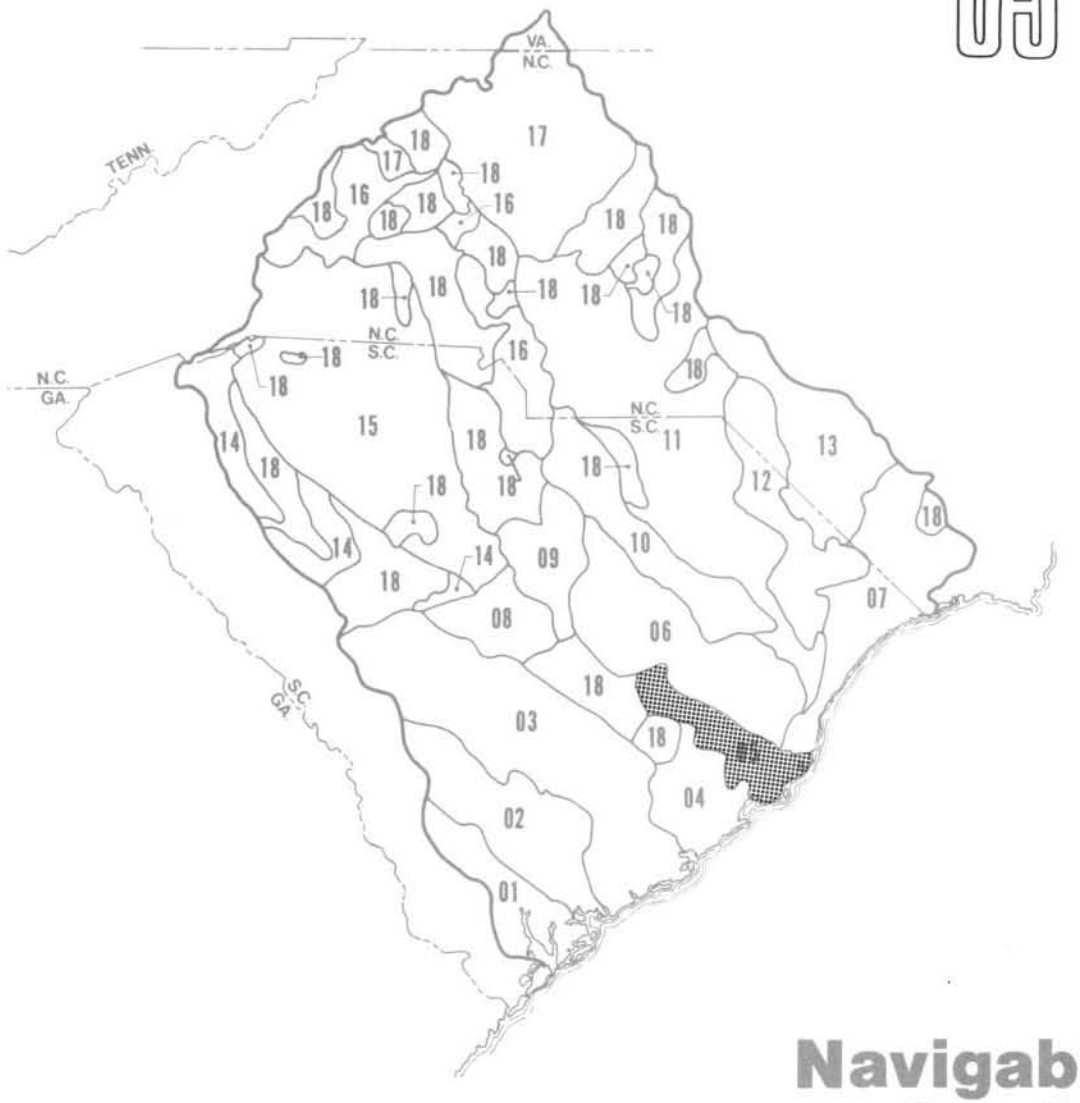
U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

SANTEE RIVER BASIN

Report No. 05



Navigability Study
1977

STANLEY CONSULTANTS

CONTENTS

CONTENTS (continued)

TABLES

FIGURES

CONTENTS (continued)

PLATES

SECTION 1 - INTRODUCTION

Purpose

The purpose of this study is to collect, develop, and evaluate information on waterbodies within the boundaries of the Charleston District, Corps of Engineers, for establishing the classification of "navigable waters of the U. S." and "waters of the U. S." (During the course of this study the term "navigable waters" was changed to "waters of the U. S." Herein references to "navigable waters" are synonymous with "waters of the U. S.") Study objectives include definition of the present head of navigation, the historic head of navigation, the potential head of navigation, and the headwaters of all waterbodies within the district.

The information generated as a part of the study will be utilized by the Charleston District in administration of its programs dealing with water resource project construction permits in "navigable waters of the U. S." (River and Harbor Act of 1899), and the deposition of dredge or fill material in "navigable waters" or their contiguous wetlands (Section 404 of PL 92-500).

Scope

The scope of this project is generally summarized by the following:

1. Outline drainage areas, locate headwater points where mean flow is five cubic feet per second (cfs), summarize lake data (10 to 1,000 acres), establish stream mileage for "navigable waters of the U. S.", and prepare a stream catalog summary for the district.
2. Conduct field surveys of waterbodies to establish mean water levels and obstruction clearances for evaluating the potential head of navigation.
3. Analyze available hydrological data to estimate mean, maximum, and minimum discharge rates at obstructions and other selected locations.
4. Conduct a literature review to identify past, present, and future uses of waterbodies for interstate commerce.

5. Conduct a legal search to identify Federal and state court cases which impact on navigation classifications.
6. Prepare plan and profile drawings, maps of the district showing significant physical features, and a map delineating the recommended navigation classifications.
7. Prepare reports on all major river basins and large lakes (greater than 1,000 acres) including information on physical characteristics, navigation projects, interstate commerce, court decisions, navigation obstructions, and recommended classification of waterbodies for navigation.
8. Prepare a summary report outlining navigation-related information for the entire district as well as the methodology, procedures, and other factors pertinent to the development of each of the river basin reports.

Conduct of this study relies heavily upon available information. Compilation and evaluation of existing data from many sources and development of field survey information are the main contributions to the new water resource data base represented by this study.

Related Reports

Information pertaining to this navigability study for the Charleston District has been compiled into a series of reports, one of which is represented by this document. A complete listing of the reports is presented below to facilitate cross referencing.

Number	Title
--	Summary Report
01	Coosawhatchie River Area
02	Combahee River Area
03	Edisto River Area
04	Cooper River Area
05	Santee River Basin
06	Black River Area
07	Waccamaw River Basin
08	Congaree River Basin
09	Wateree River Basin
10	Lynches River Basin

Number	Title
11	Great Pee Dee River Basin
12	Little Pee Dee River Basin
13	Lumber River Basin
14	Saluda River Basin
15	Broad River Basin
16	Catawba River Basin
17	Yadkin River Basin
18	Lakes - Greater Than 1,000 Acres
--	Coastal Supplement

The eighteen reports covering various drainage areas in the district present information for the specific basins. The Summary Report provides an overview of the entire study of district waterbodies and presents information applicable to all waters in the district. Reference should be made to both the individual drainage area reports as well as the Summary Report to obtain a thorough understanding of the study approach and results.

Acknowledgements and Data Sources

The contribution of many project team members within the Corps of Engineers, Charleston District, and Stanley Consultants is gratefully acknowledged by Stanley Consultants. In addition to the legal search and other evaluations and input from Charleston District staff, several others made significant contributions to this study effort. Dr. John W. Gordon, Assistant Professor in the Department of History, The Citadel, prepared the narrative and literature review information for past and present interstate commerce.

Several state water resource, transportation, utility, and planning agencies also cooperated and provided useful data for compiling these reports. Federal water resource and regulatory agencies and private utilities provided information along with public and private operators of large reservoirs.

Specific numbered data sources are referenced in the reports in parentheses. These data sources are listed in the Bibliography of each report of the navigation study.

SECTION 2 - PHYSICAL CHARACTERISTICS

The headwaters of the Santee River are formed by the Saluda, Broad, and Catawba Rivers in western North Carolina and northwestern South Carolina (see Plate 05-1 and Reports 14, 15, and 16, respectively). These rivers flow from the eastern slopes of the Blue Ridge Mountains through the Fall Line Hills in a general southeastern direction. The Broad and Saluda Rivers come together near Columbia, South Carolina to form the Congaree River (Report 08). The Catawba, originating approximately 20 miles north of the Broad, flows east for 80 miles then southeast for about 120 miles where it meets Big Wateree Creek, a small tributary entering from the west. This junction is within the backwaters of Wateree Lake (see Reports 16 and 18). The Wateree River then flows from the Wateree Dam for approximately 70 miles where it joins the Congaree River to form the Santee River.

Prior to the construction of Lake Marion in 1941, the Santee River flowed from the confluence of the Congaree and Wateree Rivers for approximately 143 miles to the coast. However, Lake Marion (Report 18) formed by the construction of Santee Dam at river mile (R.M.) 87.7, inundates the upper 55 mile section of the Santee River.

The Santee is a large river with a channel that is generally wide, straight, and free of debris. From the Santee Dam, the river flows 87.7 miles southeasterly through the Coastal Plain and enters the Atlantic Ocean about 45 miles northeast of Charleston and about 10 miles south of Winyah Bay. The North Santee and the South Santee Rivers form the lower 18 mile section of the river. The north channel is the primary navigable channel. The North Santee is connected with Winyah Bay and other coastal harbors by the Atlantic Intracoastal Waterway which crosses the river at R.M. 5.

Because of the inundation of the upper portion of the Santee River, this report will be concerned with the length of river below Santee Dam (see Plate 05-1). Report 18 covers the upper part of the Santee River beyond Lake Marion. Physical characteristics of the Congaree,

Wateree, Saluda, Broad, and Catawba Rivers are discussed in detail in Reports 08, 09, 14, 15, and 16, respectively. Plate 05-1 shows the entire drainage basin of the Santee River and its tributaries. (Plate 05-2 and 05-3 are detailed maps indicating the significant physical features found in the report area.)

The Cooper River (Report 04) is closely associated with the Santee River system. Before the construction of the Santee Dam in 1941, the Santee had an approximate flow of 16,000 cfs at its mouth. However, with the completion of the Santee-Cooper project in 1941 (Santee Dam is one element of this project) 85 percent of the Santee River has been diverted from Lake Marion into Lake Moultrie via the diversion canal. This flow then enters the Cooper River via the Tailrace Canal below Pinopolis Lock and Dam. However, some of the flow will soon be rediverted back to the Santee River (see Table 3 of this report and Report 04 for further details). (1)

Thirty-seven miles of the Santee River are considered to be tidally influenced.

Table 1 presents selected physical characteristics of the river basin. Included are approximate values for drainage areas, mean water flows, and elevation changes. Detailed slope information may be found in Table 4. Methodology for determining the numerical values of physical characteristics appearing in Table 1 is defined in the Summary Report.

Table 2 presents information on the USGS gaging stations located in the Santee River report area.

TABLE 1
PHYSICAL CHARACTERISTICS (2)(3)(4)*

Stream & Code[1]	Length-Mouth to Headwaters[2] (mi)	Elevation Change[2] (ft)	Drainage Area[2] (sq.mi.)	Mean Discharge at Mouth[3] (cfs)	Limit of Tidal Influence (R.M.)	Present Navigable Waters of the U. S. (R.M.)
Santee 05-01	87.7	40	760 (15,610)[4]	3,120[5]	37.0	0 - 125.3
Lake Marion 18-03	37.6 (R.M. 87.7 to R.M. 125.3)	--	590	17,160	--	87.7 - 125.3
Congaree 08-01	52.0	55	730 (8,580)[4]	10,140	--	125.3 - 175.9
Saluda 14-01	182.0	2,270	2,510	2,910	--	10.0 - 50.0
Broad 15-01	168.0	2,440	5,340	6,520	--	--
Wateree 09-01	76.1	65	910 (5,680)[4]	7,020	--	0 - 76.1
Catawba 16-01	202.0	1,470	3,780	6,680	--	110.0 - 163.5

1) See Summary Report for explanation of code.

2) Length, elevation change, and drainage area apply only to respective report areas unless otherwise noted.

3) Includes all contributing upstream flow.

4) Total drainage basin.

5) Includes approximately 15 percent of contributing flow (85 percent of contributing flow diverted to Cooper River).

* See Bibliography for these references.

TABLE 2

KEY STREAM GAGING STATIONS (2)(4)

Stream	USGS Gaging Station Number	Location Description	Drainage Area (sq.mi.)	Mean Flow (cfs)	Minimum Flow[1] (cfs)	Maximum Flow[2] (cfs)
Santee River	02171500	Located near Pineville, S. C., in Berkeley Co., on bank 2.4 mi. downstream from Lake Marion Dam.	14,700	2,279	497	16,000
Santee River	02171650	Located below St. Stephens, S. C., in Berkeley Co., on bank 600 ft. downstream from Mattassee Lake	14,900	2,835	--	--
Santee River	02171700	Located near Jamestown, S. C., in Berkeley Co., on U. S. Highway 17A Bridge just upstream from SCLRR bridge	15,144	--	--	--
Santee River	02171730	Located near Honey Hill, S. C., in Berkeley Co., on bank 1.7 miles downstream from Echaw Creek	15,270	--	--	--

1) Exceeded or equaled 90 percent of the time.

2) Exceeded or equaled 10 percent of the time.

SECTION 3 - NAVIGATION IMPROVEMENT PROJECTS

Federal Navigation Projects

There are several Federal projects relating to stream conditions of the Santee River that have been authorized by Congress and compiled by the Corps of Engineers. While various surveys of the Santee River have been made, an examination of recent Corps of Engineers' annual reports indicates only one project for river improvement involving dredging or snagging that has been authorized. This project extended throughout the river and was completed in 1941. The completion of the Santee Dam at R.M. 87.7 also occurred in 1941 which closed navigation on the Santee above this point and diverted approximately 85 percent of the Santee River flow to the Cooper River via a three mile long diversion canal. The Santee Dam project is a part of the Santee-Cooper project which is discussed in greater detail in Report 04 - Cooper River.

Summarized information for the Santee River report area is given in Table 3.

Other Navigation Projects

As discussed later in Section 4, the state of South Carolina passed several acts in the 1700's and early 1800's to open navigation on the Santee River.

Inquiries made at various state and Federal agencies indicate one project that is planned for construction which would improve or substantially benefit navigation on the Santee River. This, the St. Stephens Project, is described in Table 3 - Authorized Federal Navigation Projects.

