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Sowashee Creek Watershed, Lauderdale County, Mississippi

FINAL ENVIRONMENTAL STATEMENT

Kenneth E. Grant, Administrator  
Soil Conservation Service

Sponsoring Local Organizations

Sowashee Drainage District  
P. O. Box 73  
Marion, Mississippi 39342

City of Meridian  
Meridian, Mississippi 39301

Pat Harrison Waterway District  
P. O. Drawer 312  
Hattiesburg, Mississippi 39401

Lauderdale County Soil and Water Conservation District  
Route 5  
Meridian, Mississippi 39301

September 1973

PREPARED BY

U. S. DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
Washington, D. C. 20250

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USDA ENVIRONMENTAL STATEMENT  
Sowashee Creek Watershed  
Lauderdale County  
Mississippi

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

Summary Sheet

- I. Final
- II. Soil Conservation Service
- III. Administrative
- IV. Plans are presented for solving water and natural resource problems (erosion, sedimentation, flooding, low income, and inadequate recreation facilities) through utilization of conservation land treatment measures, single-purpose floodwater retarding structures, multiple-purpose structure for floodwater retardation and recreation, basic recreation facilities, and channel modifications in the Sowashee Creek Watershed. Lauderdale County and Meridian, Mississippi are particularly affected.
- V. Environmental Impacts and Adverse Environmental Effects: The installation of the project will reduce gross erosion, reduce the long-term overbank sediment deposition and downstream sediment delivery, reduce agricultural and urban flooding, increase net income of farm operators and urban flood plain users, add recreation facilities, and create additional fishery and waterfowl habitat. There will be some clearing of woodland in the pool areas of the retarding structures and along the channel rights-of-way, loss of agricultural production on pasture and woodland and wildlife habitat on areas to be covered by water; temporary loss of the fishery and fish habitat in the city reservoir to be included in the recreation pool of the multiple-purpose structure, the loss of 61 acres of urban land to other uses within the channel banks, and some probable noise and air pollution resulting during the construction stage.
- VI. Alternatives Considered: (1) Conservation land treatment measures; (2) Land treatment measures and floodwater retarding structures; (3) Land treatment measures, floodwater retarding structures, and a multiple-purpose structure with associated recreational facilities; (4) Floodways; (5) Flood plain zoning; (6) Partial use of floodways and some zoning; (7) Channels; (8) Alternative provisions for meeting water based recreation needs (fishing, camping, boating, etc.); and (9) No project.

- VII. Comments have been received from: (1) U. S. Department of the Army; (2) U. S. Department of the Interior; (3) U. S. Department of Health, Education, and Welfare; (4) Environmental Protection Agency; (5) Federal Power Commission; (6) U. S. Department of Transportation; (7) Governor, State of Mississippi; (8) Coordinator, Federal State Programs, Office of the Governor; (9) East Central Planning and Development District; and the Water Resources Council.
- VIII. Final statement transmitted to CEQ on October 15, 1973 .  
date

Draft statement received by CEQ on April 4, 1973.



USDA SOIL CONSERVATION SERVICE

FINAL ENVIRONMENTAL STATEMENT

for

Sowashee Creek Watershed

Lauderdale County Mississippi

Installation of this project constitutes an administrative action. Federal assistance will be provided under authority of Public Law 83-566, 83rd Congress, 68 Stat. 666, as amended.

SPONSORING LOCAL ORGANIZATIONS

The Sponsoring Local Organizations are: Sowashee Drainage District; City of Meridian, Mississippi; Pat Harrison Waterway District; and Lauderdale County Soil and Water Conservation District.

PROJECT OBJECTIVES AND PURPOSES

The purposes and objectives of the project are to provide watershed protection, flood prevention, and increased recreational opportunities for the Sowashee Creek Watershed.

PLANNED PROJECT<sup>1/</sup>

Land Treatment: The project will provide for technical assistance for accelerating the establishment of land treatment measures throughout the 52,910 acre watershed area. At the end of the six-year installation period, 12,468 acres will have received adequate treatment as measured by Soil Conservation Service standards. This 12,468 acres will consist of about 2,425 acres of cropland, 4,940 acres of grassland, 4,514 acres of forest land, and 589 acres of critically eroding land. Other areas will have received partial treatment but something less than adequate.

Adequate treatment planned for croplands includes conservation cropping systems, row arrangement, crop residue management, drainage field ditches, and wildlife plantings. For pastures and haylands, conservation measures includes pasture plantings, renovation and management, brush control, farm ponds, and drainage field ditches. Conservation measures on forest land consists of tree plantings, thinning, timber stand improvement, salvage and harvest cutting, wildlife habitat improvement and preservation practices, and multiple use forest land management. The measures planned for critical eroding lands are planting and establishing of adapted grasses, legumes, or trees. Temporary vegetation will be used to provide immediate effects until perennials are well established.

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<sup>1/</sup> All information and data, except as otherwise noted by reference to source, were collected during watershed planning investigation by the Soil Conservation Service, U. S. Department of Agriculture.

Structural Measures: The project provides for 13 floodwater retarding structures and one multiple purpose structure for flood prevention and recreation. Approximately 32 percent of the watershed drainage area is behind these structures. Floodwater retarding structures are compacted earth-fill dams having a fixed draw-down tube and an emergency earth spillway. They provide for the permanent storage of sediment that would accumulate from the drainage area upland from the dam and for temporary storage of floodwaters. Floodwaters are released at a pre-determined rate compatible with project needs and goals downstream from the impoundment.

The height of the dams ranges from 17 to 51 feet. Sediment pools range from 8 to 40 acres. The surface area of the recreation pool of the multiple purpose reservoir is 200 acres. The range of surface acres (including the sediment or recreation pools) in the temporary flood pools is from 26 to 287. There will be a total of 1,438 acres of lands inundated at the maximum stages with the passage of the design storm through the retarding structures.

There will be 54.2 miles of channel modification, of which 33.3 miles will be channel clearing and snagging, 19.9 miles of channel excavation, and one mile of concrete-lined channels.

On the main stem of Sowsashee Creek from Station 0+00 to Station 525+00, channel modification will consist of channel enlargement on a man-made channel with perennial flows. From this point upstream to Station 1154+00, channel modification will consist of alternating sections of channel enlargement and removal of debris within the channel section. This is on a natural stream with perennial flows.

On Nanabe Creek, channel modifications will include removal of debris within the channel section and will be on a natural stream with perennial flows. Approximately 3,100 feet of channel modification on Lateral No. 6 and 12,000 feet on Lateral No. 7 will consist of removal of debris from within the channel area on natural streams with intermittent flows.

Channel modifications on Gallagher Branch will be on a man-made stream with ephemeral flows and consist of channel enlargement and concrete lining of channels.

All other channel modifications on the remaining laterals consist of the removal of debris within the channel section and will be on natural streams with ephemeral flows.

The purpose of all channel modifications will be to supplement reductions in flood damages not adequately provided for by floodwater retarding structures.

Recreation facilities for swimming, camping, boating, fishing, picnicking, and hiking will be installed at the multiple purpose structure. Adequate access road, parking, comfort stations, water fountains, lighting, fencing, bath and laundry houses, and sewage facilities will be provided to make this a first-class recreation area. Adequate sanitary and vector controls in compliance with State Health Department criteria will be included.

So that the water in the sediment and recreation pools can be managed to mitigate loss of waterfowl and fishing habitat, water level control devices will be installed at each of the 14 impoundment structures. This will allow the water to be managed for waterfowl food plantings, fish population control, vegetative control, and low flow augmentation as needed and desired.

Mitigation measures are included in the channel construction program to minimize the effects on wildlife and fishing habitat. These measures include clearing of the top bank and berms only to the extent necessary for work and disposal areas, working from one side only where possible, leaving of selected trees along the right-of-way, revegetation of exposed areas as soon as possible, and the use of clearing methods within the channel banks that will disturb the natural bank as little as possible.

Three concrete drop structures will be installed on main Sowashee Creek through the City of Meridian to control the grade and further reduce velocities and protect the channel banks against erosion. Excavated material through this section will be removed.

Contracts for construction will contain precautionary measures so that erosion and other pollution or environmental considerations will be minimized. These precautionary measures include, but are not limited to, providing for protection against pollutants (chemicals, fuels, sewage, etc.), use of temporary bridges or culverts where fording of streams is objectionable, sprinkling or applying dust suppressors, mechanically retarding rate of runoff and controlling disposal of runoff at construction sites where needed, and trapping sediment resulting from construction in temporary or permanent debris basins. In addition, the contractor must comply with any applicable federal, state, or local law, code, or regulation relative to air or water pollution.

The work plan and structural measures have been discussed with the Mississippi Department of Archives and History. They have made no archeological studies in the area and have no direct knowledge of existing archeological values. However, they feel that such values may well exist in the watershed. Also, they have indicated the desirability of making a survey prior to construction. They will be notified of construction schedules so that they may make appropriate studies. In the event they are unable to make this survey prior to construction and artifacts or other items of archeological or historical significance are uncovered during construction, the Mississippi Department of Archives and History will again be notified.



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There are two properties within the watershed boundaries that are listed in the Federal Register--National Register of Historic Places. These properties are the Grand Opera House, a theater located at 2208 5th Street, Meridian, and Merrehope, a pre-civil war antebellum home located at 905 31st Avenue, Meridian. The "Criteria of Effects" as outlined under "Procedures for Compliance with Section 106 National Historic Preservation Act of 1966" in Federal Register, Volume 38, Number 39, Part II, dated February 28, 1973, was applied to these properties. The project measures were found to have no effect on either of these properties.

The Reservoir Salvage Act of 1960 (PL 86-523; 74 Stat. 220) is applicable to this project because one of the reservoirs will be larger than 40 acres. The Secretary of the Interior will be notified of this fact at the proper time.

