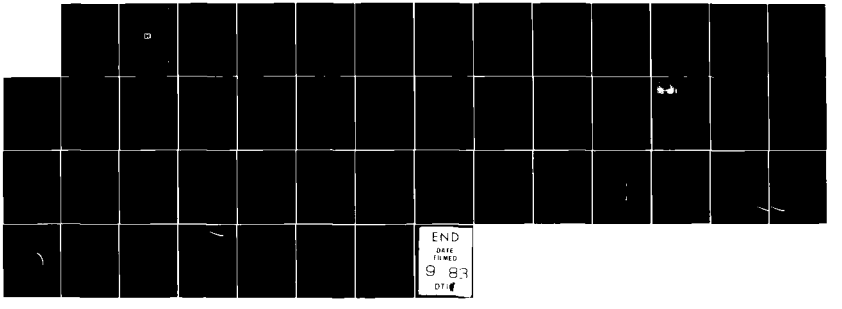
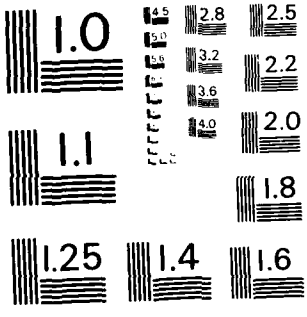
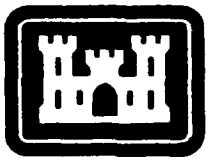
AD-A132 422 RECONNAISSANCE REPORT FOR LAKE VIEW DILLION COUNTY SOUTH CAROLINA(U) CORPS OF ENGINEERS CHARLESTON SC CHARLESTON DISTRICT JAN 83 1/1

UNCLASSIFIED F/G 13/2 NL





RECONNAISSANCE REPORT
FOR
LAKE VIEW
DILLION COUNTY, S.C.



US Army Corps of Engineers
Charleston District

SECTION 205
OF THE
1948 FLOOD CONTROL ACT
AS AMENDED

JANUARY 1983

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A132422	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Unnamed Tributary Lake View Dillon County, South Carolina		5. TYPE OF REPORT & PERIOD COVERED Reconnaissance 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U. S. Army Corps of Engineers, Charleston District P. O. Box 919, Charleston, S. C. 29402		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS U. S. Army Corps of Engineers Office, Chief of Engineers Washington, D. C. 20314		12. REPORT DATE January 1983 13. NUMBER OF PAGES
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) U. S. Army Corps of Engineers South Atlantic Division 30 Pryor Street, S. W. Atlanta, Georgia 30303		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for Public Release: Distribution Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Prepared in cooperation with the City of Lake View, S. C. and the U. S. Fish and Wildlife Service

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Flood Control
Environmental Impact

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Reconnaissance report determines the advisability initiate detail studies. The report recommends approval of further study.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

LAKE VIEW, DILLON COUNTY, SOUTH CAROLINA

Section 205 Reconnaissance Report

Table of Contents

LIST OF TABLES

LAKE VIEW, DILLON COUNTY, SOUTH CAROLINA

Table of Contents (Cont'd)

LIST OF FIGURES

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 919
CHARLESTON, S.C. 29402

REPLY TO
ATTENTION OF

SACEN-PS

4 February 1983

SUBJECT: Reconnaissance Report, Lake View, Dillon County, South Carolina

Commander, South Atlantic Division
ATTN: SADPD-P

AUTHORITY

1. This reconnaissance report was prepared under authority contained in Section 205 of the 1948 Flood Control Act, as amended. Subject report was initiated by letter to SADPD-P dated 1 October 1982, subject: Lake View, Dillon County, South Carolina. The Town of Lake View, the local project sponsor, requested flood control assistance by letter dated 30 August 1982. (See Inclosure 1).

SCOPE OF WORK

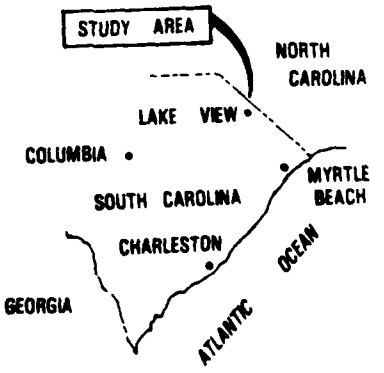
2. This report was prepared using readily available data, supplemented where necessary with additional field surveys and in-house studies. The purpose of this report is to determine the magnitude of existing water resource problems and the feasibility of further Federal involvement in formulating solutions to these problems. Due to the nature of this report, information contained herewith is considered preliminary and subject to revision should detailed investigation be authorized.

PRIOR REPORTS

3. There are no previous Corps reports available for the study area.

STUDY AREA DESCRIPTION

4. Location. The Town of Lake View is located in the eastern portion of South Carolina near the North Carolina border approximately 58 miles north of Myrtle Beach. Lake View borders on Bear Swamp, a forested, semi-permanently flood wetland. An unnamed tributary to Bear Swamp flows through Lake View and joins the swamp at the northern edge of town. (See Plate 1)



5. Drainage Area. The drainage area of the unnamed tributary consists of practically the whole Town of Lake View as well as portions of the surrounding countryside. The total drainage area is approximately one square mile, about which half is the business and residential areas of town. Bear Swamp flows in a generally southeasterly direction approximately 32 miles to its confluence with Aspole Swamp 5.5 miles northeast of its intersection with Lumber River. There are no stream gaging or rainfall stations in the basin. The nearest National Oceanic and Atmospheric Administration rainfall station is located in Dillon, South Carolina, which is located six miles west of Lake View. This is a non-recording type station.

6. Topography. The area is typical of small basins in the eastern Piedmont or western Coastal Plain of South Carolina. The surface elevation rises from approximately 75 feet above NGVD at the confluence of the tributary and the swamp to about 115 feet above NGVD in the upper part boundary of the drainage area. The average slope of the tributary to its confluence with Bear Swamp is 23.3 feet per mile.

7. Climate. Lake View experiences generally mild winters and hot summers. Average temperatures in January are about 44 degrees while July temperatures run at about 80 degrees on the average. The town receives about 45 inches of precipitation per year.

8. Environmental Consideration. A preliminary assessment of environmental concerns of the study area is attached as Inclosure 2 to this report. A preliminary report from the U. S. Fish and Wildlife Service addressing wildlife habitat value of the area is Inclosure 3.

PROBLEMS UNDER CONSIDERATION

9. Flood Problems. Flooding is caused by the overflow of the unnamed tributary flowing through the eastern portion of the Town of Lake View. The flood problems discussed in this report are based on information obtained from conversations with the town mayor, photographs and news reports of the flood of June 1982, topographic mapping with five-foot contour intervals, and a field reconnaissance by the Corps study team. The June 1982 flood is estimated to have been a 10-year frequency event. Total damages created by the flooding of residential, commercial, and public property is estimated to average $123,000 annually.

10. The flooding of residential property results in the highest damage in the study area. Average annual damage to residential property is estimated to be $96,000. The 100-year frequency flood will inundate the first floor of 46 residential structures. In addition, eight detached automobile garages for residential buildings would be flooded by the 100-year frequency event. The value of the residential structures is estimated to be $1,680,000 with contents valued at $840,000. The value of the detached garages is estimated to be $48,000 with contents valued at $12,000. The damage to the residential property by the 100-year frequency flood is estimated to be about $1,833,000. The 10-year frequency flood of June 1982 inundated the first floor of 23

residential structures. The value of these structures is estimated to be $805,000 with a content value of $402,500. In addition, six of the detached garages were flooded. The value of the garages is estimated to be $38,000 with contents valued at $9,500. The damage caused to residential property by this flood is estimated at $327,000.

11. Flood damage to 17 commercial and public properties, which would receive first floor inundation by the 100-year frequency event, is estimated to average $27,000 annually. The value of these structures is estimated to be about $1,183,000. The value of contents in the structures is estimated at $577,000. The 100-year frequency event is estimated to cause about $264,000 in commercial and public property damages. The 10-year frequency flood of June 1982 inundated the first floor of 12 of the commercial and public buildings. The value of these structures is estimated to be $908,000 with contents valued at $234,000. The damage caused by this flood to the commercial and public property is estimated to be $92,000.

12. No attempt has been made at this time to estimate flood damage to any other category; i.e., roads, bridges, emergency costs, etc.

13. Approximately 100 structures are located within the area of the 100-year frequency flood plain estimated for this reconnaissance report. Further analysis of this study area will require the exact determination of the first floor elevation of all of these structures along with detailed hydrologic data to determine the flood damages more precisely.

14. Hydrologic Analysis. As previously stated there are no stream gaging or rainfall stations in the actual study area. Due to this fact, it was necessary to employ synthetic methods of hydrologic analysis. In order to accomplish this result, the Hydrologic Engineering Center's HEC-1 computer program was utilized in conjunction with the SCS unit hydrograph method. This procedure employs techniques described in SCS Technical Release No. 55, "Urban Hydrology for Small Watersheds." In utilizing this technique, the SCS unit hydrograph was constructed at the mouth of the tributary. In order to utilize the HEC-1 program it is necessary to input the time of concentration of the watershed and the SCS curve number. The former parameter was calculated from the equation given in the previously-referenced SCS publication. The curve number was also obtained from guidelines given in this publication.

15. Once the SCS unit hydrograph was constructed in this way, 24-hour rainfall values for appropriate recurrence intervals were obtained from the Weather Bureau's TP 40 publication and applied to the unit hydrograph to obtain specific recurrence interval events. Similarly, SPF rainfall was obtained from EM 1110-2-1411 and utilized to obtain the SPF event. As previously stated, the results were obtained at the mouth of the tributary. Since it was desirable to obtain results for at least one point in the upper portion of the basin, discharges at the mouth were translated upstream by the square root of the drainage area method. Table 1 shows the results of this analysis for points at the mouth and at a drainage area of .34 mi^2. These results are also given in Figure 1 and 2 attached at the end of this report.

TABLE 1

DISCHARGE FREQUENCY DATA

LAKE VIEW, S. C.

Recurrence Interval (YRS)	Q at Mouth (cfs)	Q Upstream (cfs)
2	506	243
10	849	563
25	995	700
50	1156	850
100	1317	1001
SPF	2096	1729

16. Stage discharge relationships were derived for the points at which discharges were calculated by the use of data gathered during the field trip to the area. From this data, an approximate cross section of the channel could be drawn for each point and Manning's roughness values assigned. Then, by use of the appropriate friction formula, depths could be calculated for given discharge values. In this way rating curves were constructed for each point and are given in Figures 3 and 4 at the end of the report. Utilizing these rating curves and the discharge frequency curves previously calculated, stage frequency curves for existing conditions were developed for the two points. These curves are shown in Figures 5 and 6.

STUDY OBJECTIVES

17. The objectives of this phase of the investigation are to determine the feasibility of further Federal involvement in the flooding problems identified in Lake View. Should further study be authorized, study objectives would consist of formulating alternative measures to alleviate flood damage and selecting the best course of action to alleviate these problems.

PLANNING CONSTRAINTS

18. The major planning constraint which became apparent during reconnaissance investigations is Bear Swamp. Solutions to the flooding in Lake View include clearing and snagging in Bear Swamp. Careful consideration of pertinent legislation concerning wetland must be made during detail studies.

POTENTIAL SOLUTIONS

19. Several alternative measures to meet the problems and needs of the area are possible; however, some of these measures are not practical or economical. Possible solutions may be divided into two broad categories of structural and nonstructural. Structural measures are designed to modify floods by altering the natural environment. These measures include alternatives which reduce flood elevations, divert floods, change the timing and duration of floods or restrict floods from portions of the flood plain. Nonstructural measures are designed to modify flood damage susceptibility and include modifications to the cultural environment by adjustment in the pattern and mode of land use, by developmental policies and by assistance to affected individuals. Also, a combination of structural and nonstructural measures is possible.

NONSTRUCTURAL MEASURES

20. Nonstructural measures do not attempt to reduce or eliminate flooding, but are designed to regulate the use and development of the flood plain, thus lessening damaging effects of large floods. Nonstructural measures consist of subdivision regulations, zoning, building codes, flood proofing, evacuation, open space development and other measures to remove properties from the flood plain.

STRUCTURAL MEASURES

21. Structural measures are designed to alleviate flood problems by reducing flood stages or by moving damageable flood problems by reducing flood stages. These measures include channel modification, dams and reservoirs and levee construction.

22. Hydraulic Analysis. To evaluate the desirability of further Federal participation, a structural alternative was formulated to demonstrate potential feasibility. For this purpose, a channel which would contain the 10-year recurrence interval discharge was analyzed. In this analysis, the area was broken into two reaches, with the relationships developed near the mouth assumed to be typical of the lower reach from 4th Street to the confluence and those developed at the .34 mi^2 point assumed typical of the reach above 4th Street. For the lower reach the discharge would be contained in a trapezoidal channel with a depth of six feet and a bottom width of 20 feet. The channel would extend from 4th Street to

the confluence with Bear Swamp on a slope of .001 feet/foot. Channel side slopes of 2 on 1 and a roughness coefficient of .035 were used in the computations. It was also assumed that some clearing and snagging of the swamp would be necessary in order to provide an outlet for the channel.

23. The discharge from the upper reach would be contained in a trapezoidal channel with a depth of five feet and a bottom width of 10 feet. This channel would extend up both branches of the creek, however, it would only extend about 750 feet up the west branch to a large pond. On the east branch, the channel would extend to above Old Kemper Road with side slopes of 2 on 1 and a channel slope of .001 feet/foot. The west branch channel would be identical to the east branch, and a roughness coefficient of .035 was used on both. In this analysis, all existing culverts of less than five feet in diameter would be replaced by five-foot RCP culverts.

24. Assuming these improvements to be in place, a new stage discharge relationship was developed for each reach to reflect improved conditions. These curves are given in Figures 3 and 4. Utilizing this information, a new stage frequency curve for improved condition was developed for each reach. These relationships are shown on Figures 5 and 6.