TABLE 3

AUTHORIZED FEDERAL NAVIGATION PROJECTS (5)(6)(7)

Waterbody	Atlantic Intracoastal Waterway
Work Authorized	12 ft deep (at mean low water) not less than 90 ft wide channel
Date Complete	1940
Project Location	Between Norfolk, Virginia and St. Johns River, Florida
Authorization	River and Harbor Acts: 19 September 1890; 13 June 1902, H. Doc. 56th Congress, 1st Sess.; 3 March 1925, H. Doc. 237, 68th Congress, 1st Session; 3 March 1925, S. Doc. 178, 68th Congress, 2nd Session; 3 July 1930, H. Doc. 41, 71st Congress, 1st Session; 30 August 1935 Rivers and Harbors Committee Doc. 14, 72d Congress, 1st Session; 30 August 1935, H. Doc. 129, 72nd Congress, 1st Session; 31 August 1935, Rivers and Harbors Committee Doc. 11, 72d Congress, 1st Session; 26 August 1937, Harbors and Rivers Committee Doc. 6, 75th Congress, 1st Session; 2 March 1945, H. Doc. 527, 76th Congress, 1st Session

TABLE 3 (continued)

AUTHORIZED FEDERAL NAVIGATION PROJECTS (5)(6)(7)

Waterbody	Santee River
Work Authorized	Project provides for snagging the entire river
Date Complete	1941
Project Location	From Atlantic Ocean to the upper reaches of the Santee River. However, in 1941 the river was closed to navigation at Wilson Landing (R.M. 87.7) by the construction of the Santee Dam
Authorization	River and Harbor Act 19 September 1890

Waterbody	Town Creek
Work Authorized	Project provides for a channel 10 ft deep by 80 ft wide from the Atlantic Intracoastal Waterway to a like depth in Five Fathom Creek, a distance of 0.94 miles
Date Complete	1974
Project Location	Bulls Bay - Town Creek, S. C.
Authorization	Authorized by OCE on 12 February 1974 under Section 107 of the River and Harbor Act of 1960 as amended

TABLE 3 (continued)

AUTHORIZED FEDERAL NAVIGATION PROJECTS (5)(6)(7)

Waterbody	Santee River
Work Authorized	Project will provide for construction of a diversion canal (approximately 15 miles long) from Lake Moultrie to the Lower Santee River with an 84,000 Kw hydroelectric generation plant.
Date Complete	Construction started, 1977
Project Location	St. Stephens Project, near St. Stephens, S. C.
Authorization	River and Harbor Act 1968, Public Law 90-483, Senate Document 88

SECTION 4 - INTERSTATE COMMERCE

Past

English settlers from Charleston, joined later by French Hugenots, began to exploit the Santee River as an avenue into South Carolina's hinterland. These early efforts (1708-1719) centered on the Indian trade, and involved "navigation of the Santee, but land transportation was more important." (8) An early manuscript refers to a 1735 passage by water between Charleston and the settlement known as "the Congarees." This early example of water transportation "may have involved the perilous voyage along the coast to the mouth of the Santee, or the safer but broken trip by way of the Cooper River." (9)

Among the types of vessels in use along the Santee River by the year 1715 was one made out of cypress logs. The logs were hollowed out and were joined by flat boards which seem to have formed the bottom of the craft. With the addition of "two masts and Bermuda sails and a small keel," this vessel could carry about sixty barrels as cargo. (10)

Various efforts by the General Assembly of South Carolina sought to improve the navigation of this key river and various of its tidewater tributaries. An omnibus act of 1717 sought to "make one or more Cuts or Creeks in the parish of Christ Church, for the more convenient transporting of the goods carried by water to Charleston." (11) In 1786, the legislature passed "An Act to establish a Company for the Inland Navigation from Santee to Cooper River," which was followed in 1809 by another act establishing a company "for the inland navigation from Sampit into Santee, and from Santee into Cooper or Wando River." (12)

These last two acts were intended to correct what historian and attorney Henry Savage describes as an obvious defect of South Carolina's geography: namely, that the Santee River does not flow into Charleston Harbor. Plans for attempting to correct this defect date from the late 18th Century. As Savage notes in his work, River of the Carolinas: The Santee, the South Carolina Gazette and Public Advertiser for 12 November 1785 indicated that a group was meeting to consider a plan for "opening a communication by locks between Cooper and Santee Rivers." (13)

Construction on the project began in 1793, and the resultant Santee Canal was opened in 1801. As far back as 1773, the Grand jury meeting at Charleston had recommended building a canal to join the navigation of the Santee and Cooper Rivers. When this project became a reality in 1801 -- having cost $750,000 to build -- boats carrying cotton, rice, and naval stores could carry these products from the hinterland and down to the coast. The Charleston Mercury of 1 May 1827 observed that a boat from Columbia, carrying a hundred bales of cotton, had made the trip to Charleston in just four days. This was a record, since "The distance from this city by water is 350* miles, and the navigation has seldom been accomplished in less than twelve to fourteen days." (14) Long periods of low water closed the canal between 1848 and 1852. It reopened in that year, but continued to lose traffic to the more flexible and rapid railroad transportation. (15)

In 1818, two steamboat companies were chartered, "one to operate on the Santee-Congaree system to Columbia and the other on the Santee-Wateree to Camden." (16) Eight years later, Robert Mills reported that ten steamboats ply between Charleston "and the towns of Savannah, Augusta, and Hamburg on the Pee Dee, and Columbia on the Congaree." To reach the Congaree by steamboat meant, of course, traveling on the Santee River. "Each of these [steamboats]," recorded Mills, "on an average will carry six hundred bales of cotton, and some one thousand." (17)

Also in 1818, the Civil and Military Engineer of South Carolina, John Wilson, reported to the legislature that "The North Santee affords the boldest and best navigation." (18) To remove the obstructions which hindered that navigation, the Board of Public Works authorized in 1819 various improvements on the Santee and its tributaries. (19) By 1826, Mills could state that there is "good steamboat navigation" on the Santee as far up as "the junction of the Congaree, and Wateree, and up both these rivers to Camden and Columbia." (20) Regarding various tributaries of the Santee, it was reported that "The belt of land between the two Santees is pierced by numerous navigable creeks." One important

---

* This distance does not correspond to river miling developed as a part of this study. This study shows a distance of about 176 miles.

stream was Alligator Creek, which, in the 1820's, afforded "the only navigable outlet of the Santee River." (21)

By the middle of the 19th Century and the start of the Civil War, "The mouths of the North and South Santee had nine feet of water at high tide, and boats that got over the bars could usually make their way seventy miles up the river to the bridge of the Northeastern Railway." (22)

The Santee was first examined by a Corps of Engineers' officer in 1880, when Captain C. B. Phillips conducted a survey of the Wateree-Congaree-Santee system. (23) Meanwhile, the South Carolina State Board of Agriculture announced that "Steamboats carrying 800 to 1,000 bales of cotton have passed up the Santee." (24) In 1884, there were about five steamboats in operation on the several river networks in South Carolina, these being owned by the Accomodation Line, Inc., and a firm known as the Pee Dee and Santee River Line. (25)

In the late 1800's interest in river navigation and trade revived as Congress passed the Rivers and Harbors Act of 3 March 1881, and 19 September 1890. One product of this revival was the Esterville-Minim Creek Canal, an 1892 Federal "project to join Winyah Bay and the Santee River." (26) By 1896, the Santee was reckoned to have a "Navigable Length for Steamers" of 143 miles*. For the "Commercial year ending as of 1 June 1895," the Santee had moved 117,690 tons of traffic, valued at $2,200,800. This traffic consisted mainly of cotton, rice, lumber, timber, cross-ties, shingles, and naval stores. (27)

However, in the first decades of the 20th Century this commercial traffic on the Santee appears to have fallen off. By 1909, "Between Camden and Georgetown no steamer line is now in operation," although the river "is now used for floating out logs." (28)

In the 1930's, there were "no terminal facilities along the river," but there were two landings "used for loading pulpwood on Wadmacon River, a tributary entering Santee River about 20 miles above its mouth." With the construction of the Santee Dam by the South Carolina Public

---

* This distance does not correspond to river miling developed as a part of this study. This study shows a distance of about 125.3 miles.

Service Authority in 1941, "the river was closed to navigation at Wilsons Landing, 87 miles above the mouth." The upper 56 miles of the river basin were inundated by Lake Marion. With the construction of that portion of the Santee-Cooper hydroelectric project, navigation "between points on the Santee River above the dam and the seacoast is possible via the Cooper River and the Santee-Cooper project." (29)

By 1953, Waterborne Commerce of the United States listed the Santee River as "No commerce reported." (30)

Present

The Santee River is currently being used for purposes of waterborne commerce of an interstate variety. (31)

In 1965, the Santee River was described as follows: Santee River and North Santee River "Navigable length in miles (143 miles*)"; Mi. 38 limit of practical navigation; Mi. 89*, Santee Dam (no lock)"; South Santee River, "Navigable length in miles (20 miles*)." (6)

One project currently under construction will affect the nature and volume of commercial traffic on the Santee or its tributaries. This project was authorized in the Rivers and Harbors Act of 1968 and involves rediversion. The project is to reduce shoaling in Charleston Harbor by causing fresh water inflows to bypass Charleston Harbor and enter the ocean by way of the Santee River (see Report 04). (7)

Future Potential

Comprehensive analysis of the regional economics (income, education, employment, community facilities, transportation systems, and similar factors), which would indicate growth patterns and the services needed to sustain various types of industrial and commercial activities, is beyond the scope of this study. Thus, the use of the Santee River and its tributaries for interstate commerce in future years is difficult to predict. However, some analysis and judgments have been made concerning future commerce to assist in establishing navigation classifications.

---

* These distances do not correspond to river miling developed as a part of this study.

As discussed later in Section 6, the Santee River is classified "navigable waters of the U. S." from its mouth at Santee Point and the Atlantic Ocean at R.M. 0.0 to the confluence of the Congaree and Wateree Rivers (via Lake Marion) at R.M. 125.3.

The Santee River is currently used for interstate commerce. This commerce is anticipated to continue in the future since the river is connected to the Atlantic Intracoastal Waterway and the Atlantic Ocean. However, as regional economic trends change the degree of demand of commerce, activity on the Santee may also change. Future potential commerce could be significant on the Santee due to its location near the coast.

SECTION 5 - LEGAL AUTHORITY

General

This section presents information pertaining to the legal aspects of the navigability investigation. Such Federal and state court decisions as apply to the specific basin reported on herein are outlined. The Summary Report presents more complete documentation and references to the court cases dealing with navigation classifications and legal jurisdiction.

Navigability Interpretations

The term "navigable waters of the U. S." is used to define the scope and extent of the regulatory powers of the Federal government. Precise definitions of "navigable waters" or "navigability" are ultimately dependent on judicial interpretation, and are not made conclusively by administrative agencies.

Definitions of "navigability" are used for a wide variety of purposes and vary substantially between Federal and state courts. Primary emphasis must therefore be given to the tests of navigability which are used by the Federal courts to delineate Federal powers. Statements made by state courts, if in reference to state tests of navigability, are not authoritative for Federal purposes.

Federal courts may recognize variations in definition of navigability or its application where different Federal powers are under consideration. For instance, some tests of navigability may include:

1. Questions of title to beds underlying navigable waters.
2. Admiralty jurisdiction.
3. Federal regulatory powers.

This study is concerned with Federal regulatory powers. Unfortunately, courts often fail to distinguish between the tests, and instead rely on precedents which may be inapplicable. Thus, a finding that waters are "navigable" in a question dealing with land title may have a somewhat different meaning than "navigable waters of the U. S." which pertains to Federal regulatory functions.

In this study, the term "navigable waters of the U. S." is used to define the extent and scope of certain regulatory powers of the Federal government (River and Harbor Act); this is distinguished from the term "navigable waters" which refers to other Federal regulatory powers (Section 404 of PL 92-500).

Administratively, "navigable waters of the U. S." are determined by the Chief of Engineers and they may include waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate commerce landward to their ordinary high water mark and up to the head of navigation. "Navigable waters of the U. S." are also waters subject to the ebb and flow of the tide shoreward to their mean high water mark. These waters are deemed subject to a Federal "navigation servitude". The term "navigable waters of the U. S." defines the more restricted jurisdiction which pertains to the River and Harbor Acts -- particularly the one of 1899 which specifically defined certain regulatory functions for the Corps of Engineers.

In contrast, the term "navigable waters" defines the new broader jurisdiction with respect to Section 404 of the Federal Water Pollution Control Act Amendments of 1972. Accordingly, "navigable waters" not only include those waters subject to the navigation servitude, but adjacent or contiguous wetlands, tributaries, and other waters, as more fully defined in revised Corps of Engineers Regulations.

Although this navigability study covers both "navigable waters of the U. S." and "navigable waters", the analysis of judicial interpretation has only focused upon determining "navigable waters of the U. S." to the head of navigation. Due to common usages in court cases, the terms "navigability" and "navigable waters" may herein appear interchangeably with the term "navigable waters of the U. S." However, the summary of court cases is directed at the Federal regulatory jurisdiction of the River and Harbor Acts, and not necessarily regulatory jurisdiction under the Federal Water Pollution Control Act.

General Federal Court Cases

Powers of the Federal government over navigable waters stem from the Commerce Clause of the U. S. Constitution (Art. I,§8). Pursuant

to its powers under the Commerce Clause, Congress enacted the River and Harbor Act of 1899 which particularly specifies regulatory powers of the Federal government in "navigable waters of the U. S."

The well-established Federal test of navigability is whether a body of water is used or is capable of being used in conjunction with other bodies of water to form a continuous highway upon which commerce with other states or countries might be conducted.

Several Federal court decisions make it clear that a waterway which was navigable in its natural or improved state retains its character as "navigable in law" even though it is not presently used for commerce. The test of navigability is not whether the particular body of water is in fact being used for any form of commerce but whether it has the capacity for being used for some type of commerce. Several cases substantiate this (see the Summary Report for details on the court decisions).

The ebb and flow of the tide is another test which remains a constant rule of navigability in tidal areas, even though it has sometimes been disfavored as a test of Federal jurisdiction. Several cases note that ebb and flow should not be the sole criterion of navigability, but that extension of Federal jurisdiction into the major non-tidal inland waters is possible by an examination of the waters "navigable character". The ebb and flow test, however, remains valid as a rule of navigability in tidal areas; it is merely no longer a restriction for non-tidal areas. For bays and estuaries, this extends to the entire surface and bed of all waterbodies subject to tidal action, even though portions of the waterbody may be extremely shallow or obstructed by shoals, vegetation, or other barriers as long as such obstructions are seaward of the mean high tidal water line. Marshlands and similar areas are thus considered "navigable in law" insofar as they are subject to inundation by the mean high waters. The relevant test is therefore the presence of the mean high tidal waters. Navigable waters are considered navigable laterally over the entire surface regardless of depth.

Another factor relevant to navigability determinations is land title. Whatever title a party may claim under state law, the private ownership of the underlying lands has no bearing on the existence or

extent of the dominant Federal jurisdiction over "navigable waters of the U. S." Ownership of a river or lake bed will vary according to state law; however, the Supreme Court has consistently held that title to the bottomlands is subordinate to the public right of navigation.

Specific Federal Court Cases

Navigability, in the sense of actual usability for navigation or as a legal concept embracing both public and private interests, is not defined or determined by a precise formula which fits every type of stream or body of water under all circumstances and at all times. A general definition or test which has been formulated for Federal purposes is that rivers or other bodies of water are navigable when they are used, or are susceptible of being used, in their ordinary condition as highways for commerce over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

The question of navigability of water when asserted under the Constitution of the U. S., as is the case with "navigable waters of the U. S.", is necessarily a question of Federal law to be determined according to the general rule recognized and applied in the Federal courts.

Review of Federal case history reveals one court decision which applies specifically to navigation in the Santee River report basin. (32)

Manigault v. Springs* - This U. S. Supreme Court case held that in the absence of legislation by Congress, a state may improve its lands and promote the general health by authorizing a dam to be built across its interior streams, though they were previously navigable to the sea by vessels engaged in the coastwise trade. There was discussion that Kinlock Creek was not a "navigable waters of the U. S." However, in spite of the allegation that Kinlock Creek was a navigable stream, the state legislature was found to have authority to construct a dam across a navigable stream. Implicit in the case were recognitions of the navigability on the Santee River.