Land Use Changes: The use of upland for cropland is expected to decrease as the cropland moves to the terrace and protected bottom lands. Pastures and forest will replace some of the upland cropland and forest will replace some of the upland pasture land. A good portion of the presently idle land will be used for forest, pastures, and some cropland. Clearing of the bottom land hardwoods, especially in the agricultural area is not expected.

Operation and Maintenance: The Sowashee Drainage District, the City of Meridian, and the Pat Harrison Waterway District will assume the responsibility to operate and maintain the floodwater retarding structures including the water level control devices and flood prevention channels. The Pat Harrison Waterway District will assume the financial responsibility for this annual operation and maintenance estimated to be \$47,912. This cost includes replacement costs for overfall pipes and water level control devices for the flood retarding structures, both with life expectancy of 30 years.

The City of Meridian will operate and maintain Multiple Purpose Structure No. 14 at an estimated annual cost of \$48,242 from regular operating funds of the City. This includes the flood prevention and recreation aspects of this structure and replacement costs for basic facilities and the water level control device. Operation and maintenance of this structure will provide for use fees to be charged users of the facilities but will be limited to the amount needed to amortize the initial investment and to provide adequate operation, maintenance, and replacement. In addition, the operation and maintenance will also provide for the custodial, policing, sanitation, safety, and other operational services for the recreation development. Specific operation and maintenance agreements for this structure and related facilities will be executed prior to signing the project agreement.

The Pat Harrison Waterway District and the City of Meridian will be financially responsible for providing sufficient funds each year to defray the cash obligation of said project for operation and maintenance of structural measures and for replacement costs for parts of structures

having a shorter life than 100 years. The balance of the annual operation and maintenance costs will be contributed as services in kind such as labor, equipment hire, and materials by the benefited landowners and operators in the watershed. These services will be arranged for by the Sowsashee Drainage District and the City of Meridian.

Travelways for maintenance will be constructed as a part of the construction contract. These travelways will be adequate for movement and operation of maintenance equipment required for maintenance of the channel. They will be maintained as a part of the channel maintenance.

The structural measures will be inspected jointly by representatives of the Sowsashee Drainage District, City of Meridian, Pat Harrison Waterway District, and the Soil Conservation District. A Soil Conservation Service representative will participate in these inspections annually for a period of three years following construction. Items of inspection for the floodwater retarding and multiple purpose structures will include, but not be limited to, the condition of the principal spillway, the earthfill, the emergency spillway, the vegetative cover, and other appurtenances installed as a part of the structures. Items of inspection for the channels will include, but not be limited to, the degree of scour, sediment deposition, bank erosion, obstructions to the flow caused by debris accumulation, and excessive brush and tree growth within the channel. The items of inspection listed are those most likely to require maintenance. The Soil Conservation Service will participate in operation and maintenance only to the extent of furnishing technical assistance to aid in inspection and technical guidance necessary.

The maintenance of the flood prevention channels will be accomplished by the use of sprays and/or labor and equipment to control noxious vegetative growth. Care will be taken in applying sprays to prevent drift in adjoining timberland. This is expected to assist in the promotion and growth of desirable vegetation for streambank erosion control and wildlife habitat. Additional maintenance will include the removal of drifts, debris, and/or silt bars as necessary.

Provisions will be made for free access of representatives of the sponsoring local organizations and the Soil Conservation Service to inspect and provide maintenance for all structural measures at any time.

Inspections after the third year will be made annually by the sponsors. They will prepare a report and send a copy to the Soil Conservation Service employee responsible for operation and maintenance inspections and followup. Where needed, the Soil Conservation Service employee may continue to provide assistance after the third year as determined by the State Conservationist.

Detailed plans for operation and maintenance will be contained in the Watershed Protection Operation and Maintenance Agreement, and this agreement will be executed prior to issuing the invitations to bid. The

State Operations and Maintenance Handbook will be used as a guide in preparing and carrying out the Watershed Protection Operation and Maintenance Agreement.

Project Costs: The project costs are shown in the following table:

Sowashee Creek Watershed  
Cost Data

Item	Costs (Dollars)		
	PL-566	Other	Total
Land Treatment	142,651	379,598	522,249
Structural Measures:	6,959,979	806,810	7,766,789
Construction	5,553,198	186,002	5,739,200
Total Project	7,102,630	1,186,408	8,289,038

ENVIRONMENTAL SETTING

Physical Resources: Sowashee Creek Watershed lies in eastern Mississippi, in the central part of Lauderdale County. Most of the City of Meridian is within the watershed. Other communities in or on the boundaries of the watershed are Marion, Topton, Russell, and Bonita. The watershed is in the upper reaches of the Pascagoula River Basin.

Sowashee Creek rises about six miles northeast of Meridian and flows in a southwestern direction through the eastern and southern portions of Meridian to its confluence with Okatibbee Creek about three miles south of Meridian. Principal tributaries of Sowashee Creek are Nanabe Creek and Gallagher Branch.

The watershed is located in the Pascagoula River Basin of the South Atlantic Gulf Water Resource Region. The characteristics of the region vary from mountainous areas in parts of Virginia, North Carolina, South Carolina, and Tennessee to the coastal flatlands of Florida and parts of Georgia, Alabama, and Mississippi. In between these areas are the upland coastal plains of which Sowashee Creek Watershed is a part. The characteristics of Sowashee Creek Watershed are similar in many respects to the coastal plains, with the exception of the Blackland (Prairie) which occurs in parts of Alabama and Mississippi.

The soils in the watershed are formed from Coastal Plain sands, clays, and gravels. They are low in natural soil fertility, contain little organic matter, and are usually strongly acid. Erosion is moderate with some areas being severely eroded. More than one-half of the land is forested. The remainder is used for cropland, cattle farming, or is urban. Bottoms are relatively wide.



Principal upland soils<sup>1/</sup> are Ruston, Rumford, Shubuta, Cuthbert, Boswell, and Eustis. Ruston and Rumford are deep, well-drained, friable soils. Shubuta, Cuthbert, and Boswell are moderately well drained with clayey subsoils. Eustis soils are deep, excessively drained, sandy soils with rapid internal drainage. These soils respond to fertilization and, when managed within their capabilities, yields of locally grown crops are moderate to high.

Bottomland soils<sup>1/</sup> are Mantachie, Tuka, and Bibb. Mantachie and Tuka are friable, somewhat poorly to moderately well drained soils. They produce well when given surface drainage and are protected from overflow. Bibb is a poorly drained soil best suited to pasture and adapted hardwoods.

Land capabilities in the upland portion of the watershed, exclusive of the urban areas, include 29,393 acres of IIe, IIIe, IVe, VIe, and VIIe lands. Of this total, 1,732 acres are in cultivation, 1,301 acres are idle, 3,057 acres are in pasture, and 23,303 acres are in forests. The land capability classes in the bottomlands are as follows: IIw at 40 percent; IIIw at 13 percent; and IVw at 47 percent.

The capability classification is a grouping of soils that shows in a general way how suitable the soils are for most kinds of farming. It is a practical grouping based on limitations of the soil, the risk of damage when they are used, and the way they respond to treatment. The Roman numerals I through VIII designate the broadest grouping. The Class I soils have few limitations, the widest range of use, and the least risk of damage when used. The soils in the other classes have progressively greater natural limitations. The letter "e" shows that the main limitation is risk of erosion unless close-growing plant cover is maintained. The letter "w" means that water in or on the soil interferes with plant growth or cultivation and is the main limitation. For example, Class IVe soils are subject to very severe erosion if they are cultivated and not protected. Class IIIw soils have severe limitation because of excess water either by being poorly drained in the flood plain, terrace, or upland, or by flooding in the flood plain.

The topography ranges from flat in the bottomland to gently rolling to steep along the rim of the watershed boundary. The main valleys average about 2,500 feet in width. The elevation above mean sea level ranges from about 260 feet at the outlet of the project to about 580 feet along the northern rim of the watershed.

Sawashee Creek Watershed lies entirely within the North Central Hills physiographic region. The North Central Hills is characterized as an area of rough, rugged relief, with large flood plains and is a region

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<sup>1/</sup> Soils of Mississippi, Vanderford, H. B., Mississippi State University, 1962.

of sharply inclined surfaces that are subject to rapid sheet erosion and gullying.

The watershed is made up of several formations, starting from east of Russell with the oldest formation to the western edge of Meridian; Holly Springs formation, from the Wilcox group, Eocene; the Bashi, Hatchitigbe, Meridian, upper members of the Wilcox group, Eocene; and finally in the southeastern portion of the watershed, Tallahatta formation of the Claiborne group, Eocene.

Based on the 1967 Annual Summary at Meridian, Mississippi,<sup>1/</sup> the average precipitation is 53.13 inches. About 38.04 inches of precipitation occur during the crop growing season of March through November. The wettest month is March with an average of 6.32 inches and the driest month is October with an average of 2.22 inches.

The average annual temperature is 64.8 degrees Fahrenheit. January is the coldest month with an average temperature of 48.1 degrees, and July is the hottest month with an average of 81.5 degrees.

The length of the growing season is about 220 days between the last killing frost in March and the first killing frost in November.

Generally, there has been sufficient moisture to produce crops. At present, there are no irrigation systems nor are there any planned as project measures in this watershed. Water sources for agricultural use are considered adequate for expected future needs.

Water for domestic use in the agricultural areas is supplied from drilled wells, dug wells, and springs. Livestock water is obtained from drilled wells and farm ponds. Municipal and industrial water supplies are from drilled wells and from reservoir storage both within and outside of this watershed. The future plans for municipal and industrial water supply will eliminate the reservoir storage within the watershed. There is no indication of a shortage in the ground water supply. There is a need for additional water for recreational purposes for present and future use.

Surface water resources consist of the main stem of Sowashee Creek, its laterals, and the 175 private ponds and small lakes found within the watershed. Sowashee Creek is a perennial stream, as is Nanabe Creek, which flows into Sowashee Creek near the eastern limits of the City of Meridian. All other streams have either ephemeral or intermittent flows. Approximately five miles of Sowashee Creek from Station 0+00 to Station 525+00 were enlarged by the U. S. Army Corps of Engineers in

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<sup>1/</sup> Climatological Data, Mississippi Annual Summary, 1967, U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Environmental Data Service.