25. Plan of Improvement. The reconnaissance plan of improvement for Lake View, as shown in Plate 1, consists of the following:

a. Clearing and snagging of an area in Bear Swamp 50 feet wide from the mouth of the unnamed tributary to the Bear Swamp Bridge located approximately 6000 feet downstream.

b. Enlargement of the unnamed tributary six feet deep and 20 feet wide from a fork in the stream just below 4th Street to its confluence with Bear Swamp, a distance of approximately 1200 feet.

c. Local sponsor would be required to enlarge the two forks located upstream of the Federally financed improvements, to a depth of five feet and a width of 10 feet with existing culverts replaced by five-foot RCP culverts. The east bank would extend upstream approximately 750 feet to a large pond at 6th Avenue while the east bank would extend above Kemper Street, a total distance of 2000 feet.

PROJECT COST

26. Table 2 summarizes preliminary first cost estimates for constructing the above-described water resource project. Cost estimates are based on preliminary data and will be modified as more data becomes available. Annual cost shown in Table 3 is based on the prevailing Federal interest rate of 7-7/8% and a project life expectancy of 50 years.

TABLE 2

LAKE VIEW

Estimates of First Cost

Item	Unit	Quantity	Unit Price	Amount
FEDERAL FIRST COST				
Channels				
Mob & Demob	Job	1	L.S.	$ 10,000
Clearing	Acres	7	$2,000	14,000
Excavation	C.Y.	12,000	$2.10	25,000
Clearing & Snagging	L.F.	6,000	$6.00	36,000
Grassing	Acres	5	$2,000	10,000
				95,000
Contingencies	25%		=	24,000
				119,000
Engineering & Design				24,000
Supr. & Administration				12,000
TOTAL FEDERAL FIRST COST				$155,000
NON-FEDERAL FIRST COST				
Channels				
Mob & Demob	Job	1	L.S.	$ 3,000
Clearing	Acres	4	$2,000	8,000
Excavation	C.Y.	4,000	$2.10	8,000
60" CMP	L.F.	350	$80	28,000
Grassing	Acre	3	$2,000	6,000
				$ 53,000
Contingencies				13,000
E.D. and S.A.				16,000
Total Channel				$ 82,000
Lands				
Channel Excavation	Acre	11	$6,000	$ 66,000
Clearing & Snagging	Acre	7	$1,000	7,000
				$ 73,000
Contingencies				18,000
E.D. and S.A.				20,000
Total Lands				$111,000
TOTAL NON-FEDERAL FIRST COST				$193,000
TOTAL FIRST COST				
Federal				$155,000
Non-Federal				193,000
				$348,000

TABLE 3

LAKE VIEW

Estimates of Annual Charges

Item	Amount
Federal Investment	
Estimated First Cost	$155,000
Interest During Construction	-
Total Federal Investment	$155,000
Non-Federal Investment	
Estimated First Cost	$193,000
Interest During Construction	-
Total Non-Federal Investment	$193,000
Federal Annual Charges	
Interest on Investment (7.875%)	$ 12,200
Amortization (50 yrs) (.182%)	300
Maintenance	-
Total Federal Annual Charges	$ 12,500
Non-Federal Annual Charges	
Interest on Investment (7.875%)	$ 15,200
Amortization (50 yrs) (.182%)	400
Maintenance	12,500
Total Non-Federal Annual Charges	$ 28,100
TOTAL ANNUAL CHARGES	
Federal	$ 12,500
Non-Federal	28,100
	$ 40,600

PROJECT BENEFITS

27. Construction of the previously described project would provide direct flood reduction benefits in the area of channel construction. In addition, the project would provide an adequate outlet to allow the Town of Lake View to construct local drainage systems to relieve flood damages upstream of the project area. Justification of this project is contingent upon implementation of an upstream drainage system.

28. Flood damage reduction benefits will amount to $21,000 annually in the area directly affected by the project. The implementation of upstream drainage measures would result in an additional damage reduction benefit of $78,000 annually. Only four residences, three detached garages, and two commercial establishments would continue to receive first-floor inundation by the 10-year frequency flood.

BENEFIT/COST COMPARISON

29. The Federal participation in this project is limited to the drainage area with 800 cfs for the 10-year frequency flow. Analysis of a comparison of benefits-to-costs for the area of Federal interest reveals this increment of construction alone is not economically feasible. Construction of this segment is necessary to provide an adequate outlet for upstream storm drainage measures which need to be installed by the Town of Lake View. The combined Federal and local construction effort would result in a benefit-to-cost ratio of 2.4 to 1.0. This comparison is shown in Table 4.

TABLE 4

BENEFIT/COST COMPARISON
RECONNAISSANCE CHANNEL ALTERNATIVE

LAKE VIEW, SOUTH CAROLINA

Item	Fed. Proj.	Local Drainage Measures	Total
Annual Flood Reduction Benefits	$21,000	$78,000	$99,000
Annual Project Costs	28,700	12,200	41,000
Benefit-to-Cost Ratio	0.7 to 1.0	6.4 to 1.0	2.4 to 1.0

FEDERAL RESPONSIBILITIES

30. Project construction cost for flood control measures implemented through Section 205 of the 1948 Flood Control Act, as amended, are apportioned in accordance with traditional cost allocation procedures. In summary, the Federal government should bear the cost of project construction, excluding all costs allocated to bridge or utility modifications and to the acquisition of project-related lands. In addition, the Federal government would bear the cost of feasibility investigations and detail design documents.

NON-FEDERAL RESPONSIBILITIES

31. Section 205 projects are local participation projects and require non-Federal participation for acquisition of project-related lands and for cost allocated to bridge and utility modifications. The following items of local cooperation would be required for implementation of a flood control project on the unnamed tributary in Lake View, South Carolina. Local project sponsors would be required to:

a. Provide without cost to the United States all lands, easements and rights-of-way, including disposal areas as determined by the Chief of Engineers, necessary for project construction;

b. Accomplish without cost to the United States all alterations and relocation of buildings, transportation facilities, storm drains, utilities and other structures made necessary by project construction;

c. Hold and save the United States free from damages due to construction, operations and maintenance of the project, provided damages are not due to the fault or negligence of the United States or its contractors;

d. Maintain and operate the works after completion in accordance with regulations prescribed by the Secretary of Army;

e. Prescribe and enforce regulations to prevent obstructions or encroachments on the channels or other flood control works which would reduce their flood-carrying capacity or hinder maintenance and operation, and control development in the project areas to prevent unwise development;

f. Periodically inform affected areas that channel improvement will not provide complete flood protection; and

g. Construct channel enlargement above fork in tributary as described in the plan of improvement.

WORK PROGRAM

32. Work items considered necessary in preparing an expanded reconnaissance report on flood problems in Lake View are summarized below. The refined studies expected in the Detailed Project Study will also be discussed in this summary. A PB-6 which gives a breakdown of cost for the three stages of study preparation is attached as Inclosure 4.

a. Public Coordination. During the expanded reconnaissance close coordination between planning elements, local governmental representatives and local residents will be maintained. Identification of a local sponsor for the DPS and an indication of willingness and ability to contribute 50% of the cost of that phase will also be accomplished in this study stage. A late stage plan formulation meeting will be held to obtain local views on alternative plans of improvement before selection of a recommended plan and finalization of the DPS.

b. Environmental Studies. A detailed inventory of the environmental resources present along the flood plain and project impact areas will be prepared. This information will be used to determine what the impacts of various alternatives will be on the environment of the study area, and to evaluate ways to enhance the environment and/or ameliorate the adverse effects that potential alternatives could have. Finalization and report write-up will be prepared in the DPS.

A cultural resources reconnaissance will be made of the study area with primary emphasis along the immediate project impact area. This will serve to identify either known or possible archeological and historical sites within the study area. The study will be done in the expanded reconnaissance report.

c. Fish and Wildlife Studies. In accordance with the agreement between the Corps of Engineers and the United States Fish and Wildlife Service, Department of the Interior (USFWS), the Fish and Wildlife Service will conduct appropriate studies to furnish the required Coordination Act Report.

d. Hydrology and Hydraulic Studies. Hydrology and hydraulic studies will be conducted in sufficient detail in the expanded reconnaissance report to identify flood prone areas and delineate the flood plain. Flood profiles for existing conditions and for various plans of improvement will be developed for the appropriate recurrence interval events and the SPF utilizing computed flows and the HEC 2 backwater computer program. Design details for the selected plan will be completed in the Detailed Project Study at which time the H & H appendix will be finalized.

e. Economic Studies. Economic projections will be made to determine future needs of the basin area. Economic analyses will include comparison of cost and benefits of alternative plans. Engineering surveys will be conducted to determine the first floor elevation of approximately 100 structures located within the flood plain. Field interviews and questionnaires will be used to determine historical and potential flood damages. The nature and extent of flood damages will be determined for residential and commercial property, road and bridges, business losses, and emergency costs. Real estate studies will be conducted to determine the value of damageable property. Damages will also be estimated for the future "Do Nothing" alternative.

Any reasonable alternative for correcting the flood problem will be analyzed and displayed in order to determine the most desirable plan of action. This will include both nonstructural and structural alternatives.

Economic base studies will be completed in the expanded reconnaissance as will the initial screening of an array of alternatives based on a preliminary appraisal of costs, benefits and environmental impacts. DPS evaluations will deal with refining assessments of outputs of alternatives remaining or developed beyond the preliminary appraisal.

f. Project Management. The Project Manager will be responsible for overseeing the overall study process and coordinating the efforts of the various study disciplines.

g. Design and Cost Estimates. During the expanded reconnaissance studies design and cost estimates for all alternative plans will be made in sufficient detail to enable the formulation of a best plan of action. In the DPS additional design efforts and refined cost estimates will be made for the selected plan.

h. Surveys. For the expanded reconnaissance study cross section surveys will be obtained at 1000-foot intervals in Bear Swamp and every 400 feet on the tributary. Detail data will also be obtained for all stream crossings during the field survey. Survey at the two forks of the tributary will be required during the DPS stage.

i. Foundation and Material Investigations. Jet probings would be obtained at specified intervals to determine type of material to be excavated. These investigations will be done during the DPS stage.

j. Real Estate Studies. Real estate studies will be made by Savannah District. The expanded reconnaissance study will require estimates of the value of the structures in the flood prone area. Refined lands costs will be needed in the DPS stage.

k. Project Formulation. Plan formulation in the expanded reconnaissance study will include working with study team members to formulate a reasonable array of viable alternatives and evaluating the impact of these alternatives in order to select the EQ, NED, and recommended plans of improvement. In the DPS stage, this array will be refined and possibly added to in order to develop the best plan possible to meet Federal and local objectives.

l. Preparation of Report. The expanded reconnaissance report will be in sufficient detail to lead the reader to an understanding of the various alternatives screened and to show justification for the recommended detailed studies. The DPS report will cover the complete decision process and will contain necessary appendixes to explain in detail the results of the various elements.

CONCLUSIONS

33. The flood problems identified and potential alternatives to these problems are within the scope of the Section 205 program. The estimated cost of completing a detailed investigation of the flood prone area is $142,000 for the expanded reconnaissance reports and $65,000 for the Detailed Project Study. It will take 6 to 8 months to complete the expanded reconnaissance report.

RECOMMENDATIONS

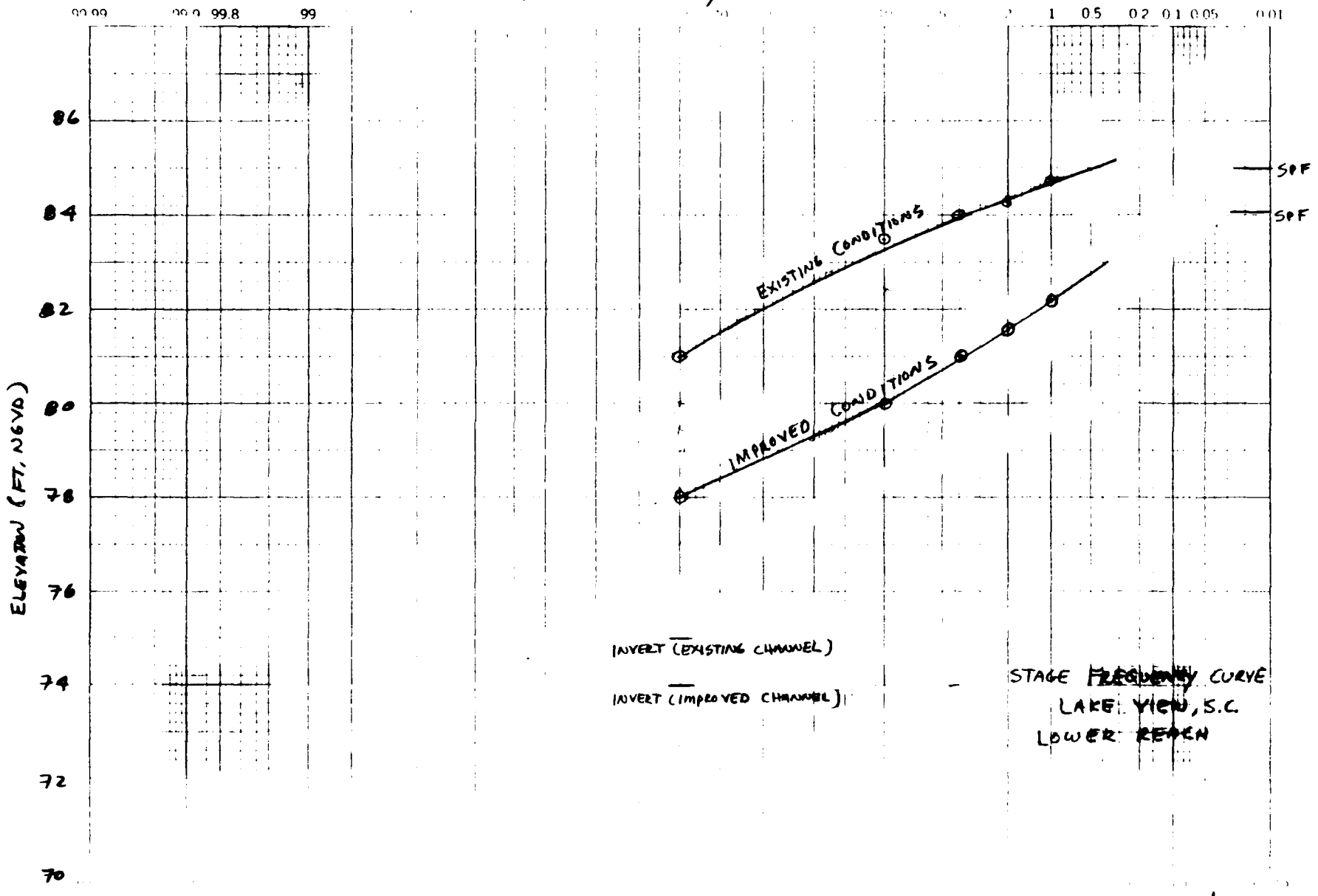
34. Based upon information presented in this report, it is recommended that further study of flood problems in Lake View be authorized. Estimated study cost for completion of an expanded reconnaissance report is $142,000. It is recommended that funds in this amount be allocated to Charleston District as soon as practical in order that the subject study may be pursued. Costs for preparation of this reconnaissance report were approximately $7,500. Request for reimbursement of these funds will be made by separate correspondence after final approval of this report.

