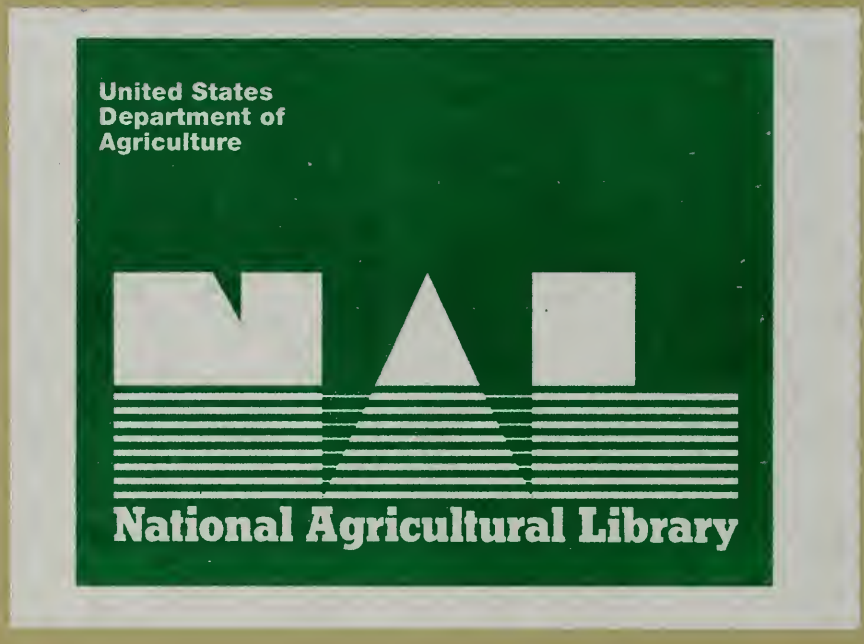
Reserve
aTD224
.S6U83
1971


United States
Department of
Agriculture
National Agricultural Library

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

Washington, D. C. 20250

PB-203233 -F

SUBJECT: USDA Environmental Statement on Hollow Creek Watershed, South Carolina

Date: December 10, 1971

TO: Honorable Russell E. Train, Chairman
Council on Environmental Quality

ATTENTION: Timothy Atkeson, General Counsel

THROUGH: T. C. Byerly, Coordinator of
Environmental Quality Activities

T C Byerly

We are forwarding 10 copies of the final environmental statement prepared in accordance with Section 102(2)(C) of the National Environmental Policy Act of 1969 (Public Law 91-190) on the work plan for the Hollow Creek Watershed, South Carolina. This plan was prepared under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566.

This statement reflects the comments received from other Federal and State agencies on the draft statement which was forwarded to you on October 6, 1971. We are also forwarding 10 copies of all comments we received on the draft statement.

Kenneth E. Grant

Administrator

Enclosures

COLOR ILLUSTRATIONS REPRODUCED
IN BLACK AND WHITE

U.S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY
RECEIVED
JUN 24 1996
ORDER UNIT
ACQUISITIONS BRANCH

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
Springfield, Va. 22151

USDA ENVIRONMENTAL STATEMENT
for
Hollow Creek Watershed, South Carolina

Prepared in Accordance with Sec. 102(2)(C) of P.L. 91-190

Summary

I. *Draft ( ) Final (X)*

II. *Soil Conservation Service*

III. *Administrative (X) Legislative ( )*

IV. *Description of Action:*

A watershed project to be carried out by the Sponsoring Local Organizations with federal assistance under authority of PL-566. The project, located in Lexington and Saluda Counties, proposes conservation land treatment over the watershed, supplemented by two floodwater retarding structures.

V. *Summary of Environmental Impact and Adverse Environmental Effects:*

Project action will: reduce erosion; reduce floodwater damages on 475 acres by 64 percent; benefit 26 families; provide new wildlife habitat; reduce sediment leaving the watershed; create 91 acres of lake fishery at the sediment pools of planned structures with an estimated 4,550 visitor days annually; create additional local employment opportunities; eliminate agricultural use and wildlife habitat on 91 acres; periodically interrupt agricultural and wildlife use in the 125 acres of flood pools; eliminate agricultural and wildlife use of 25 acres for dams and spillways until these areas are revegetated; inundate 1.5 miles of stream channels; increase vehicular traffic in the vicinity of the floodwater retarding structures; and temporarily degrade the ambient air quality.