1955. In addition, Gallagher Branch was enlarged in 1958. All of the other tributaries are in their natural condition.

A representative of the Mississippi Air and Water Pollution Commission was contacted on August 28, 1973, as to the exact status of stream classification for Sowashee. As of the above date, Sowashee is an unclassified stream. This representative of the Commission anticipates that sometime in the future the stream would be classified as a fish and wildlife stream. This classification will be under authority of the Federal Water Pollution Control Act of 1972, Public Law 92-500. This classification will require that waters entering the stream from specific sources be of a quality suitable for fish and wildlife uses.

There are some Type I wetlands, but no Type II or higher wetlands as described in Circular-39, "Wetlands of the United States", Fish and Wildlife Service, U. S. Department of the Interior. Type I wetlands are described as seasonally flooded basins or flats. The soil is covered with water, or is waterlogged, during variable seasonal periods but usually is well drained during much of the growing season. Some of the Sowashee Creek flood plain will fall within this description. However, a great majority of the flood plain lands would not be within the classification of Circular-39.

Plant and Animal Resources (Flora and Fauna): There are about 31,502 acres of forest land and 5,031 acres of grassland within the watershed. The principal tree species<sup>1/</sup> are loblolly pine, red oak, sweet gum, shortleaf pine, and hickory. Other species in the watershed are black-jack oak, persimmon, southern red oak, silver maple, sourwood, mulberry, ironwood, ash, yellow poplar, and hackberry. The forest types are 50 percent pine, 25 percent hardwood, 15 percent hardwood-pine, and 10 percent pine-hardwood. The principal grasses<sup>2/</sup> are Bermuda, Johnson, bluestems, panicums, paspalums, crabgrasses, and canes.

The stream fishery resource in Sowashee Creek Watershed is almost negligible. Headwater areas are too small to provide significant fishery habitat while downstream areas become congested with debris, both natural and man caused. The downstream areas of Sowashee Creek are polluted to the extent that there are few if any fish in the stream. This is true to a lesser extent in Okatibbee Creek below the Sowashee junction until the pollution is assimilated further downstream.

Appendix G, Pascagoula River Comprehensive Basin Study Report, lists results of water quality studies made above and below Sowashee Creek entrance, which indicates the extent of pollution on Sowashee Creek. This report states that Okatibbee Creek Watershed is in good condition.

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<sup>1/</sup> U. S. Forest Service, U. S. Department of Agriculture.

<sup>2/</sup> Common Plants of Longleaf Pine-Bluestem Range, Southern Experiment Station, Forest Service, U. S. Department of Agriculture.

with respect to chemical and physical parameters from its headwaters to the mouth of Sowsashee Creek. At a station just below Sowsashee Creek, the condition of Okatibbee Creek showed the impact of wastes from that tributary. Ten water quality samples were taken between September 20 and October 1, 1965, at a station several miles below the junction of Sowsashee Creek on Okatibbee Creek when flows at this station averaged 55 CFS. The average D.O. concentration was 1.2 mg/l with a level of 0.0 mg/l reached on three occasions. The coliform and fecal coliform densities were quite high with a geometric mean of 151,740 per 100 ml. for the coliform density.

The lake fishery resources of the watershed are found in about 175 private ponds and small lakes. About 20 of these lakes are estimated to be 15 to 20 acres in size and the remaining averaging less than five acres each. There is excellent fishery resource in the 240-acre Lake Tom Bailey, a Mississippi Game and Fish Commission lake located to the east of the watershed. Also, Okatibbee Reservoir, a 3,500-acre lake constructed by the U. S. Army Corps of Engineers located west and north of the watershed, furnishes excellent fishing.

The upland pine, pine-hardwood, and hardwood-pine types make up most of the forest land and constitute the most important segment of forest game habitat. Small blocks of hardwoods, several acres in size, are found along the major stream and are associated with improved pasture. Squirrels are important forest game species as the encroachment of urbanization reduces the potential of existing deer and turkey populations.

Quail and rabbit habitat is good to excellent in much of the watershed and is generally dispersed. It is estimated, however, that half of the watershed is "too close in" or "built up" to provide safe harvest of any game species. There is, however, some waterfowl use of the stream, particularly in the low reach.

Economic Resources: The economy of the watershed, present and expected, will be influenced greatly by the industrial and commercial growth within and around the City of Meridian. In most areas of the watershed the urban influence upon the watershed can be expected to increase and the agricultural importance decline in the future.

The production of beef cattle is the major source of farm income. Some row cropping is still being done in scattered areas throughout the watershed. Forest products produced are of moderate importance. The present land use for the watershed consists of 3,049 acres of cropland; 5,031 acres of grassland; 31,502 acres of forest land; and 13,328 acres of other and miscellaneous land, of which it is estimated 9,024 acres are urban. The urban area consists of industrial plants, commercial, residential, public and undeveloped property.

Principal crops and yields per acre now grown in the watershed are: Cotton, 550 pounds, and corn, 40 bushels. Pasture will yield approximately five animal unit months of grazing per acre per year.

The forest types are 50 percent pine; 10 percent pine-hardwood; 15 percent hardwood-pine; and 25 percent hardwood. The principal species are loblolly pine, red oak, sweet gum, shortleaf pine, and hickory. Minor species include blackjack oak, persimmon, southern red oak, silver maple, sourwood, mulberry, ironwood, ash, yellow poplar, and hackberry.

Ninety-two percent of the forest area is medium to well stocked with merchantable tree species. Sawtimber volumes average 420 board feet per acre for pine and 275 board feet per acre for hardwood. Pulpwood volumes average 2.0 cords per acre for pine and 1.1 cords per acre for hardwood.

The Mississippi Forestry Commission, through the various Federal-State cooperative forestry programs, is providing forest management assistance, forest fire prevention and suppression, distribution of planting stock, and forest pest control assistance to private landowners in the watershed. Under continued protection and proper management, the forest stands will contribute considerably to the future overall economy of the watershed area.

Public lands within the watershed consist of approximately 242 acres of Sixteenth Section lands (school lands), 170 acres in the Southern Sugar Crops Experiment Station, 106 acres in the National Fish Hatchery, and 3,338 acres of forest land owned by the City of Meridian.

The city forest land is managed for the city's water supply and is in excellent condition silviculturally as well as hydrologically. The remaining 90 percent of the forest area of the watershed is in small privately-owned tracts.

An estimated 95 percent of the City of Meridian lies within the watershed. This portion of the watershed is occupied largely by industrial, commercial, residential, utilities, transportation facilities and public property. The major interstate highways, major railroads and major utility complexes are located along the Sowiashie flood plain and terrace lands as the transverse through the city. Expansion of the urban area has been rapid and can be expected to continue.

Meridian has a diversified economy based on agriculture, industry, wholesaling, and retailing. The Meridian Industrial and Commercial Foundation has long-range plans for future industrial and commercial development within a 15-mile radius of Meridian. Several of these areas are located in part within the flood plain area and their future successful development will be contingent in part on the reduction of flooding on the Sowiashie Creek and Nanabe Creek flood plains.

There are approximately 305 farms or parts of farms within the watershed that will average about 130 acres in size with an average value of about \$200 per acre. Estimated value per farm for land and buildings is about \$26,000. The average size and value of farms within the watershed differ from county averages because of the closeness to the City of Meridian, where land values are much higher than the county average. Due to the



limited use of the productive flood plain resulting from the hazards of flooding and increased costs of operation and living, many of the farm operators have found it necessary to supplement their farm income by taking part-time or full-time jobs in nearby Meridian. In 1964, about 61 percent of the farm operators worked off-farm at least part time.

The 1967 population of the watershed is estimated to be about 56,915. This is an increase of about 8,000 over 1960. Approximately 54,500 of these live within the City of Meridian. The rural population is estimated to be 2,415 with 1,932 being non-farm and 483 farm people.

The opportunity of promoting the Comprehensive Overall Economic Development Program for Lauderdale County as prepared by the Lauderdale County Resource Development Committee will be greatly enhanced since the objectives of the watershed plan will incorporate many of the agricultural (cropland, pastureland, forest land, watershed, and wildlife) objectives of the O.E.D. Plan.

The O.E.D. Plan was prepared for Lauderdale County in 1967 by the Lauderdale County Resource Development Committee. The objective of the plan is to develop the resources, to continue the growth, and to enhance the welfare of Lauderdale County.

So that the objective of the O.E.D. Plan could be achieved, goals were established in eleven different categories so that problems could be solved and/or the contribution of each category to the overall county welfare be enhanced. Goals were established for Agriculture, Home Economics, Youth, Human Resources, Health and Public Welfare, Education, Transportation, Recreation and Tourism, Banking and Finance, Industrial, and Warehousing.

Some of the specific goals as related to Agriculture are: 1. Increase the herd sizes and quality of beef and swine; 2. Improve established pastures and plant diverted row crop land to pastures; 3. Increase the yields and quality of row crops (cotton, corn, etc.); 4. Produce sufficient grain for livestock grown in the county; 5. Expand the acreage of truck crops and increase the per acre yield and quality of the product; 6. Plant trees on idle land and land unsuited to other uses; and 7. Inform the general public of services available through the agricultural agencies and of agriculture's role in the overall economy.

The goals established for the other categories are similar to those established for agriculture except that they are related to the particular problem or need for elements in that category.

Numerous county and farm-to-market roads, city streets, State Highways 19 and 39; U. S. Highway , 45, and 11; Interstates 20 and 59; the Southern Railroad, Gulf, Mobile and Ohio, Illinois Central, and the Meridian and Bigbee Railroads provide easy access to nearby markets and business areas. Other than the City of Meridian, the communities of Russell, Marion, Topton, and Bonita are located within the watershed.