B. E. Stalmann

4 Incl.
as

BERNARD E. STALMANN
LTC, Corps of Engineers
Commanding

1 Nov. 82



STAGE FREQUENCY CURVE
LAKE VIEW, S.C.
LOWER REACH

Figure 1

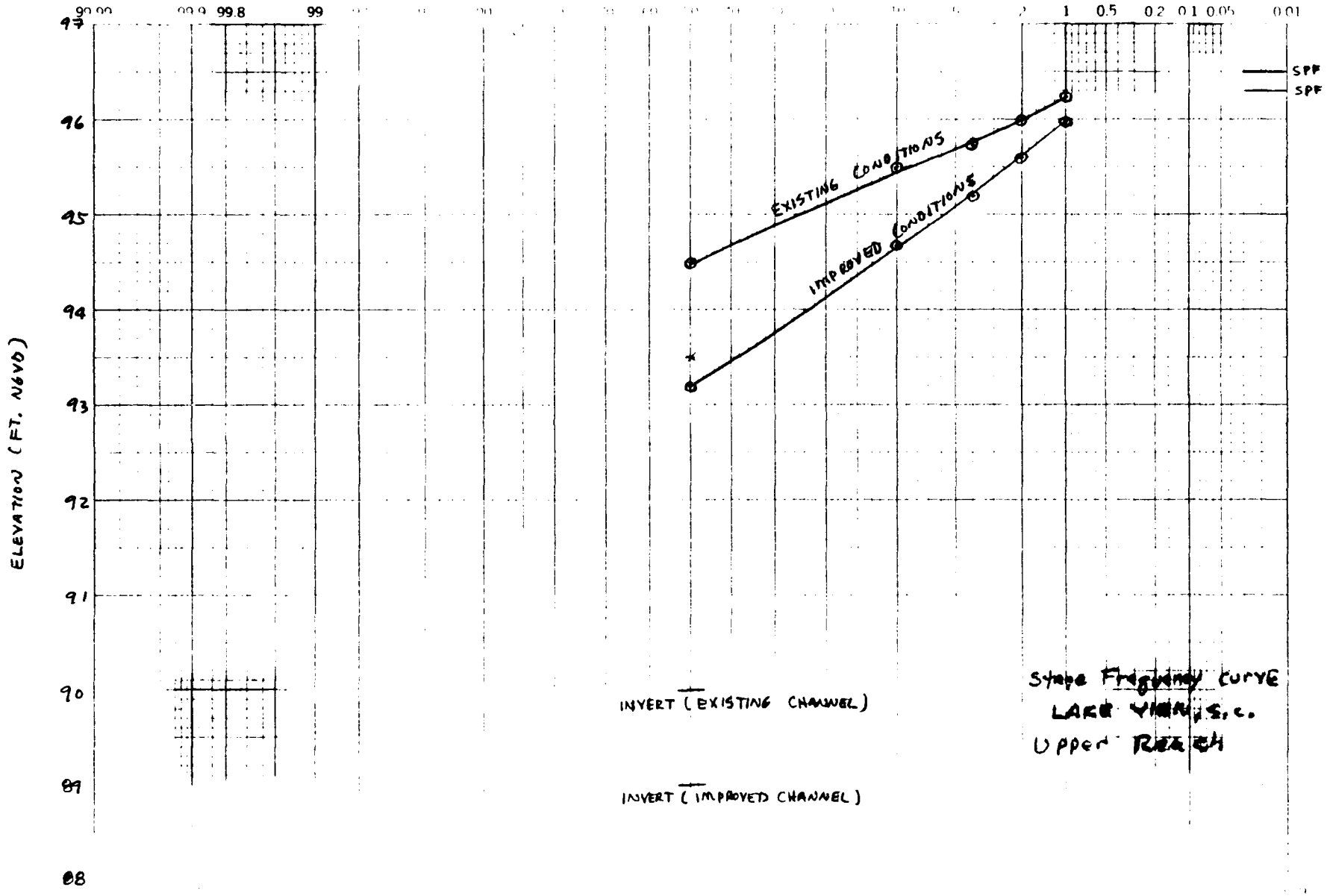

EXCEEDENCE FREQUENCY – PER CENT
99.99
99.9
99.8
99
1
0.5
0.2
0.1
0.05
0.01
SPF
SPF
EXISTING CONDITIONS
IMPROVED CONDITIONS
ELEVATION (FT. NGVD)
97
96
95
94
93
92
91
90
89
88
INVERT (EXISTING CHANNEL)
INVERT (IMPROVED CHANNEL)
Stage Frequency Curve
LAKE YIENNI, S.C.
Upper Reach

Figure 2

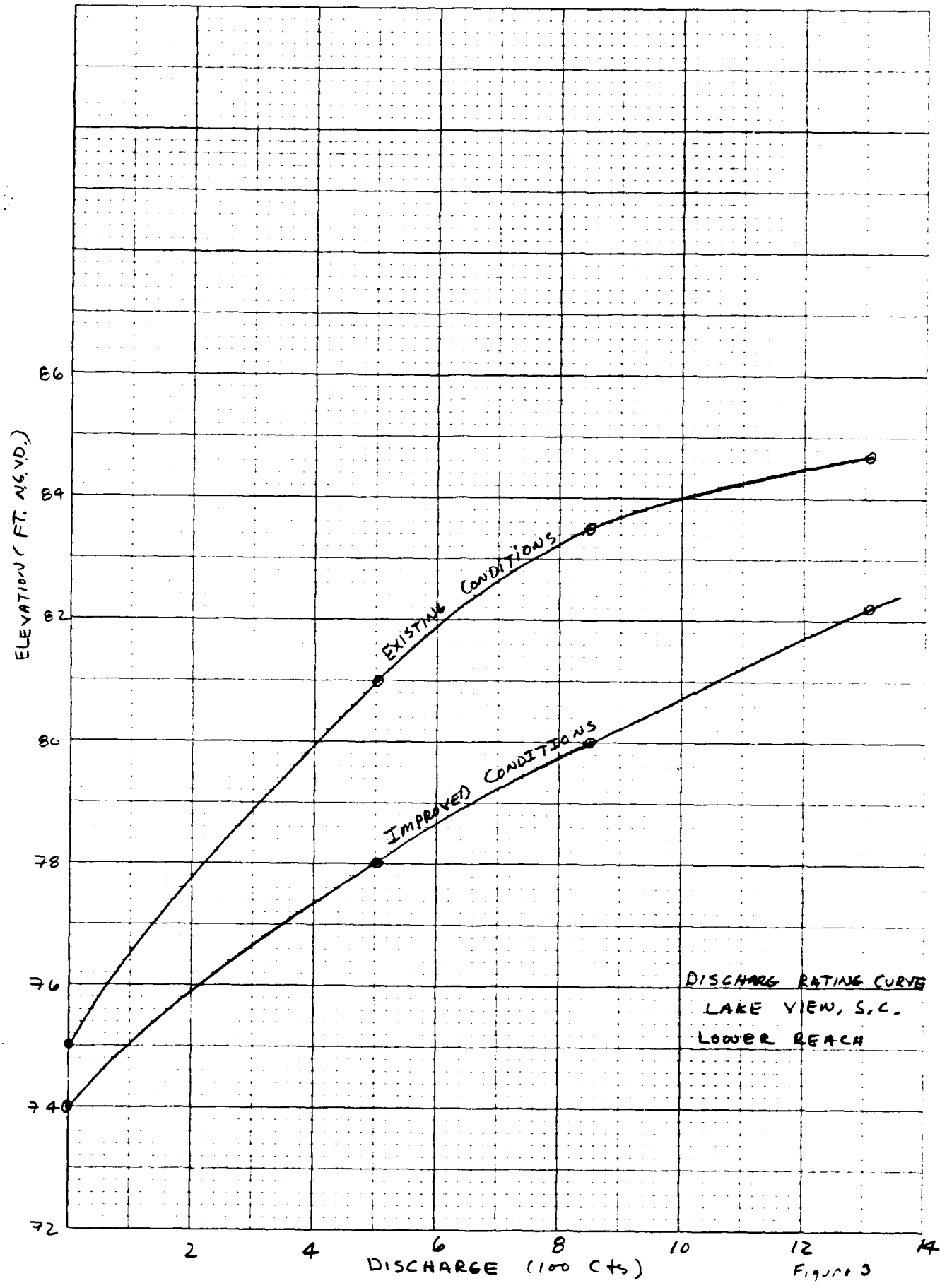

46 0780
ELEVATION (FT. N.G.V.D.)
86
84
82
80
78
76
74
72
2
4
6
8
10
12
14
DISCHARGE (100 CFS)
EXISTING CONDITIONS
IMPROVED CONDITIONS
DISCHARG RATING CURVE
LAKE VIEW, S.C.
LOWER REACH