VI. *List of Alternatives Considered:*

A. *Conservation land treatment alone*
B. *Alternate combinations of floodwater retarding structures*
C. *Channel improvement to supplement floodwater retarding structures*
D. *Less intensive use of flood plain*

VII. *Agencies From Which Comments Have Been Received:*

USDI, Bureau of Mines
USDI, Bureau of Outdoor Recreation
U.S. Department of the Army, Corps of Engineers
Environmental Protection Agency
Federal Power Commission
S.C. Water Resources Commission
S.C. Planning and Grants Division

VIII. *Dates on Which The Environmental Statements Were Made Available to The Council on Environmental Quality and The Public:*

Draft Environmental Statement - October 6, 1971
Final Environmental Statement - DEC 10 1971

USDA SOIL CONSERVATION SERVICE ENVIRONMENTAL STATEMENT

Type of Statement: Draft ( ) Final (X)

Date: November 1971

Type of Action: Administrative (X) Legislative ( )

Title of Statement: Hollow Creek Watershed, South Carolina

1. *Description*

Authority for Project: Federal assistance through Public Law 566, 83rd Congress, 68 Stat. 666, as amended.

Sponsoring Local Organizations:
Lexington Soil and Water Conservation District
Hollow Creek Watershed Conservation District

Project Measures: The project proposes 2,700 acres of conservation land treatment and two floodwater retarding structures.

Environmental Setting:

Hollow Creek Watershed is located in western Lexington County and eastern Saluda County, South Carolina. It comprises an area of 12,900 acres, of which 12,500 acres are in Lexington County and 400 acres in Saluda County. The town of Leesville, with a population of 1,600, borders the southern edge of the watershed. The watershed is about 25 miles west of Columbia.

The population of the watershed is about 800 persons, and is fairly evenly distributed throughout the watershed. The economy of the watershed depends primarily upon agriculture and manufacturing. About half of the income is from farming. In 1964, 70 percent of the farms had a net income of less than $1,500. Many of the residents are employed by industries in nearby towns, but many of these are underemployed.

Principal farm enterprises are the production of beef cattle, soybeans, small grain, cotton, and corn. Wood products are also important to the economy.

Present land use in the watershed is as follows: 2,900 acres cropland; 2,000 acres grassland; 7,600 acres woodland; and 400 acres other land. Land use in the flood plain at present is as follows: cropland, 65 acres; pasture, 170 acres; woodland pasture, 150 acres; miscellaneous, 5 acres; and woods, 85 acres.

There are about 80 farms in the watershed and these average about 120 acres. The farm land in the upland averages from $200 to $600 per acre and the bottom land ranges from $300 to $600. Lexington County is included in the area designated under the Coastal Plains Program.

The Lexington and Saluda Soil and Water Conservation Districts have assisted 35 landowners in the watershed with soil and water conservation plans. These plans cover about 4,000 acres, or 30 percent of the area. It is estimated that 45 percent of the currently needed land treatment has been installed.

The major streams in the watershed support a good base flow and have gone dry only on very rare occasions. Hollow Creek and its tributaries are classified by the South Carolina Pollution Control Authority as being suitable for municipal water supply or recreation use. Other than sediment, there are no known pollutants being discharged into the streams of the watershed.

Numerous farm ponds provide fishing for watershed residents. There are no fishery resources in the upper streams of the watershed. The only stream fishery resources are in the outlet of Hollow Creek and are associated with the backwaters of Lake Murray. Game such as rabbit, quail, squirrel and other small game provide some hunting opportunities.

Erosion is a problem on about one-fourth of the watershed. Upland erosion is primarily sheet erosion. Annual soil loss per acre averages about one-half ton on woodland and grassland, and five tons on cropland. Wind erosion damage is evident in large sandy fields.

Flooding and the threat of floods is a serious problem on the flood plain of Hollow Creek. About 475 acres of land are flooded by the 100-year frequency storm. The three-year frequency storm floods 322 acres. Some of the land floods two or three times each year. More than one-third of the floods occur during the growing season.