---

* 199 U. S. 473, 26 Sup. Ct. 127 (1905).

South Carolina State Court Cases

The South Carolina legislative enactment defining navigability and requiring freedom from obstruction may be found in Section 70-1 of the South Carolina Code of Laws. This Section essentially provides that all streams which can float rafts of lumber or timber are considered navigable by state law.

Many of the South Carolina State cases reported are primarily concerned with state ownership questions. While the majority of states actually own streams and exercise control over their navigable waters, the ultimate authority has been granted to the Federal government by the Commerce Clause of the Constitution. The general rule, then, is that the states both own and control the navigable streams within their borders, subject to exercise of the superior right of control by the U. S. Although case histories show that state and Federal concepts of navigability do not always agree, when Federal interests are at stake, the Federal test will govern.

There are exceptions, however, to the "overwhelming majority rule of state ownership of lands beneath navigable waters," and South Carolina is in the minority. In the minority states, it was considered that property rights were vested at the time of independence from England and that the state took title only to tidal-navigable streams while riparian owners took title to all stream beds, both navigable and non-navigable, if non-tidal. Even in the minority states, however, private ownership of the bed does not affect the rights of the public to the use of navigable waters.

A legal search indicates that there are three South Carolina state court cases which specifically deal with navigation considerations in the Santee River basin. (32)

Cape Romain Land and Improvement Co. v. Georgia-Carolina Canning Company* - This case, concerned with a trespass action to determine whether the plaintiff or the defendant had the right to harvest oysters on a large tract of land between the high and low-water mark of a tidal

* 148 S. C. 428, 146 S. E. 434 (1926).

navigable stream off of Bull's Bay reaffirmed the notion of tidal navigability. The contest was between one who held title under a grant from the State and one who held under a lease by a state commission. The court found for the lessee stating:

> "The title to land below high-water mark on tidal navigable streams, under the well-settled rule, (citing nothing) is in the State, not for the purpose of sale, but to be held in trust for public purposes."

Rice Hope Plantation v. South Carolina Public Service Authority* - This case concerned a suit for damages resulting from construction and operation of a dam on the river, which caused an infiltration of salt water into streams that ran through plaintiff's property. The court stated that the rights and powers of the Federal government with reference to navigation are paramount to the rights of the state, but rights of the state remain in effect until Congress acts upon the subject. It went on to state:

> "... we hold that the liability of the South Carolina Public Service Authority to a riparian owner for damages if any, alleged to have been sustained by reason of the diversion of waters from the Santee River to the Cooper River, is substantially the same as that which would be applicable, if the United States were involved."

These statements seem to implicitly recognize the Santee and Cooper Rivers as "navigable waters of the U. S."

Early v. South Carolina Public Service Authority** - Although this case concerned the plaintiff's seeking of compensation by inverse condemnation for damages brought about by the backing of salt water into the otherwise fresh water Santee River, the court recognized that the Congaree, Wateree, Santee, and Cooper Rivers were all navigable rivers of the state and subject to a navigation servitude. The court, in setting the rights and limits of the state held:

> "The right of the sovereign, in the exercise of the navigation servitude, to take or damage or destroy private property without obligation to compensate therefor extends to the bed of the navigable stream, i.e., to mean high water mark on either bank and no farther; for damage beyond that boundary the constitution requires just compensation."

---

* 216 S. C. 500, 59 S. E. 2d 132 (1950).

** 228 S. C. 392, 90 S. E. 2d 472 (1955).

Thus, the reservation of the title between high and low-water in the state allows the freedom and flexibility necessary, in some cases, to exercise the navigation servitude without the requirement of compensation.

Recent Federal Litigation

A review of recent Federal litigation concerning the Charleston District did not reveal any court actions in the Santee River basin concerning navigation. (32)

Federal Agency Jurisdiction

The delineation of "navigable waters of the U. S.", as discussed earlier, in essence, defines the Federal navigation servitude and is applicable to Federal jurisdiction generally (not merely applicable to the Corps of Engineers). No matter which Federal agency or activity may be involved, the assertion of "navigability" ("navigable waters of the U. S.") arises under the U. S. Constitution, or under application of Federal statute.

By virtue of the Commerce Clause of the Federal Constitution, and the clause empowering Congress to make all laws necessary to carry into execution the Federal judicial power in admiralty and maritime matters, "navigable waters of the U. S." are under the control of Congress, which has the power to legislate with respect thereto. It is for Congress to determine when and to what extent its power shall be brought into activity. It may be exercised through general or special laws, by Congressional enactments, or by delegation of authority.

Thus, Congress has power which is paramount to that of the states to make improvements in the navigable streams of the U. S. and for this purpose to determine and declare what waters are navigable. The Federal government also has the power to regulate the use of, and navigation on, navigable waters.

The above presents the basis upon which Federal jurisdiction in "navigable waters of the U. S." is established. The basic definition or jurisdictional concept of "navigable waters of the U. S." remains consistent, irrespective of which department or office of the Federal

government may be delegated particular responsibility. For instance, the safety, inspection, and marine working functions of the U. S. Coast Guard embrace vessel traffic within "navigable waters of the U. S." as previously defined.

With specific reference to agency regulation of construction or work within "navigable waters of the U. S.", other than by the Corps of Engineers, the Department of Transportation Act of 15 October 1966 (PL 89-670) transferred to and vested in the Secretary of Transportation, certain functions, powers, and duties previously vested in the Secretary of the Army and the Chief of Engineers. By delegation of authority from the Secretary of Transportation, the Commandant, U. S. Coast Guard, has been authorized to exercise certain of these functions, powers, and duties relating to the location and clearances of bridges and causeways in the "navigable waters of the U. S."

An additional agency of particular interest concerning work or construction within "navigable waters of the U. S." is the Federal Power Commission. The Federal Power Act, Title 16, United States Code, Sections 791 et. seq., contemplates the construction and operation of water power projects on navigable waters in pursuance of licenses granted by the Federal Power Commission. The statute was enacted to develop, conserve, and utilize the navigation and water power resources of the nation. The act provides for the improvement of navigation, development of water power, and use of public lands to make progress with the development of the water power resources of the nation.

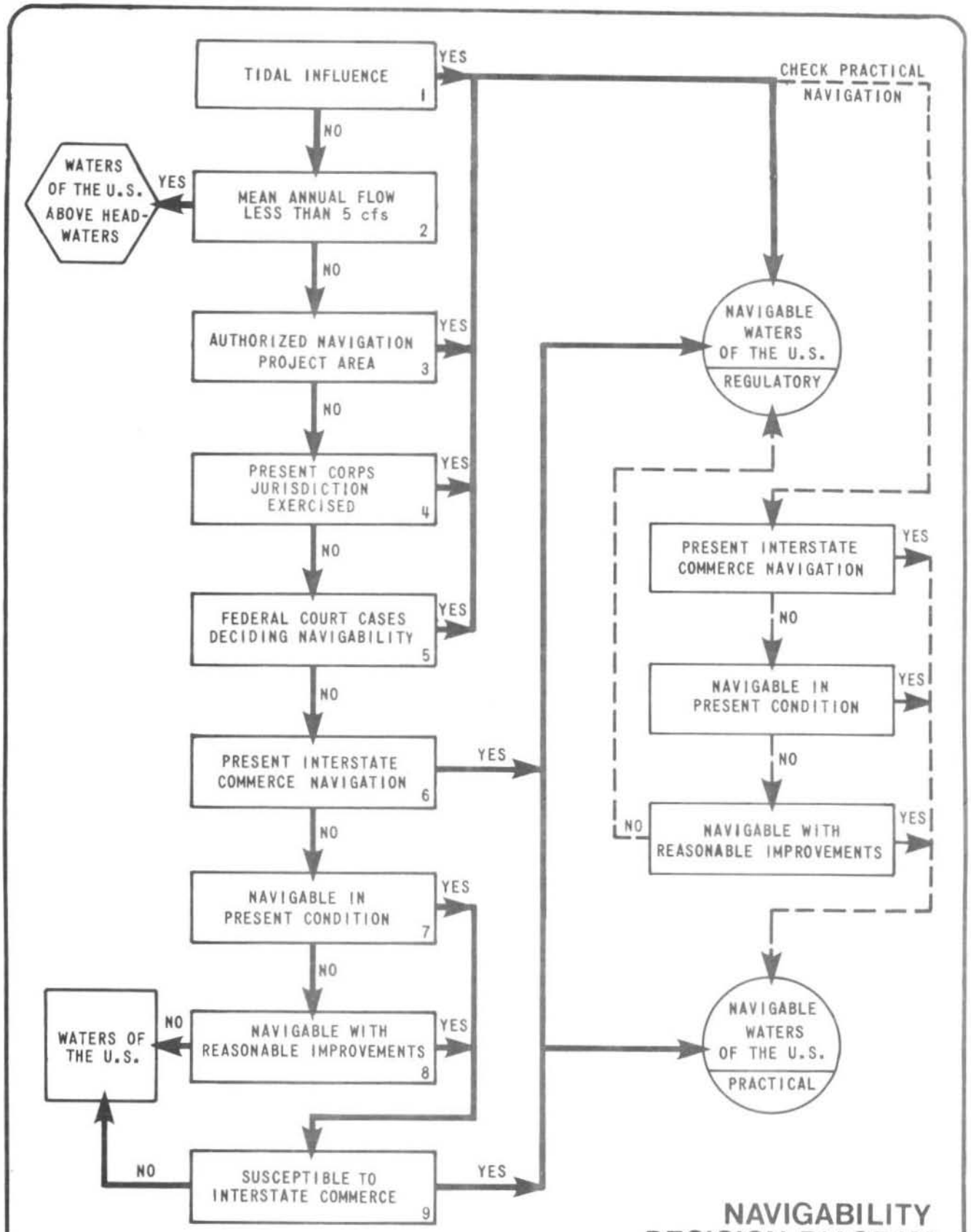
SECTION 6 - NAVIGATION OBSTRUCTIONS AND CLASSIFICATIONS

Navigation Classification Procedures

As noted in Section 5, definition of navigability is not subject to a single precise formula which applies to every circumstance. Many factors including stream physical characteristics (depth, width, flow, slope, etc.), presence of obstructions, court decisions, authorized navigation projects, potential for reasonable improvements, and susceptibility of a stream to interstate commerce activities, play a role in the decision-making process for classifying waterbodies in the Charleston District. In an effort to make the analytical process concerning stream classifications as systematic as possible, a "Navigability Decision Diagram" has been developed and is presented in Figure 1. This diagram has been utilized as a guide in assessing the various navigation classifications for streams in the Charleston District. The Summary Report includes a detailed presentation on the methodology and approaches used in the analysis; however, the following presents a brief synopsis of the techniques as indicated in Figure 1.

Tidal Influenced Areas - Tidal areas (see Item 1 in Figure 1) which are affected by mean high water are classified "navigable waters of the U. S." according to various legislative and judicial actions. The "navigable waters of the U. S." are subject to regulatory jurisdiction by the Corps of Engineers and other agencies. Even though all tidal areas are so classified and subject to regulatory procedures, many are not practically navigable based upon past and/or present requirements for vessels. Figure 1 shows that some additional "check" analyses are necessary to distinguish those tidal waters which are actually capable of practical navigation. Investigation of the tidal areas is beyond the scope of this study; however, drawings showing the "plan" of major rivers to their mouth, often tidal influenced, are presented in the interest of continuity.

Waters of the U. S. Above Headwaters - Section 404 of PL 92-500 considers the headwaters of waterbodies to be the point at which the mean annual flow is five cfs. Waterbodies or portions of waterbodies



NAVIGABILITY DECISION DIAGRAM
Figure 1

located upstream of the headwaters are nationally permitted by law and will not require an individual application for dredge or fill discharge permits provided the proposed work will meet certain conditions. However, these waters are classified "waters of the U. S." and are within Corps of Engineers jurisdiction as applicable to Section 404. Item 2 in Figure 1 shows the testing procedure for the five cfs point.

Authorized Navigation Project Area - Any streams which currently have authorized Federal projects to aid navigation are classified as "navigable waters of the U. S." (Item 3 in Figure 1). Many of the projects thus authorized were based upon conditions which are not currently applicable (for example, use of pole boats or steamboats for justifying the navigation benefits). Consequently, many of the streams having older authorized projects will not allow passage of present-day commercial navigation vessels without some additional improvement. Thus, some portions of the authorized project areas are not considered practical for navigation. Figure 1 shows the additional "check" procedure which has been followed to assess the practical limit of "navigable waters of the U. S."

Present Corps Jurisdiction Exercised - The Corps of Engineers is exercising jurisdiction on several non-tidal waterbodies which are not covered by authorized projects (Item 4 in Figure 1). (6) Determinations previously made on these waterbodies under the River and Harbor Act indicated use for interstate commerce and hence the current classification as "navigable waters of the U. S." Some of these streams are not currently navigable by present-day commercial vessels and thus have practical limits. Figure 1 shows the "check" used to assess the practical limits of "navigable waters of the U. S."

Federal Court Decisions - As noted in Section 5, Federal case law is the predominant indicator which is to be used for establishing Federal jurisdiction over waterbodies in the Charleston District (Item 5 in Figure 1). Several decisions have been rendered which classify certain streams in the district as "navigable waters of the U. S." However, some of these court decisions have been arrived at under different circumstances or without the benefit of the data developed as a part of this investigation. Therefore, even though some of the

streams are classified by judicial review as "navigable waters of the U. S.", they are not practical for navigation with present-day vessels. Figure 1 shows the steps necessary to "check" those portions of the "navigable waters of the U. S." which are capable of practical navigation.

Present Interstate Commerce Navigation - Any rivers currently involved in interstate commerce activities are classified as "navigable waters of the U. S." from both the regulatory and practical standpoint (see Item 6 in Figure 1).

Waters of the U. S. Below Headwaters - For those streams, or portions of streams, not subject to authorized projects, court cases, or present interstate commerce navigation, several additional tests for determining navigability are required (Items 7 and 8 in Figure 1). If the waterbody is not judged to be navigable in its present state or with reasonable improvements, then it is beyond the limit of "navigable waters of the U. S." and is termed "waters of the U. S." over its remaining length. These "waters of the U. S." (as well as the "navigable waters of the U. S.") up to the headwaters (five cfs points) of the streams are subject to jurisdiction under Section 404 of PL 92-500. A general or individual permit is required for discharge of dredged or fill material below the headwaters (five cfs point) of "waters of the U. S." Discharges above the headwaters are discussed in the previous subsection, "Waters of the U. S. Above Headwaters."

Interstate Commerce - Some non-tidal waters in the district are not now subject to authorized projects, court decisions, or interstate commerce navigation, but can be navigated under present or reasonably improved conditions. These streams may be considered for classification as "navigable waters of the U. S." if they are susceptible to interstate commerce activities (past, present, or future). A combined judgment considering both "reasonable improvement" factors (Item 8 in Figure 1) and "interstate commerce" factors (Item 9 in Figure 1) has often been utilized in arriving at the conclusions and recommendations concerning navigability of waterbodies in the Charleston District. The Summary Report provides further details on these factors.

Navigation Classification Categories

This study classifies streams into several different categories, each of which is discussed subsequently:

1. Present "navigable waters of the U. S." (by regulatory procedures).
2. Historically navigable waters (based on literature review).
3. Recommended "navigable waters of the U. S." (based upon data developed as a part of this investigation).
4. Recommended waters for practical navigation (within "navigable waters of the U. S.").
5. Headwaters for all waterbodies (five cfs points).

