1.0
361	36,136	173	944	2.8	669.9	669.9	670.8	0.9
371	37,098	133	651	4.1	673.1	673.1	674.0	0.9
380	38,002	84	505	5.0	681.1	681.1	682.0	0.9
389	38,850	115	757	3.4	689.0	689.0	690.0	1.0
403	40,303	105	660	3.8	694.8	694.8	695.6	0.8
416	41,598	116	680	3.7	698.2	698.2	699.0	0.8
426	42,584	147	1,019	2.4	701.9	701.9	702.6	0.7
435	43,508	130	726	3.3	703.3	703.3	704.1	0.8
442	44,221	110	593	4.1	705.2	705.2	706.0	0.8

¹ Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

CHURCH CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Church Creek								
454	45,404	208	1,063	2.3	708.5	708.5	709.3	0.8
466	46,608	118	563	3.8	710.9	710.9	711.8	0.9
476	47,597	169	1,091	2.0	715.1	715.1	716.1	1.0
491	49,080	186	862	2.3	718.8	718.8	719.7	0.9
506	50,605	141	704	2.7	722.6	722.6	723.5	0.9
519	51,922	280	1,062	1.8	725.8	725.8	726.8	1.0
530	52,950	160	1,223	0.7	732.9	732.9	733.1	0.2
545	54,457	53	201	3.8	734.1	734.1	734.7	0.6
550	54,978	30	100	7.6	737.0	737.0	737.0	0.0
558	55,750	52	197	3.9	742.0	742.0	742.9	0.9
567	56,654	28	90	5.7	749.5	749.5	749.7	0.2
578	57,808	23	80	5.9	758.5	758.5	758.5	0.0
Coddle Creek								
1090	109,022	225	1,710	3.4	673.9	673.9	674.7	0.8

¹ Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

CHURCH CREEK – CODDLE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cold Water Creek								
821	82,100	145	1,351	3.1	653.3	653.3	654.3	1.0
841	84,060	460	3,114	1.1	654.7	654.7	655.7	1.0
860	86,010	240	1,690	1.8	655.3	655.3	656.3	1.0
863	86,290	110	596	5.2	655.3	655.3	656.1	0.8
882	88,160	125	683	4.1	661.9	661.9	662.9	1.0
916	91,565	220	973	2.5	670.4	670.4	671.4	1.0
918	91,838	160	505	4.7	671.3	671.3	672.0	0.7
945	94,500	190 ²	542	4.2	683.0	683.0	683.0	0.0
964	96,368	120	659	3.3	692.4	629.4	693.2	0.8
989	98,935	195	324	5.3	710.8	710.8	710.8	0.0
991	99,115	160	973	1.7	714.7	714.7	715.2	0.5
1014	101,400	205	350	4.9	729.1	729.1	729.1	0.0

¹ Feet above mouth

² Value is inaccurate, as the floodway has been adjusted in this area to match topographic-based floodplain redelineation

TABLE 14	FEDERAL EMERGENCY MANAGEMENT AGENCY ROWAN COUNTY, NC AND INCORPORATED AREAS	FLOODWAY DATA
		COLD WATER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Crane Creek								
266	26,636	1,079	6,261	2.1	626.0	626.0	626.0	0.0
276	27,624	789	4,325	3.0	626.3	626.3	626.3	0.0
286	28,624	1,181	6,986	1.8	626.8	626.8	627.1	0.3
301	30,124	1,087	6,178	1.6	627.3	627.3	627.8	0.5
311	31,124	405	2,287	4.3	628.9	628.9	629.6	0.7
326	32,624	609	4,689	2.1	633.3	633.3	634.3	1.0
333	33,300	592	4,207	2.3	634.1	634.1	635.0	0.9
351	35,124	345	2,971	3.3	638.1	638.1	638.9	0.8
366	36,624	452	3,065	3.2	640.6	640.6	641.5	0.9
381	38,124	473	3,105	3.1	643.2	643.2	644.2	1.0
396	39,624	372	2,219	4.4	646.3	646.3	647.2	0.9
406	40,624	277	2,285	4.2	650.2	650.2	651.1	0.9
416	41,624	380	3,232	3.0	652.4	652.4	653.3	0.9
426	42,624	356	2,624	3.6	654.5	654.5	655.4	0.9
436	43,624	567	4,114	2.3	657.0	657.0	657.9	0.9
446	44,624	207	1,803	5.2	658.7	658.7	659.5	0.8
455	45,485	215	2,032	4.6	661.0	661.0	661.9	0.9
467	46,686	146	1,345	7.0	664.8	664.8	665.4	0.6
476	47,624	534	4,463	2.1	668.7	668.7	669.4	0.7
491	49,124	739	4,049	2.3	670.3	670.3	671.1	0.8
501	50,124	443	2,884	3.2	673.3	673.3	674.3	1.0
512	51,199	587	3,595	2.5	675.6	675.6	676.5	0.9

¹Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

CRANE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Crane Creek								
523	52,284	516	3,310	2.8	678.0	678.0	678.9	0.9
544	54,395	271	2,080	4.4	684.8	684.8	685.6	0.8
553	55,324	161	1,469	5.8	686.7	686.7	687.6	0.9
561	56,124	183	2,015	4.2	692.0	692.0	692.9	0.9
570	56,950	230	2,465	3.5	693.5	693.5	694.4	0.9
581	58,124	511	4,950	1.7	694.8	694.8	695.8	1.0
592	59,201	431	3,569	2.4	695.8	695.8	696.7	0.9
601	60,129	401	3,981	2.1	698.6	698.6	699.5	0.9
631	63,124	450	4,243	2.0	702.6	702.6	703.6	1.0
642	64,199	594	4,608	1.8	703.2	703.2	704.2	1.0
657	65,720	618	3,735	2.2	705.8	705.8	706.0	0.2
649 ³	64,900	465	2,735	2.5	706.9	706.9	707.9	1.0
664	66,350	400	2,126	3.2	711.6	711.6	712.6	1.0
666	66,550	450	3,610	1.9	713.0	713.0	714.0	1.0
689	68,900	575	3,243	2.1	715.9	715.9	716.9	1.0
714	71,400	300	2,399	2.6	719.9	719.9	720.9	1.0
762	76,200	240	1,485	3.2	727.6	727.6	728.6	1.0
782	78,200	350	2,371	2.0	731.7	731.7	732.7	1.0
784	78,400	395	2,517	1.9	732.5	732.5	733.5	1.0
794	79,400	375	2,254	2.1	733.6	733.6	734.6	1.0
805	80,450	770 ²	4,163	1.0	734.6	734.6	735.6	1.0
819	81,920	515	1,891	2.3	736.1	736.1	737.1	1.0