Floods cause an estimated $11,400 damage annually to crops and pastures. Other agricultural damages, such as damage to fences, farm roads, equipment, buildings and livestock are estimated to be $300 annually.

Non-agricultural damages to public properties include scouring of road surfaces and embankments, erosion of bridge abutments, accummulation of sediment and debris on roads and in ditches, and bridge and culvert washout. Non-agricultural damages are estimated to be $300 annually.

Downstream sediment damages result primarily from sheet erosion of cropland. The most severely eroding areas are found in the central part of the watershed.

Overbank deposition of fine grained sand is severe along Hollow Creek to the confluence of Little Creek. Sediment deposition in the lower end of Little Creek is reducing channel capacity. Immediately below the confluence of Little Creek with Hollow Creek, deposition of coarse grained sediment in the channel is also reducing channel capacity. Diking caused by overbank deposition is evident along the Hollow Creek channel near County Road 54. The average annual sediment damage to approximately 370 acres of flood plain land is estimated to be $3,300.

It is estimated that approximately 30,000 tons of sediment are being delivered to Lake Murray annually from the drainage area of Hollow Creek. The average annual damage to Lake Murray from sediment deposition and turbidity contributed by Hollow Creek is estimated to be $2,700.

The population growth and industrial expansion of the area in and around the watershed has created a need for municipal and industrial water. The town of Leesville obtains water from wells for distribution to homes and industries. For the past several years, Leesville has experienced periods of water shortage. Rural residents also obtain their water from wells. Often their supply is inadequate.

The Work Plan proposes two floodwater retarding dams and 2,700 acres of conservation measures. The dams and spillways will occupy and destroy the vegetative cover on 25 acres. These areas will, however, be revegetated after construction to control erosion. Contractors will be required to adhere to strict guidelines for minimizing soil erosion and water and air pollution during construction. The sediment pools of the two dams will permanently inundate 87 acres of woodland and four acres of pasture land. The maximum flood pools will periodically cover about 125 acres of woodland and 16 acres of pasture land.

There are no known places of historical or archeological value which will be affected by the impoundments, borrow area, or construction area. The Soil Conservation Service will keep the National Park Service informed of progress in the project, so that any necessary salvage may take place prior to construction. The Work Plan Draft has been reviewed by the Institute of Archeology and Anthropology of the University of South Carolina and by the South Carolina State Archives Department.

The total installation cost of the project is $448,900.

2. *Environmental Impact*

Average annual floodwater damages will be reduced by approximately 64 percent. Damage caused by overbank sediment deposition will be reduced by 45 percent. The structures will reduce the amount of sediment delivered to the watershed outlet by 44 percent. About 26 families will benefit directly from the flood reduction provided by the project. The two structures will provide about 91 surface acres of lake fishery, with an estimated 4,550 visitor days annually. During periods of low stream flow, at least as much water as enters the reservoirs will be released to provide for downstream users as required by state law.

There will be no significant adverse effects on the long-range ambient air quality. There may be, however, short-term adverse effects on ambient air quality from the disposal of land clearing waste materials by open burning. This disposal will be done in accordance with the applicable state air pollution control regulations.

The impoundments will destroy agricultural use and wildlife habitat on four acres of pasture land and 87 acres of woodland. Periodic inundation of the flood detention pools will interrupt agricultural and wildlife use of 125 acres of woodland and 16 acres of pasture land. The construction of the dams and spillways will eliminate agricultural and wildlife use of 25 acres of woodland until these construction areas are revegetated immediately after construction. About 1.5 miles of stream channels will be inundated.

Needed land treatment measures will be applied on 2,650 acres of land to control runoff, reduce erosion and provide adequate water disposal systems for the uplands. There will be food and cover plantings and management on 30 acres of upland for wildlife. About 20 acres of uplands will be planned for recreation use such as picnicking, hiking, and boating in connection with farm ponds, the two floodwater retarding structures, and in other areas throughout the watershed.

Secondary impacts of the project include increased business activity in the area, increased income from transporting, processing and marketing of goods and services, and increased vehicular traffic in the vicinity of impoundments used for fishing and other incidental recreation activities which may degrade the water quality of Hollow Creek, presently classified by the South Carolina Pollution Control Authority as suitable for municipal water supply and/or recreational use.