The first four navigation classifications are displayed on the plates presented later in this report. The headwater limits are summarized in Appendix A.

Present Navigable Waters of the U. S.

The Santee River is currently classified as "navigable waters of the U. S." from its mouth at the Atlantic Ocean to the junction of the Congaree and Wateree Rivers (indicated as 125.3 miles). (2)(5)(6) This distance includes a portion of the river which is now inundated by Lake Marion (see Report 18). The present-day limit of actual navigation for interstate commerce is at the Santee Dam (R.M. 87.7), since there are no lock facilities.

Historically Navigable Waters

Various types of vessels ranging from cypress log canoes to steamboats have navigated throughout the Santee River from its mouth at the Atlantic Ocean (R.M. 0.0) to the confluence of the Wateree and Congaree Rivers (R.M. 125.3) as noted in Section 4. Therefore, the historically navigable waters of the river are approximately identical to those waters presently classified "navigable waters of the U. S."

Recommended and Practical Navigable Waters of the U. S.

"Navigable waters of the U. S.", once classified in the past, cannot be declassified. Thus, the recommended limit of "navigable

waters of the U. S." (for regulatory purposes) on the Santee River must be at the confluence of the Congaree and Wateree Rivers at R.M. 125.3 (via centerline Lake Marion) because that is the limit of an authorized Federal navigation project. This upper portion of the Santee River is now inundated by Lake Marion and is discussed further in Report 18.

The recommended practical limit for "navigable waters of the U. S." on the Santee River is at R.M. 87.7 where the Santee Dam is an insurmountable obstruction to navigation. Currently there are no lock facilities for river traffic at the Santee Dam. Field investigation of all bridges crossing the Santee River between the limit of tidal influence at about R.M. 37 and Santee Dam at R.M. 87.7 revealed water depth of at least 7 feet and channel width of at least 50 feet at channel bottom in all but one case. The Seaboard Coast Line Railroad bridge at R.M. 58.9 has an estimated channel depth of 3.5 feet at mean water level. The lower depth for this stretch of the river, however, is considered a minor obstruction to navigation.

Although the Santee River practical limit of "navigable waters of the U. S." is at the Santee Dam, navigation is in fact possible to the headwaters at R.M. 125.3 via the Cooper River and canal connections through Lakes Moultrie and Marion.

This conclusion on the navigation limit meets the criteria established for the Federal test of navigability that the body of water is used, or is capable of being used, in conjunction with other bodies of water to form a continuous highway upon which commerce with other states or countries might be conducted.

There are no non-tidal tributaries in the Santee River report basin which justify classification as "navigable waters of the U. S." This is based on estimates of required stream flow in the tributaries needed to fill a channel suitable for navigation.

Plates 05-4 through 05-9 are plan and profiles for the recommended "navigable waters of the U. S." The plan and profile plates show mean water surface as determined from USGS maps, stream bed depth, 50-foot wide navigable channel depth, pier spacing for bridges crossing the river, and vertical clearances at structures. Approximate vertical

clearances for overhead utilities are shown later in this section in Table 4. It is emphasized that all references to elevation are approximate since vertical control was established from USGS contour maps and not field instrument surveys. Water depth and structure vertical clearance measurements are also approximate due to the accuracy inherent in the field techniques. (See the Summary Report for a detailed description of field procedures and the methodology used to calculate water depth at mean flow.)

Obstructions to Navigation

Table 4 is a listing of all obstructions within the recommended "navigable waters of the U. S." on the Santee River. Mean water slope and vertical clearance to mean water level at all obstructions and mean discharge at all bridges are presented in the table. It is emphasized that mean discharge, slope, and vertical clearances are only approximations based on best available data. Specific procedures for determining these are discussed in the Summary Report.

Photographs of each obstruction are presented in Figures 2 through 9. Each photograph is identified to correspond with the data in Table 4.

Waters of the U. S.

"Waters of the U. S." are considered to be all streams beyond the recommended limits of "navigable waters of the U. S." "Waters of the U. S." with more than five cfs mean annual flow require a permit for discharge of dredged or fill material. "Waters of the U. S." with less than five cfs mean annual flow are nationally permitted by law and will not require an individual application for dredge or fill discharge permits provided the proposed work will meet certain conditions.

Appendix A lists all the five cfs water flow points associated with the Santee River basin. Each point is located by stream code, stream name, latitude and longitude, and a mileage reference.

Appendix B lists the lakes located in the Santee River basin which have surface areas between 10 and 1,000 acres. The lake summary identifies the stream basin code, lake name or owner, county location, and where data is available, the surface area and gross storage.

TABLE 4

OBSTRUCTION LISTING FROM TIDAL INFLUENCE LIMIT TO
RECOMMENDED PRACTICAL LIMIT OF NAVIGABLE WATERS OF THE U. S. (3)

Santee River Mile	Description	Mean Discharge (cfs)	Mean Water Slope (ft/mi)	Approximate Vertical Clearance To Obstruction (ft)
35.9*	Utility Line (power)	--	0.34	60.0
35.9*	Utility Line (power)	--	0.34	54.0[1)]
36.3*	Seaboard Coast Line Railroad Bridge	3,008	0.34	33.0
36.4*	U. S. 17A, S. C. 41 Highway Bridge	3,008	0.34	40.0
56.1	Utility Line (power)	--	0.45	60.0
56.1	Utility Line (power)	--	0.45	62.0
58.9	Seaboard Coast Line Railroad Bridge	2,674	0.45	29.0
63.8	U. S. 52 Highway Bridge	2,520	1.0	35.0
87.7	Utility Line (power)	--	--	39.0
87.7	Santee Dam (Lake Marion)	--	--	--

1) Vertical clearance at high water.

* Within immediate area of tidal influence.

FIGURE 2 - UTILITY LINES (R.M. 35.9)

FIGURE 3 - SEABOARD COAST LINE RAILROAD BRIDGE (R.M. 36.3) AND U. S. 17A, S. C. 41 HIGHWAY BRIDGE (R.M. 36.4)

FIGURE 4 - SEABOARD COAST LINE RAILROAD BRIDGE (R.M. 36.3)

FIGURE 5 - U. S. 17A, S. C. 41 HIGHWAY BRIDGE (R.M. 36.4)

FIGURE 6 - UTILITY LINES (R.M. 56.1)

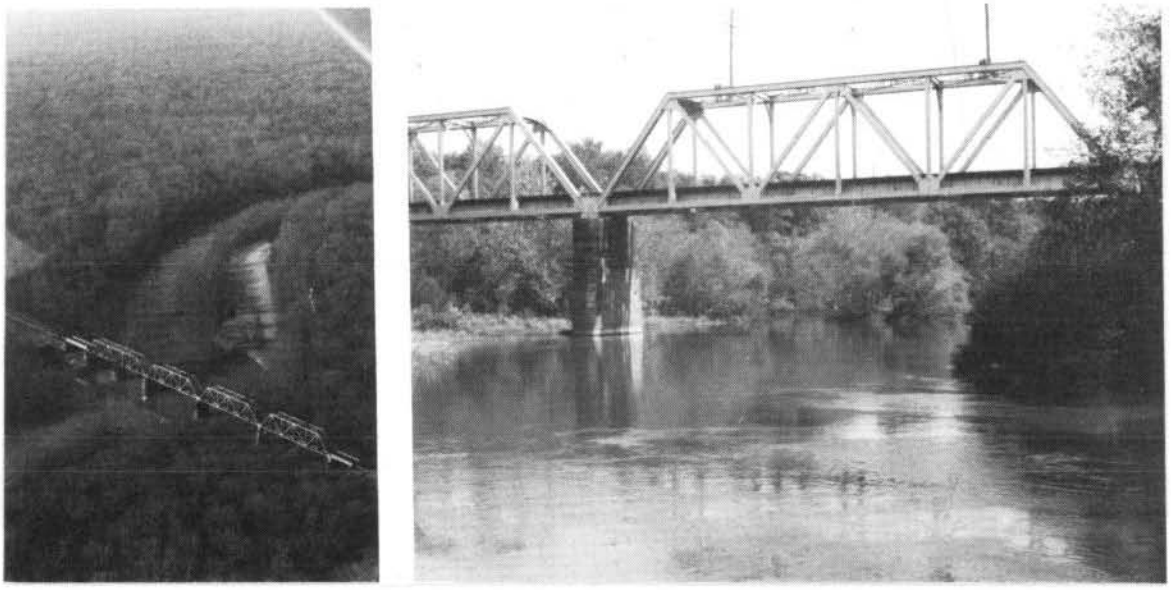


FIGURE 7 - SEABOARD COAST LINE RAILROAD BRIDGE (R.M. 58.9)

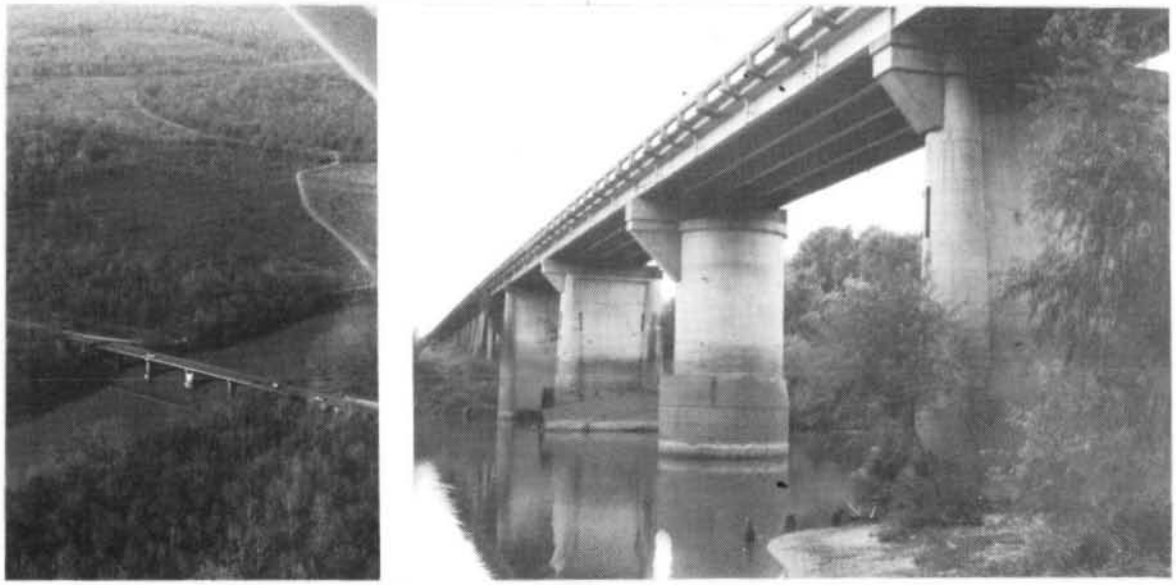


FIGURE 8 - U. S. 52 HIGHWAY BRIDGE (R.M. 63.8)

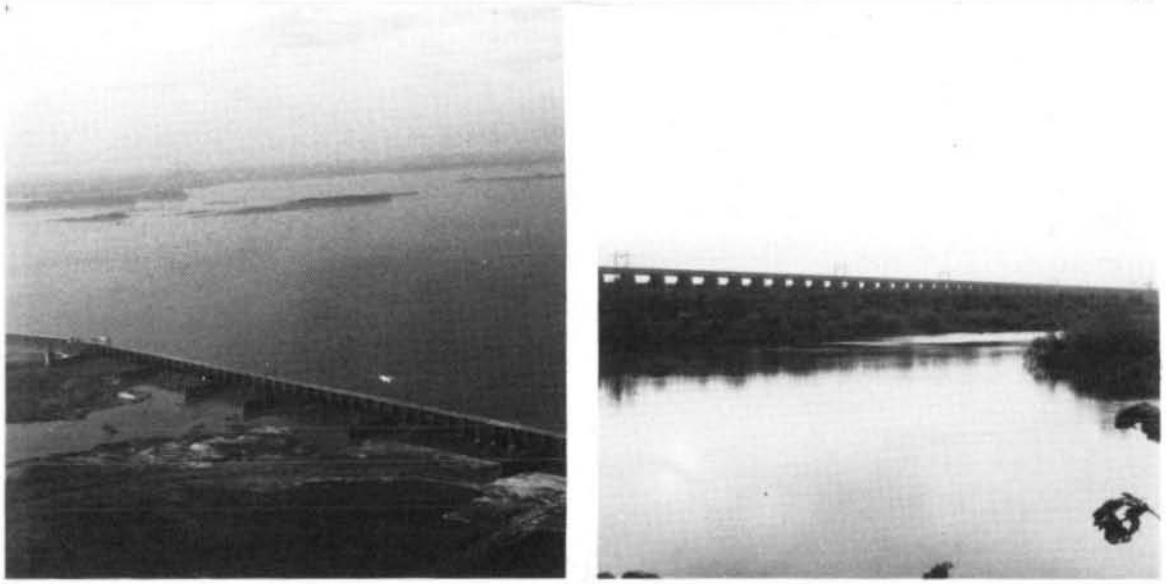


FIGURE 9 - SANTEE DAM (LAKE MARION) AND UTILITY LINE (R.M. 87.7)

SECTION 7 - CONCLUSIONS AND RECOMMENDATIONS

Five classifications of navigation on streams in the Santee River basin have been determined and are presented below. The first two are classifications developed from historical evidence and current Federal stream classifications. Classification 3 is based on field measurements, observations, and data analysis for the river. Classification 4 is based on review of all previously determined limits with a recommendation of the most upstream locations with supporting evidence of navigability. The fifth classification accounts for all streams not otherwise classified and was determined based on the drainage area and hydrological aspects of the stream.

1. The Santee River is presently classified "navigable waters of the U. S." between its mouth at R.M. 0 at the Atlantic Ocean north of Charleston, South Carolina to the confluence of the Congaree and Wateree Rivers at R.M. 125.3. This classification includes a portion of the river that is now inundated by Lake Marion.
2. The historical limit of navigation on the Santee River is R.M. 125.3 where the Congaree and Wateree Rivers meet, however, early settlers traveled beyond this point. These limits can be found in Reports 14, 15, and 16.
3. The recommended practical limit of navigation on the Santee River is R.M. 87.7 (at the Santee Dam). Minor channel improvements will be necessary for commercial river craft to actually use the river to this point. No other non-tidal streams in the Santee River report area are considered practically navigable.
4. It is recommended that the Santee River be classified "navigable waters of the U. S." between its mouth (via North Santee River) at Santee Point on the Atlantic Ocean to the Santee Dam at R.M. 87.7. This limit is based on the analytical procedures and tests of navigability used in this study effort.
5. All streams not recommended for classification as "navigable waters of the U. S." are recommended for classification as "waters of the U. S." throughout their entire length.

BIBLIOGRAPHY

Cited References

1. United States Department of Agriculture - Economic Research Service, Forest Service, Soil Conservation Service, Santee River Basin Water and Land Resources - North Carolina, South Carolina, September, 1973.

2. Water Resources Data for South Carolina Water Year 1975, Water Data Report 75-1, U. S. Geological Survey, Columbia, South Carolina, 1976.

3. Summary Report, Navigability Study, U. S. Army Corps of Engineers, Charleston District, by Stanley Consultants, 1977.

4. South Carolina Streamflow Characteristics Low-Flow Frequency and Flow Duration, U. S. Geological Survey, Columbia, South Carolina, 1967.

5. Project Maps Charleston District 1975, U. S. Army Corps of Engineers, Office of the District Engineer, Charleston, South Carolina, 1975.