The farms which employ as much as one and one-half man-years of hired labor are in a minority and their operations comprise a very small percent of the benefited area.

Off-farm employment is available in Meridian, Marion, Topton, Russell, and Bonita as well as small towns outside the watershed. The gross value of all farm products sold in the watershed in 1969 was about \$2,841 per farm as compared to about \$1,620 in 1964. Seventy-eight percent of the landowners in the watershed had gross value of all farm products sold of less than \$2,500 in 1969 as compared to about 85 percent in 1964. Only a very few acres of cotton or soybeans are grown in flood plain lands. There is a need for land use adjustments because of the use of steep eroding hill lands for the production of row crops.

Recreational Resources: Public water-based recreational facilities are inadequate to serve the needs of the people. Major recreational facilities within the watershed are the city park and zoo and the two private country clubs. A small amount of fishing is available at the city's water supply reservoirs and small private lakes in the area. There are a few privately operated camping areas in the watershed vicinity.

The Mississippi Game and Fish Commission owns and operates Lake Tom Bailey with facilities for swimming, camping, picnicking, boating, and fishing. This lake provides about 15,000 man-days of recreation per year.

The U. S. Army Corps of Engineers recently completed the Okatibbee Reservoir project. This reservoir is located on Okatibbee Creek and is about 10 miles northwest of Meridian and about 7 miles west of the Sowahee Watershed boundary. The reservoir contains 3,500 acres of surface water and was built for flood prevention, water supply, and recreation purposes. Basic facilities have been partially completed to provide for boating, fishing, camping, swimming, and other related recreational activities.

Archeological and Historical Resources: The Mississippi Department of Archives and History advised that there were no recorded historical or archeological sites within the watershed boundary. This was a true statement at the time it was made. However, in the time between then and now, two properties were included in the Federal Register--National Register of Historic Places. These properties are the Grand Opera House, a theater located at 2208 5th Street, Meridian, and Merrehope, a pre-civil war antebellum home located at 905 31st Avenue, Meridian.

The Mississippi Department of Archives and History believes that there are archeological or historical sites in the watershed area even though no studies have been made.

Soil, Water, and Plant Management Status: Major types of farm agricultural enterprises have changed significantly in the past 30

years. Predominantly row crop farm type activities have given away to beef cattle production. Over 95 percent of the open agricultural flood plain lands are now in pasture. Frequency of flooding has contributed to the change in land use in the flood plain lands. Shortage of farm labor and opportunity for employment in nearby urban areas have seriously affected farm labor situations.

Moderate to severely eroding uplands have been converted to grasses and trees. Most of the row crops are grown on the more fertile uplands where they get favorable response from fertilizer and other cultivating practices.

Of the 305 farms in the watershed, 80 have conservation farm plans. About 50 percent of the planned practices have been established through the local Soil and Water Conservation District.

#### WATER AND RELATED LAND RESOURCE PROBLEMS

Land and Water Management: There are 29,393 acres of land in the watershed, exclusive of urban areas, that have an erosion problem. Of this total, 1,732 acres are in cultivation, 1,301 acres are idle, 3,057 acres are in pasture, and 23,303 acres are in forest.

Sheet erosion is moderate to severe on these lands. Land use adjustments and conservation treatment measures and practices are needed to correct this problem. The steeper and more eroded land should be retired to permanent vegetation. Economic conditions in the watershed will allow most of the needed land use adjustments and conservation measures to be established by the land owners and operators with cost sharing assistance from going programs.

Floodwater Damage: There are 8,414 acres of flood plain land in the watershed. Of this, 7,266 acres are agricultural lands and 1,148 acres are in the urban area. Damaging floods occur on agricultural lands two to five times per year, and during the growing season, two to four times per year.

Damaging floods occur less frequently in the urban area due to the large size of the existing channel. However, the lower-lying areas flood from one to two times per year.

Agricultural flood plain lands consist of 2,881 acres of grassland, 3,579 acres of forest land, and 806 acres of miscellaneous lands.

There are ten industrial sites, 53 commercial establishments, and 302 private dwellings on the 1,148 acres of urban flood plain. Land values in the agricultural flood plain range from \$150 to \$225 per acre and in the undeveloped urban area are valued at \$5,000 or more per acre.



The average annual floodwater damages to crops, pastures, and other agricultural values are estimated to be \$10,582; roadside erosion damages, \$8,852; urban damages, \$427,914; and indirect damages, \$91,225.

There have been no recent recordings of loss of life or direct effects on the health of the people living in the watershed. Even though there have been no direct health effects, the water remaining after the flood water receded created vector habitat and unsightly conditions. Flooding in the urban areas has caused disruption of public services and loss of utility service because of broken water mains and sewer lines crossing the channel. Transportation facilities in the city, county, and federal highways and railroads have been disrupted. The disruption of transportation facilities and flooding of industrial plants, schools, and businesses result in loss of income and interruption of school training and family living. People have been evacuated from their homes and housed in Red Cross Centers, schools, and churches.

Erosion Damage: About 26,000 acres of upland are subject to sheet erosion. The rate of erosion varies from moderate to severe depending on the soil, slope, and cover conditions. This erosion removes the fertile top soil along with any fertilizer, insecticide, or herbicide that may be attached to the soil particle. This in turn reduces the soil's ability to support plant life and reduces the infiltration rate and water-holding capacity of the soil. Critical erosion is being experienced from about 400 acres of active gullies and about 63 miles of road banks. These areas have been denuded of top soil and vegetation. Roadside erosion damages are estimated at \$4,800 per year.

Sediment Damage: Sediment resulting from the upland and critical area erosion is creating or contributing to many problems downstream. Sediment is being deposited in the stream channels and on-farm ditches resulting in increased flooding and/or increased maintenance costs. Sediment is being deposited on the flood plain lands resulting in the impairment of these lands to produce vegetative cover. The sediment being deposited in lakes, ponds, and reservoirs results in the filling and reduced life of these facilities. Sediment that is suspended in the stream flows, either low, normal, or flood, results in pollution of the water through turbidity, nutrients, insecticides, and pesticides. Sediment leaving the watershed will result in the same downstream effects that have been described above for the watershed. The sediment that results from eroding upland cropland is much more likely to have more nutrients, insecticides, and herbicides attached to the sediment particle and therefore, is more likely to pollute the waters below.

Overbank deposition has resulted in reduced yields of pasture. About 3,200 acres of flood plain land have been damaged from 10 to 80 percent. Some scour damage occurs on the flood plain as a result of out-of-bank  
flow.

The present sediment yield in Sowashee Creek at the lower boundary of the watershed is estimated to approximate 86,000 tons per year or approximately 1.63 tons per acre per year.

The estimated average annual damage due to sediment deposition is \$4,052.

Drainage Problems: Some channel modification work has been completed and provides sufficient capacities at the present time to meet the drainage needs for the area in which they serve. There are no high water tables or seepage problems. Existing capacities of the natural channel provide sufficient capacity to meet internal drainage needs at the present time. However, should the channels continue to fill with sedimentation, trash, and debris as is now the case in specific areas, drainage problems will exist in the watershed.

Municipal and Industrial Problems: The City of Meridian obtains its municipal and industrial water from ground water sources. Three water supply reservoirs are located near the southeastern limits of the city. These sources of water are adequate for present needs but not for projected future needs. To meet its demands for future needs, arrangements have been made whereby the city would obtain these needs from the Corps of Engineers' Okatibbee Reservoir. It is planned to convert two of the city reservoirs to one multiple purpose site for flood prevention and recreation purposes.

Recreation Problems: There are no existing reservoirs in the watershed that were planned and constructed for water based recreation. The Corps of Engineers' Okatibbee Reservoir, the Mississippi Game and Fish Commission's Lake Tom Bailey, just outside the watershed, plus other existing recreational facilities, both public and private, will satisfy about 60 percent of the projected demands for water oriented recreation activity. The general public does not have access to the 175 small ponds in the watershed area.

The present population within the 50-miles radius of the watershed is estimated at 218,000 and is expected to increase to 308,000 by the year 2015. The watershed sponsors, the City of Meridian, the Pat Harrison Waterway District, and the Lauderdale County Soil and Water Conservation District, are interested in developing additional recreational resources.

Plant and Animal Resource Problems: The stream fishery resource is almost negligible. The headwater streams are small and have ephemeral or intermittent flows and provide no significant fishery habitat. Down-stream reaches where perennial flows exist are polluted from municipal and industrial waste. No significant fishery resource exists in this watershed.

The 175 private ponds offer some fishing opportunities. These waters are turbid most of the year because of erosion and puddling from livestock use.

Urban encroachment and rural development is causing losses to wildlife habitat in both bottomland and upland areas. Frequent flooding and sediment deposition create problems in the production of wildlife habitat. There is a need for additional fishery and wildlife habitat to satisfy



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the hunting demands within the watershed. There are no known rare or endangered species within the watershed.

Water Quality Problems: The main water quality problem in the watershed is the pollution of the downstream reaches of Sowashee Creek. This pollution is the result of municipal and industrial waste entering the stream. The Mississippi Air and Water Pollution Control Commission anticipates that the stream will be classified for fish and wildlife uses sometime in the future. There will be a problem of cleaning up the waste water so that when it enters the stream, the quality will not be reduced below fish and wildlife quality.

Economic-Social Problems: The major economic problem is the lack of income. The watershed is in an economically depressed area. The farmers of the area receive a very low gross income. Eighty-five percent received less than \$2,500 in 1964 and 78 percent received less than \$2,500 in 1969. The farms are small and mostly family operated. Since the farms are mostly family operated and the gross farm incomes are so low, a large percent of the farm operators have to work off farm to supplement the family income. In 1964, about 61 percent of the farm operators worked off farm at least part-time. By 1969, the percentage had increased to about 68 percent indicating that the family income was requiring even more supplementation even though the gross farm income had increased.