The U.S. Bureau of Sport Fisheries and Wildlife has stated that "Fish and wildlife resources in the watershed are of low to negligible value, and proposed project works are not expected to have significant detrimental effects on these resources."

3. *Favorable Environmental Effects*

   a. *Floodwater damages will be reduced by approximately 64 percent.*

   b. *Overbank sediment deposition damages will be reduced by 45 percent.*

   c. *Sediment leaving the watershed will be reduced by 44 percent.*

   d. *About 26 families will benefit directly from the flood reduction.*

   e. *About 91 surface acres of lake fishery will be established.*

   f. *Measures will be applied on 2,650 acres to control runoff, reduce erosion and provide adequate water disposal systems for the uplands.*

   g. *Measures will be installed on 50 acres to enhance the recreation and wildlife values in the watershed.*

4. *Adverse Environmental Effects Which Cannot be Avoided*

   a. *The impoundments will destroy agricultural use and wildlife habitat on four acres of pasture land and 87 acres of woodland.*

   b. *The retarding pools will periodically interrupt agricultural and wildlife use on an additional 16 acres of pasture land and 125 acres of woodland.*

   c. *Construction of dams and spillways will temporarily destroy agricultural use and wildlife habitat on an additional 25 acres until these areas are revegetated, immediately after construction.*

   d. *The ambient air quality will be adversely effected for a short time by disposal of waste materials by open burning.*

   e. *Increased vehicular traffic will occur in the vicinity of the floodwater retarding structures which may degrade the water quality of Hollow Creek.*

   f. *Inundate one and one-half miles of stream channels.*

5. *Alternatives*

The original project objectives included complete protection from flooding by the 3-year frequency, 24-hour rainfall. This degree of protection was not practical because the increased cost was greater than the small increase in benefits. The sponsors have agreed to accept a 3-year level of protection on a majority of the flood plain. Land treatment alone would not provide an adequate level of protection for the intended land use. One alternate considered included a third structure on a tributary of Hollow Creek. This alternate did not provide enough additional benefits to justify the added costs. Another alternate included only one floodwater retarding structure. This alternate did not benefit all areas where flood protection was needed.

Channel improvement on Hollow Creek was considered in conjunction with various combinations of structures. It was determined, however, that the structures alone provided the most practical level of flood protection. The system of two floodwater retarding structures and no channel improvement best meets the sponsors objectives at the least cost.

One alternative to the proposed project would be to convert the cropland and pasture to woodland. This would eliminate most of the flood damage potential, however, it would not fit into the economic enterprises to which the landowners are committed.

One of the original project objectives was the storage of municipal water for the town of Leesville. However, the officials of the town decided that they could not afford to cost-share in the project at this time. It is expected that, within the near future, Leesville will be served by a water district utilizing the water supply available from Lake Murray.

The net benefits foregone by not implementing the project are estimated to be $12,200 annually.

6. *Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity*

The project for Hollow Creek Watershed was formulated primarily to meet existing needs. The planned conservation treatment will permit continued use of the land by future generations. Special emphasis has been placed on reducing flood damages, reducing sediment movement, and protecting the fish and wildlife resources. The proposed project will restore, protect, and provide more efficient use of the water and related land resources. Even after the evaluated life of the project, the structures will continue to provide flood protection downstream.

7. *Irreversible and Irretrievable Commitments of Resources*

The only commitments of resources resulting from the project are: (a) the inundation of 1.5 miles of stream channels by the structures, (b) the commitment of 25 acres of woodland to dams and spillways, and (c) the inundation of four acres of pasture land and 87 acres of woodland by the impoundments.

No other permanent commitment of resources is known to be required for this project.

8. *Consultation With Appropriate Federal Agencies and Review by State and Local Agencies Developing and Enforcing Environmental Standards*

a. *General*

The project has been coordinated with all interested agencies throughout the application and planning stages. State agencies and field offices of federal agencies were notified when planning authorization was obtained and kept informed as project formulation progressed. Several informational meetings were held to keep the general public informed. At the Informal Field Review held on May 12, 1971, there were no adverse comments presented.

b. *Consultation with Federal Agencies*

The U.S. Fish and Wildlife Service made written contributions to the Work Plan. All interested agencies were furnished a preliminary draft of the Work Plan and asked for their comment. These comments have been incorporated in the Work Plan.