Figure 3

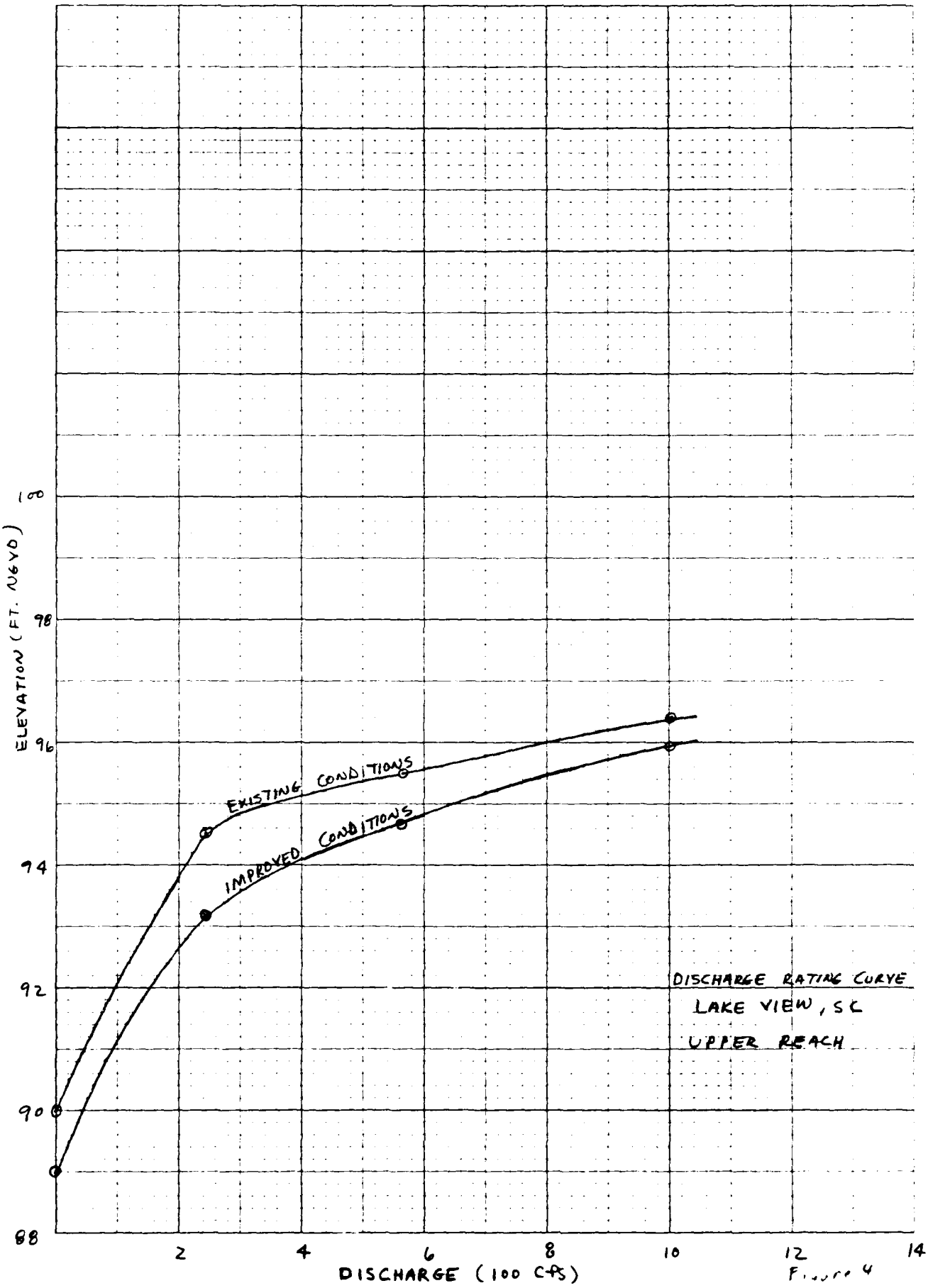
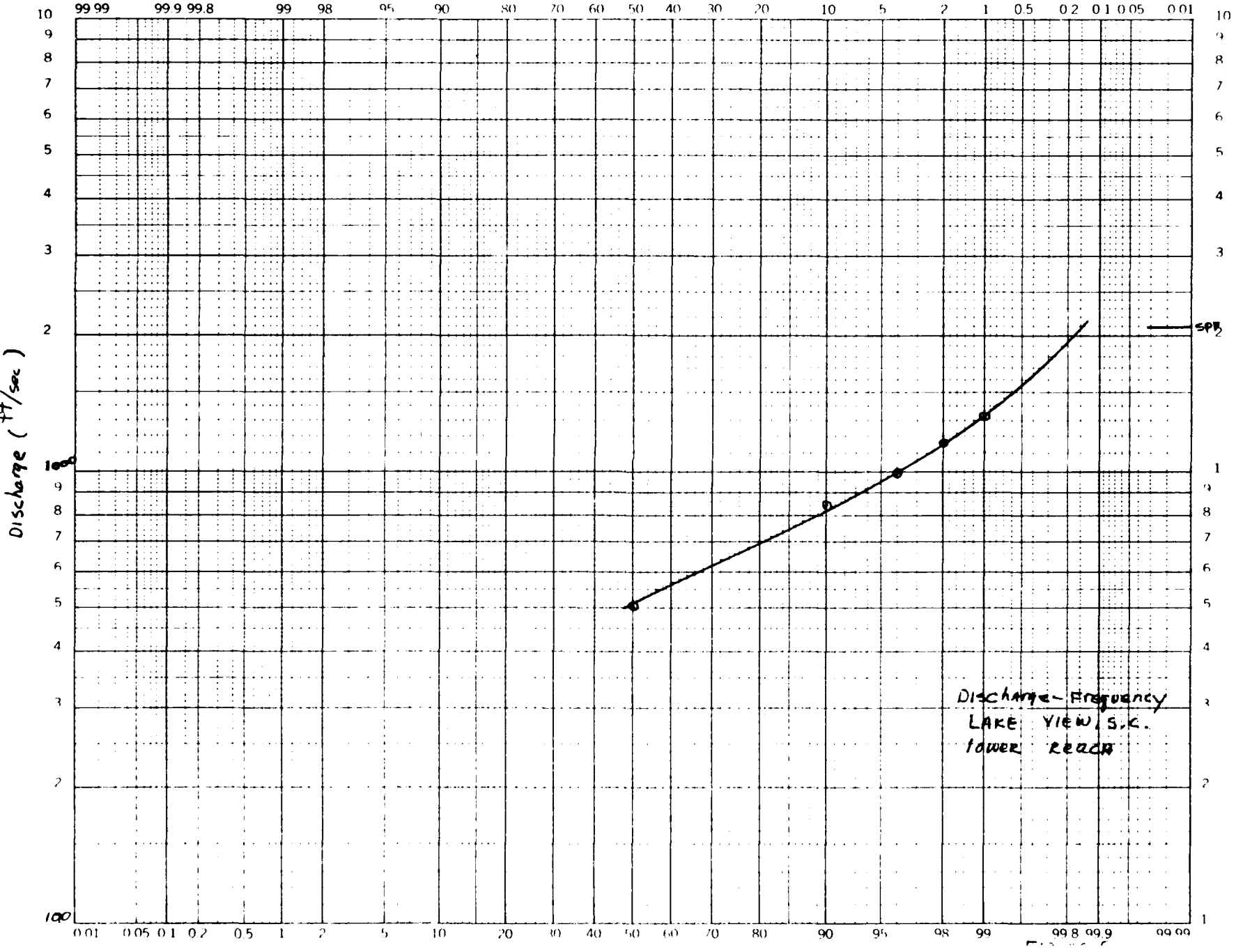
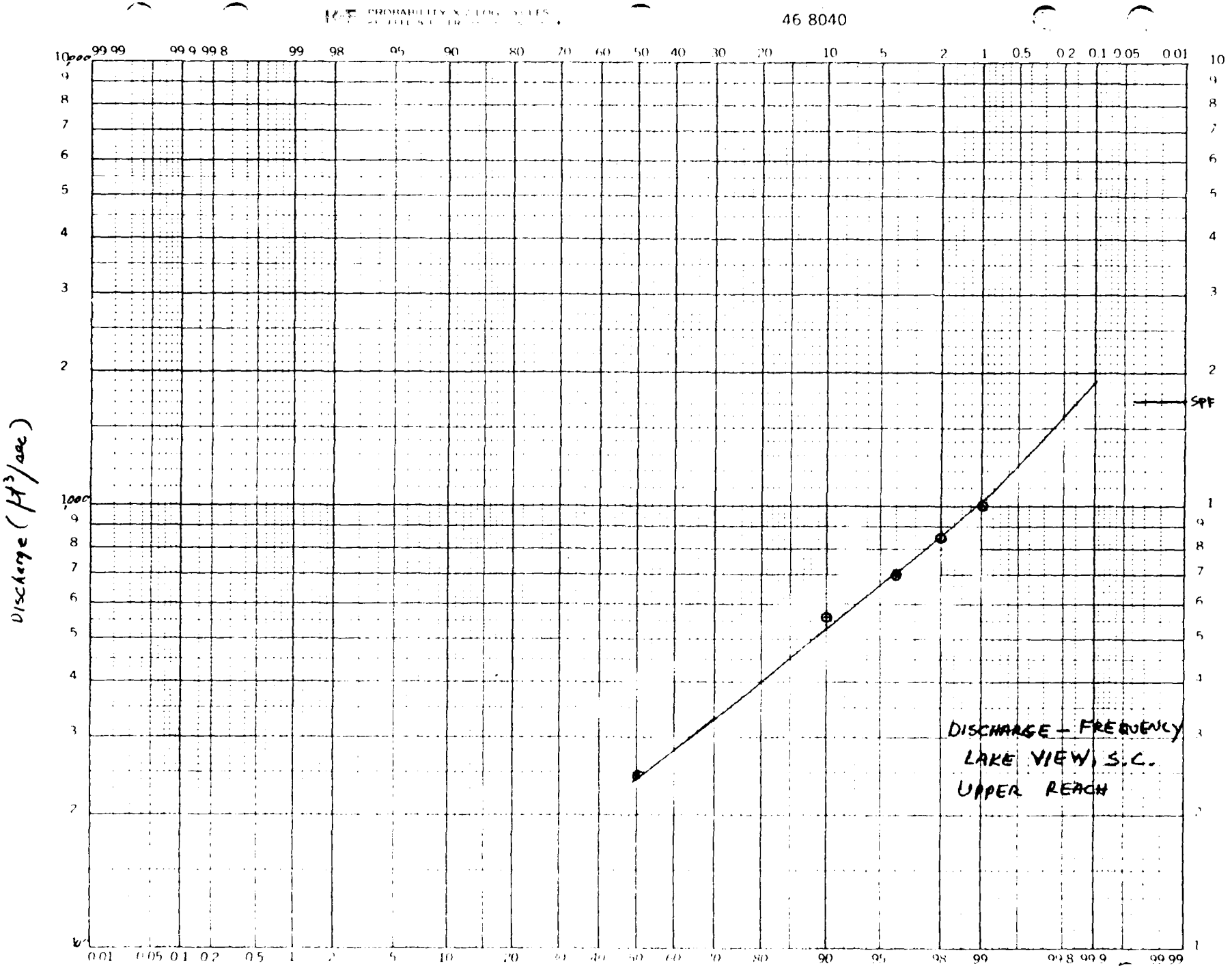

ELEVATION (FT. NGVD)
100
98
96
94
92
90
88
EXISTING CONDITIONS
IMPROVED CONDITIONS
2
4
6
8
10
12
14
DISCHARGE (100 CFS)
DISCHARGE RATING CURVE
LAKE VIEW, SC
UPPER REACH

Figure 4


99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Discharge (ft³/sec)
SPB 2
Discharge-Frequency
LAKE VIEW, S.C.
Lower Reach


46 8040
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Discharge (ft³/sec)
SPF
DISCHARGE - FREQUENCY
LAKE VIEW, S.C.
UPPER REACH

TOWN OF LAKE VIEW

LAKE VIEW, SOUTH CAROLINA

August 30, 1982

Lt. Colonel Bernard E. Stalmann
District Engineer, Charleston District
Corps of Engineers
PO Box 919
Charleston, SC 29402

Re: Section 205- Small Flood Control Projects

Dear Lt. Colonel Stalmann:

In response to information provided to the Town of Lake View (copy attached), the Town Council has decided to request assistance from you. The Town desires the DOA/COE conduct a reconnaissance survey or study to determine our eligibility under either Section 205 of the 1948 Flood Control Act and/or Section 208 of the 1954 Flood Control Act.

We are fully aware of the fact that this is only a preliminary study or survey to determine if our problems meet your project limitations. However, we feel that our problems warrant further study.

We look forward to hearing from you in the near future.

Very truly yours,

TOWN OF LAKE VIEW

R.T. Smith, Mayor

RTS:cr

Incl. 1

SACEN-E

5 January 1983
Mr. Paxton/116/km

MEMORANDUM FOR RECORD

SUBJECT: Preliminary Environmental Assessment of Lake View, South Carolina, Flood Problems

1. A field reconnaissance of areas with flood problems in the Town of Lake View, South Carolina, was conducted on 7 October 1982. Representatives of the Charleston District, U. S. Army Corps of Engineers, and the Charleston Field Office, U. S. Fish and Wildlife Service, surveyed the area in and around Lake View to gather preliminary background data and to develop initial concepts for flood protection.

2. Flooding is caused by overflow of water from an unnamed creek flowing through the east central portion of the town (Figure 1). The creek is divided into two arms about halfway up its length from the mouth. It is about two miles in total length and drains an area of approximately 500 acres. The western arm of the creek is extensively modified and flows through about 500 feet of culverts in a portion of the town near the confluence of the two arms.

3. The area adjacent to the creek, from the confluence with Bear Swamp to First Avenue, is heavily wooded. Trees vary from a cottonwood-maple-sweetgum mix in the higher elevations to a cypress-water tupelo association in the swamp. Bear Swamp is a palustrine, forested, semipermanently flooded wetland (USFWS wetland type PF02F).

4. From First Avenue upstream the creek narrows, and the area becomes increasingly urbanized. A narrow band of vegetation, one or two trees wide, follows the channel for much of its length. In other areas, the channel has been modified to a straight, trapezoidal drainage ditch or placed underground in a culvert.

5. Flows in the creek at the time of this survey were light with water flowing several inches deep at First Avenue. The riffle-and-pool conditions in this area may support small fish, although none was observed. There was very little flow in the reaches above the conjunction of the two arms.

6. Preliminary examination in Bear Swamp near the Bear Swamp Church bridge (about 6,000 feet downstream from Lake View) revealed a broad, flooded area with numerous downed trees. Flow through this portion of the swamp is restricted at two bridges. About 100 feet downstream from the bridges, an old abandoned road or railroad embankment further restricts flow. The area downstream of this embankment contains tree species adapted for upland growth.

Incl. 2

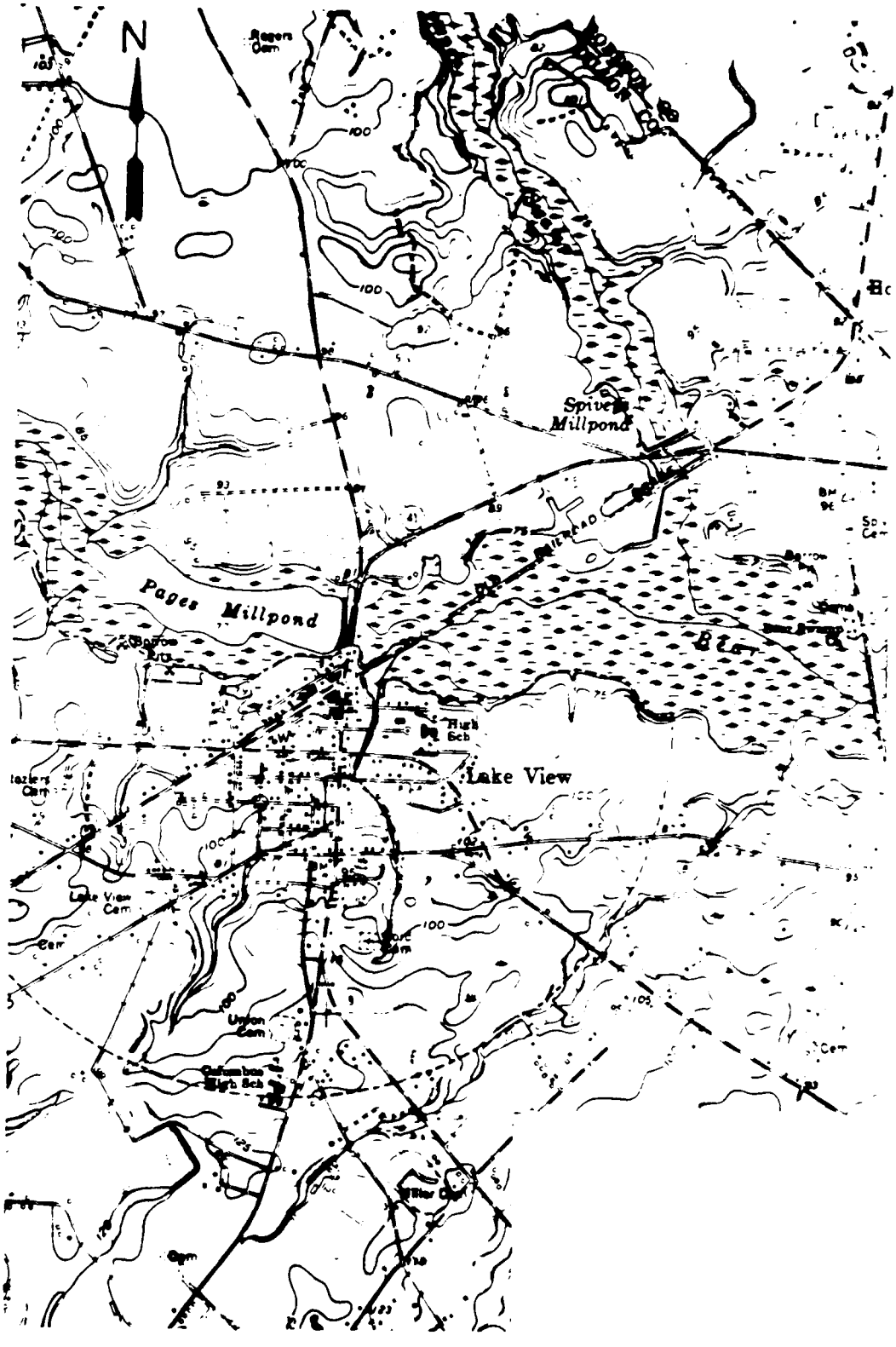
SACEN-E 5 January 1983
SUBJECT: Preliminary Environmental Assessment of Lake View, South Carolina, Flood Problems

7. No archeological, historical, or historical-architectural resources were identified during this reconnaissance. A literature search and reconnaissance by a professional archeologist will be necessary if a study is approved. The estimated cost of this work is $3,000.