6. Incomplete List of Navigable Waters, RCS ENGCW-ON (OT), U. S. Army Corps of Engineers, Charleston, South Carolina, 1965.

7. Public Notice (Cooper River Rediversion Project, Lake Moultrie and Santee River, South Carolina) P/N 76-5A-323, Department of the Army, Charleston District Corps of Engineers, Charleston, South Carolina, 9 September 1976.

8. Meriwether, Robert L., The Expansion of South Carolina 1729-1765, Southern Publishers, Kingsport, 1940, p. 11.

9. Ibid., p. 54.

10. Savage, Henry, River of the Carolinas: The Santee, UNC Press, Chapel Hill, 1968, p. 103.

11. McCord, David J., The Statutes at Large of South Carolina, A. S. Johnston, Columbia, 1840, Vol. VII, p. 477.

12. Ibid., pp. 541, 580.

13. Savage, Santee, pp. 103, 241-242.

14. Orvin, Maxwell C., Historical Berkeley County, South Carolina 1671-1900, Comprint, Charleston, 1973, pp. 149, 152.

15. Ibid., pp. 153-154.

16. Smith, Alfred G., The Economic Readjustment of an Old Cotton State: South Carolina 1820-1860, USC Press, Columbia, 1958, p. 140.

17. Mills, Robert, Statistics of South Carolina 1826, Reprint Co., reprint ed., Spartanburg, 1972, p. 428.

18. Kohn, David and Glenn, Bess, eds., Report of the Civil and Military Engineer of South Carolina (1818), Internal Improvement in South Carolina 1817-1828, USGPO, Washington, 1938, p. A9.

19. Smith, Economic Readjustment, p. 142.

20. Mills, Statistics, p. 157.

21. Kohn, Internal Improvement, pp. A9, 21.

22. Rogers, George C., The History of Georgetown County, South Carolina, USC Press, Columbia, p. 411.

23. U. S. Congress, House, Wateree, Congaree, and Santee Rivers, South Carolina, H. Doc. No. 608, 61st Cong., 2d Sess., 1910, p. 2.

24. S. C. State Board of Agriculture, South Carolina: Resources and Population, 1883, Reprint Co., reprint ed., Spartanburg, 1971, p. 72.

25. Land, J. E., Charleston: Her Trade, Commerce, Industries and Advantages, Land, Charleston, 1884, pp. 24-25.

26. Rogers, Georgetown County, p. 467.

27. Board of Trade of Georgetown, S. C., The Rivers of South and North Carolina entering Winyah Bay, SO. CA., Edward Perry, Georgetown, 1896, no page numbers, Table entitled "Winyah Bay System."

28. H. Doc. No. 608 (1910), p. 5.

29. U. S. Department of the Army, Report Upon the Improvement of Rivers and Harbors in the Charleston, S. C., District, 1950, pp. 678-679.

30. U. S. Department of the Army, Waterborne Commerce of the United States, 1953, Pt. I, Waterways and Harbors: Atlantic Coast, pp. 321-325.

31. U. S. Department of the Army, Waterborne Commerce of the United States, Pt. I, Waterways and Harbors: Atlantic Coast, p. 124.

32. Legal Documentation for Navigability Study, U. S. Army Corps of Engineers, Charleston District, Charleston, South Carolina, 1977.

Other Background Information

Clark, Thomas D., South Carolina: The Grand Tour 1780-1865, USC Press, Columbia, 1973.

Phillips, Ulrich B., A History of Transportation in the Eastern Cotton Belt to 1860, Columbia University Press, New York, 1908.

Green, Edwin L., A History of Richland County, Vol. I, 1732-1805, R. L. Bryan, Columbia, 1932.

Gregorie, Anne K., History of Sumter County, South Carolina, Library Board of Sumter County, Sumter, 1954.

Orvin, Virginia K. G., History of Clarendon County, 1700 to 1961, Np., 1961.

Salley, A. S., The History of Orangeburg County, South Carolina, Regional Publishing Co., reprint ed., Baltimore, 1969.

S. C. Historical Records Survey, WPA, Inventory of the State Archives of South Carolina, see for various counties in Santee basin.

S. C. Historical Records Survey, Water Resources Commission, A Reconnaissance Survey of Streams in the South Carolina Coastal Plain for consideration as part of the National Wild and Scenic River System, S. C. Water Resources Commission, Columbia, 1971.

Writers' Program, WPA, The Intracoastal Waterway: Norfolk to Key West, USGPO, Washington, 1937.

Match Plate 05-3

10 LYNCHES RIVER BASIN

11 GREAT PEE DEE RIVER BASIN

12

07 WACCAMAW RIVER BASIN

LITTLE PEE DEE RIVER BASIN

06 BLACK RIVER AREA

18-01 FRANCIS MARION NATIONAL FOREST

LAKE MOULTRIE

04 COOPER RIVER AREA

05 SANTEE RIVER BASIN

L O N G B A Y

A T L A N T I C O C E A

USGS BASE MAP
GEORGETOWN, S.C. ; N.C.
NI 17-9

scale in miles

LEGEND:

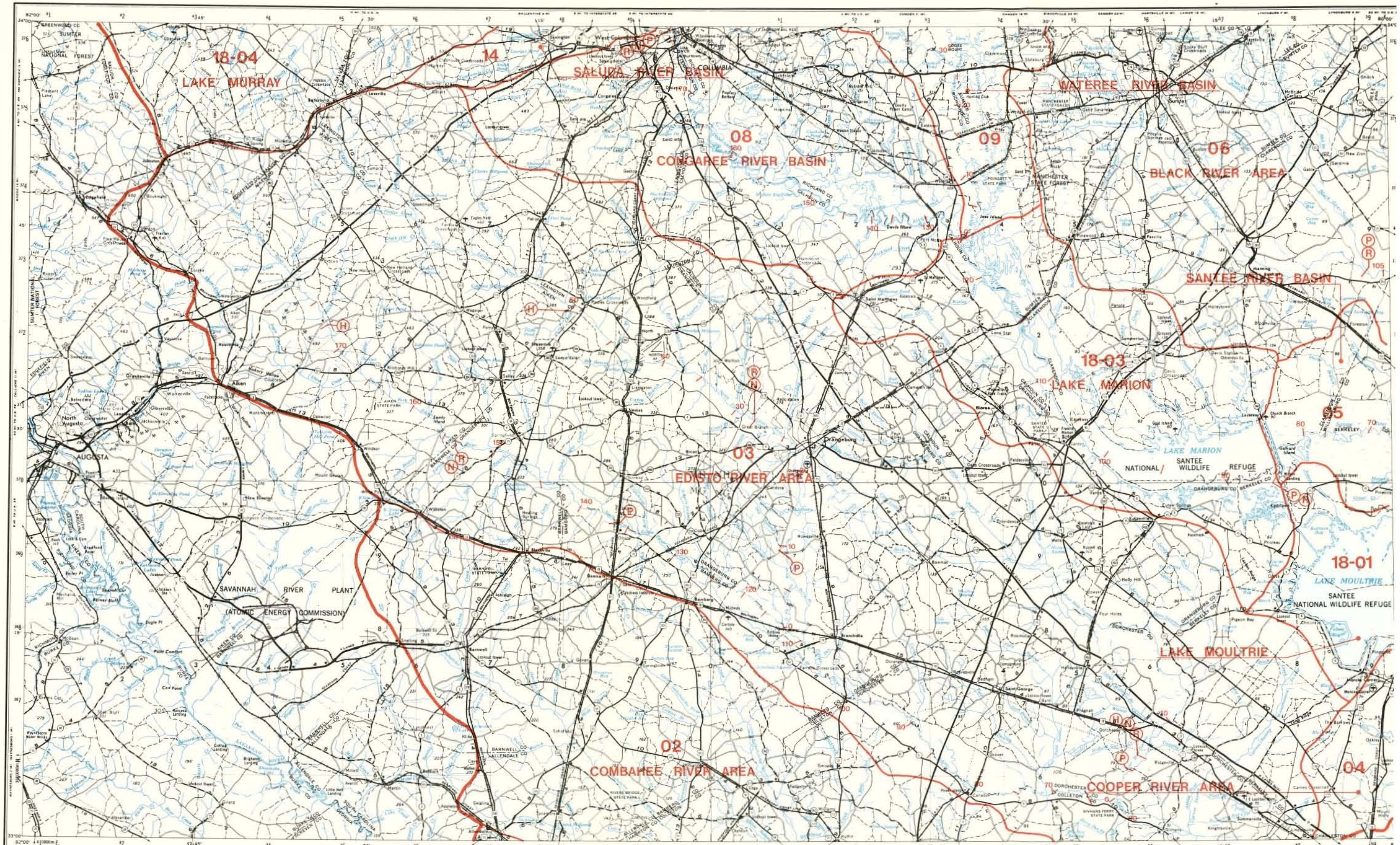
- (N) PRESENT LIMIT OF NAVIGABLE WATERS OF THE U.S.
- (H) HISTORIC LIMIT OF NAVIGATION
- (P) PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)
- (R) LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)
- (T) APPROXIMATE LIMIT OF TIDAL INFLUENCE
- 20 RIVER MILE

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

SIGNIFICANT
SANTEE RIV
Report No. 04,05,0
NAVIGABILIT



USGS BASE MAP
AUGUSTA, GA., S.C.
1957, Revised 1969
NI 17-8

scale in miles

N

LEGEND:

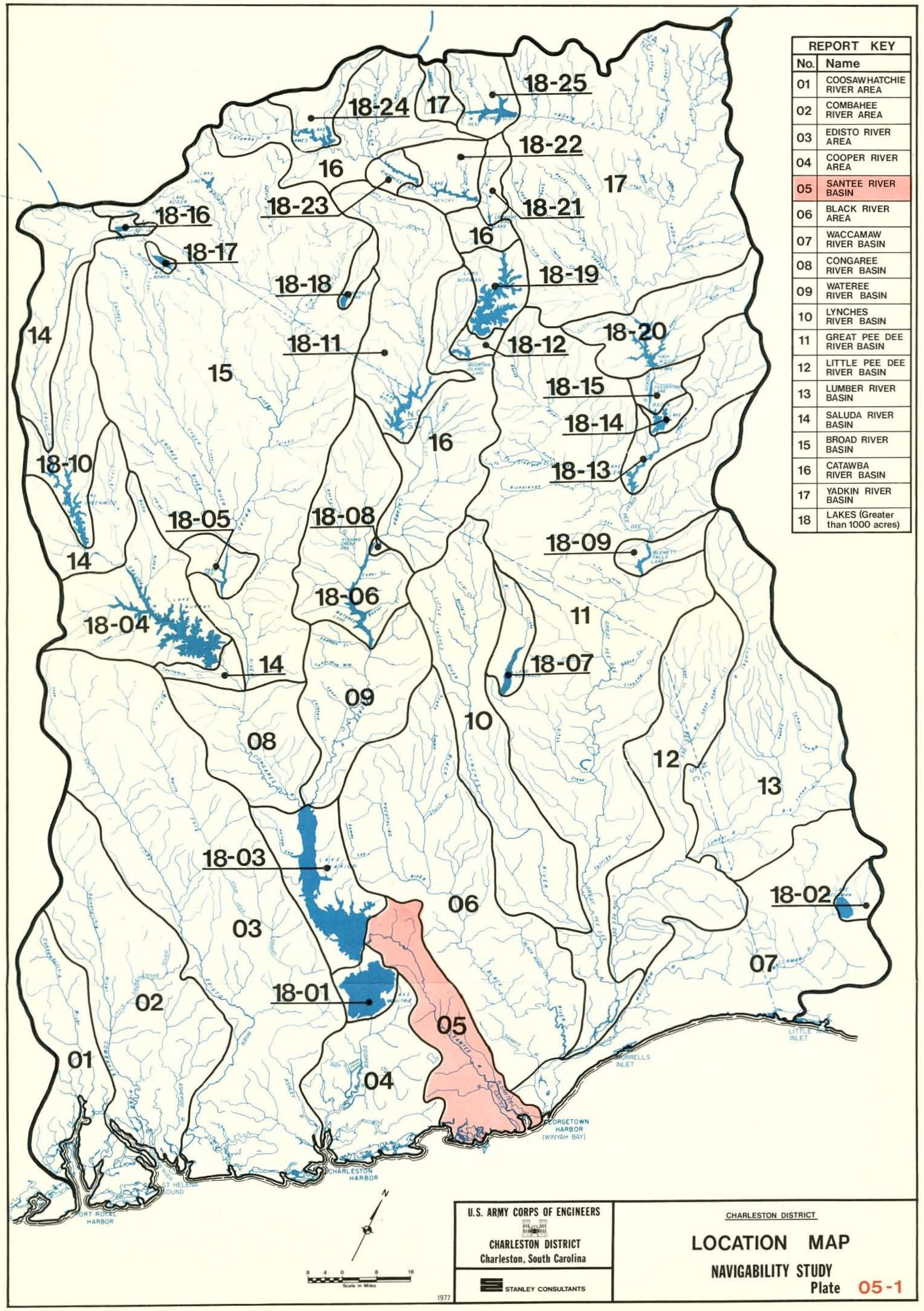
- Ⓝ PRESENT LIMIT OF NAVIGABLE WATERS OF THE U.S.
- Ⓗ HISTORIC LIMIT OF NAVIGATION
- Ⓟ PRACTICAL LIMIT OF NAVIGATION (RECOMMENDED)
- Ⓡ LIMIT OF NAVIGABLE WATERS OF THE U.S. (RECOMMENDED)
- 20 RIVER MILE

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

SIGNIFICANT FEATURES
SANTEE RIVER BASIN
Report No. 01,02,03,04,05,06,08,09,14,18
NAVIGABILITY STUDY
Plate 05-3



REPORT KEY	
No.	Name
01	COOSAWHATCHIE RIVER AREA
02	COMBAHEE RIVER AREA
03	EDISTO RIVER AREA
04	COOPER RIVER AREA
05	SANTEE RIVER BASIN
06	BLACK RIVER AREA
07	WACCAMAW RIVER BASIN
08	CONGAREE RIVER BASIN
09	WATEREE RIVER BASIN
10	LYNCHES RIVER BASIN
11	GREAT PEE DEE RIVER BASIN
12	LITTLE PEE DEE RIVER BASIN
13	LUMBER RIVER BASIN
14	SALUDA RIVER BASIN
15	BROAD RIVER BASIN
16	CATAWBA RIVER BASIN
17	YADKIN RIVER BASIN
18	LAKES (Greater than 1000 acres)