¹Feet above mouth

² Value is inaccurate, as the floodway has been adjusted in this area to match topographic-based floodplain redelineation

³ Downstream flood hazard information is studied by new detailed methods. These methods reflect more detailed and up-to-date stream channel configurations. As a result, the stream channel distances may not agree with the adjoining redelineated portion of the stream.

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

CRANE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Crane Creek								
821	82,120	670	4,478	1.0	739.9	739.9	740.9	1.0
844	84,350	340	1,145	3.1	741.4	741.4	742.4	1.0
863	86,260	310	1,786	2.0	747.7	747.7	748.7	1.0
875	87,470	375	1,946	1.8	749.7	749.7	750.7	1.0
877	87,670	450	3,114	1.0	752.1	752.1	753.1	1.0
888	88,800	480	2,831	0.9	752.4	752.4	753.4	1.0
901	90,105	280	423	3.0	753.3	753.3	754.3	1.0
903 ² -981 ²								
Draft Branch								
008	800	370	1,153	2.8	671.6	661.4 ³	662.4	1.0
024	2,400	335	1,411	1.8	671.6	665.6 ³	666.6	1.0
042	4,225	340	1,259	2.1	671.6	668.9 ³	669.9	1.0
059	5,900	195	922	2.8	672.7	672.7	673.7	1.0
077	7,650	215	940	2.3	676.8	676.8	677.8	1.0
079	7,850	310	1,774	1.2	678.7	678.7	679.5	0.8
102	10,200	355	1,123	1.8	686.6	686.6	687.5	0.9
128	12,800	340	1,509	1.4	690.4	690.4	690.8	0.4
143	14,300	225	806	2.3	692.4	692.4	692.9	0.5
155	15,500	185	555	3.4	697.9	697.9	698.4	0.5
160	15,950	220	842	2.2	699.9	699.9	700.4	0.5
177	17,720	160	550	2.2	704.6	704.6	705.1	0.5
179 ² -253 ²								

¹ Feet above mouth

² Floodway data not computed

³ Elevation computed without consideration of backwater effects from Grants Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

CRANE CREEK – DRAFT BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dutch Buffalo Creek								
1082	108,200	310	1,041	3.3	684.0	684.0	685.0	1.0
1090	109,000	205	828	4.1	687.1	687.1	688.1	1.0
1110	111,000	340	1,711	1.9	691.4	691.4	692.3	0.9
1125	112,465	150	634	5.0	694.5	694.5	695.2	0.7
1127	112,686	150	640	4.9	696.2	696.2	696.9	0.7
1150	115,000	240	1,306	2.3	703.0	703.0	703.9	0.9
1160	116,000	130	685	4.4	705.6	705.6	706.4	0.8
1175	117,450	160	713	1.9	710.2	710.2	711.1	0.9
1206	120,640	50	79	10.8	726.5	726.5	726.5	0.0
1209	120,861	50	117	7.3	731.7	731.7	731.7	0.0
Fourth Creek								
859	85,907	800	7,550	1.6	729.5	729.5	730.4	0.9

¹Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

DUTCH BUFFALO CREEK – FOURTH CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Grants Creek								
090	9,000	843	7,233	1.7	644.2	634.5 ²	635.5	1.0
100	10,027	1,210	10,695	1.2	644.2	634.7 ²	635.7	1.0
110	11,000	675	4,741	2.6	644.2	634.9 ²	635.9	1.0
120	12,000	1,197	11,465	1.1	644.2	635.7 ²	636.6	0.9
130	13,000	1,167	10,500	1.2	644.2	635.8 ²	636.7	0.9
140	14,000	842	7,406	1.6	644.2	636.3 ²	637.2	0.9
150	15,000	520	5,008	2.4	644.2	637.2 ²	638.1	0.9
160	16,000	687	6,573	1.8	644.2	637.9 ²	638.8	0.9
170	17,000	620	5,922	2.0	644.2	638.4 ²	639.4	1.0
180	18,000	606	6,230	1.9	644.2	639.4 ²	640.3	0.9
187	18,696	677	6,806	1.8	644.2	639.8 ²	640.7	0.9
196	19,571	492	5,080	2.4	644.2	640.8 ²	641.5	0.7
205	20,500	856	8,569	1.4	644.2	641.3 ²	642.1	0.8
215	21,500	862	7,574	1.5	644.2	641.6 ²	642.5	0.9
231	23,066	532	3,907	3.0	644.2	643.3 ²	644.2	0.9
240	24,000	591	5,325	2.2	645.3	645.3	645.8	0.5
255	25,500	707	5,718	2.0	646.5	646.5	647.4	0.9
265	26,500	995	6,356	1.8	647.1	647.1	648.1	1.0
275	27,500	1,178	8,134	1.4	648.0	648.0	648.8	0.8
286	28,565	679	5,103	2.1	649.4	649.4	650.2	0.8
295	29,500	900	6,628	1.6	650.1	650.1	650.9	0.8
305	30,500	832	5,380	2.0	650.6	650.6	651.5	0.9

¹Feet above mouth

²Elevations computed without consideration of backwater effects from Yadkin River