In 1970 the civilian labor force was listed at 27,960 for Lauderdale County.<sup>1/</sup> Manufacturing employed 4,720, nonmanufacturing employed 17,100, other nonagricultural employed 4,500, agriculture employed 750, and 890 were unemployed. The per capita personal income in Lauderdale County for 1970 was \$3,128 as compared with \$3,933 for the United States.<sup>2/</sup>

The low incomes have resulted in secondary problems of inadequate housing, inadequate health and sanitation facilities and a lowering of the living standards.

#### ENVIRONMENTAL IMPACTS

Conservation Land Treatment: The installation of the land treatment measures and the stabilization of the critically eroding areas will result in decrease in the erosion rate. This decrease will amount to 29 percent in the erosion rate and 68 percent in erosion damages. This reduction in the initial erosion rate along with the sediment trap efficiency of the retarding structures will reduce the amount of sediment available for overbank deposition on the flood plain, for deposition

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<sup>1/</sup> Benchmarks, Mississippi Employment Security Commission, Research and Statistics Department, Jackson, Mississippi, April 1973.

<sup>2/</sup> Per Capita Personal Income, Lower Mississippi Region and adjacent states, Economics Branch, Mississippi River Commission, U. S. Army Corps of Engineers, September 1972.

in the stream channels, for downstream deposition, and for causing turbidity in the streams of the watershed and downstream. Since sediment is the major source by which agricultural pesticides, herbicides and nutrients enter the lake and/or stream systems,<sup>1/</sup> the reduction of sediment will reduce the amount of agricultural pesticides, herbicides and nutrients entering the lakes or streams under present application amounts and procedures. Proper conservation treatment, land use and critical area stabilization will improve the hydrologic characteristics of the soil allowing for greater water infiltration and soil moisture holding capabilities.

The improved cover condition, the wildlife habitat food plantings, the wildlife habitat preservation, and the establishment of vegetative cover on critical areas will increase and improve the wildlife habitat. With the wildlife habitat improvement, there will be a corresponding improvement in the wildlife resources.

The improved cover condition, the covering of bare and gullied areas with vegetation, the construction of the stock ponds and the improved pastures will enhance the esthetic values of the rural countryside.

Structural Measures: Structural measures consisting of 13 floodwater retarding structures, one multiple-purpose structure, and channel work will have many impacts within the watershed area. The retarding and multiple-purpose structures in conjunction with land treatment measures will reduce the sediment leaving the watershed by 52 percent, from 86,000 tons per year to 41,000 tons per year. The overbank sediment deposition will be reduced by 67 percent.

The retarding structures, multiple-purpose structure, and channel work will have an impact on the flooding in the watershed. For the portion of the flood plain used for agricultural purposes, there will be a 58 percent reduction in acres flooded from a 100-year storm, 60 percent from the 50-year storm, 67 percent from the 25-year storm, 76 percent from the 10-year storm and 92 percent from the two-year storm and 100 percent from the one-year frequency storm.

The flooding from the 100-year frequency storm will be reduced to no flooding along the Sowashee Creek flood plain through Meridian and along the lower portion of Gallagher Creek where channel work is proposed. Along upper Gallagher Creek where no measures are planned, the flooding will not be reduced as a result of the project. Here, the city officials will make these hazards known to concerned people and will use their official position to discourage development in these areas until such time as flood protection is provided.

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<sup>1/</sup> Minutes of ARS-SCS Workshop on Pollution, June 22-24, 1971, USDA Sedimentation Laboratory, Oxford, Mississippi. Papers by Rausch, McDowell, S. J. Smith, and G. D. Smith, all of ARS.

Approximately 124 landowners will be benefited in the agricultural flood plain and 365 commercial businesses and private dwellings will be benefited in the urban flood plain area. Average annual floodwater damages will be reduced by 95 percent.

With installation of project measures, damages to fixed improvements such as fences, field ditches, roads and bridges, will be reduced approximately 94 percent.

The 517 acres of permanent water behind the retarding impoundments will provide feeding and resting areas for waterfowl and habitat for lake fishery. This will also destroy 517 acres of existing habitat which include 114 acres in open pasture, 133 acres in water and 270 acres of woods. The 270 acres of forest land will be cleared and all debris would be removed and destroyed. There will be 69 acres of land in the borrow areas and impoundments which will be bare during construction. However, these areas will be revegetated immediately after construction. Where these areas have been disturbed during the construction process, the land will be subject to temporary erosion until vegetation is established. This will result in a temporary increase in the amount of sediment that enters the stream system and will affect the water quality as it relates to the fishery resources.

Where the temporary flood pool land is in pasture, loss of grazing and available food and cover for wildlife will result.

The 54.2 miles of channel modifications will effect a temporary reduction in the stream fishery resource. This reduction will occur because of the disturbance of the banks and channel beds. This plus the noise, increased activity and agitation, and increased sediment and turbidity will cause the fish to move out for a period of time. Wildlife habitat will be affected on approximately 960 acres along channel rights-of-way. This 960 acres consist of 511 acres of open land and 449 acres in woods. Approximately 200 acres of the 449 acres in woods will be seriously affected. No significant effects to fish and wildlife resources are expected to occur on that part of the channel that goes through the City of Meridian. The multiple purpose recreation impoundment will create a 200 surface acre lake. This lake, with planned recreational basic facilities, is expected to provide annual recreation benefits to 84,000 people.

The recreation facilities are designed to accommodate a peak use by about 2,000 people daily. A value of each visitor day is estimated to be \$1.50.

The installation of the structural measures will have impacts on stream flows. Reservoirs tend to decrease low flows because of the evaporation occurring from their surface areas. However, seepage through and under the dams tend to increase low flows. Retarding structures alter the stream flows by reducing the peak flows and extending the length of time the reduced flows pass the reservoir outflow structure. Since the



retarding structures are located on intermittent or ephemeral streams and there are offsetting impacts on low flow quantities, it is believed that the impact on low flow quantity will be insignificant.

The channel work will have an impact on the stream temperature in that the channel bottom will be more exposed to the sun because of the clearing of trees along the banks and because of the widening of the channel in the lower reaches. This impact will be minimized by the clearing of as few trees necessary along the right-of-ways, especially in the upper stream reaches. An impact of reducing the stream temperatures will result at each of the three overfall structures where the water will drop from nine to eleven feet. However, the net effect of the structural measure installation will be a slight increase in the stream temperature.

The channel work will have an impact on the reaeration rate of Sowashee Creek. The increase in velocity resulting from channel clearing and snagging and enlargement will tend to reduce the reaeration capacity and therefore the assimilative capacity of the stream. On the other hand, the three drop structures with drops of nine to eleven feet and their stilling basins will tend to increase the reaeration rate. In addition the water as it flows through the outlet works of the floodwater retarding and multiple-purpose structures will drop several feet and run into a stilling basin which will tend to aerate the waters entering the channels below. Where the channel enlargement is to be accomplished, the velocities will not be increased to any large extent because of the removal of channel slope by the three drop structures. With the retarding structures holding back water and with a significant increase in channel velocities in the upstream reaches only, there will be no significant overall impact on the reaeration rate or assimilative capacity of the stream.

There will be some increase in the use of pesticides, herbicides and fertilizers on the flood plain lands near the channels as a result of the project. These pollutants are more vulnerable to being moved to the stream system because of their position. However, the normal source of this pollution movement (sediment suspended in surface runoff water), will be reduced because of the project measures. There will be less flood plain scour and erosion in the flood plain area because of less flood overflows. There will be less runoff because of land treatment measures. The increased vegetation will utilize most of the additional fertilizers. The net impact will be that no more additional pollutants will enter the stream system than at present.

Economic and Social: The economy of the non-farm sector of the watershed will be improved through the annual increase in production cost associated with purchases of fertilizer, seed, labor, and machinery in the agricultural sector of the watershed. Net farm income will be increased by more intensive use and management of the flood plain lands and through land use adjustments and conservation cropping systems in the upland areas.

The reduction in frequency of flooding and acres flooded during the cropping season will make possible the intensification of use of lands in the flood plain. There will be no increase in surplus or allotted crops in the watershed. The pasture yields for the pastured flood plain acres will increase from about 5 animal unit months of grazing per acre per year to about 7 animal unit months of grazing per acre per year. Land use adjustments (a shift of upland row crop production to flood plain lands) and reduction of the flooding hazards will permit a more intensive type management and result in more efficient operations, in reduced cost, and in an increase in net returns to the landowners.

Business activity will be increased with the elimination of flooding in part of the urban sector of the watershed. There will be an additional increase of about 40 new jobs (mostly local labor) as a result of the installation of project measures. There will be an increase of about 109 new jobs in the operation and maintenance of this project and as a result of benefits accruing from this project. The recreational development and facilities will help satisfy the increasing demand for the types of recreational activities associated with this type development.

The average per capita income of the people living in the watershed will be increased. This will provide an incentive for people to remain within the watershed. Both the quality and standard of living will be enhanced by this project. The project will have an annual cost of \$515,871, with annual benefits of \$760,454. The benefit-cost ratio is 1.5 to 1.0 (See Appendix A). If the project was delayed for one year, the net benefits foregone by direct beneficiaries would amount to about \$244,583.

#### FAVORABLE ENVIRONMENTAL EFFECTS

- a. Reduce the erosion rate by 29 percent, the roadside erosion damages by 68 percent, the average annual sediment delivered to the watershed outlet by 52 percent, and reduce sediment damage to flood plain lands by 67 percent.
- b. Reduce floodwater damages by 90 percent on agricultural lands.
- c. Reduce floodwater damages by 95 percent within the urban area.
- d. Provide opportunity for recreational use for an estimated 84,000 people each year at the multiple purpose reservoir and adjacent basic recreation facilities.
- e. Create 517 acres of water surface behind the proposed dams that can be used as lake fishery and waterfowl resting and feeding areas, especially since water level control devices will be installed for the management of the pool areas.