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

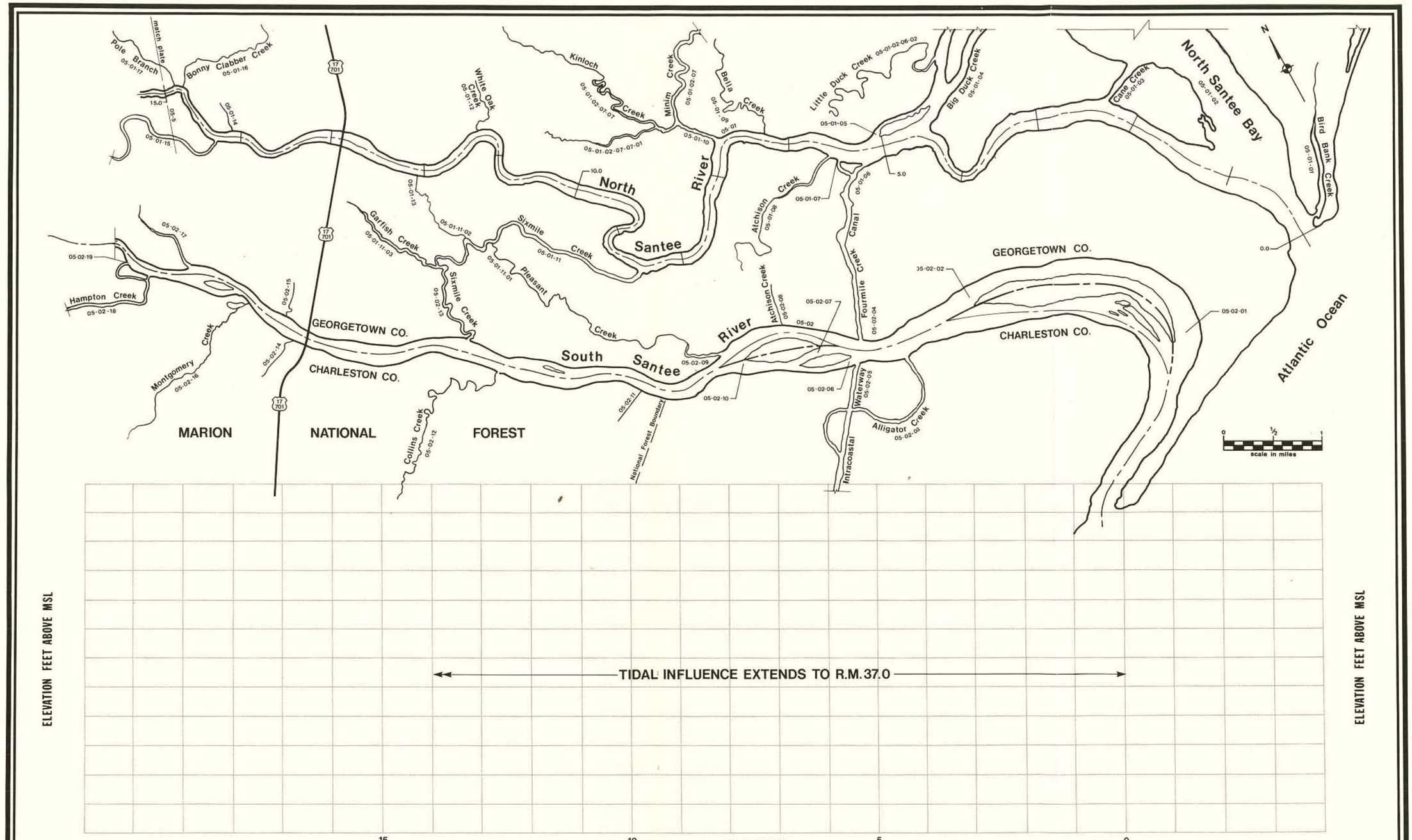
STANLEY CONSULTANTS

CHARLESTON DISTRICT

LOCATION MAP

NAVIGABILITY STUDY

Plate 05-1



LEGEND:

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

12' — VERTICAL CLEARANCE TO STRUCTURE

MEAN WATER SURFACE — MAXIMUM DEPTH AT MEAN FLOW

STREAM BED — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION

NOTES:

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

2. THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

PLAN AND PROFILE

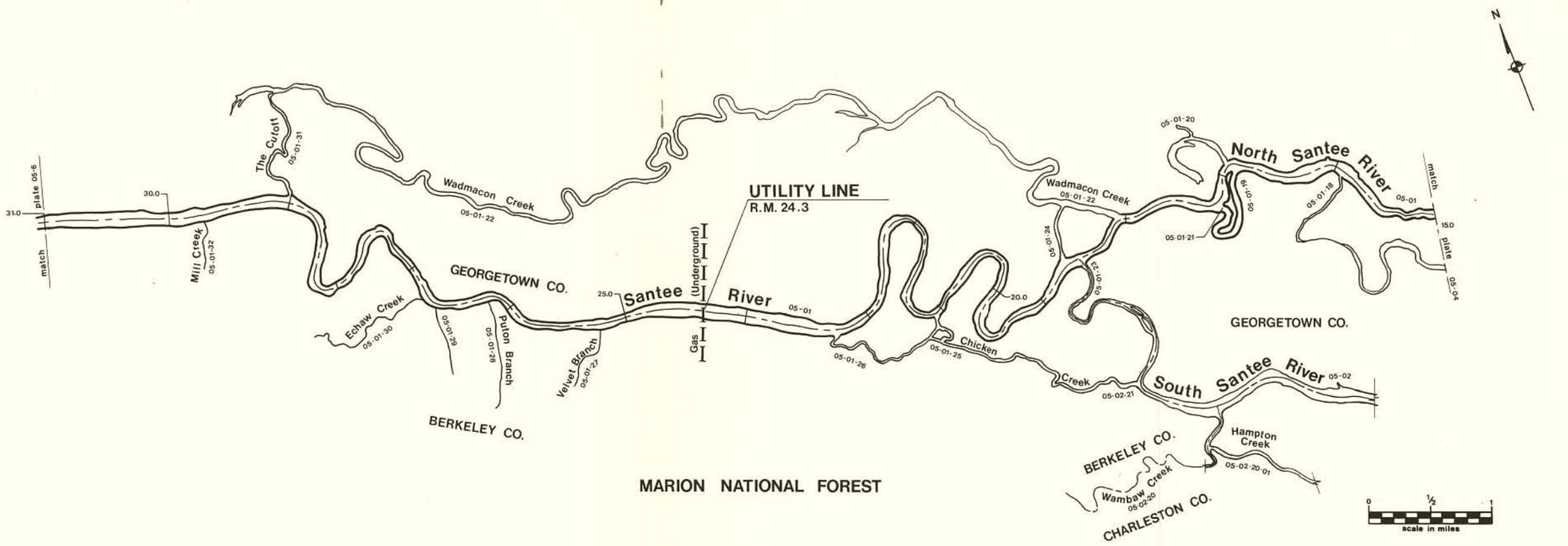
SANTEE RIVER

Santee River Basin

CHARLESTON - GEORGETOWN CO., S.C.

NAVIGABILITY STUDY

Miles 0.0 - 15.0 Plate 05-4



ELEVATION FEET ABOVE MSL

TIDAL INFLUENCE EXTENDS TO R.M. 37.0

31 25 20 15

RIVER MILES

ELEVATION FEET ABOVE MSL

LEGEND:

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

12' — VERTICAL CLEARANCE TO STRUCTURE

MEAN WATER SURFACE — MAXIMUM DEPTH AT MEAN FLOW

STREAM BED — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION

NOTES:

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

2. THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

PLAN AND PROFILE

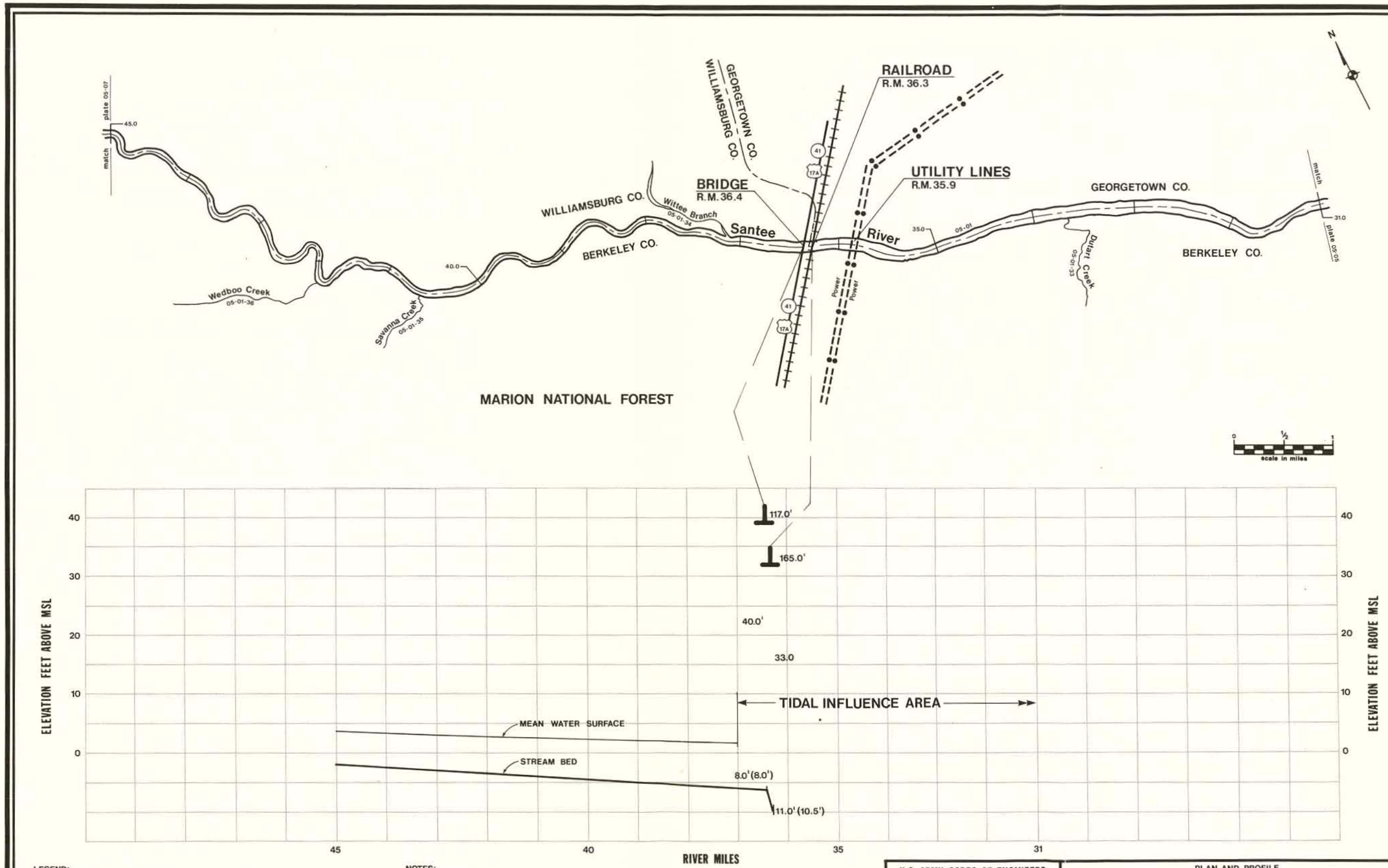
SANTEE RIVER

Santee River Basin

BERKELEY-CHARLESTON-GEORGETOWN CO., S.C.

NAVIGABILITY STUDY

Miles 15.0-31.0 Plate 05-5



LEGEND:

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

12' — VERTICAL CLEARANCE TO STRUCTURE

MEAN WATER SURFACE — MAXIMUM DEPTH AT MEAN FLOW

STREAM BED — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION

NOTES:

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

2. THE UPSTREAM EXTENT OF TIDAL INFLUENCE IS APPROXIMATED BY PROJECTING THE ELEVATION OF MEAN HIGH TIDE HORIZONTALLY FROM THE MOUTH OF A RIVER TO A MILE POINT WHERE IT INTERSECTS THE PLOTTED MEAN WATER SURFACE OF THAT RIVER.

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

PLAN AND PROFILE

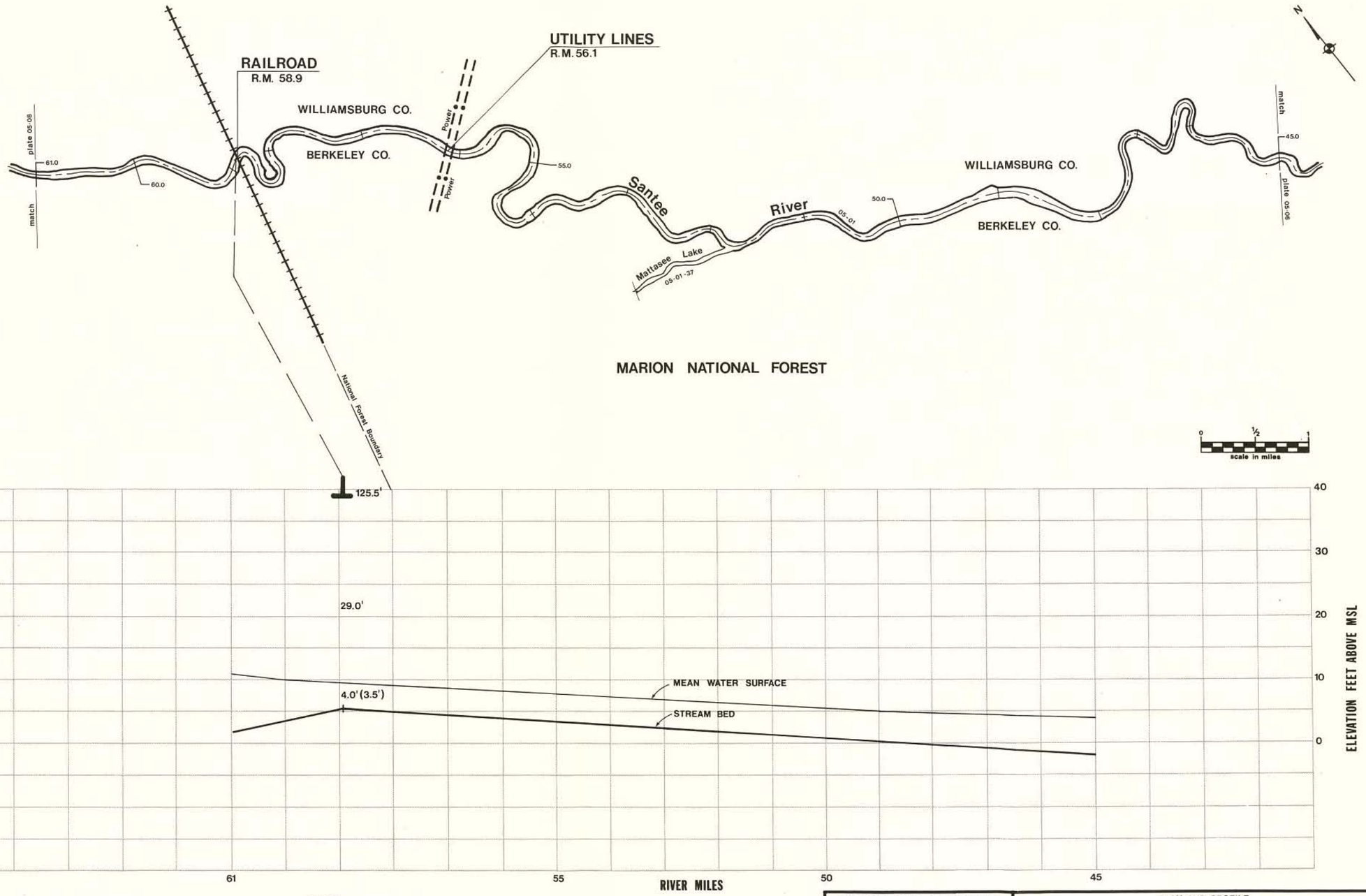
SANTEE RIVER

Santee River Basin

BERKELEY-GEORGETOWN-WILLIAMSBURG CO., S.C.