8. If, as a result of this reconnaissance, further study is determined to be feasible, additional ecological analysis, investigations of the effects of alternatives, and preparation of necessary environmental documents for the DPR would require approximately 30 workdays (about $9,000).

Joseph E. Paxton

JOSEPH E. PAXTON
Environmentalist


N
Spivey's Millpond
Pages Millpond
Lake View

United States Department of the Interior
FISH AND WILDLIFE SERVICE
P.O. BOX 12559
217 FORT JOHNSON ROAD
CHARLESTON, SOUTH CAROLINA 29412

November 29, 1982

Lt. Colonel Bernard E. Stalmann
District Engineer
U.S. Army Corps of Engineers
P.O. Box 919
Charleston, South Carolina 29402

Re: Lakeview Reconnaissance Study, Dillon County, S.C.

Dear Colonel Stalmann:

This report is provided in partial fulfillment of our responsibilities pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

Prescott Brownell of this office accompanied members of your staff on the reconnaissance field trip to Lakeview on October 7, 1982. A second visit to the area was made with Mr. Joe Paxton on November 10, 1982 to survey the fish and wildlife resources present in the Bear Swamp flood plain.

Apparently the primary flooding problems occur entirely within the corporate limits of Lakeview, and are associated with a small intermittent tributary of Bear Swamp. Bear Swamp is a tributary of the Lumber River in Hydrounit 03040203, 215.

Existing Fish and Wildlife Resources

In the Lakeview vicinity, the Bear Swamp drainage basin includes agricultural lands, urbanized lands, upland forest, and wetlands. Extensively urbanized lands are confined to within one-half mile of the center of Lakeview.

Upland bordering Bear Swamp is predominately cleared for agricultural uses. Upland forested habitat is confined to the swamp-upland transition zone and narrow linear tracts associated with smaller tributary streams flowing into the swamp. Upland forest is predominantly mixed hardwood with varying densities of loblolly pine.

The Bear Swamp floodplain includes extensive areas of semipermanently flooded palustrine forested wetland dominated by water tupelo and bald cypress. These wetlands have been essentially unmodified downstream from the town of Lakeview, and support mature swamp forest plant communities. Immediately upstream from Lakeview the floodplain was impounded many years ago to form Pages Millpond, which now provides a significant scenic resource as well as high quality fish and wildlife habitat.

Bear Swamp presently appears to provide optimum habitat values for a variety of fish and wildlife species adapted to palustrine forested wetland habitats.

Fishes likely to be abundant here include the largemouth bass, redfin pickerel, and the smaller sunfish species as well as the bowfin, or mudfish. The relatively large areas of permanently and semipermanently flooded wetland in Bear Swamp indicate that significant spawning and nursery habitat values exist here.

Birds such as the wood duck, red-shouldered hawk, American woodcock, barred owl, pileated woodpecker, and green heron are likely to be among the dominant avian species present in Bear Swamp.

Mammals such as the raccoon, mink, opossum, and eastern woodrat are likely to be present here in abundance, as well as the white-tail deer which may frequent the swamp for refuge and feeding. Optimum habitat for the gray squirrel exists within the mixed hardwood forest at the upland fringe of Bear Swamp.

The endangered American alligator occurs in the Lumber River drainage and may occur as far upstream as the Bear Swamp. Other endangered or threatened species may occur within the basin. Accordingly we recommend that the Corps officially request a list of endangered or threatened species pursuant to the requirements of Section 7(c) of the Endangered Species Act, Amendments of 1978 (P.L. 95-632). The information provided in this report does not constitute the required list. Your written request for the list as well as any other correspondence relating to endangered species should be directed to the Field Supervisor, Office of Endangered Species, U.S. Fish and Wildlife Service, Plateau Building, Room A-5, 50 South French Broad Avenue, Asheville, North Carolina 28801.

Fish and Wildlife Resource Planning Objectives and Recommendations

During the course of our involvement in this project we will adhere to the following planning objectives relative to the Bear Swamp drainage basin. We recommend that these objectives be included in your planning efforts should the study proceed beyond the reconnaissance stage:

1. Concentrate on non-structural alternatives that avoid channelization of undisturbed segments of Bear Swamp.

2. Preserve the integrity of Pages Millpond.

3. Preserve the present acreage of permanently flooded and semipermanently flooded habitat with Bear Swamp.

4. Protect or enhance the existing public use opportunities for fishery and wildlife resources in the Bear Swamp basin.

5. Identify and protect any rare, sensitive, or unique habitats and endangered or threatened species present within Bear Swamp and adjacent lands.

6. Develop mitigation plans for any significant fish or wildlife resources which may be lost or degraded as a result of flood control implementation.

Project FWCA Study Needs

The Service has identified the following activities and costs as the minimum study needs required to adequately address fish and wildlife resources in the study area, and to make necessary mitigative recommendations. Funds requested are based on FY 83 costs and do not provide for inflationary increases.

Activities	Biologist Days
Field surveys	2
Habitat mapping	3
Literature review	2
Resource use assessment	1
Evaluation of alternatives	2
Impact assessment, mitigation plan development	2
Coordination	3
Planning-aid report	4
Draft and final FWCA report	6
Total Biologist Days	25
Cost @ $200/bd	5,000
38% Service Overhead	1,900
TOTAL COST	$6,900

Estimation of study time and funding requirements is approximate at this stage due to lack of specific information on plan alternatives and associated plan impact areas. Our actual minimum study funding needs may be subject to revision after completion of your reconnaissance study.

The Service appreciates the opportunity to provide these comments and we hope they will assist you during your ongoing reconnaissance study.

Sincerely yours,

Steven S. Gilbert
Acting Field Supervisor

SSG/PHB

RCS:

STUDY COST ESTIMATE (PB-6) ($000) For use of this form, see ER 11-2-220	APPROPRIATION TITLE: CONSTRUCTION GENERAL	NAME OF STUDY: Unnamed Tributary Lake View, S.C.
	CATEGORY: FLOOD CONTROL	
	CLASS: Local Protection	SUBCLASS: Section 205

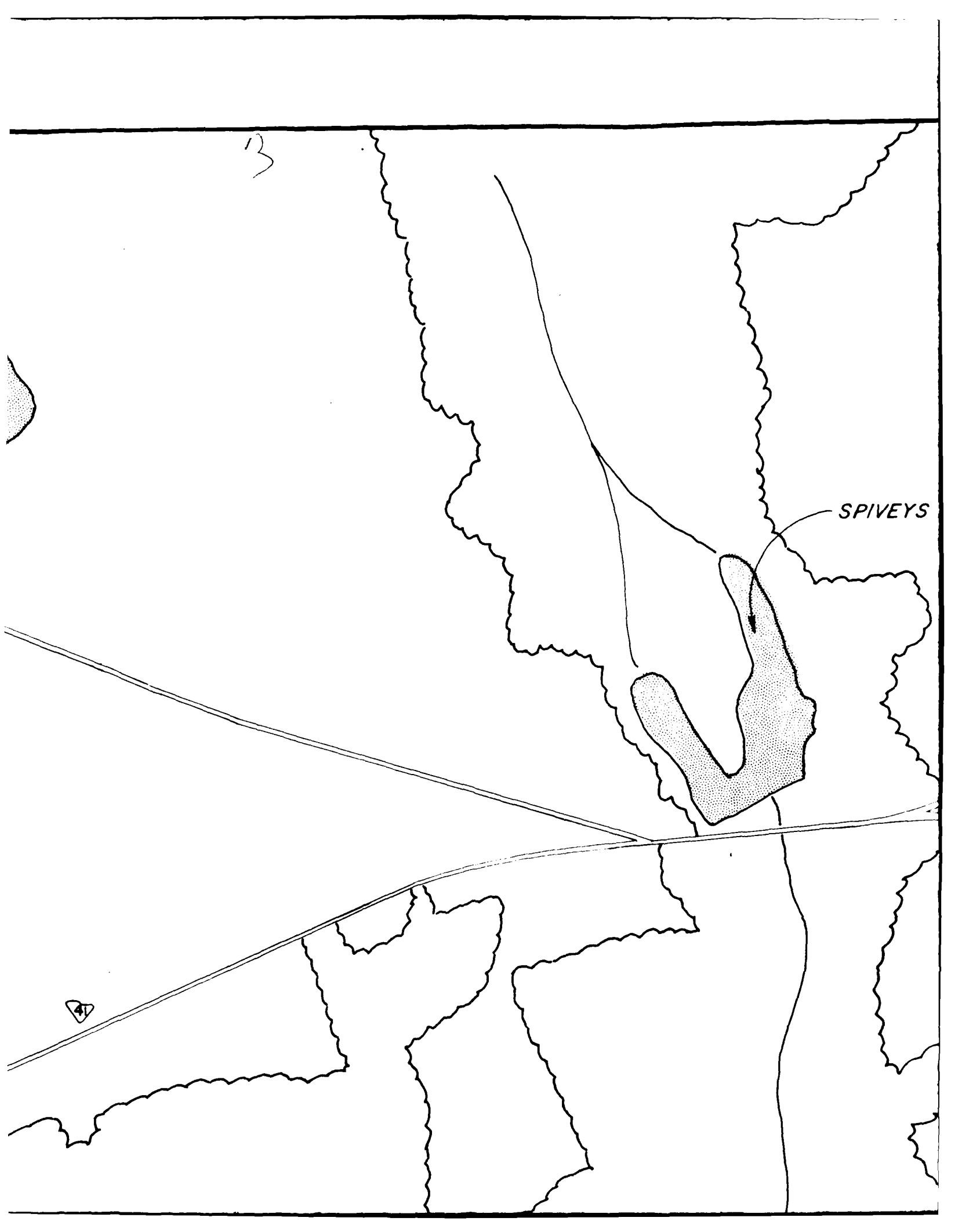
LINE NO.	SUBACCOUNT NUMBER	SUBACCOUNT TITLE	CURRENT FEDERAL COST ESTIMATE ACCOUNT RECON	ACCOUNT EXPANDED RECON	ACCOUNT D.P.S.	TOTAL	PREVIOUS FEDERAL COST ESTIMATE AND DATE APPROVED ( )	REMARKS
	a	b	c	d	e	f	g	h
1		Public Coordination	0.5	8.0	7.0	15.5		
2		Environmental Studies	1.5	12.0	3.0	16.5		
3		F & W Services	-	7.0	-	7.0		
4		H & H Studies	1.5	36.0	14.0	51.5		
5		Economic Studies	1.5	38.0	8.0	47.5		
6		Project Management	0.5	10.0	5.0	15.5		
7		Design & Cost Estimates	0.5	1.0	3.0	4.5		
8		Surveys		15.0	6.0	21.0		
9		Foundation and Material		-	3.0	3.0		
10		Real Estate		4.0	1.0	5.0		
11		Project Formulation	0.5	3.0	2.0	5.5		
12		Preparation of Report	1.0	8.0	13.0	22.0		
13								
14		TOTAL	7.5	142.0	65.0	214.5		