- f. The construction of the channel and the vegetation of the banks through the City of Meridian will remove many unsightly features, such as broken sewer lines, debris, trash dumps, vector habitat, and weeds.
- g. The scenic beauty of the countryside will be enhanced by the establishment of land treatment measures, critical area treatment, construction of floodwater retarding and multiple purpose lakes.
- h. Provide additional and better wildlife habitat through land treatment measures, critical area treatment, tree planting, timber stand improvement, timber management, the development of 50 acres of wildlife habitat, and the preservation of an additional 2,500 acres of wildlife habitat for a total of 3,100 acres of wildlife habitat adequately treated.
- i. Virtually eliminate the sediment production from all forest acres and reduce surface runoff from 4,514 forest acres.
- j. Increase forest product net yields by at least 10 percent above the yields of normally stocked stands during the rotation period.

#### ADVERSE ENVIRONMENTAL EFFECTS

- a. Agricultural production will be lost on 114 acres of pasture land and 270 acres of forest land in the areas which will be inundated by the single and multiple purpose structures.
- b. Wildlife habitat will be lost on 270 acres of forest land and 114 acres of pastureland.
- c. The low key fishery and fish habitat in the 133 acre water supply reservoir will be lost during the construction and filling of the multiple purpose reservoir.
- d. Wildlife habitat quality and quantity will be temporarily reduced on 520 acres of land in the agricultural portion of the watershed during the construction period and until revegetation occurs. This 520 acres consist of about 240 acres of forest land and 280 acres of openland.
- e. Wildlife habitat quality and quantity will be reduced on 509 acres of channel rights-of-way in the urban area of Meridian.
- f. Expected vegetation change of 200 acres from moist bottomland hardwood to drier hardwood species.
- g. Sixty-one acres of land through the urban area will be lost to beneficial development due to becoming a part of the channel after construction of the channel modification in the urban area.

- h. Forest aesthetic values will suffer some degradation from channel improvement work and forest stand improvement operations.
- i. There will be noise and air pollution during construction due to the operation of the heavy equipment and the open burning of debris, underbrush, and trimmings from the clearing operations where such practices are employed.
- j. Until revegetation is effective, there will be water pollution due to increased sediment as certain areas are laid bare during construction.
- k. There will be a temporary loss of stream fishery habitat during the clearing of the channels in the upstream reaches.
- l. The stream water temperature will be increased slightly as a result of channel work.

#### ALTERNATIVES

- a. Application of conservation land treatment and critical area land treatment measures only, to the land of the watershed.
- b. Land treatment measures and floodwater retarding structures.
- c. Land treatment measures, floodwater retarding structures, and a multiple purpose structure with associated recreational facilities.
- d. Floodways.
- e. Flood plain zoning.
- f. Partial use of floodways and some zoning.
- g. Channels only.
- h. Alternate provisions for meeting recreation needs.
- i. No project.

Alternative (a) - The land treatment measures and critical area treatment would reduce the output of sediment from the watershed and thus the sediment-carried pollution in the streams. This would provide clearer water that would allow sunlight to penetrate more deeply. These effects would be beneficial to fish. This alternative would have little or no effect in reducing the man-made pollution in the urban area, nor would it reduce the hazard of flooding within Meridian to an appreciable extent. Wildlife habitat throughout the watershed would be improved through better vegetative cover. The estimated cost of this alternative would be \$522,000.



Alternative (b) - The land treatment measures, critical area treatment, and floodwater retarding structures would have the same effect and impacts as Alternative (a). In addition, there would be much more flood reduction in the flood plain areas downstream from the structure sites and reduction in the downstream sediment delivery. This alternative would result in the loss of agricultural production and wildlife habitat from the woodlands and openlands within the sediment pools of the structures. The water contained in these sediment pools would provide habitat for fish and waterfowl. The estimated cost for this program is about \$1,662,000 and would return about 16 percent of the average annual benefits as shown in Appendix A.

Alternative (c) - Storing additional water above the sediment pool of one of the floodwater retarding structures for recreational purposes and including associated basic recreation facilities will have the same effects and impacts as described under Alternatives (a) and (b). Additional impacts would be that more forest land wildlife habitat would be lost or altered. Agricultural production would be lost from this forest land. More and better recreational facilities would be available to the people of the watershed and surrounding area. The estimated cost for this program is \$2,149,000. The estimated average annual benefits would be about 34 percent of the total benefits shown in Appendix A.

Alternative (d) - Floodways through the urban area in conjunction with upstream floodwater retarding structures were given consideration. This would have required numerous relocations of buildings such as homes, stores, churches, and industries. The use of floodways would require the relocation or alteration of numerous streets, major highways, electric power transmission lines, water lines, natural gas transmission lines, and major railroads. In addition, it would have entailed heavy expenditures for land rights. The area within the floodway could have some use for recreation or wildlife habitat, although this use would be limited because of the need for keeping it relatively clear to insure the free flow of water. Construction of the levees would involve temporary dislocation of the current use of the land on which they were located. Another major consideration was the dislocation and relocation of flood plain residents, most of which are underprivileged minority groups.

Finally, it was considered that the hazards involved in the urban area in case of a floodway levee break were unacceptable. Consequently, a detailed estimate of cost was not made.

Alternative (e) - Flood plain zoning was considered. It would regulate future development but would be ineffective in reducing the damage to existing development. In the case of Gallagher Creek, where channel modification was the only feasible structural measure, the City of Meridian will use their official position to discourage development in view of the limited protection afforded by the channel. Zoning would have insured



the retention of the current use of urban flood plain areas by wildlife. It would have had little effect on sources of man-made pollution. The cost of zoning would be the continuation of the existing rate of damage plus the decline in property values in the affected area due to limitations upon its use. Flood insurance would require zoning and would shift much of the monetary loss from flooding from the residents to the public. Many of the residents affected by the flooding are of the underprivileged minority groups which would have difficulty affording flood insurance. Flood insurance is not available to many industrial and commercial establishments. Flood insurance would not affect the transportation, communication, water, sewage, and utility breakdown that results from flooding. It would have little effect other than the requirement of zoning against further development in flood-prone areas.

Alternative (f) - Partial use of floodways and some zoning would have the same good and bad features of alternatives (d) and (e). The net effect would be to have ring-type levees around the areas presently developed and letting the presently undeveloped areas continue to flood. This would mean the purchasing of existing residential, commercial or industrial property for the flow of flood water where present development is on both sides of the channel. This would leave the undeveloped property in its present state. Therefore, any future development would have to occur at other locations with whatever resultant problems that might occur. Possibly, the development would not occur leaving a stagnant economy and city. The major transportation and other facilities for the area are in the Sowshee Creek flood plain. These facilities include I-20, I-59, other U. S. and state highways, railroads, electric transmission lines, natural gas lines, and other utilities. This would increase the difficulty and cost of floodway levees and zoning costs. Also, many additional costs would be required in the making of these facilities available to other locations for development if that was the chosen course of action.

Alternative (g) - Channel modifications alone were given limited consideration. Without upstream floodwater retarding structures, the area required for channel modifications would be removed from other uses. Modification of bridges, highways, railroads, and utilities would be very expensive. Some relocation of flood plain residents would be required. Downstream flood peaks would be increased. Much of the existing wildlife habitat, especially near the stream banks, would be destroyed. Some consideration was given to the possibility of installing concrete-lined channel modification through the urban areas. While this would have required less land to be converted to channels and less excavation than with earth channels, the construction cost would have been about \$20,000,000. Because of the undesirable effects of relying solely upon channel modifications, no further consideration was given this alternative.

Alternative (h) - This would provide for meeting recreation needs through means other than the project. One possibility would be provision of recreation facilities such as camping, boating, fishing, picnicking, and swimming through private sources. This source would depend upon profits for their investment plus installation and maintenance of the facilities. This would preclude the use of these facilities for the low income people in the area. Public sources such as the City of Meridian, the Pat Harrison Waterway District, the State, or Lauderdale County could provide such facilities. The meeting of the recreation needs from any of these sources is not foreclosed, as this project will satisfy only a portion of the projected needs. Development of recreation facilities through a multiple-purpose project can be expected to be more economical than a single-purpose development.

Alternative (i) - This is the installation of no project. This alternative would not maintain the environment in its present condition. The going conservation program would gradually reduce the rate of erosion and the deposition of sediment, but damage from this source would continue although it would be reduced slowly. It would be expected that flood peaks would increase. With no protection or control over flood plain development, the property values subject to damage would become greater. Sources of man-made pollution within the urban area would increase as development took place. Overall, the present deterioration of the environment would continue. If this was the chosen course of action, an estimated net average annual benefit of \$244,583 would be foregone.

#### SHORT-TERM VS. LONG-TERM USE OF RESOURCES

- a. Major use of land is for agricultural production. About 17 percent of the watershed is in urban uses, and has been increasing in the past few years. This trend will continue and the area in forest, pasture, and crops will decline. The project will provide land treatment measures to protect the capabilities of the land now in agriculture. The protection afforded rural agricultural areas will not be sufficient to encourage a shift to urban uses of the flood plain but will enable the flood plain users to use their land more effectively for agricultural production. This will tend to offset losses in agricultural production that will result from greater urbanization of the upland. Within the urban area, the protection provided will be such that existing uses can be continued and greater use can be made of the existing interstate highways. The project is essentially an attempt to plan for the best short-term and long-term uses of the water and related land resources.
- b. The proposed project will solve the short-term land use, flood protection, and water-based recreation needs of the watershed area. It will restrict the options for long-term use of resources only to a slight degree. The lands committed to channel and to the sediment and recreation pools will not be available for long-term use. This amounts to a total of 568 acres. There is an additional 921 acres in the flood pool areas that will have restricted long-term uses for the

life of the project. The remainder of the watershed would be available for any desired use of the land resource.