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

GRANTS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Grants Creek								
314	31,369	215	1,611	6.7	651.2	651.2	652.2	1.0
319	31,942	292	2,320	4.6	655.5	655.5	655.7	0.2
325	32,500	304	3,244	3.3	657.5	657.5	657.7	0.2
334	33,383	616	6,952	1.6	658.1	658.1	659.1	1.0
339	33,937	921	9,764	1.1	658.3	658.3	659.3	1.0
345	34,500	848	8,641	1.2	658.5	658.5	659.5	1.0
355	35,465	535	4,760	2.2	658.8	658.8	659.8	1.0
366	36,599	441	5,199	2.0	662.8	662.8	663.4	0.6
374	37,383	670	7,467	1.4	663.0	663.0	663.8	0.8
381	38,068	682	6,360	1.6	663.3	663.3	664.1	0.8
387	38,699	397	4,148	2.5	663.6	663.6	664.4	0.8
396	39,597	208	2,029	5.1	663.9	663.9	664.6	0.7
404	40,444	409	5,169	2.0	667.4	667.4	667.9	0.5
410	41,000	291	3,578	2.9	667.8	667.8	668.5	0.7
420	42,000	198	2,080	5.0	668.7	668.7	669.4	0.7
430	43,000	609	5,496	1.7	670.7	670.7	671.3	0.6
443	44,337	987	14,088	0.7	671.6	671.6	672.5	0.9
454	45,355	906	11,189	0.8	671.6	671.6	672.6	1.0
460	46,000	928	11,267	0.8	671.7	671.7	672.7	1.0
470	47,000	928	10,979	0.8	671.8	671.8	672.8	1.0
481	48,124	383	3,384	2.5	672.0	672.0	672.9	0.9
493	49,269	281	3,075	2.8	673.9	673.9	674.4	0.5

¹Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

GRANTS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Grants Creek								
500	50,000	447	4,733	1.8	674.4	674.4	675.1	0.7
510	51,000	241	2,178	3.8	674.7	674.7	675.4	0.7
519	51,895	467	4,700	1.8	676.9	676.9	677.6	0.7
530	53,000	274	2,738	2.9	677.8	677.8	678.6	0.8
540	53,970	398	4,902	1.6	678.9	678.9	679.6	0.7
549	54,912	492	4,932	1.6	679.2	679.2	680.1	0.9
559	55,917	330	3,436	2.3	679.7	679.7	680.6	0.9
577	57,699	466	4,291	1.8	681.2	681.2	682.1	0.9
585	58,500	860	8,502	0.9	681.7	681.7	682.6	0.9
595	59,500	682	6,074	1.3	681.9	681.9	682.8	0.9
605	60,500	735	6,215	1.3	682.3	682.3	683.2	0.9
615	61,500	664	5,130	1.5	682.6	682.6	683.5	0.9
624	62,387	328	2,047	3.7	683.1	683.1	684.0	0.9
635	63,457	260	2,094	3.6	686.3	686.3	686.8	0.5
645	64,500	619	6,591	1.1	688.8	688.8	689.4	0.6
655	65,500	673	6,717	1.1	689.0	689.0	689.7	0.7
662	66,164	562	5,235	1.4	689.2	689.2	690.0	0.8
670	67,000	518	4,586	1.5	689.8	689.8	690.5	0.7
680	68,000	395	3,062	2.3	690.2	690.2	691.0	0.8
695	69,500	183	1,606	3.9	692.3	692.3	692.9	0.6
710	71,000	600	5,383	1.2	693.8	693.8	694.5	0.7
720	72,000	641	5,077	1.2	694.1	694.1	694.8	0.7

¹Feet above mouth

TABLE 14	FEDERAL EMERGENCY MANAGEMENT AGENCY ROWAN COUNTY, NC AND INCORPORATED AREAS	FLOODWAY DATA
		GRANTS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Grants Creek								
731	73,097	447	3,201	1.9	694.7	694.7	695.5	0.8
740	74,000	192	1,199	4.7	695.9	695.9	696.5	0.6
751	75,080	148	1,533	3.7	701.8	701.8	702.0	0.2
760	76,000	538	5,147	1.1	702.2	702.2	702.9	0.7
770	76,961	646	5,492	0.9	702.6	702.6	703.3	0.7
781	78,084	644	4,930	1.0	702.8	702.8	703.6	0.8
796	79,605	195	1,078	4.4	704.1	704.1	704.7	0.6
806	80,551	77	729	6.5	706.2	706.2	707.2	1.0
816	81,614	225	1,798	2.6	709.5	709.5	709.7	0.2
825	82,500	368	2,578	1.8	709.8	709.8	710.4	0.6
837	83,651	318	1,959	2.4	710.3	710.3	711.2	0.9
845	84,500	198	1,134	3.8	711.4	711.4	712.3	0.9
855	85,535	542	3,168	1.4	714.2	714.2	715.0	0.8
865	86,500	319	1,586	2.6	714.9	714.9	715.6	0.7
877	87,672	74	492	6.4	718.5	718.5	718.8	0.3
889	88,941	75	402	7.8	722.2	722.2	722.8	0.6
900	89,983	125	792	4.0	726.7	726.7	727.7	1.0
910	90,981	83	534	5.6	729.6	729.6	730.4	0.8
920	92,041	142	631	4.8	734.4	734.4	734.5	0.1
930	93,000	220	1,029	2.9	736.1	736.1	736.9	0.8