The following federal agencies were invited to comment on the Draft Environmental Statement. The comment for each is summarized:

USDI, Fish and Wildlife Service
No comments received.

USDI, Bureau of Mines
Their reply indicated that the statement was adequate and complies with PL-91-190 with respect to format.

USDI, Bureau of Outdoor Recreation
The reply stated that they had no comments.

U.S. Department of the Army, Corps of Engineers
Their reply indicated that the Draft Environmental Statement complies with the requirements of the National Environmental Policy Act of 1969.

Environmental Protection Agency

Their reply indicated three suggestions for improvement of the Environmental Statement.

(1). The possibility of short-term adverse effects on ambient air quality caused by open-burning.

(2). The possibility of increased stream pollution caused by increased vehicular traffic.

(3). The effect of low flow releases from the reservoirs during periods of low stream flow.

These suggestions have been incorporated into the Final Environmental Statement.

Federal Power Commission

Their review indicated that the proposed project had no major impacts upon matters under their jurisdiction and therefore, had no comments.

U.S. Department of Health, Education, and Welfare

No comments were received.

c. *Consultation and Review with State and Local Agencies*

The South Carolina State Commission of Forestry and the South Carolina Wildlife Resources Department contributed to the planning of the project. All interested agencies were furnished a preliminary draft of the Work Plan and asked for comment. All of these agencies concurred in the work plan draft as written. The following State and local agencies were invited to comment on the Draft Enviromental Statement:

The Water Resources Commission (for the Governor of South Carolina)
The S.C. State Planning and Grants Division
Central Midlands Regional Planning Commission

The Water Resources Commission and the State Planning and Grants responded favorably to the Statement and offered no comments. The Regional Planning Commission did not reply.