- c. The project is in strict compatibility with the projected long-term uses of the land, water, and other natural resources in that it will provide urban protection to lands now committed to urban development and agricultural protection to lands now committed to agriculture. It also provides for improvement of physical, scenic, and environmental features in the watershed. This project is planned to serve as a base for future planning and to serve the overall needs of the people in the watershed.
- d. This project, through the improvement of the watershed cover conditions, the reduction of erosion and sedimentation, the retention of water in the upland areas, and the removal of water from the flood plain areas, will serve as a base for conserving land and water resources long after the design life has passed.
- e. The proposed project constitutes one of the elements included in the Pascagoula River Comprehensive Basin Plan. This project along with the Chunky River Watershed and the proposed Souinlovey Creek Watershed will be the three PL-566 projects proposed for the Chickasawhay River Sub-Basin, one of the two major sub-basins in the Pascagoula Basin. There are five PL-566 watersheds in the Leaf River Sub-Basin which are planned or will be planned. These eight watersheds represent all of the presently proposed PL-566 watersheds for the Pascagoula Basin. Thus, the total cumulative effect of all PL-566 projects on the Pascagoula Basin will be small. Most of their effects will be local. However, when combined with on-going programs of the Soil Conservation Service and other action agencies, there will be a fairly large reduction in erosion, sediment movement, and water turbidity. There will be a decrease in downstream flooding, especially in the Leaf River Sub-Basin which has several proposed Corps of Engineers' dams. The recreational opportunities will be enhanced by the inclusion of recreation facilities in the PL-566 projects along with the Corps of Engineers' reservoirs, the Pat Harrison Waterway District's water parks, Mississippi State Game and Fish Commission's developments, and private developments. There will be no significant reduction of stream fishery resources or wildlife habitat as a result of all project developments. This project along with the Chunky River and proposed Souinlovey Creek projects in conjunction with the Corps of Engineers' Okatibbee Reservoir, Pat Harrison Waterway District's Archusa Water Park (Clarke County), and the Mississippi State Game and Fish Commission's Tom Bailey Lake will have about the same cumulative effects on the Chickasawhay Sub-Basin as listed above for the entire Pascagoula Basin.

#### IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The project will commit 270 acres of forest land and 114 acres of pastureland to water in the sediment and recreation pools above the



dams. In addition, 133 acres of land now in the city water supply reservoir will be committed to the recreation pool above the multiple-purpose structure. There will be a commitment of 921 acres of land to the flood pool areas above the retarding structures. There will be a commitment of 120 acres of forest land to recreational facilities.

The land that will be covered by water in the sediment and recreation pools will not be subject to use for any other purpose during the life of the project. The land within the flood pool areas will be limited to uses that can withstand flooding at frequent intervals, especially near the sediment pool level. The land that will be within channel banks will be lost to all normal uses. The land committed to recreation will be lost to uses other than recreation except for some timber growth and wildlife habitat.

#### CONSULTATION AND REVIEW WITH APPROPRIATE AGENCIES AND OTHERS

General: The consultation and coordination for this project was accomplished through public meetings held by the steering committee; numerous meetings between the sponsoring organizations and the Service, most of which were open to the public; and formal public hearings held by the Watershed Commissioners. Meetings between the SCS biologist, representatives of the Bureau of Sport Fisheries and Wildlife, and personnel of the Mississippi Game and Fish Commission were also held. Project data were furnished to the U. S. Forest Service, the Bureau of Sport Fisheries and Wildlife, the Mississippi Game and Fish Commission, and the Mississippi Department of Archives and History.

The U. S. Forest Service participated in the preparation of the work plan. The Bureau of Sport Fisheries and Wildlife made a report on the fish and wildlife resources of the watershed and made suggestions for water level manipulation devices for the improvement of the fishery and waterfowl development. The report was concurred in by the Mississippi Game and Fish Commission and the suggestions made were included in the recommended project plan. According to the Mississippi Department of Archives and History, there are no known archeological sites in the watershed. The Department will be notified if any evidence of such sites is found during construction. The work plan and environmental statement have been prepared in consideration of all comments and recommendations received.

Discussions and Disposition of Each Comment on Draft Statement

Comments were requested from the following agencies:

U. S. Department of the Army  
U. S. Department of Commerce  
U. S. Department of Health, Education and Welfare  
U. S. Department of the Interior  
U. S. Department of Transportation  
Environmental Protection Agency  
Federal Power Commission  
United States Water Resources Council  
Governor, State of Mississippi  
Coordinator, Federal State Programs, Office of the Governor  
East Central Planning and Development District

Each of the above agencies, with the exception of the U. S. Department of Commerce, responded.

SUMMARY OF COMMENTS AND RESPONSES

Each issue, problem, or objection is summarized and a response given on the following pages. Comments are serially numbered where agencies have supplied multiple comments. The original letters of comment appear in Appendix B.

U. S. Department of the Army

Comment: No conflict is foreseen between the work plan and any projects or current proposals of this Department. The draft of the environmental statement satisfies the requirements of Public Law 91-190, 91st Congress, insofar as this Department is concerned.

Response: None.

U. S. Department of Health, Education and Welfare

(1) Comment: The draft environmental statement together with the watershed work plan presents adequate data justifying the decision making process for this project.

Response: None.

(2) Comment: If potential development of the urban flood plain area is to consist of multi-family or single family residential dwellings, some consideration should be given to the secondary effects on public education facilities, health care delivery systems, etc., that such development creates.

Response: The City of Meridian is one of the Sponsors of the project. The City Council, Mayor and City Manager are fully aware of the problems that might occur and are responsive to prevention or solution of any problems resulting from residential development.

U. S. Department of the Interior

(1) Comment: The proposed project will not adversely affect any existing or proposed units of the National Park System, any registered National Historic, Natural or Environmental Education Landmark or site now in the process of registration as a landmark.

Response: None.

(2) Comment: In Lauderdale County and surrounding areas, there are available substantial quantities of sand, gravel and clay. However, the structures included in the project will not have any significant impact on these resources.

Response: None.

(3) Comment: There are plans to expand the industrial area between U. S. Highway 11 and Sowashee Creek which will result in clearing of 200 acres of bottom land hardwoods. The development does not appear to be feasible in the absence of the proposed project. Such action warrants further discussion since Guideline No. 5 of Watershed Memorandum 108 states that channel improvements should not be used to make flood plain land suitable for nonagricultural development.

Response: The full text of Guideline No. 5 of Watershed Memorandum 108 reads: "5. In nonagricultural flood plains, the level of protection should be sufficient to protect the principal residential, commercial or industrial areas from a 100-year flood (WPH 105.0221F). Except in unusual cases, channel improvement should not be used if its primary purpose is to make land suitable for nonagricultural development. In areas of expected development, serious considerations should be given to zoning, flood proofing, early warning systems, or other nonstructural devices to alleviate damage". The primary purpose of the channel work in this project is to supplement the land treatment measures and water retardation structures in providing agricultural type protection to agricultural lands under guidelines as outlined in Guideline No. 4 of Watershed Memorandum 108 and providing urban type protection to existing urban properties as outlined in Guideline No. 5. There was no knowledge of a proposed expansion of the industrial area between U. S. Highway 11 and Sowashee Creek at the time of planning of this watershed

project. However, there is a study in progress on the feasibility of industrial sites in the Meridian area. This study is being made by the Mississippi Research and Development Center. Preliminary indications are that the more likely sites for future industrial development in the Meridian area will be in the bottom and terrace lands of Sowashee Creek. This feasibility is indicated with or without the Sowashee Creek Watershed project in place. Of course, land filling, flood proofing, etc., will be more expensive without the project. Land filling, if done without the project, will raise flood peak elevations and cause greater damage to existing properties in unfilled areas or underfilled areas.

- (4) Comment: The project appears to be in conflict with Guideline No. 3 of Watersheds Manual 108 which prohibits the use of channel improvements to bring new land into agricultural production.

Response: The work plan does not anticipate any new lands being brought into agricultural production as a result of the project. The bringing of new lands into agricultural production as a result of the project was not indicated in the watershed work plan or the environmental statement and no benefits or damages for such were claimed.

- (5) Comment: While this work plan calls for land treatment measures, there does not appear to be any firm commitment on the part of the local sponsors to implement these measures.

Response: The Lauderdale County Soil and Water Conservation District, one of the sponsors, has a direct commitment through its long range plan of operation as well as through its annual plan of operation. Also, additional monies will be provided as a result of this project for technical assistance for accelerated planning and installation of these measures within the project area.

- (6) Comment: Both the report (work plan) and the draft statement do not provide a clear understanding of the impact of these project structures on downstream fishery habitat.

Response: Both the work plan and the draft statement include statements showing that the stream fishery resource is almost negligible and fishery habitat insignificant in the headwater streams because of their small size and ephemeral or intermittent flows. Also, the downstream reaches, where perennial flow does exist, are polluted from industrial or municipal wastes to the point that no fishery habitat is available. Therefore, the structural measures will have little or no impact on the downstream fishery



habitat. Since there will be no additional pollution entering the stream as a result of the project and no speed up of water leaving the watershed, there will be no adverse impact in Okatibbee Creek downstream from Sowashee. For further discussion, see the Plant and Animal Resources section of the Environmental Setting section of the Statement.

- (7) Comment: Minimum streamflows should meet or exceed natural medial monthly flows and additional storage should be provided to offset reservoir losses.

Response: This comment is not clear as to extent or purpose. If "medial" is taken to be mean or average, then it would be impossible to store enough water to outlet a minimum flow equal to or exceeding the average flows for each month of the year. Maybe what was meant was that the minimum streamflow should equal or exceed the medial monthly low flow or the medial monthly low flow for the month with the lowest low flow. In any case, the retarding structures are located on tributary streams that have ephemeral or intermittent flows. There should be no reduction of low flows as a result of reservoir losses. In fact, there might be an increase as a result of return flow from seepages and from extension and flow times due to the retardation features of the dams.

- (8) Comment: We believe that public access to all project reservoirs should be provided.

Response: The local sponsors have the responsibility for securing all necessary land rights. Public Law 566 nor the Department's rules and regulations require that public access be made available. Therefore, the matter of public access is within the discretion of the local sponsors. If public access were allowed, sanitary facilities would have to be provided so as to avoid pollution. This raises the question of who would pay for this and who would operate and maintain them.