¹Feet above mouth

TABLE 14	FEDERAL EMERGENCY MANAGEMENT AGENCY ROWAN COUNTY, NC AND INCORPORATED AREAS	FLOODWAY DATA
		GRANTS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Grants Creek								
940	94,000	166	879	3.0	740.1	740.1	740.7	0.6
951	95,092	155	804	3.2	743.0	743.0	743.7	0.7
960	96,014	52	311	8.2	744.9	744.9	745.8	0.9
970	97,000	55	262	8.9	749.1	749.1	749.8	0.7
980	98,031	50	337	7.0	754.9	754.9	755.8	0.9
990	98,997	42	289	5.0	760.4	760.4	760.9	0.5
1000	100,000	38	201	7.3	774.1	774.1	774.9	0.8
1010	101,000	101	482	2.5	782.6	782.6	783.2	0.6
1020	102,000	25	101	9.7	785.5	785.5	785.5	0.0
1030	103,000	35	120	6.6	792.9	792.9	792.9	0.0
1039	103,920	33	83	9.0	801.0	801.0	801.0	0.0
1046	104,597	25	73	6.7	808.9	808.9	809.3	0.4
1052	105,247	25	118	4.2	820.0	820.0	821.0	1.0
1060	105,982	26	117	4.2	835.3	835.3	835.4	0.1

¹Feet above mouth

TABLE 14	FEDERAL EMERGENCY MANAGEMENT AGENCY ROWAN COUNTY, NC AND INCORPORATED AREAS	FLOODWAY DATA
		GRANTS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Irish Buffalo Creek								
998	99,770	50	335	5.9	737.3	737.3	737.8	0.5
1005	100,500	48	327	5.8	739.6	739.6	740.4	0.8
1015	101,476	43	286	5.8	743.8	743.8	744.2	0.4
1023	102,263	38	266	6.3	745.5	745.5	745.7	0.2
1031	103,088	43	310	5.4	749.7	749.7	749.7	0.0
1041	104,119	39	232	6.6	755.0	755.0	755.0	0.0
1048	104,817	37	306	4.5	757.3	757.3	757.4	0.1
1060	105,995	30	204	6.7	761.4	761.4	761.5	0.1
1071	107,092	36	176	7.8	769.0	769.0	769.1	0.1
1079	107,946	39	171	4.9	774.4	774.4	774.7	0.3
1089	108,855	28	107	3.7	779.3	779.3	779.5	0.2
1100	109,975	19	67	5.9	788.7	788.7	789.0	0.3
1112	111,210	22	58	6.8	800.8	800.8	800.9	0.1
1121	112,103	15	49	5.6	811.7	811.7	812.0	0.3
1131	113,080	20	53	5.1	832.9	832.9	833.2	0.3
1141	114,077	15	30	9.0	865.1	865.1	865.1	0.0
Julian Tributary								
013	1,300	130	446	3.9	714.5	714.5	715.5	1.0
036	3,600	60	263	5.4	721.9	721.9	722.4	0.5
044	4,400	115	204	5.3	726.1	726.1	726.1	0.0
046	4,598	120	233	4.6	727.0	727.0	727.0	0.0
073 ² -096 ²								

¹ Feet above mouth

² Floodway data not computed

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

**IRISH BUFFALO CREEK – JULIAN
TRIBUTARY**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Klutz Branch								
001	121	17	46	9.6	758.8	758.3 ³	758.3	0.0
006	559	25	53	8.3	765.9	765.9	765.9	0.0
013	1,253	17	63	5.9	776.1	776.1	776.1	0.0
Lake Wright Branch								
009	875	305	1,214	2.2	714.9	714.5 ⁴	715.5 ²	1.0
023	2,250	85	548	4.6	719.3	719.3	720.3	1.0
025	2,450	80	564	4.5	720.3	720.3	721.2	0.9
051	5,080	340	1,895	1.3	724.2	724.2	725.2	1.0
069	6,930	225	1,012	2.2	730.6	730.6	730.7	0.1
105	10,460	180	451	4.4	743.0	743.0	743.0	0.0
106	10,639	85	520	3.8	744.7	744.7	745.6	0.9
134	13,400	240	1,376	1.4	748.7	748.7	749.7	1.0
165	16,475	325	413	4.0	764.4	764.4	764.4	0.0
195	19,468	75	174	8.5	792.1	792.1	792.1	0.0
196 ² -269 ²								

¹Feet above mouth

²Floodway data not computed

³Elevation computed without consideration of backwater effects from Legion Park Branch

⁴Elevation computed without consideration of backwater effects from Grants Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

KLUTZ BRANCH – LAKE WRIGHT BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Legion Park Branch								
003	344	42	143	6.4	706.5	706.5	706.8	0.3
009	922	31	152	6.0	712.7	712.7	713.2	0.5
016	1,577	68	395	2.3	719.8	719.8	720.8	1.0
025	2,507	65	231	3.7	727.5	727.5	728.4	0.9
034	3,431	40	220	3.6	737.4	737.4	738.2	0.8
040	4,039	41	164	4.7	743.5	743.5	744.4	0.9
046	4,640	29	103	7.0	749.7	749.7	749.7	0.0
053	5,268	28	154	4.3	757.8	757.8	758.8	1.0
059	5,867	21	56	6.9	768.0	768.0	768.1	0.1
067	6,650	27	170	2.3	787.0	787.0	787.4	0.4
072	7,205	22	73	3.8	795.8	795.8	796.8	1.0

¹Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

LEGION PARK BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Little Creek								
002	200	225	946	2.8	691.2	684.7 ²	685.7	1.0
021	2,075	190	965	2.7	691.2	689.7 ²	690.7	1.0
023	2,275	205	1,240	2.1	691.2	691.1 ²	692.0	0.9
047	4,725	360	1,540	1.7	694.0	694.0	695.0	1.0
062	6,225	365	1,399	1.8	696.2	696.2	697.2	1.0
064	6,425	325	1,744	1.5	698.9	698.9	699.0	0.1
102	10,225	425	2,143	1.1	700.4	700.4	701.1	0.7
113	11,307	375 ⁴	564	4.3	702.9	702.9	702.9	0.0
119	11,862	130	517	4.5	710.3	710.3	711.2	0.9
120	12,038	160	682	3.4	711.7	711.7	712.4	0.7
152	15,245	250	1,207	1.7	718.2	718.2	718.7	0.5
182	18,190	230	368	4.7	725.5	725.5	725.5	0.0
184	18,361	175	746	2.3	729.7	729.7	729.8	0.1
214	21,435	160	571	2.5	739.7	739.7	740.2	0.5
244	24,365	50	286	4.1	750.0	750.0	750.5	0.5
245 ³ -335 ³								