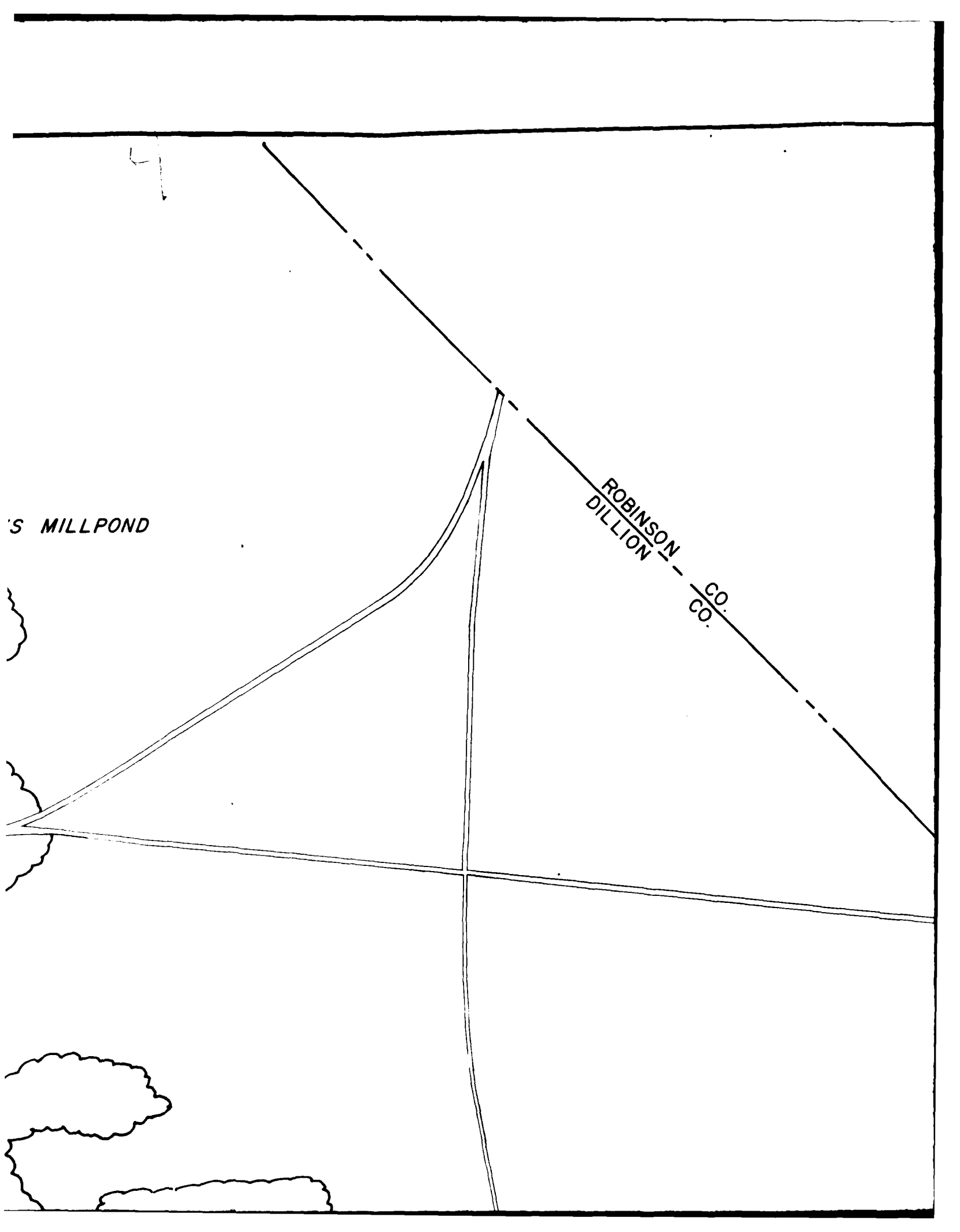
DATE PREPARED	DIVISION: SOUTH ATLANTIC DISTRICT: CHARLESTON	REGION: SOUTH ATLANTIC - GULF BASIN: PEE DEE - EDISTO	Page 1 of 1

ENG FORM 1 APR 77 2204 EDITION OF 4 JAN 71 IS OBSOLETE.


9


9
41


13
SPIVEYS
41


'S MILLPOND
ROBINSON CO.
DILLION CO.

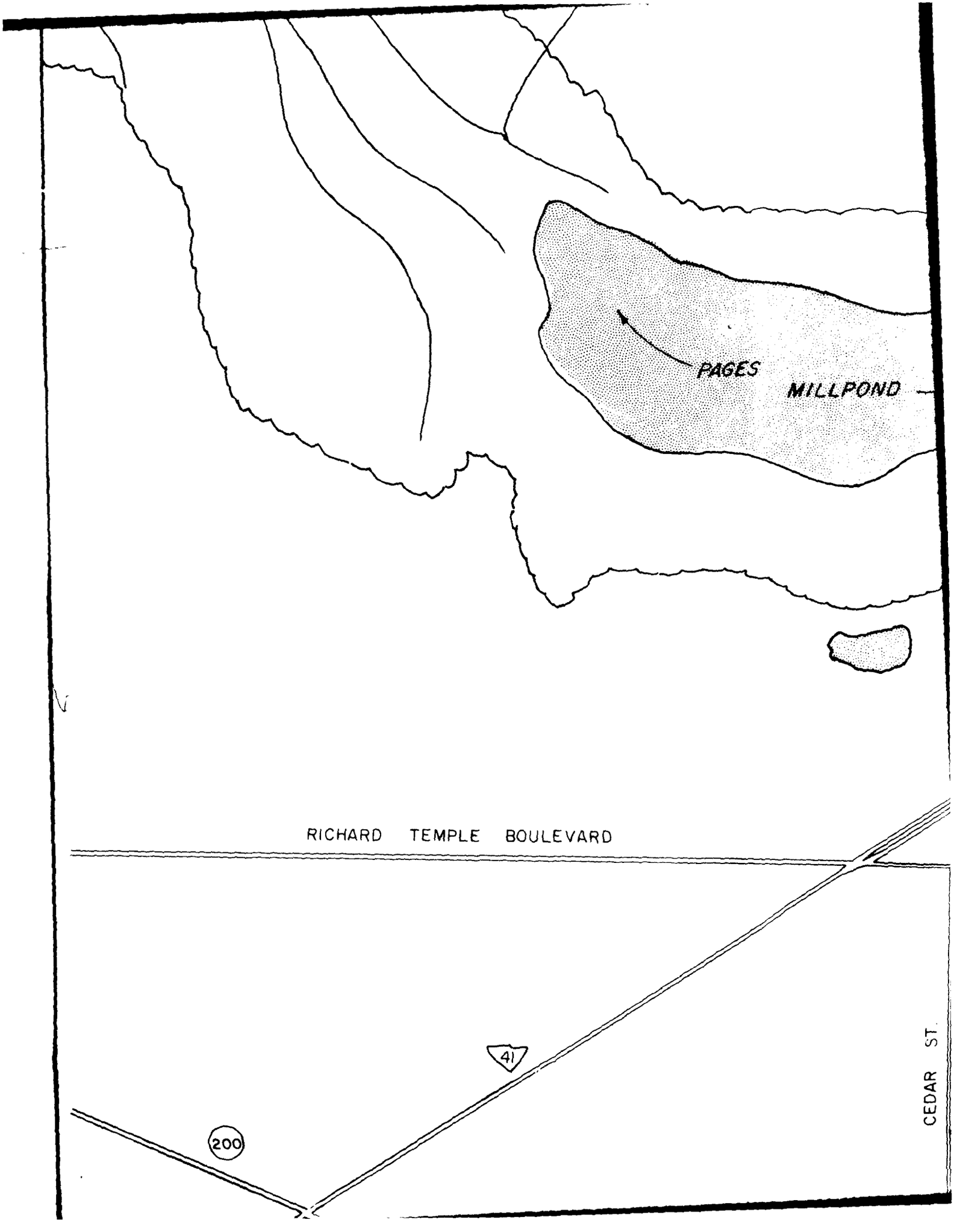
ROBINSON CO.

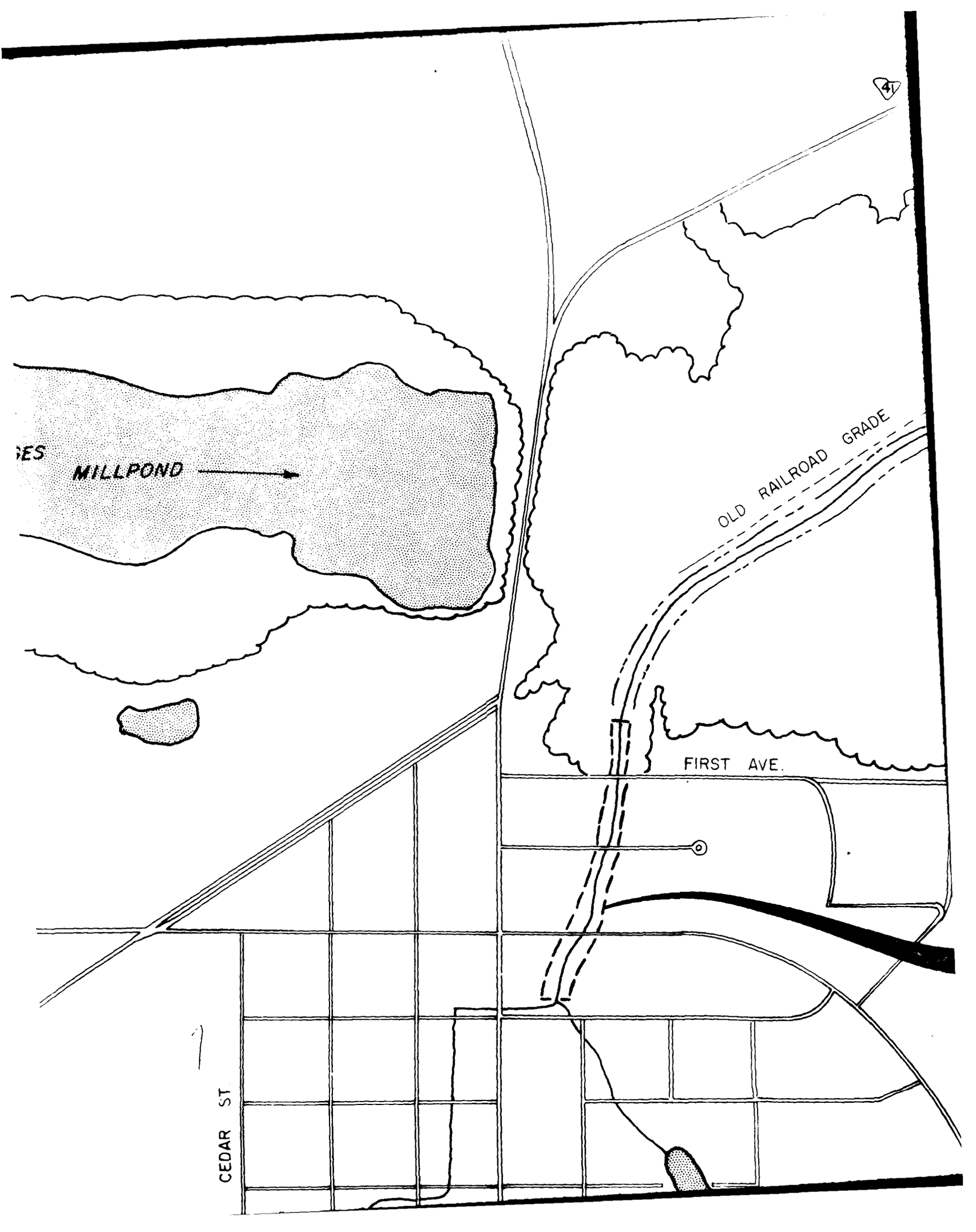
DILLION CO.