NAVIGABILITY STUDY

Miles 31.0-45.0 Plate 05-6



LEGEND:

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

12' — VERTICAL CLEARANCE TO STRUCTURE

MEAN WATER SURFACE — MAXIMUM DEPTH AT MEAN FLOW

STREAM BED — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION

NOTES:

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

PLAN AND PROFILE

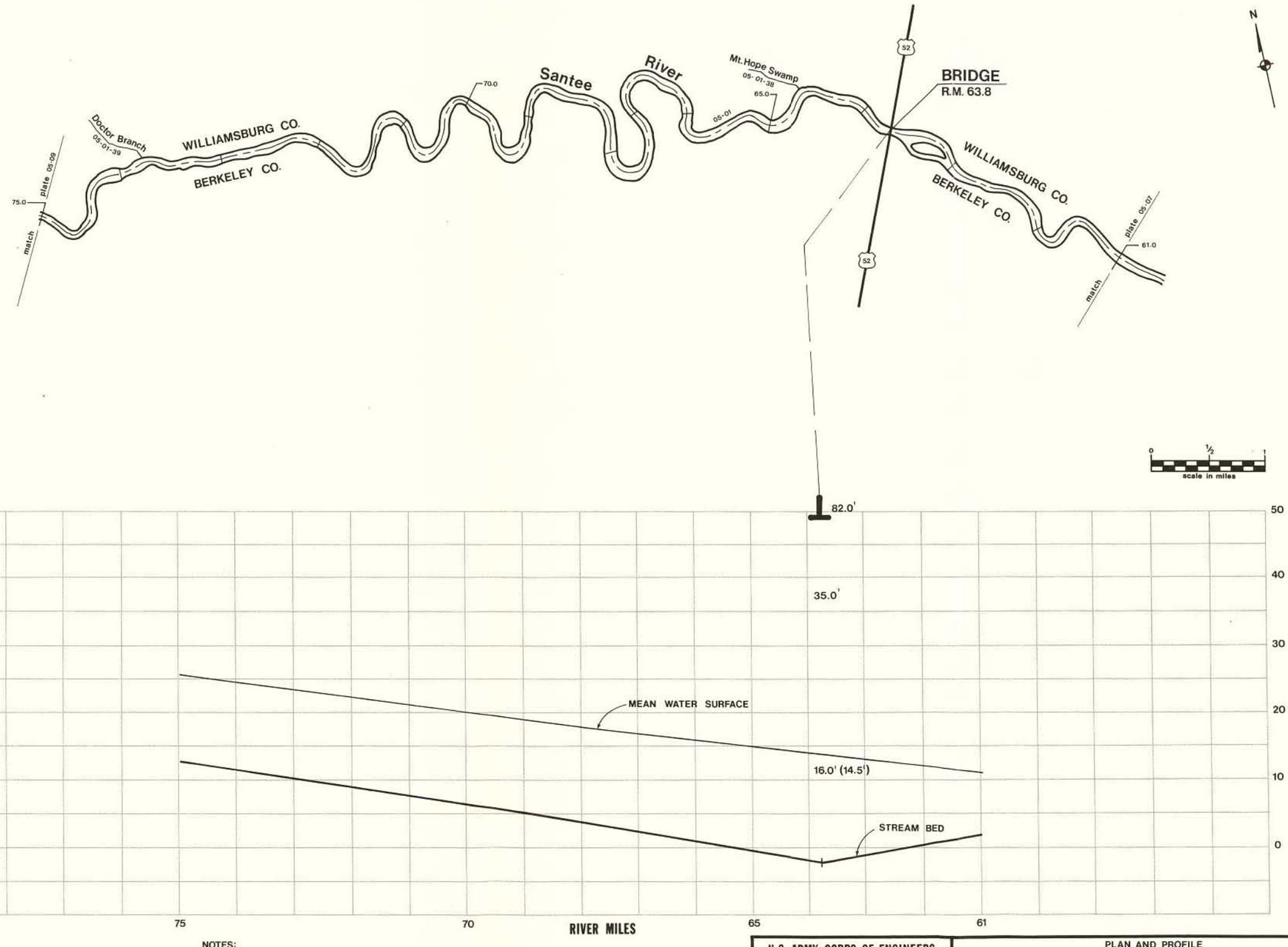
SANTEE RIVER

Santee River Basin

BERKELEY-WILLIAMSBURG CO., S.C.

NAVIGABILITY STUDY

Miles 45.0-61.0 Plate 05-7



LEGEND:

OVERHEAD STRUCTURE — 75' — HORIZONTAL CLEARANCE IN MAIN CHANNEL

12' — VERTICAL CLEARANCE TO STRUCTURE

MEAN WATER SURFACE — MAXIMUM DEPTH AT MEAN FLOW

STREAM BED — 8' (6') — MAXIMUM DEPTH OF 50 FOOT WIDE CHANNEL AT MEAN FLOW

STRUCTURE RIVER MILE LOCATION

NOTES:

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS AND ARE THEREFORE ONLY APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

PLAN AND PROFILE

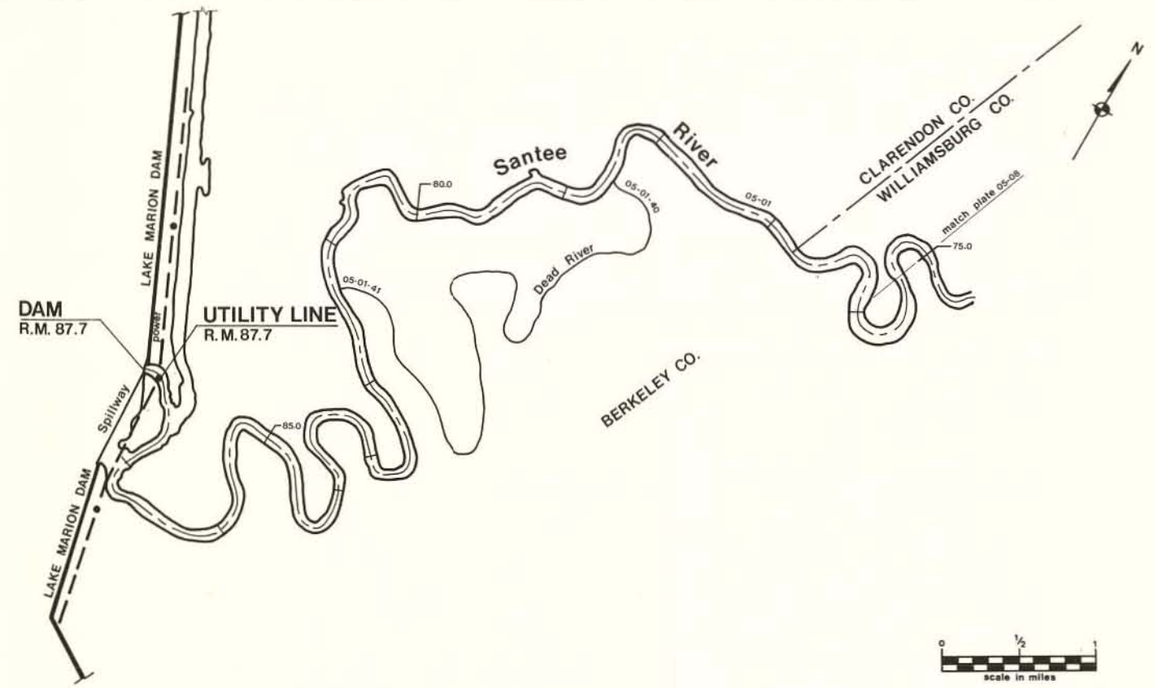
SANTEE RIVER

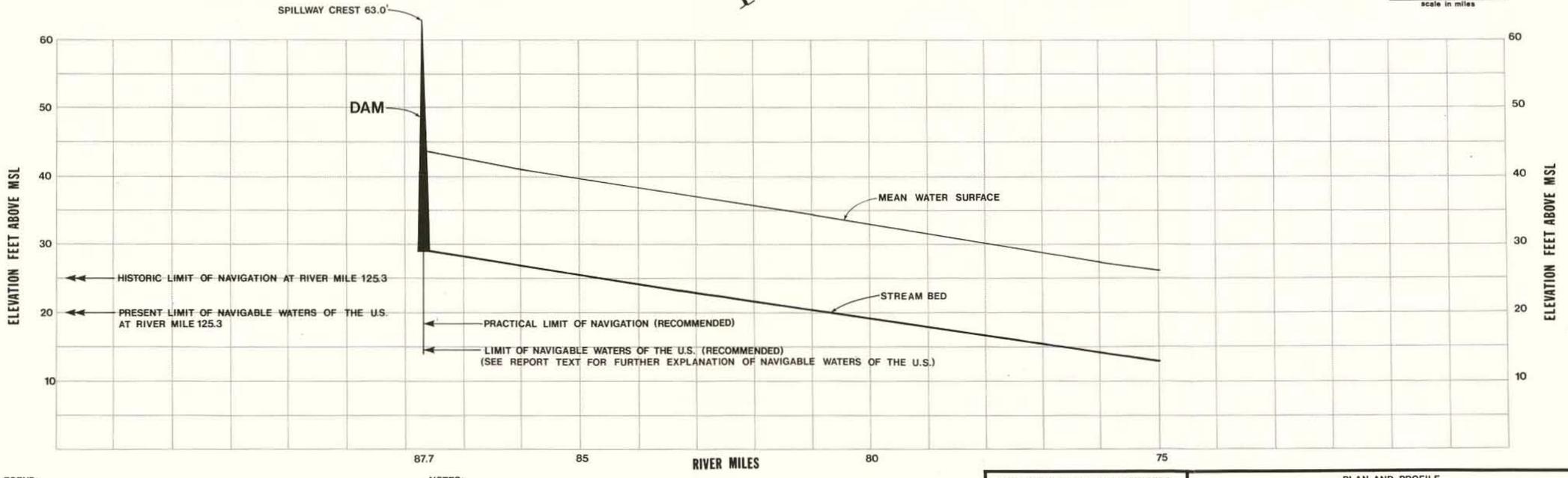
Santee River Basin

BERKELEY-WILLIAMSBURG CO., S.C.

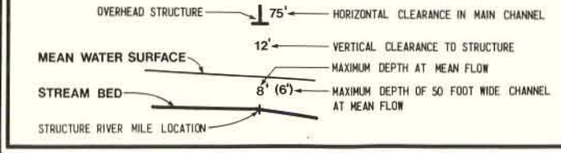
NAVIGABILITY STUDY

Miles 61.0-75.0 Plate 05-8





LEGEND:



NOTES:

1. ELEVATION AND SLOPE OF MEAN WATER SURFACE ARE BASED ON USGS TOPOGRAPHIC MAPS APPROXIMATIONS. VERTICAL DIMENSIONS FROM STREAM BED TO OVERHEAD STRUCTURES ARE FIELD MEASUREMENTS. RELATIVE LOCATION OF MEAN WATER SURFACE IS APPROXIMATED FROM CONTOUR MAPS, MEASURED CROSS SECTIONS AND VELOCITIES. STREAM FLOW RECORDS, THE MANNING EQUATION, AND FIELD OBSERVATIONS. SEE SUMMARY REPORT FOR COMPLETE EXPLANATION.

1977

U.S. ARMY CORPS OF ENGINEERS
CHARLESTON DISTRICT
Charleston, South Carolina

STANLEY CONSULTANTS

PLAN AND PROFILE

SANTEE RIVER

Santee River Basin

BERKELEY-CLARENDON-WILLIAMSBURG CO., S.C.

NAVIGABILITY STUDY

Miles 75.0-87.7 Plate 05-9

APPENDIX A
STREAM CATALOG

This appendix presents a coded listing of all non-tidal streams located in the Santee River basin having a mean annual flow greater than or equal to five cfs. In tidal areas essentially all streams are coded; however, some very small, short streams and drainage tile systems were not coded. This summary does not include secondary streams in the drainage area for Lake Marion (18-03); these stream codes are presented in Report 18.

Streams which are all or partially subject to tidal influence are noted in the listing. These are classified "navigable waters of the U. S." to the tidal limit. Non-tidal reaches of streams classified "navigable waters of the U. S." are covered in Section 6 of this report. All other streams not tidally influenced are classified "waters of the U. S."

The points where flow is approximately equal to five cfs (headwaters) are defined by approximate longitude and latitude, and river miles from the nearest named tributary, major highway, railroad, or other similar reference point. Some streams listed in the tabulation may not have headwater locations identified. This occurs when the name of a stream changes at a confluence where the flow immediately downstream is greater than five cfs. Thus, the headwater locations for streams with more than one name are associated with the appropriate upstream name found on USGS quadrangle maps. Some streams in this appendix listing are also coded in other reports for this study. Cross-references to specific reports are noted.

The coding system shown in the tabulation uses a procedure developed by the Charleston District, Corps of Engineers. Streams are summarized from the mouth of the major river upstream to the report boundary.

USGS data was used to identify the location where the mean annual stream flow is five cfs. Flow records from gaging stations throughout the Charleston District were evaluated and an isoflow map developed

to indicate variations in runoff (cfs per square mile). These runoff values were then applied to the appropriate stream drainage areas (as determined from USGS quadrangle maps) so that a flow of five cfs was approximated.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01						North Santee River * # (North Santee Bay)	Principal outlet of Santee River to ocean.				
		01					Bird Bank Creek *					
		02					Duck Creek * #					
			01				Pine Ridge Pond *					
			02				Beach Creek *					
			03				Cane Creek * #					
			04				Mosquito Creek * ##					
			05				Big Duck Creek * #					
			06				Minim Creek *					
				01			Estherville Minim Creek Canal * # ##					
				02			Intracoastal Waterway* #					
				03			Cork Creek *					
				04			Bella Creek * #					
				05			Pleasant Meadow *					
				06			Unnamed Tributary * #					

* All or part tidally influenced. # Dual code in Report 05. ## Dual code in Report 07.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01	02	06	07			Kinlock Creek *					
					01		Unnamed Tributary *					
					02		Bluff Creek *					
			07				Intracoastal Waterway* #					
			08				Little Duck Creek *					
		03					Cane Creek * #					
		04					Big Duck Creek * #					
		05					Unnamed Tributary *					
		06					Fourmile Creek Canal * #					
		07					Unnamed Tributary *					
		08					Atchison Creek * #					
		09					Bella Creek * #					
		10					Unnamed Tributary * #					
		11					Sixmile Creek * #					
			01				Pleasant Creek * #					
			02				Unnamed Tributary #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01	11	03				Garfish Creek *					
		12					White Oak Creek *					
		13					Unnamed Tributary * #					
			01				Sixmile Creek * #					
		14					Unnamed Tributary *					
		15					Unnamed Tributary *					
		16					Bonny Clabber Creek *					
		17					Pole Branch *					
		18					Unnamed Tributary * #					
		19					Unnamed Tributary * #					
		20					Cedar Creek *					
		21					Unnamed Tributary * #					
		22					Wadmacon Creek *					
			01				Unnamed Tributary * #					
			02				Cedar Creek #	33 21 55	79 39 45	0.5		Brunson Branch
			03				Unnamed Tributary *					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01	22	04				Unnamed Tributary *					
			05				The Cutoff * #					
			06				Dawhoo Lake *					
				01			Cedar Creek * #					
		23					South Santee River * #					
		24					Unnamed Tributary * #					
		25					Chicken Creek * #					
		26					Chicken Creek * #					
		27					Velvet Branch *					
		28					Put-On Branch *					
			01				Buck Branch *					
		29					Unnamed Tributary *					
		30					Echaw Creek *					
			01				Gal Branch *					
				01			Gravel Run Branch *					
				02			Devils Lodge Branch *					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01	30	02				Unnamed Tributary *					
			03				June Pond Strand *					
			04				Unnamed Tributary *					
			05				Unnamed Tributary *					
			06				Bay Branch *					
				01			Pole Branch *					
			07				Unnamed Tributary *					
				01			Beaman Branch *[1]					
			08				Beaman Branch *[1]					
			09				Gum Branch *					
			10				Bark Island Slough *					
		31					The Cutoff * #					
		32					Mill Creek *					
		33					Dutart Creek	33 16 45	79 38 25	0.2		Sarah Drain
		34					Wittee Branch	33 23 35	79 44 20	1.0		Mill Creek
		35					Savanna Creek	33 18 00	79 45 30	2.6		Santee River

* All or part tidally influenced.