¹ Feet above mouth

² Elevation computed without consideration of backwater effects from Grants Creek

³ Floodway data not computed

⁴ Value is inaccurate, as the floodway has been adjusted in this area to match topographic-based floodplain redelineation

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

LITTLE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Petrea Branch								
010	976	57	205	4.8	715.2	715.2	716.0	0.8
016	1,648	87	301	3.3	720.1	720.1	720.7	0.6
024	2,442	60	222	4.2	724.9	724.9	725.8	0.9
031	3,123	40	152	4.3	732.7	732.7	733.3	0.6
035	3,498	22	121	5.4	743.1	743.1	743.9	0.8
043	4,258	29	126	4.7	753.8	753.8	754.3	0.5
051	5,075	43	254	2.0	764.9	764.9	765.2	0.3
Town Creek								
023	2,300	765	3,474	1.6	626.8	626.8	627.8	1.0
057	5,700	420	2,428	2.2	632.2	632.2	633.2	1.0
080	8,000	375	1,983	2.5	637.6	637.6	638.6	1.0
096	9,600	405	1,983	2.4	640.8	640.8	641.8	1.0
112	11,150	110	1,114	4.3	646.9	646.9	647.9	1.0
114	11,350	155	741	6.4	647.2	647.2	647.2	0.0
148	14,800	320	1,928	2.4	655.4	655.4	656.4	1.0
170	17,000	230	1,391	3.2	665.0	665.0	666.0	1.0
172	17,200	270	1,961	2.3	666.6	666.6	667.6	1.0
192	19,200	505	2,585	1.7	669.1	669.1	670.1	1.0
203	20,300	290	1,732	2.6	670.9	670.9	671.9	1.0
231	23,085	205	1,203	3.7	686.0	686.0	687.0	1.0

¹Feet above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

PETREA BRANCH – TOWN CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Town Creek								
236	23,592	205	1,516	3.6	686.0	686.0	687.0	1.0
243	24,278	129	1,123	4.9	687.5	687.5	688.4	0.9
252	25,196	200	1,486	3.7	689.6	689.6	690.2	0.6
259	25,874	225	1,476	3.6	690.9	690.9	691.8	0.9
269	26,934	206	1,538	3.4	695.1	695.1	695.4	0.3
288	28,763	125	1,010	4.7	697.3	697.3	698.2	0.9
296	29,557	183	1,079	4.4	698.8	698.8	699.4	0.6
310	30,983	100	672	7.1	700.9	700.9	701.7	0.8
325	32,502	485	2,954	1.5	704.2	704.2	705.2	1.0
334	33,396	150	778	5.3	705.3	705.3	706.2	0.9
349	34,913	80	740	5.4	710.4	710.4	710.9	0.5
361	36,107	566	3,431	1.1	711.8	711.8	712.5	0.7
372	37,228	350	2,125	1.4	714.0	714.0	714.8	0.8
380	37,999	225	1,435	1.9	715.1	715.1	715.8	0.7
397	39,681	310	1,957	1.4	718.7	718.7	719.6	0.9
408	40,800	335	1,980	1.4	721.7	721.7	722.7	1.0
419	41,900	315	1,629	1.7	723.7	723.7	724.7	1.0
424	42,350	370	2,421	1.2	726.0	726.0	727.0	1.0
426	42,550	345	2,327	1.2	727.9	727.9	728.9	1.0
431	43,100	390	2,508	1.1	728.3	728.3	729.3	1.0
452	45,200	305	1,744	1.6	730.6	730.6	731.6	1.0

¹Feet above mouth

TABLE 14	FEDERAL EMERGENCY MANAGEMENT AGENCY ROWAN COUNTY, NC AND INCORPORATED AREAS	FLOODWAY DATA
		TOWN CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Town Creek								
481	48,100	440	1,967	1.4	735.3	735.3	736.3	1.0
499	49,900	410	2,359	1.2	740.6	740.6	741.6	1.0
514	51,350	255	1,551	1.8	741.8	741.8	742.8	1.0
534	53,400	290	2,018	1.3	749.4	749.4	750.4	1.0
547	54,700	345	2,347	1.1	750.3	750.3	751.3	1.0
566	56,600	230	1,349	1.9	752.0	752.0	753.0	1.0
602	60,150	205	570	4.6	760.2	760.2	761.2	1.0
632	63,200	210	1,141	2.1	770.6	770.6	771.6	1.0
651 ² -663 ²								
Town Creek Tributary 1								
017	1,668	34	61	5.8	647.8	647.8	648.1	0.3
024	2,411	25	59	6.0	662.7	662.7	662.7	0.0
028	2,799	21	61	3.9	668.8	668.8	668.9	0.1
034	3,368	14	54	4.4	682.1	682.1	682.8	0.7
038	3,834	19	42	5.7	703.3	703.3	703.8	0.5
041	4,090	74	342	0.7	713.6	713.6	714.1	0.5