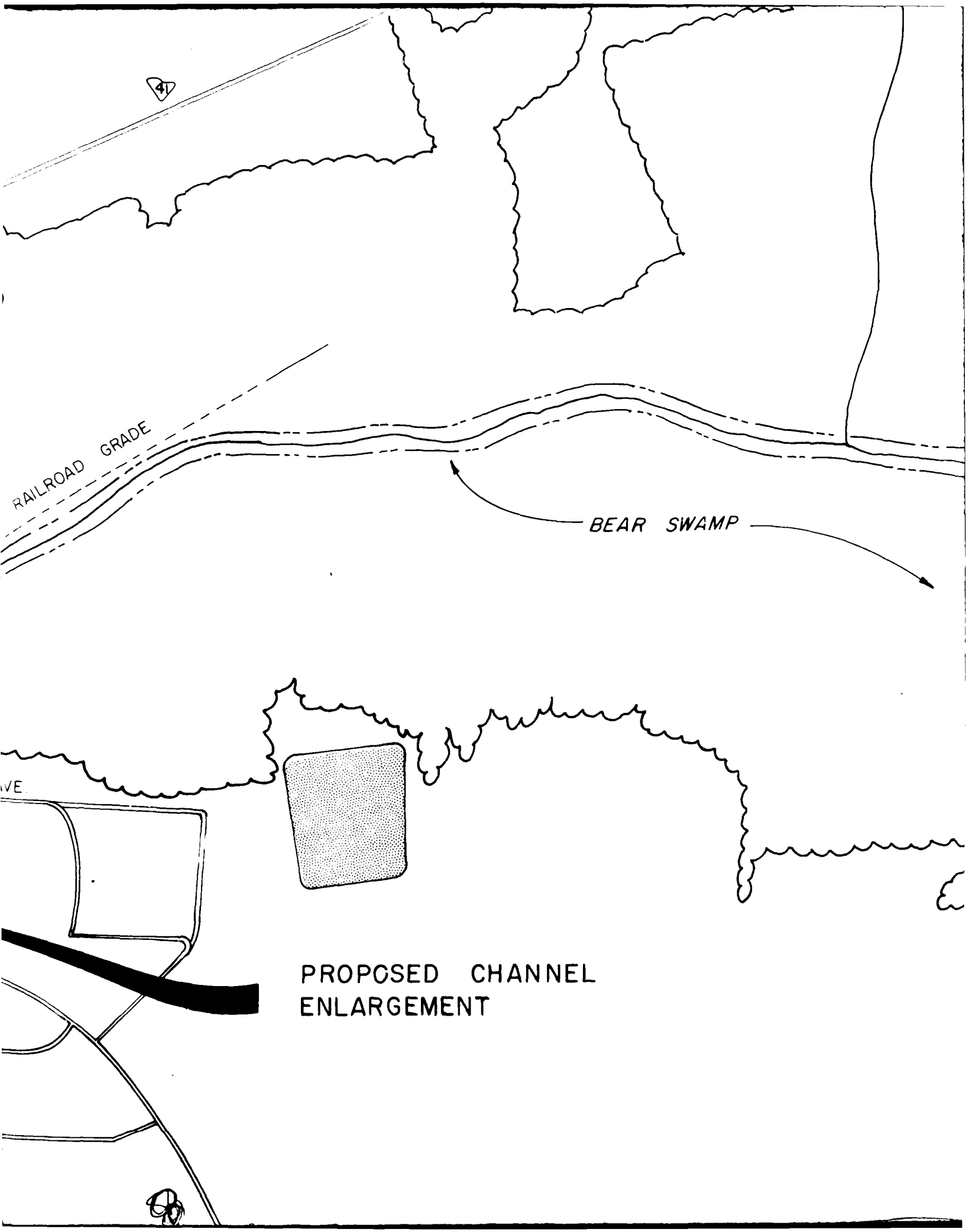
N

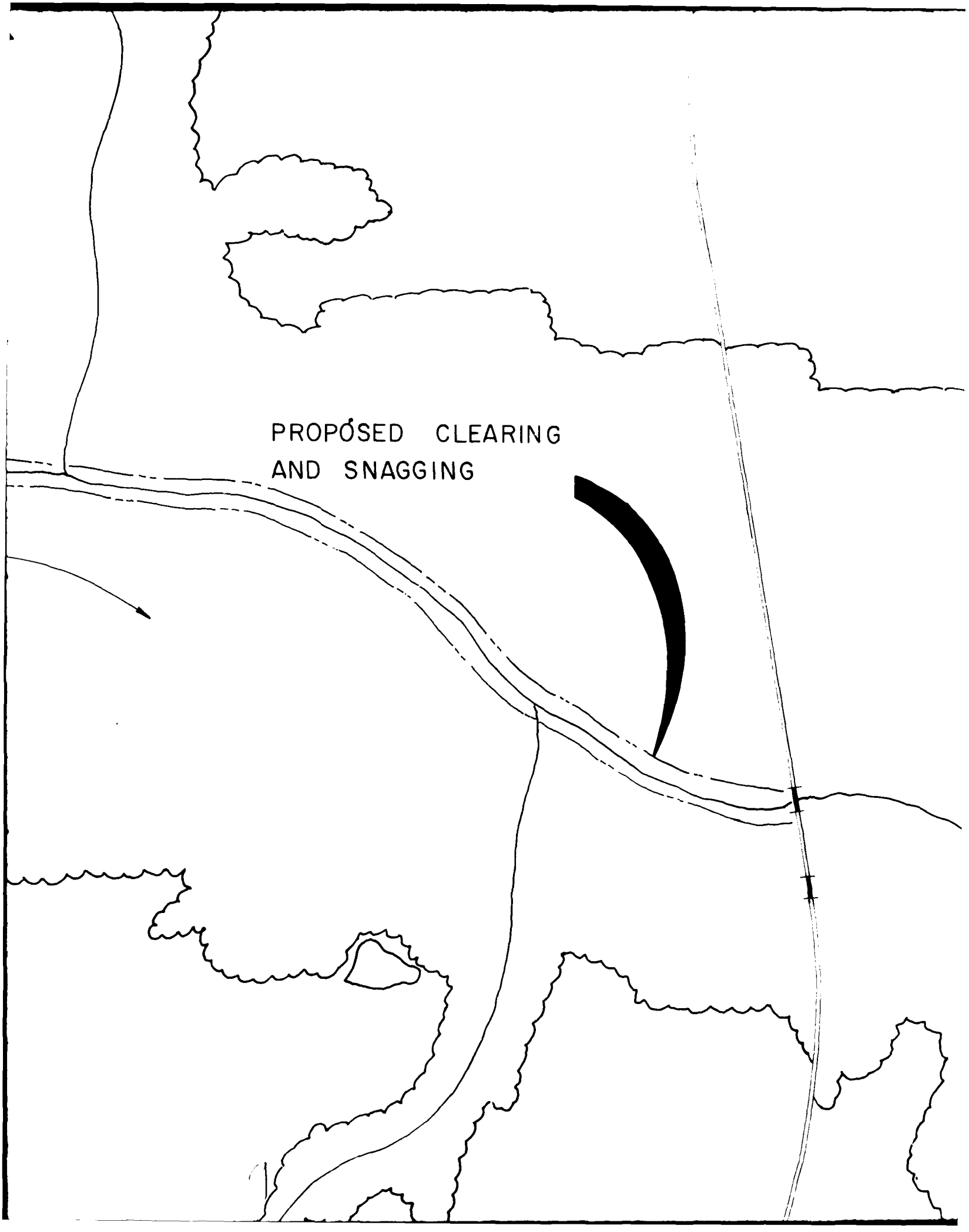
NORTH CAROLINA

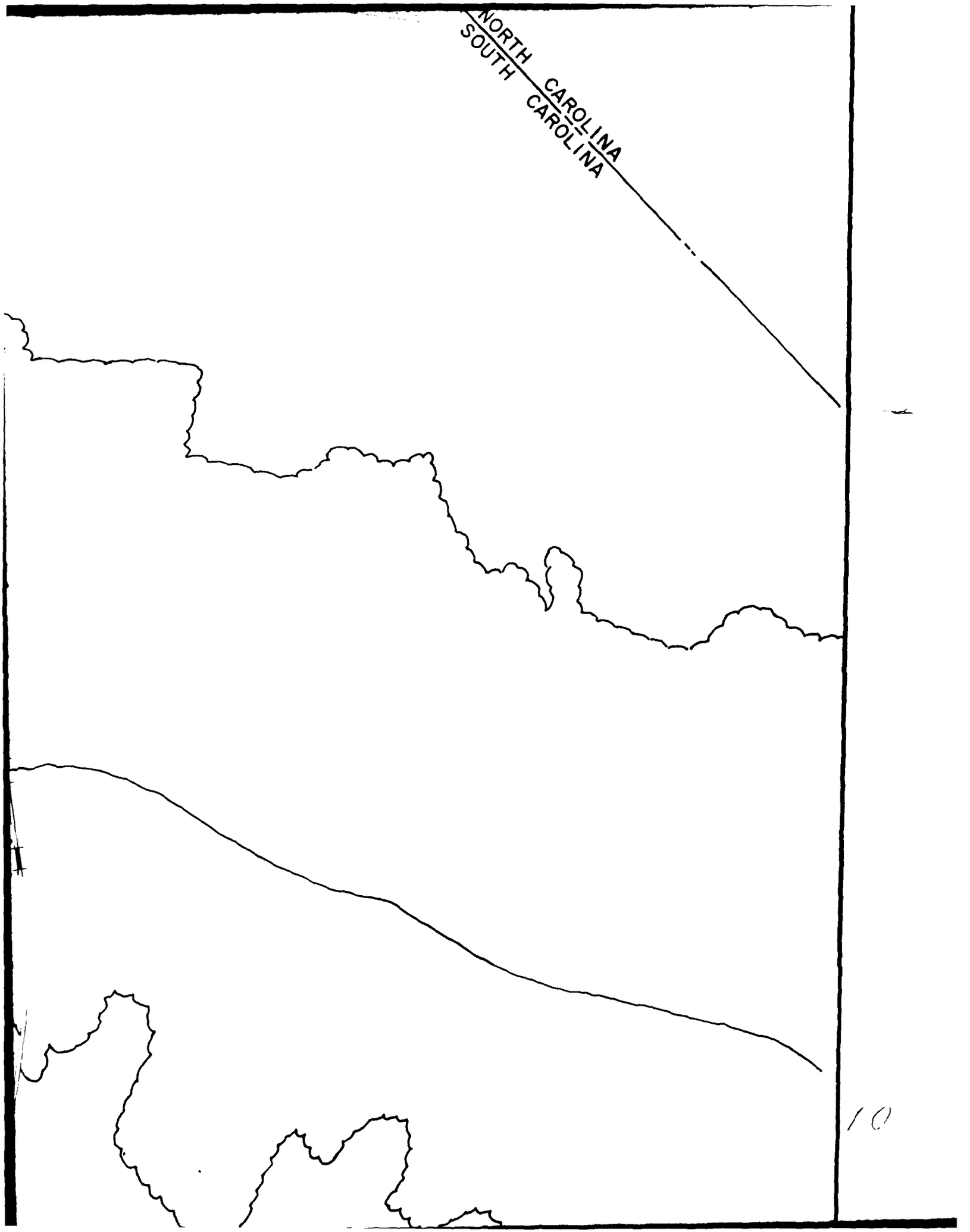
SOUTH CAROLINA

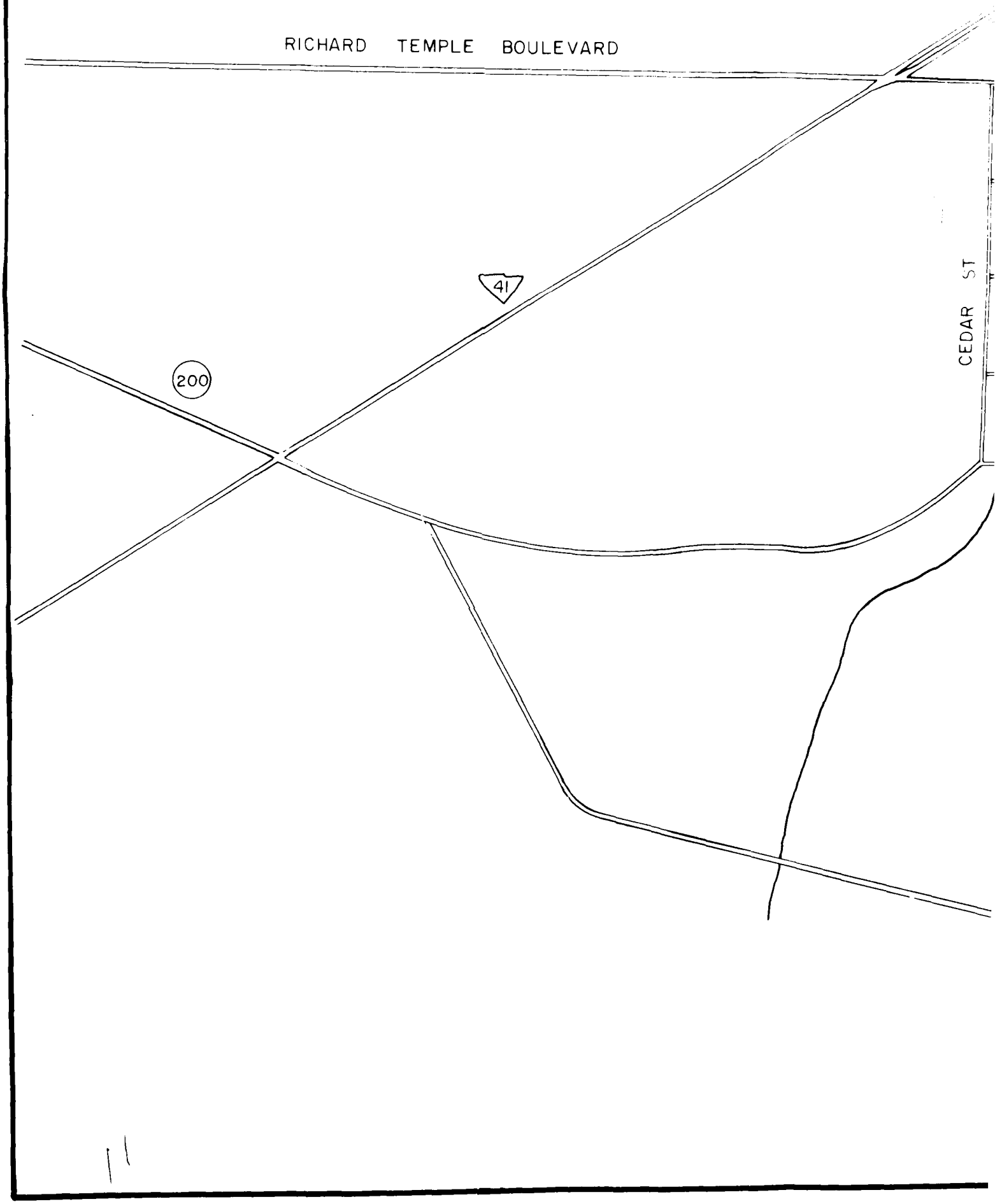

PAGES
MILLPOND
RICHARD TEMPLE BOULEVARD
41
200
CEDAR ST.