APPROVED BY: G. E. Hunt DATE: 12/1/71

State Conservationist

4-23260 4-71

COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES

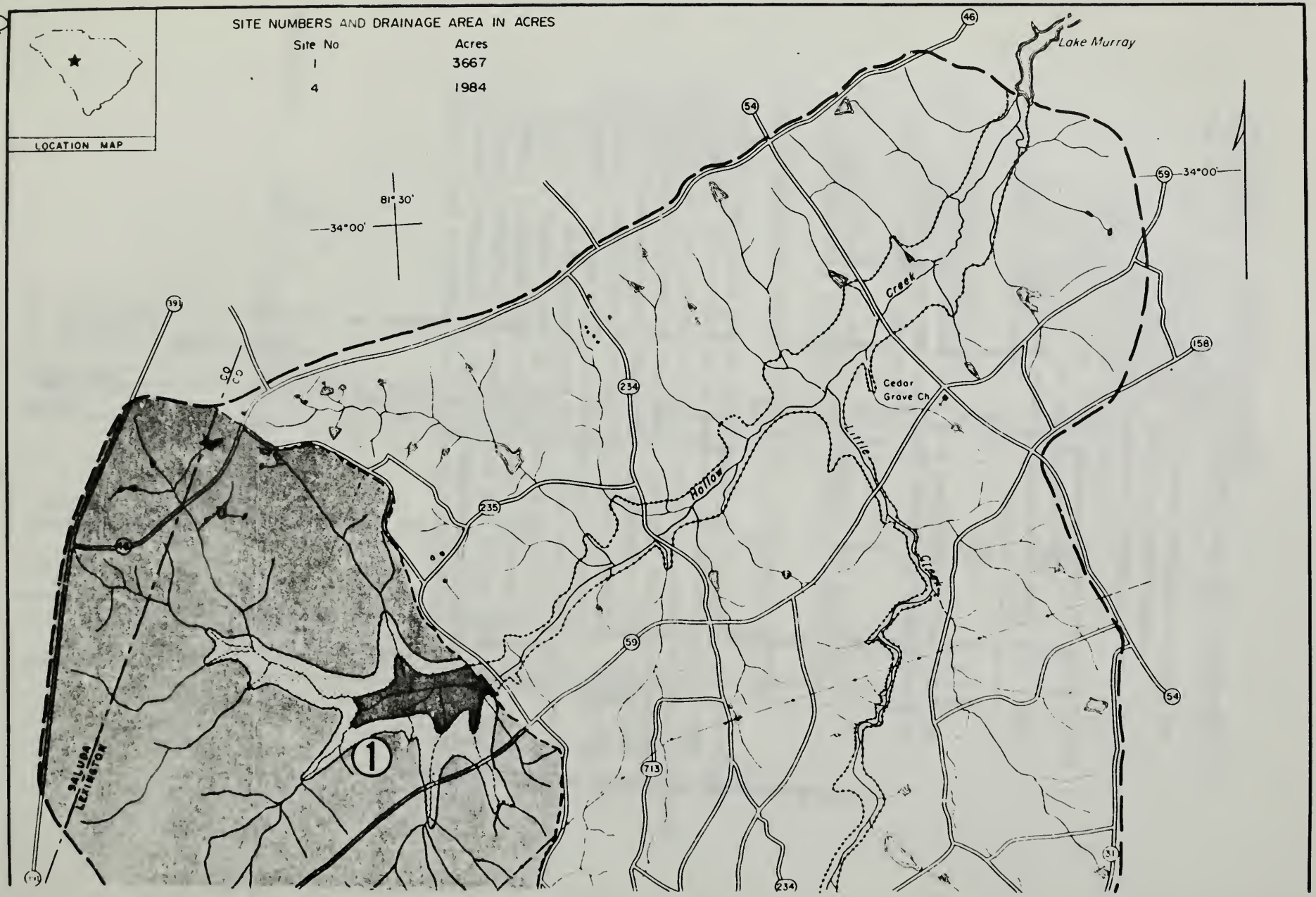
Hollow Creek Watershed, South Carolina

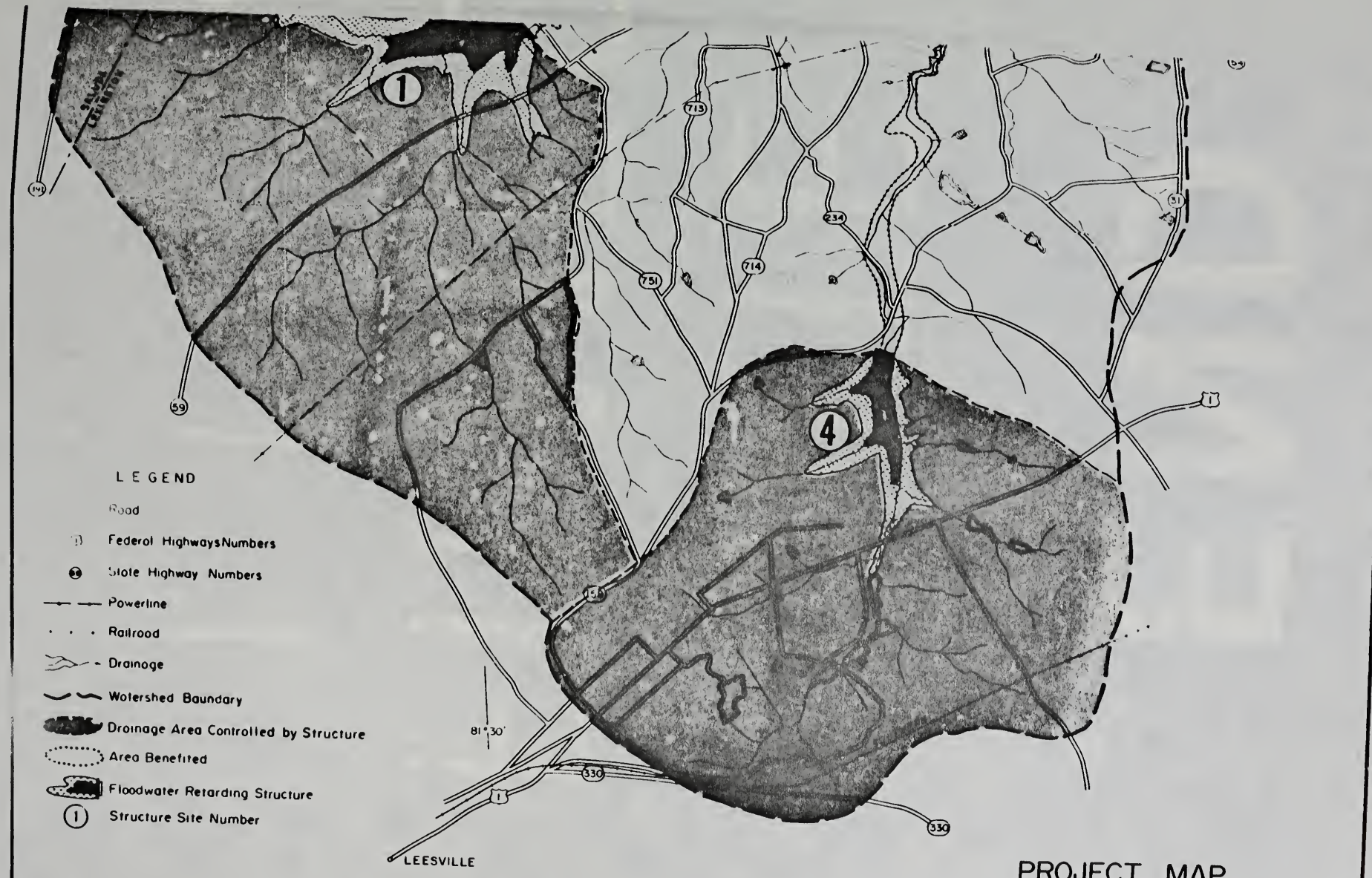
(Dollars)