¹Feet above mouth

² Floodway data not computed

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

TOWN CREEK – TOWN CREEK TRIBUTARY 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Trexler Creek								
004	431	90	324	6.1	706.1	702.9 ³	703.4	0.5
010	1,001	106	410	4.0	708.0	708.0	708.6	0.6
015	1,458	381	6,120	0.3	724.2	724.2	725.0	0.8
025	2,501	300	2,971	0.5	724.3	724.3	725.1	0.8
031	3,086	180	1,116	1.4	724.3	724.3	725.1	0.8
038	3,815	190	1,004	1.1	730.1	730.1	730.8	0.7
048	4,839	41	158	6.4	737.9	737.9	738.3	0.4
055	5,514	63	207	4.9	746.7	746.7	746.9	0.2
063	6,266	40	169	5.5	753.9	753.9	754.6	0.7
068	6,823	35	188	4.0	766.6	766.6	767.4	0.8
074	7,446	22	69	8.8	773.6	773.6	773.6	0.0
081	8,123	18	56	9.7	783.8	783.8	783.8	0.0
090	9,030	10	43	7.4	809.8	809.8	810.8	1.0
097	9,710	16	46	4.0	830.8	830.8	831.3	0.5
Wildlife Tributary								
007	700	240	530	2.9	671.6	663.1 ⁴	664.1	1.0
032	3,180	125	506	2.9	673.4	673.4	674.4	1.0
064	6,400	190	586	2.1	688.2	688.2	688.8	0.6
100 ² -134 ²								

¹Feet above mouth

²Floodway data not computed

³Elevation computed without consideration of backwater effects from Crane Creek

⁴Elevation computed without consideration of backwater effects from Grants Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**ROWAN COUNTY, NC
AND INCORPORATED AREAS**

FLOODWAY DATA

TREXLER CREEK – WILDLIFE TRIBUTARY

Section 7.0 – Revising the FIS

This FIS is based on the most up-to-date data available to FEMA or the State at the time of production; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time; certain types of revisions will require the submission of supporting data. FEMA or the State may also initiate a revision. FIS revisions may take several forms; these include Letters of Map Amendment (LOMAs), Letters of Map Revision - based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs), Physical Map Revisions (PMRs), and FEMA or the State-contracted restudies.

7.1 Letters of Map Amendment and Letters of Map Revision - Based on Fill

LOMAs and LOMR-Fs are documents issued by FEMA that officially remove a property and/or a structure from a Special Flood Hazard Area (SFHA), if data supporting the removal are submitted. LOMAs and LOMR-Fs are generally determinations regarding areas that are too small to be shown on a FIRM panel; consequently, the changes they describe become official without revising the FIRM or the FIS Report.

NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the 1% annual chance flood elevation for a LOMA to be issued. Currently, there is no fee for FEMA's review of a LOMA request, but the requester of a LOMA is responsible for providing all the information needed for the review, which may include structure and/or property elevations certified by a licensed land surveyor or professional engineer. Therefore, LOMA requesters may need to retain the services of a land surveyor or engineer.

A LOMA cannot be used for property on which fill has been placed. For those situations, a LOMR-F must be used. As a participant in the NFIP, a local government must adopt ordinances that meet the minimum Federal floodplain management standards, which are outlined in Section 60.3 of the NFIP regulations. For a number of reasons, these ordinances generally vary from community to community. Nonetheless, because the placement of fill within the floodplain can affect flood hazards in the surrounding area, additional information is needed before FEMA can process a LOMR-F request. Among the data required for a LOMR-F is the community acknowledgment form. This form is FEMA's assurance that all appropriate Federal, State, and local floodplain management requirements have been met. Furthermore, NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the 1% annual chance flood elevation for a LOMR-F to be issued removing the structure from the floodplain. Because LOMR-F requests are the result of changed physical conditions rather than limitations of scale or topographic definition, FEMA charges a fee for the review of a LOMR-F request. As with the LOMA, the requester of a LOMR-F is responsible for providing all supporting information, including structure and/or property elevation data.

In cases where property owners plan to add fill in the SFHA, NFIP regulations require plans and technical information to be submitted for review by FEMA before construction takes place. FEMA will issue a conditional LOMR-F stating how flood hazards would change and what portions of the property, if any, would remain in the SFHA if the project were built according to the submitted plans.

The issuance of a LOMA or LOMR-F ends the property owner's obligation to purchase flood insurance as a condition of Federal or federally backed financing. However, the property owner's mortgage company maintains the prerogative to require flood insurance as a condition of providing financing. Before attempting to obtain a LOMA or LOMR-F, property owners are advised to consult their mortgage companies regarding this policy. Even if the mortgage

Section 7.0 – Revising the FIS

company indicates that it will require flood insurance if a LOMA or LOMR-F is issued, it may be advantageous for property owners to request a LOMA or LOMR-F because flood insurance premiums are lower for properties removed from the SFHA than for properties that remain within the SFHA.

For additional information regarding LOMAs, LOMR-Fs, conditional LOMR-Fs, or current application fees, please call the FEMA Map Assistance Center toll-free information line at 1-877-FEMA MAP (1-877-336-2627).

7.2 Letters of Map Revision

A Letter of Map Revision (LOMR) is a document issued by FEMA and the NCFMP that revises an FIS Report and/or FIRM. A LOMR is used to change flood risk zones, floodplain and/or floodway delineations, flood elevations, or planimetric features such as road systems or corporate limits. A LOMR provides FEMA and the NCFMP with a cost-effective means of revising the FIS information without physically changing and reprinting the map or report itself. A portion of the FIRM panel or FIS Report showing the revised information is issued with the LOMR. The LOMR is sent to all affected communities and is archived in the communities' NFIP map repository for public reference.

In cases where a proposed project (such as construction in the 1% annual chance floodplain) would result in a significant rise in 1% annual chance water-surface elevations, NFIP regulations require the community to submit plans and technical information for review by FEMA before construction takes place. This assures communities participating in the NFIP that proposed projects meet minimum NFIP requirements. The result of the FEMA and NCFMP reviews is documented in a conditional LOMR.

For additional information regarding LOMRs, conditional LOMRs, or current application fees, please call the FEMA Map Assistance Center toll-free information line at 1-877-FEMA MAP (1-877-336-2627), or the NCFMP at 919-715-5711.