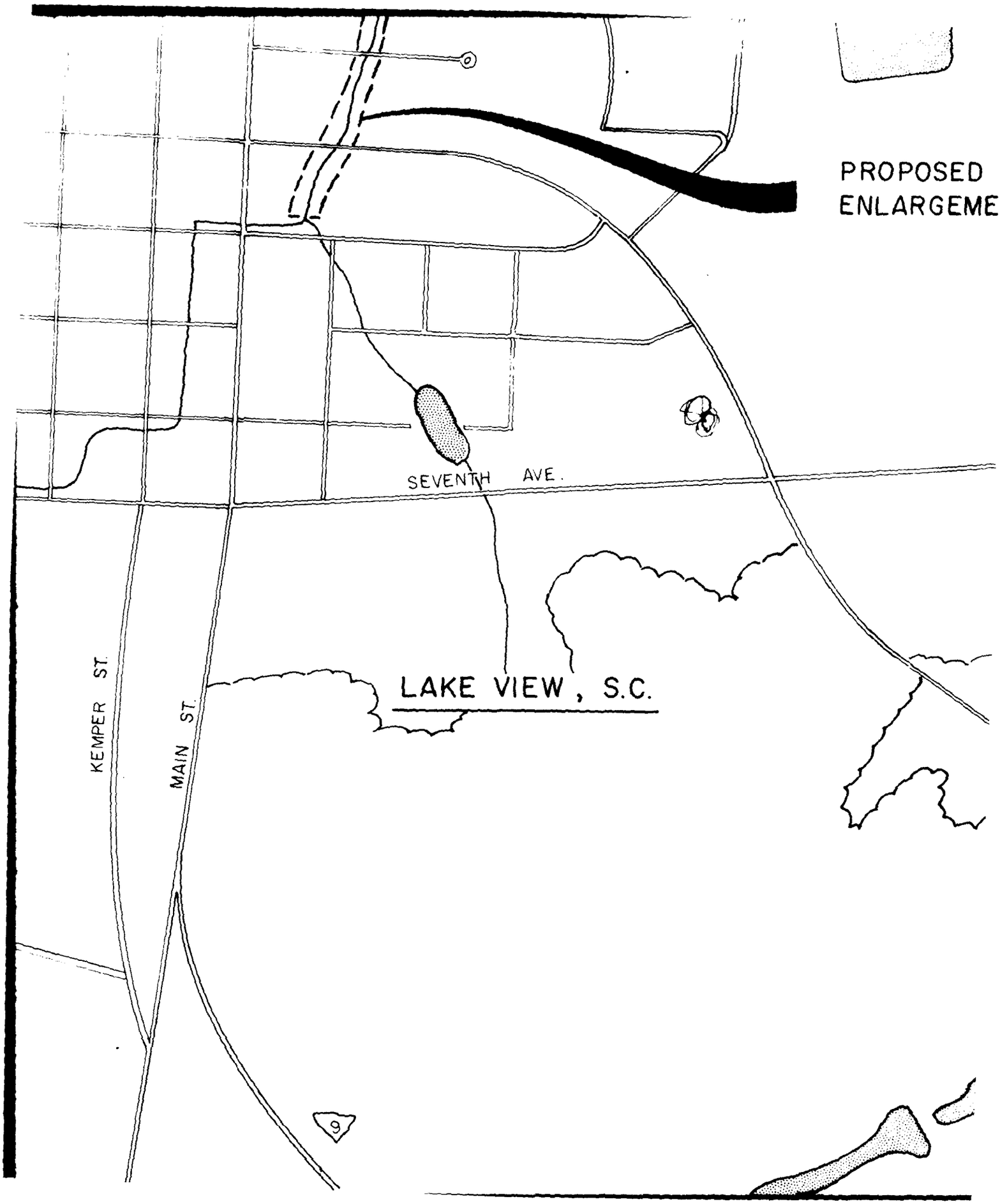

41
MILLPOND
OLD RAILROAD GRADE
FIRST AVE.
CEDAR ST

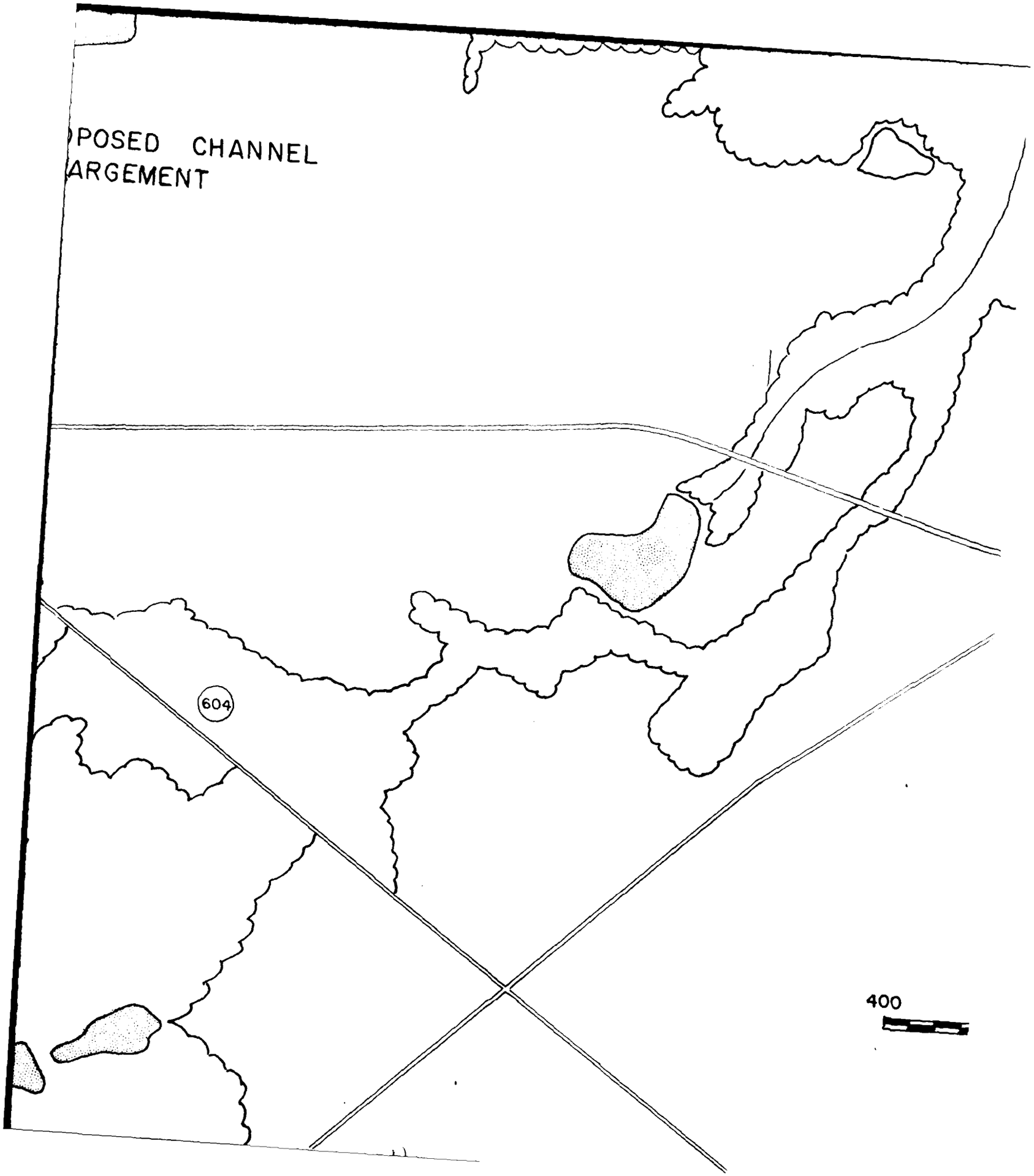

41
RAILROAD GRADE
BEAR SWAMP
PROPOSED CHANNEL
ENLARGEMENT

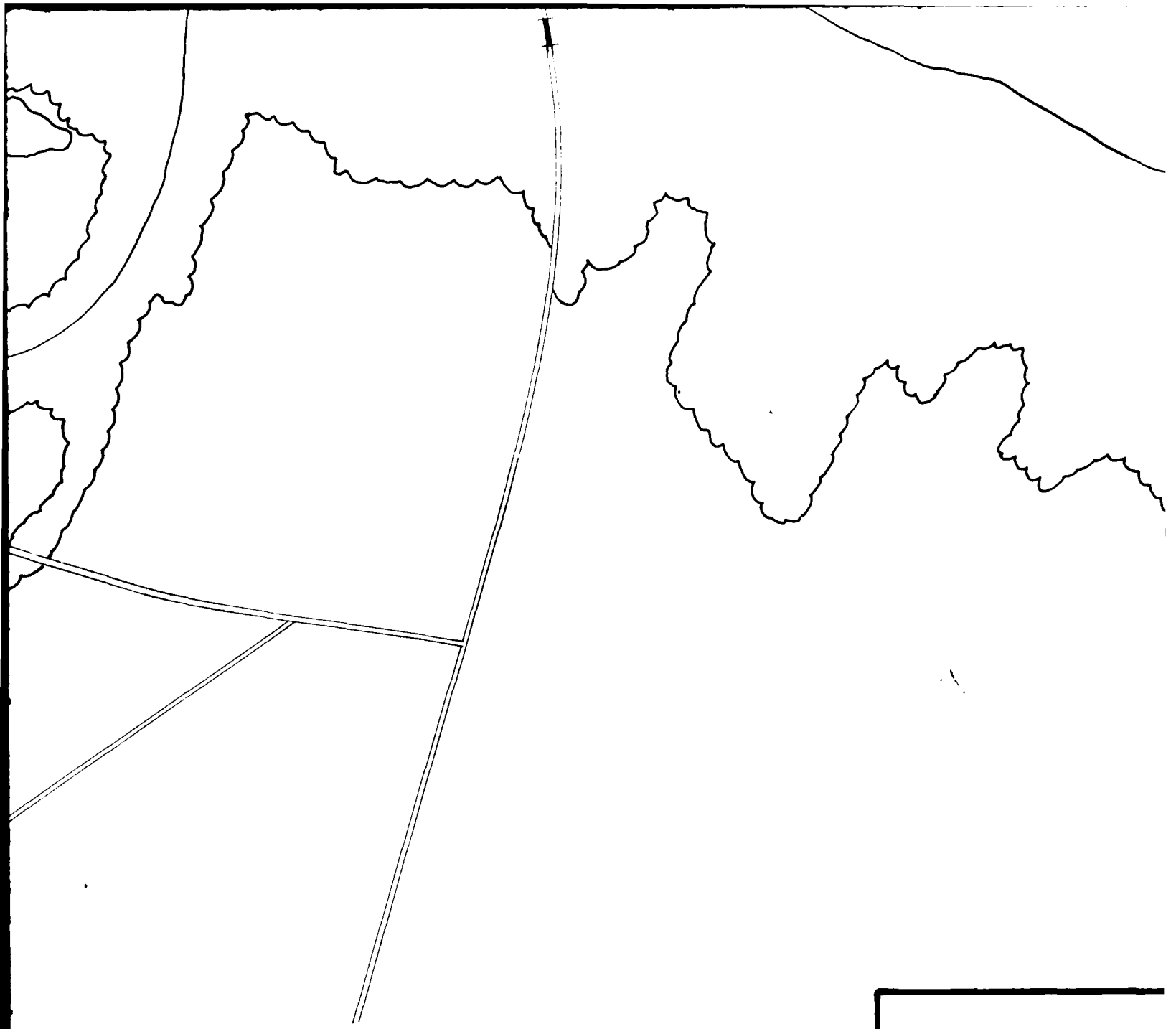

PROPOSED CLEARING
AND SNAGGING


NORTH CAROLINA
SOUTH CAROLINA


RICHARD TEMPLE BOULEVARD
41
200
CEDAR ST


PROPOSED
ENLARGEME
SEVENTH AVE.
KEMPER ST.
MAIN ST.
LAKE VIEW, S.C.
9


POSED CHANNEL
ARGEMENT
604
400

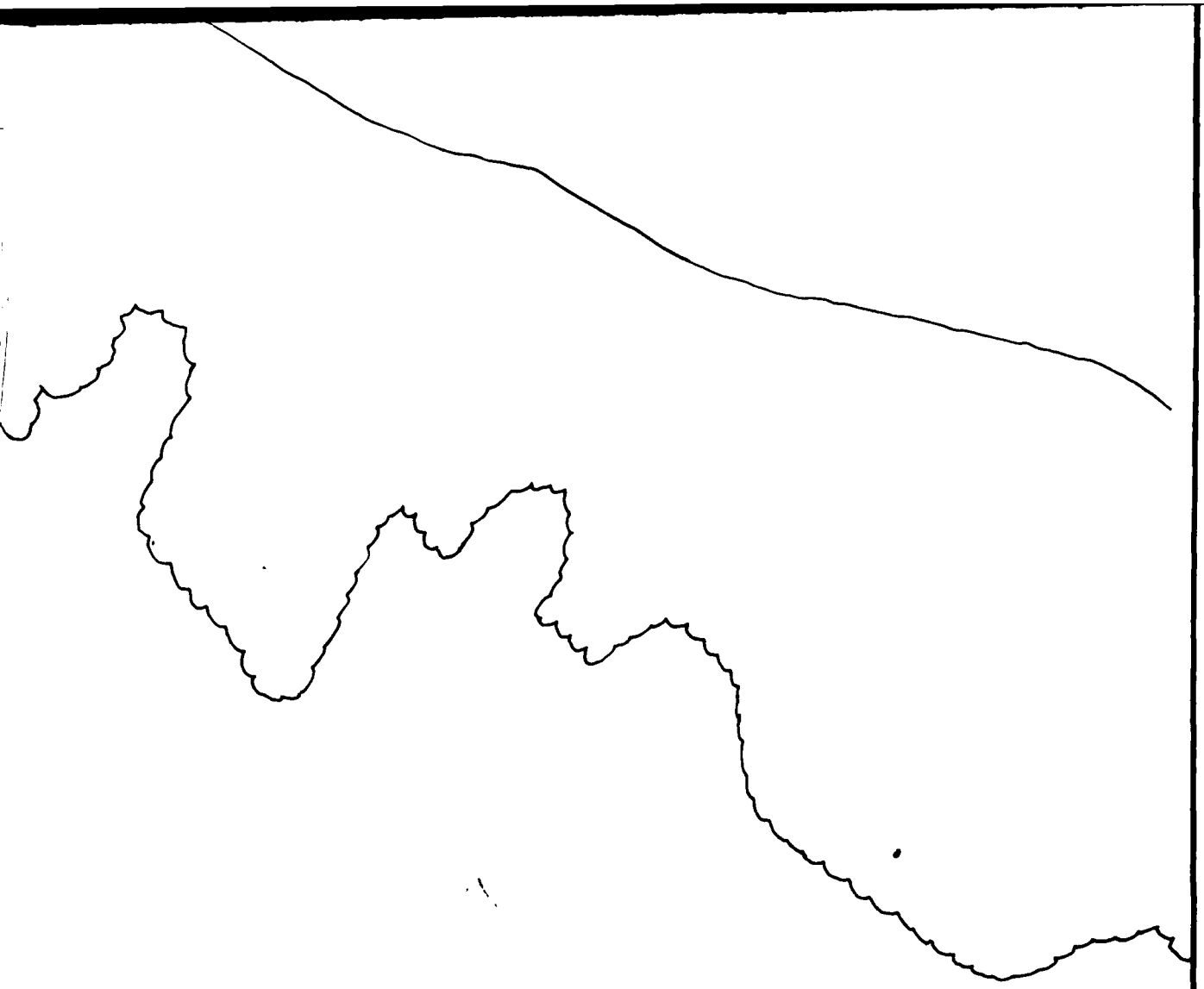


SCALE IN FEET

400 0 400 800 1200

CORPS OF EN
CHARLESTON

UNNAME
LAKE
STU



CORPS OF ENGINNERS, U.S. ARMY
CHARLESTON, SOUTH CAROLINA

200

UNNAMED TRIBUTARY
LAKE VIEW, S.C.
STUDY AREA

PLATE 1

END

DATE
FILMED

9 - 83

DTIC