Evaluation Unit	AVERAGE ANNUAL BENEFITS 1/						Average Annual Cost 2/	Benefit Cost Ratio
	Damage Reduction	More Intensive Land Use	Incidental Recreation	Redevelopment	Secondary	Total		
Floodwater Retarding Structures 1 and 4	3/ 13,600	6,100	4,100	2,600	4,100	30,500	16,700	1.8 to 1
Project Administration							1,600	
GRAND TOTAL	13,600	6,100	4,100	2,600	4,100	30,500	18,300	1.7 to 1

1/ Price base - Adjusted Normalized.
2/ From Table 4.
3/ In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of $600 annually.

May 1971


SITE NUMBERS AND DRAINAGE AREA IN ACRES
Site No
Acres
1
3667
4
1984
LOCATION MAP
81° 30'
34°00'
34°00'
Lake Murray
Creek
Cedar
Grave Ch
Little
Hollow
Creek
SALUDA
LEXINGTON
1
46
54
59
391
234
235
158
713
31



PROJECT MAP

HOLLOW CREEK WATERSHED

LEXINGTON AND SALUDA COUNTIES
SOUTH CAROLINA
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLUMBIA, SOUTH CAROLINA
March 19[illegible]

Rev. 3-71 4-R-29796
Rev. 3-71 Base 4-R-29,789

END

DATE

FILMED

1-11-72

NTIS does not permit return of items for credit or refund. A replacement will be provided if an error is made in filling your order, if the item was received in damaged condition, or if the item is defective.

Reproduced by NTIS
National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

This report was printed specifically for your order from our collection of more than 2 million technical reports.

For economy and efficiency, NTIS does not maintain stock of its vast collection of technical reports. Rather, most documents are printed for each order. Your copy is the best possible reproduction available from our master archive. If you have any questions concerning this document or any order you placed with NTIS, please call our Customer Services Department at (703)487-4660.

Always think of NTIS when you want:
• Access to the technical, scientific, and engineering results generated by the ongoing multibillion dollar R&D program of the U.S. Government.
• R&D results from Japan, West Germany, Great Britain, and some 20 other countries, most of it reported in English.

NTIS also operates two centers that can provide you with valuable information:
• The Federal Computer Products Center - offers software and datafiles produced by Federal agencies.
• The Center for the Utilization of Federal Technology - gives you access to the best of Federal technologies and laboratory resources.

For more information about NTIS, send for our FREE *NTIS Products and Services Catalog* which describes how you can access this U.S. and foreign Government technology. Call (703)487-4650 or send this sheet to NTIS, U.S. Department of Commerce, Springfield, VA 22161. Ask for catalog, PR-827.

Name _____
Address _____
_____
_____
Telephone _____

- Your Source to U.S. and Foreign Government Research and Technology.

NATIONAL AGRICULTURAL LIBRARY
1022410047

NATIONAL AGRICULTURAL LIBRARY
1022410047