7.3 Physical Map Revisions

Physical Map Revisions (PMRs) are processed to incorporate information concerning conditions present in the community that are not reflected in the FIS, and involve distributing republished FISs that supersede the most current NFIP data in the community repository. PMRs may be initiated by a request from a community resident or agency, or FEMA may initiate a PMR to incorporate one or more LOMRs, to reflect significant changes in corporate limits, to correct errors, or to update flood hazards to match new information from an adjacent community's FIS. Due to the costs associated with updating and distributing FISs, map revisions will be processed as LOMRs rather than PMRs whenever possible. For more information regarding PMRs, please contact the FEMA Map Assistance Center toll-free information line at 1-877-FEMA MAP (1-877-336-2627) or the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report, or the NCFMP at 919-715-5711.

7.4 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards in a given community. FEMA accomplishes this through a national mapping needs assessment process that assigns priorities and allocates funds to sponsor or subsidize new flood hazard analyses used to update

Section 7.0 – Revising the FIS

FIS Reports. For more information regarding FEMA-contracted restudies, please contact the FEMA Map Assistance Center toll-free information line at 1-877-FEMA MAP (1-877-336-2627) or the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report.

7.5 Map Revision History

The current FIRM is a subset of the Statewide FIRM, showing flood hazard information for the entire geographic area of Rowan County. Previously, separate Flood Hazard Boundary Maps (FHBMs), Flood Boundary and Floodway Maps (FBFMs), and/or FIRMs were prepared for each identified flood prone jurisdiction within the county. Historical data relating to the NFIP maps prepared for each community prior to and including the June 16, 2009 North Carolina Statewide FIRM, which includes Rowan County, are presented in Table 15, “Community Map History.”

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Rowan County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FIRMs, and/or FBFMs for all of the incorporated and unincorporated jurisdictions within Rowan County.

Section 7.0 – Revising the FIS

Table 15—Community Map History

Community Name	Initial Identification Date	FHBM Revision Date	FIRM Effective Date	FIRM Revision Date
Town of China Grove	January 9, 1974	None	September 29, 1978	June 16, 2009
Town of Cleveland	June 16, 2009	None	June 16, 2009	
Town of East Spencer	February 22, 1974	July 9, 1976	July 3, 1978	December 11, 1981 June 16, 2009
Town of Faith	October 17, 1975	None	July 3, 1978	June 16, 2009
Town of Granite Quarry	March 8, 1974	None	September 15, 1978	June 16, 2009
Town of Landis	June 7, 1974	None	July 3, 1978	June 16, 2009
Town of Rockwell	March 8, 1974	None	May 15, 1978	June 16, 2009
Rowan County (Unincorporated Areas)	July 28, 1978	None	November 1, 1979	June 16, 2009
City of Salisbury	February 22, 1974	November 19, 1976	May 15, 1980	June 16, 2009
Town of Spencer	March 1, 1974	None	September 29, 1978	June 16, 2009

Section 8.0 – Study Contracting and Community Coordination

8.1 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.

This FIS revises and updates previous FISs for the geographic area of Rowan County. Table 16, "Authority and Acknowledgments," includes information for the single-jurisdiction FISs published for each community included in this countywide FIS, with the exceptions of the Town of Cleveland, as compiled from their previously printed FIS Reports. The table also includes information for this revision.

Table 16—Authority and Acknowledgments

Community	FIS Dated	Study Contracted by	Data Source (Study Contractor or Source of Data)	Contract or Inter-Agency Agreement (IAA) Number	Work Completed in (month and/or year)
Rowan County and Incorporated Areas	June 16, 2009	FEMA	North Carolina Floodplain Mapping Program	N/A	March 2007
Rowan County (Unincorporated Areas)	May 1979	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	March 28, 1978
Town of China Grove	March 1978	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	August 1977
Town of East Spencer	January 1978	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	June 1977
Town of East Spencer	December 1981	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	June 1977
Town of Faith	January 1978	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	June 1977
Town of Granite Quarry	March 1978	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	August 1977
Town of Landis	January 1978	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	June 1977
Town of Rockwell	November 1977	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	June 1977
City of Salisbury	November 1979	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	September 1977

Section 8.0 – Study Contracting and Community Coordination

Table 16—Authority and Acknowledgments

Community	FIS Dated	Study Contracted by	Data Source (Study Contractor or Source of Data)	Contract or Inter-Agency Agreement (IAA) Number	Work Completed in (month and/or year)
Town of Spencer	March 1978	Federal Insurance Administration	Moore, Gardner & Associates, Inc.	H-4046	August 1977

N/A – Not Applicable

This FIS Report was produced through a unique cooperative partnership between the State of North Carolina and FEMA. The State of North Carolina, through FEMA's Cooperating Technical Partner (CTP) Initiative, has become the first Cooperating Technical State (CTS) and will assume primary ownership of the NFIP FIRM panels for all North Carolina communities. This role has traditionally been fulfilled by FEMA. The North Carolina Floodplain Mapping Program is conducting flood hazard analyses and producing updated, digital FIRM panels. The hydrologic and hydraulic analyses and the FIRM panels were produced by Watershed Concepts, under contract with the State of North Carolina.

In August 2000, the North Carolina General Assembly allocated \$23 million to Phase I of the Program. FEMA has contributed an additional \$10.0 million towards the Program, as well as in-kind contributions of engineering, mapping, and program management services.

8.2 Consultation Coordination Officer's Meetings/Scoping Meetings

In general, for each FIS an initial Consultation Coordination Officer's (CCO) meeting is held with representatives from FEMA, the communities, and the study contractors to explain the nature and purpose of the FIS and to identify the streams to be studied by detailed methods. A final CCO meeting is held with representatives from FEMA, the communities, and the study contractors to review the results of the study.

For each FIS produced by the State of North Carolina and FEMA's unique partnership, an Initial Scoping Meeting is held with representatives from FEMA, the county, the incorporated communities, and the State of North Carolina. A Final Scoping meeting is held to review the Draft Basin Plan and finalize the streams to be studied by detailed methods. This information is then used to create the Final Basin Plan.