\# Dual code in Report 05.

1) Two streams with same name.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01	36					Wedboo Creek	33 18 45	79 48 50			Confluence-Meeting House Branch
		37					Mattassee Lake					
			01				Crawl Creek	33 26 45	79 59 25	0.4		U.S. 52 Highway Bridge
		38					Mt. Hope Swamp	33 35 30	80 02 00			Confluence-County Ditch
		39					Doctor Branch	33 35 00	80 05 10	3.6		Mill Branch
		40					Dead River #					
		41					Dead River #					
		42					Big Poplar Creek ##	33 32 00	80 32 15		0.6	Two Chop Road
		43					Halfway Swamp Creek ##	33 40 25	80 44 30	2.3		Furlick Branch
		44					Warley Creek ##	33 39 40	80 38 15	3.6		Santee River
		45					Squirrel Creek ##	33 41 20	80 37 50	1.5		Lake Marion
		46					Spring Grove Creek ##					
		47					Jacks Creek ##	33 37 45	80 23 15			Confluence-Belser Cr
		48					Tawcaw Creek ##	33 36 15	80 20 15	3.4		Lake Marion
		49					Potato Creek ##	33 33 35	80 16 55	0.6		Lake Marion

Dual code in Report 05. ## Dual code in Report 18.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	01	50					Congaree River #					
		51					Wateree River ##					
	02						South Santee River *					
		01					Unnamed Tributary *					
		02					Unnamed Tributary *					
		03					Alligator Creek * ###					
		04					Fourmile Creek Canal (Intracoastal Waterway) * ###					
		05					Intracoastal Waterway * ###					
		06					Unnamed Tributary *					
		07					Unnamed Tributary *					
		08					Atchison Creek * ###					
		09					Pleasant Creek * ###					
			01				Sixmile Creek * ###					
		10					Unnamed Tributary * ###					
		11					Unnamed Tributary *					
		12					Collins Creek *					

* All or part tidally influenced. # Dual code in Report 08. ## Dual code in Report 09.
Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	02	13					Sixmile Creek * #					
		14					Unnamed Tributary *					
		15					Unnamed Tributary *					
		16					Montgomery Creek *					
		17					Unnamed Tributary *					
			01				Unnamed Tributary *					
		18					Hampton Creek * #					
			01				Unnamed Tributary * #					
			02				Cedar Creek *					
			03				Wambaw Creek * #					
		19					Unnamed Tributary * #					
		20					Wambaw Creek * #					
			01				Hampton Creek * #					
			02				Big Morgan Branch *					
				01			Little Morgan Branch *					
			03				Cane Branch *					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	02	20	03	01			Keepers Branch *					
			04				Mill Branch *					
			05				Mechaw Creek *					
		21					Chicken Creek * #					
			01				Unnamed Tributary *					
			02				Unnamed Tributary * #					
			03				Red Bluff Creek *					
		22					North Santee River * #					
	03						Harbor River * # (Bull Bay)					
		01					Unnamed Tributary *					
			01				Unnamed Tributary *					
		02					Intracoastal Waterway* #					
			01				Unnamed Tributary * #					
			02				Awendaw Creek * #					
			03				Awendaw Creek * #					
			04				Awendaw Creek * #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	03	02	05				Awendaw Creek * #					
			06				Awendaw Creek * #					
				01			Unnamed Tributary * #					
			07				Awendaw Creek * #					
			08				Awendaw Creek * #					
				01			Steed Creek *					
				02			Bell Creek *					
					01		Withey Wood Canal *					
					02		Cooter Creek *					
			09				Graham Creek *					
				01			Unnamed Tributary * #					
		03					Sandy Point Creek					
		04					Doe Hall Creek					
	04						Long Creek *					
		01					Unnamed Tributary *					
	05						Bull River * # (Bull Bay)					
		01					Sett Creek * #					
			01				Little Sett Creek * #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	06						Five Fathom Creek * #					
		01					Clark Creek *					
			01				Bay Creek * #					
		02					Unnamed Tributary *					
		03					Key Creek * #					
		04					Santee Path Creek * #					
		05					Papas Creek * #					
			01				Little Papas Creek * #					
		06					Bull River * #					
		07					Sett Creek * #					
		08					Little Sett Creek * #					
			01				Unnamed Tributary *					
		09					Unnamed Tributary *					
		10					Unnamed Tributary * #					
		11					Mathews Creek * #					
			01				Town Creek * #					
			02				Unnamed Tributary *					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	06	12					Unnamed Tributary * #					
		13					Unnamed Tributary * #					
		14					Unnamed Tributary * #					
			01				Mathews Cut * #					
			02				Mathews Cut * # (Intracoastal Waterway)					
				01			Unnamed Tributary * #					
				02			Town Creek * #					
				03			Jeremy Creek *					
					01		Unnamed Tributary *					
					02		Unnamed Tributary *					
					03		Unnamed Tributary *					
				04			Mathews Creek * #					
				05			Tibwin Creek *					
				06			Harbor River * #					
		15					Clubhouse Creek * #					
			01				Unnamed Tributary * #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	07						Unnamed Tributary * # (Key Inlet)					
	08						Romain River * (Cape Romain Harbor & Key Inlet)					
		01					Slack Reach * #					
		02					"S" Creek *					
		03					Unnamed Tributary * #					
		04					Muddy Bay * #					
			01				Unnamed Tributary * #					
			02				Unnamed Tributary * #					
			03				Horsehead Creek * #					
			04				Unnamed Tributary * #					
			05				Nellie Creek * #					
				01			Unnamed Tributary * #					
				02			Unnamed Tributary * #					
				03			Unnamed Tributary * #					
				04			Unnamed Tributary * #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	08	04	05	05			Papas Creek * #					
			06				Little Papas Creek * #					
				01			Unnamed Tributary * #					
				02			Unnamed Tributary * #					
				03			Unnamed Tributary * #					
				04			Unnamed Tributary * #					
			07				Unnamed Tributary * #					
			08				Unnamed Tributary * #					
			09				Oyster Bay *					
				01			Unnamed Tributary * #					
				02			Unnamed Tributary * #					
				03			Unnamed Tributary * #					
				04			Unnamed Tributary * #					
			10				Skrine Creek * #					
				01			Joe and Ben Creek * #					
				02			DuPre Creek * #					
					01		Unnamed Tributary * #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE								HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER	STREAM NAME	LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	08	04	10	02	02		Clubhouse Creek * #					
				03			Congaree Boat Creek * #					
		05					Key Creek *					
			01				Raccoon Creek *					
			02				Unnamed Tributary *					
				01			Bay Creek *					
					01		Key Bay *					
		06					Unnamed Tributary * #					
		07					Nellie Creek * #					
		08					Santee Path Creek * #					
	09						Slack Reach * #					
	10						Devils Den Creek *					
		01					Unnamed Tributary *					
	11						Horsehead Creek * (Cape Romain Harbor)					
		01					Mill Den Creek *					
		02					Unnamed Tributary *					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	11	02	01				Unnamed Tributary * #					
		03					Unnamed Tributary *					
		04					Unnamed Tributary * #					
		05					Muddy Bay * #					
	12						Deepwater Creek *					
		01					Unnamed Tributary *					
	13						Casino Creek *					
		01					Mill Creek *					
			01				Needle Eye Creek *					
		02					Congaree Boat Creek * #					
			01				Unnamed Tributary * #					
			02				Joe and Ben Creek * #					
		03					Skrine Creek * #					
		04					DuPre Creek * #					
		05					Unnamed Tributary *					
		06					Unnamed Tributary * #					
		07					Unnamed Tributary * #					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX A
STREAM CATALOG

STREAM CODE							STREAM NAME	HEADWATER LOCATION (Mean Flow = 5 cfs)				
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER		LATITUDE (° ' ")	LONGITUDE (° ' ")	STREAM MILES UP	STREAM MILES DOWN	FROM
05	13	08					Intracoastal Waterway* #					
			01				Unnamed Tributary * #					
			02				Unnamed Tributary * #					
			03				DuPre Creek * #					
			04				DuPre Creek * #					
			05				DuPre Creek * #					
				01			Unnamed Tributary *					
			06				DuPre Creek * #					
			07				Unnamed Tributary * #					
	14						Alligator Creek *					
		01					Ram Horn Creek *					
		02					Intracoastal Waterway* #					
			01				Ormand Hall Creek *					
				01			Sall Creek *					
			02				Unnamed Tributary *					

* All or part tidally influenced. # Dual code in Report 05.

APPENDIX B

SUMMARY OF 10 TO 1,000 ACRE LAKES

This appendix is a compilation of lakes from 10 to 1,000 acres which are contained in the Santee River basin.

This inventory was compiled from the following sources:

1. Inventory of Lakes in South Carolina Ten Acres or More in Surface Area.
2. USGS Quadrangle Maps.

The USGS quadrangle maps were used to locate and to detect lakes that were not listed in the other sources. Actual surface area and gross storage information is supplied where available. The lakes were coded by major stream basin in accordance with other procedures developed for identifying streams. The map data from Source 1 above generally does not permit detailed location of the small lakes. Thus, lakes are coded by basin only as far as the secondary order.

APPENDIX B

SUMMARY OF 10 TO 1,000 ACRE LAKES

REPORT NUMBER	STREAM CODE: MAJOR RIVER	STREAM CODE: PRIMARY	STREAM CODE: SECONDARY	STREAM CODE: TERTIARY	STREAM CODE: FOURTH ORDER	STREAM CODE: FIFTH ORDER	LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
05	01						S. Wayne Gamble, Sr.	19	60	Williamsburg
05	01						James O. Gamble	10	28	Williamsburg
05	01						Wittee Lake	--	--	Williamsburg
05	01						S. Wayne Gamble, Jr.	11	26	Williamsburg
05	01						Wee Tee Lake	--	--	Williamsburg
05	01						Longlands Plantation	14	56	Williamsburg
05	01						Williams Pond	--	--	Williamsburg
05	01						Old Bell Island Plantation	15	60	Berkley
05	01						Maham Lake	--	--	Berkley
05	02						W. H. Mikell	100	300	Charleston
05	02						Santee Gun Club	150	900	Charleston
05	03	02	07				Lake Awendaw	125	750	Charleston
05	03	02	09				S. C. Wildlife Department	56	140	Charleston
05	03						M. Morrison	115	288	Charleston
05	06	14	02				C. Campbell	64	160	Charleston
05	06	14	02				C. Campbell	10	50	Charleston

APPENDIX B

SUMMARY OF 10 TO 1,000 ACRE LAKES

REPORT NUMBER	STREAM CODE: MAJOR RIVER	STREAM CODE: PRIMARY	STREAM CODE: SECONDARY	STREAM CODE: TERTIARY	STREAM CODE: FOURTH ORDER	STREAM CODE: FIFTH ORDER	LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
05	13	08					J. Dupree	80	240	Charleston
05	06	14	01				B. Marlowe	50	150	Charleston
05	13	08	04				J. Edwards	35	88	Charleston
05	13	08					J. Stowe	110	275	Charleston
05	01						Little Solomon Lake	--	--	Berkley
05	01						Wood Lake	--	--	Berkley
05	01						Solomon Lake	--	--	Berkley
05	01						Cordes Lake	--	--	Berkley
05	01						Cahusac Lake	--	--	Berkley
05	01						Cauturier Lake	--	--	Berkley
05	01						Lawson Lake	--	--	Berkley
05	02	05					Santee Gun Club	400	1,200	Charleston
05	02	05					Santee Gun Club	60	180	Charleston
05	02						Dr. Dominick	20	50	Charleston
05	02						Santee Gun Club	60	180	Charleston
05	03	02	07				George Resch	15	90	Charleston

APPENDIX B

SUMMARY OF 10 TO 1,000 ACRE LAKES

STREAM CODE							LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER				
05	06	08	01				C. Campbell	10	25	Charleston
05	02						D. L. Fleischman	12	60	Charleston
05	02	11					Unnamed Lake	80	--	Charleston
05	01	02	01				Pine Ridge Pond	12	--	Georgetown
05	01	22	06				Dawhoo Lake	--	--	Georgetown
05	01	02	02				Wheeler Basin	50	--	Georgetown
05	01	02	04				Unnamed Lake	--	--	Georgetown
05	01	02	06				Kinloch Plantation	10	16	Georgetown
05	01						Robert Lee #	25	150	Clarendon
05	01						Dingle Pond	--	--	Clarendon
05	01						Robert Lee #	10	60	Clarendon
05	01						Polly Cantey Pond	--	--	Clarendon
05	01						Dale Mercer #	25	120	Clarendon
05	01						Franks Lake	--	--	Clarendon-Williamsburg
05	01	46					S. G. Stukes #	10	40	Clarendon

Dual code in Report 18.

APPENDIX B

SUMMARY OF 10 TO 1,000 ACRE LAKES

STREAM CODE							LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER				
05	01	47					Tarheel Coal #	30	120	Clarendon
05	01	47					H. F. Tindal #	25	100	Clarendon
05	01	46					R. F. Elliotts #	25	80	Clarendon
05	01	39					R. R. Durant (Etal) #	12	48	Clarendon
05	01						Unnamed Lake #	15	75	Orangeburg
05	01						L. E. Miller #	12	58	Orangeburg
05	01						Santee State Park #	15	72	Orangeburg
05	01						Santee State Park #	10	80	Orangeburg
05	01						Santee State Park #	10	80	Orangeburg
05	01						Unnamed Lake	--	--	Orangeburg
05	01	42					Robert B. Shuler #	20	80	Orangeburg
05	01	42					Unnamed Lake #	15	50	Orangeburg
05	01	42					Unnamed Lake #	12	60	Orangeburg
05	01	43					Hutto #	40	224	Calhoun
05	01	43	01				Perkins #	12	77	Calhoun
05	01	43	01				D. Rast #	18	101	Calhoun

Dual code in Report 18.

APPENDIX B

SUMMARY OF 10 TO 1,000 ACRE LAKES

STREAM CODE							LAKE NAME OR OWNER	SURFACE AREA (acres)	GROSS STORAGE (acre-ft)	LOCATION BY COUNTY (SOUTH CAROLINA)
REPORT NUMBER	MAJOR RIVER	PRIMARY	SECONDARY	TERTIARY	FOURTH ORDER	FIFTH ORDER				
05	01	43	01				D. Rast #	15	84	Calhoun
05	01	43	01				D. Rast #	18	101	Calhoun
05	01	43					Shires #	12	77	Calhoun
05	01	43					Bill Campbell #	12	58	Calhoun
05	01	43	02				Wannamaker #	35	196	Calhoun
05	01	43					St. Matthews #	25	160	Calhoun
05	01	43					Wannamaker #	35	224	Calhoun
05	01	44					A. P. Hanes #	30	168	Calhoun

Dual code in Report 18.