The dates of the initial and final CCO meetings held for Rowan County were compiled from their previous FIS Reports and are shown in Table 17, "Consultation Coordination Officer's Meetings." Dates are not shown for the Town of Cleveland because this community never had previously printed FISs.

Section 8.0 – Study Contracting and Community Coordination

Table 17—Consultation Coordination Officer's Meetings

Community Name	For FIS Dated	Initial CCO Date	Attended by	Final CCO Date	Attended by
Rowan County (Unincorporated Areas)	May 1979	June 22, 1976	Representatives from the Federal Insurance Administration and Rowan County	December 12, 1978	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and Rowan County
Town of China Grove	March 1978	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of China Grove	October 5, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of China Grove
Town of East Spencer	January 1978 and December 1981	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of East Spencer	August 4, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of East Spencer
Town of Faith	January 1978	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of Faith	August 4, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of Faith
Town of Granite Quarry	March 1978	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of Granite Quarry	October 5, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of Granite Quarry
Town of Landis	January 1978	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of Landis	August 8, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of Landis

Section 8.0 – Study Contracting and Community Coordination

Table 17—Consultation Coordination Officer's Meetings

Community Name	For FIS Dated	Initial CCO Date	Attended by	Final CCO Date	Attended by
Town of Rockwell	November 1977	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of Rockwell	June 1, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of Rockwell
City of Salisbury	November 1979	June 22, 1976	Representatives from the Federal Insurance Administration and the City of Salisbury	June 6, 1978	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the City of Salisbury
Town of Spencer	March 1978	June 22, 1976	Representatives from the Federal Insurance Administration and the Town of Spencer	October 5, 1977	Representatives from Moore, Gardner & Associates, Inc., the Federal Insurance Administration, and the Town of Spencer

*Data Not Available

A Preliminary Meeting was held in Salisbury, North Carolina on June 26, 2007 to disseminate and review the FIS Report and FIRM panels for the Yadkin River Basin portion of Rowan County. This meeting was attended by community officials from Rowan County and the Incorporated Communities, along with representatives from the State of North Carolina, Dewberry & Davis LLC, and Watershed Concepts. A Public Participation Meeting was held on August 14, 2007, to review and discuss the FIS Report and FIRM panels for the Yadkin River Basin portion of Rowan County in a public setting.

The dates of the Initial and Final Scoping Meetings held for Rowan County are shown in Table 18, "Scoping Meetings."

Section 8.0 – Study Contracting and Community Coordination

Table 18—Scoping Meetings

Community Name	Basin	Initial Scoping Date	Attended by	Final Scoping Date	Attended by
Rowan County (Unincorporated Areas)	Yadkin	January 8, 2004	Representatives of Rowan County, the National Flood Insurance Program, the State of North Carolina, and Dewberry	January 18, 2006	Representatives of Rowan County, the National Flood Insurance Program, the State of North Carolina, and Dewberry
City of Salisbury	Yadkin	January 8, 2004	Representatives of the City of Salisbury, the National Flood Insurance Program, the State of North Carolina, and Dewberry	January 18, 2006	Representatives of the City of Salisbury, the National Flood Insurance Program, the State of North Carolina, and Dewberry
Town of Granite Quarry	Yadkin	January 8, 2004	Representatives of the Town of Granite Quarry, the National Flood Insurance Program, the State of North Carolina, and Dewberry	*	*
Town of Spencer	Yadkin	January 8, 2004	Representatives of the Town of Spencer, the National Flood Insurance Program, the State of North Carolina, and Dewberry	*	*
Town of China Grove	Yadkin	January 8, 2004	Representatives of the Town of China Grove, the National Flood Insurance Program, the State of North Carolina, and Dewberry	*	*

Section 8.0 – Study Contracting and Community Coordination

Table 18—Scoping Meetings

Community Name	Basin	Initial Scoping Date	Attended by	Final Scoping Date	Attended by
Town of Landis	Yadkin	January 8, 2004	Representatives of the Town of Landis, the National Flood Insurance Program, the State of North Carolina, and Dewberry	*	*

*Data Not Available

Section 9.0 – Guide to Additional Information

This is a multivolume 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 date of each volume; volumes bearing these dates contain the most up-to-date flood hazard data.

FISs have been prepared for Mecklenburg County and Incorporated Areas (FEMA, 2009), Davie County and Incorporated Areas (FEMA, 2008), Iredell County and Incorporated Areas (FEMA, 2008), Cabarrus County and Incorporated Areas (FEMA, 2008), Stanly County and Incorporated Areas (FEMA, 2008), and Davidson County and Incorporated Areas (FEMA, 2009). All FIRM panels created for the State of North Carolina are produced in a seamless statewide format; however, FIS Reports are produced for individual counties.

Copies of FIRM panels are available for a nominal fee. To obtain a copy of the current flood map for a specific community, contact the FEMA Map Service Center at 1-800-358-9616. To facilitate the processing of your request, please review the current flood map on file at your local community repository and obtain the panel number in which you are interested. If necessary, users may also order a FIRM Index from the Map Service Center to determine the appropriate panel numbers. The Map Service Center also accepts orders for the Community Status Book and the Flood Insurance Manual. The FIS Report, FIRM panels, and digital data used to produce the FIRM panels are available online at www.ncfloodmaps.com.

Information concerning the data used in the preparation of this FIS, contained in an Engineering Study Data Package, may be obtained by contacting the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report.

Table 19, “Additional Information,” contains useful contact information regarding this FIS, the FIRM, and data.

Table 19—Additional Information

FEMA and the NFIP	
FEMA website	www.fema.gov
NFIP Internet website	http://www.fema.gov/business/nfip/
Other Federal Agencies	
USGS website	www.usgs.gov/
Hydraulic Engineering Center website	www.hec.usace.army.mil/
State Agencies and Organizations	
CGIA website	www.cgia.state.nc.us/
NCGS website	www.ncgs.state.nc.us/
NCFMP website	www.ncfloodmaps.com

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