- (9) Comment: The need for inserting a statement into the environmental statement to the effect that the National Register of Historic Places had been consulted and there were or were not properties or sites listed that would be affected is essential.

Response: A statement was included indicating that the National Register of Historic Places had been consulted and that two properties within the watershed area have been added since the original inquiry. These properties are Merrehope, a pre-Civil War home, and the Grand Opera House of Heridian.



(10) Comment: If any National Register properties exist in the project area, the statement should describe each one, assess its relation to the project, and indicate what steps are being taken to assure compliance with Section 106 of PL 89-665 according to the procedures published in the Federal Register of February 28, 1973.

Response: Two properties within the watershed area are listed in Federal Register Volume 38, Number 39, Part II, dated February 28, 1973. These properties are the Grand Opera House located at 2208 5th Street, Meridian, Mississippi, and Merrehope located at 905 31st Avenue, Meridian, Mississippi. A statement was added to the environmental statement as suggested.

(11) Comment: A simple consultation of lists of previously recorded cultural resources does not constitute the sort of interdisciplinary investigation of environmental resources required by the National Environmental Policy Act and neglect of this integral element of the environment does not reflect recognition of the requirements of Executive Order 11593 and the National Historic Preservation Act (PL 89-665; 80 Stat. 915). A statement, based solely on correspondence, that no currently known cultural resources exist in the affected environment does not constitute professionally derived evidence that no such values exist. Accordingly, since the statement neglects this portion of the environment, we believe the basis for evaluation is not properly supported as it must be based on a survey by competent professionals if any realistic appraisal of the resources is to be made.

Response: We believe that the requirements of the law have been complied with since the conditions, especially any abnormal conditions, of the watershed area in the vicinity of proposed structural measures were observed during the preliminary geologic investigations. In addition, the state agency directly involved in the archeological and historical resources of the state was consulted as to its knowledge and opinions of known or significant resources. Also, the proper National Register was consulted to see if properties within this watershed were included therein.

(12) Comment: The steps to be taken after any cultural resources are discovered during construction and the Mississippi State Historic Preservation Officer is notified are not explained in the statement.

Response: Statements are included in the Planned Project section of the Environmental Statement saying that a schedule of construction will be given to the Mississippi Department of Archives and History prior to construction start. This will give them time to make a study if they so desire. However, in any event if artifacts or other items of archeological or historical significance are uncovered during construction, the Mississippi Department of Archives and History will be notified. The steps to be followed in that event will have to be worked out at that time depending on circumstances at the time.

(13) Comment: The presence or absence of cultural resources should be established by a direct examination of the affected area by archeologists, historians, and others to investigate such values. The results of this interdisciplinary investigation should be reflected in all parts of the environmental statements.

Response: See response to U. S. Department of the Interior's Comment #11.

(14) Comment: The applicability of the Reservoir Salvage Act of 1960 (PL 86-523; 74 Stat. 220) to this project should be discussed in the environmental statement.

Response: The provisions of the Reservoir Salvage Act of 1960 are applicable to portions of this Watershed Work Plan and statements to this effect are included in the statement.

(15) Comment: The treatment of the fish and wildlife resources in this section of the statement is not adequate. It should contain an inventory of the fish and wildlife resources (game and nongame species) that exist in the study area and provide reasonable insight as to the quality and quantity of habitat available to them.

Response: The stream fishery resource was described briefly because it is almost nonexistent. The fishery habitat has been made uninhabitable because of pollution. The major forest types are listed under the fish and wildlife resources section and the percentage of the total forest that is in each major forest type is shown in the economic data section. These major forest types make up the major wildlife habitat. Species listed in the fish and wildlife resources include squirrel, turkey, deer, quail and rabbit. These are the species listed in the Bureau of Sport Fishery and Wildlife's report for this watershed.

(16) Comment: Based on discussion in the work plan, we are led to believe that about 2,000 acres of bottom land hardwood will be cleared in the agricultural floodplain. The environmental impact section should include an assessment of the impact of this land clearing especially as it is related to wild-life habitat foregone.

Response: It was not intended in the work plan to lead anyone to believe that about 2,000 acres or any acres of bottom land hardwood would be cleared in the agricultural floodplain except for those acres necessary for structural measures rights-of-way. The project does not propose that any bottom land hardwood be cleared for agricultural uses and no clearing was considered in the project evaluation.

(17) Comment: We believe that the proposed channel modifications and subsequent maintenance of these channels could result in a permanent loss of stream fishery, not a temporary reduction as implied in this statement. More information is needed for evaluation purposes on how the channel modifications and maintenance are to be carried out since this will, in a large measure, determine the degree of impact.

Response: Statements on how the channel modifications and maintenance are to be accomplished have been expanded.

(18) Comment: We do not anticipate any significant adverse environmental impacts from the project as it relates to geology and hydrology.

Response: None.

(19) Comment: Items J and K of the favorable environmental effects section state that scenic beauty and wildlife habitat will be enhanced by land treatment measures. Although wildlife habitat will be treated and preserved, the statement should not claim wildlife benefits from planting loblolly pine. If any wildlife benefits are to be claimed, tree planting in hardwoods, particularly oaks and shrubs such as autumn olive should be discussed in the statement.

Response: We believe that the planting of loblolly pine will provide wildlife benefits even though hardwoods might provide more. However, the lands to be planted which are critically eroded areas are more suited to establishment of loblolly pine and less suited or not suited for

the establishment of hardwoods. Loblolly pine planting provides browse for wildlife during the first several years after planting and wildlife habitat in the later years as an understory of vegetation develops. Wildlife benefits are being claimed for land treatment measures in addition to tree planting. Measures that improve the cover conditions, wildlife food supply, and wildlife water supply will improve the wildlife habitat of the watershed.

(20) Comment: We believe the alternatives section should give more consideration to the identification of the favorable aspects of various alternatives, particularly floodways, zoning and flood insurance.

Response: During the planning process and the initial writing of the environmental statement, much thought and consideration was given to the alternatives listed in the comment above. In the particular case of the area covered by this project, we could find few, if any, favorable aspects to floodways and zoning. The major lifelines of the city are located in the flood plain and terrace lands of Sowashee Creek. This includes Interstate Highways, U. S. and state highways, major railroads, electric and natural gas transmission lines, water and sewage lines, streets, and telephone lines. These would be adversely affected by floodways and zoning. There were very favorable aspects to the local existing properties in the flood insurance program. This, however, was of a local nature and not a long range solution to the problems that exist.

(21) Comment: A discussion of an alternative which permits partial use of floodways and some zoning to prevent further encroachment and industrial development in the flood plain should also be included in the alternatives section.

Response: A discussion of this alternative has been included in the final statement.

#### U. S. Department of Transportation

Comment: We have no comment to offer nor do we have any objection to the project.

Response: None.

#### Environmental Protection Agency

(1) Comment: The drainage of wetlands may significantly affect the recharge of the ground water reservoir which is the



main source of water supply for domestic use and livestock in the agricultural areas and for municipal and industrial uses within and outside the watershed.

Response: The project measures will not drain any wetlands. There are no Type II, III, IV or V wetlands in the watershed as classified in the U. S. Department of the Interior, Fish and Wildlife Service, Circular-39, "Wetlands of the United States". There are a few acres that could be classified as Type I wetlands (lands with seasonally flooded basins or flats). There are, however, no plans to drain any lands. The channel bottoms will not be lowered, except below the three drop structures. The capacities will be increased by the removal of flow obstructions within the banks or by enlargement through increasing the width of the channel. The project will increase the recharge of the ground water reservoir through seepage from the storage of over 17,000 acre feet of water in the retarding structures and the multi-purpose structure, through seepage from about 60 farm ponds to be constructed, and through the land treatment measures which will improve the infiltration rates of the soil.

(2) Comment: The Water Quality Standards for the State of Mississippi are being upgraded statewide to provide a minimum standard of fish and wildlife; therefore, the Sowashee Creek Watershed needs a project which will upgrade the waters of Sowashee Creek and its tributaries to a quality suitable for fish propagation.

Response: None.

(3) Comment: The proposed channelization will be detrimental to aquatic life in the streams and to the animals of the natural bottom land ecosystem.

Response: Agreed. Statements to the extent of effects of channel work on the existing fishery resource and on wildlife habitat are included in the environmental impact section of the statement and an additional statement has been added under the adverse environmental effects section regarding the effect on stream fishery resources. See U. S. Department of Interior's comment No. 17 for further discussion.

(4) Comment: Besides increasing erosion and waterborne sedimentation, channelization will also degrade the water quality of Sowashee Creek and its tributaries as a result of increased agricultural runoff from new and more intensively cultivated land close to the channels.

Response: It is agreed that there will be a temporary increase in stream erosion and waterborne sedimentation during the construction process. However, after construction is complete and revegetation is accomplished, the erosion and waterborne sedimentation will be reduced to below present rates. While it is true that intensively cultivated lands may in the future be located close to the channels and will have increased soil particle movement as compared to the present pastured lands, the overall effect of the project is to reduce the delivery to the stream system of sediment particles from cultivated land of the watershed area. With the overall reduction of sediment particles reaching the stream system from cultivated lands and from other lands, there will be no overall degradation of the water quality even with cultivated lands located closer to the channels.

(5) Comment: The Statement should describe the effect of reservoirs and channelization on the low flow characteristics of Sowashee Creek and the effect of channelization on the reaeration rate of the stream.

Response: The effects of reservoirs and channel work on the low flow characteristics and the reaeration rate of the stream have been added to the Statement.

(6) Comment: Under the "Adverse Environmental Effects Which Cannot be Avoided" section, we recommend the addition of the following:

Item 1. Water temperatures in the streams will be increased as a result of the impoundments and the clearing operations in which trees and valuable shade will be removed along the streams. This increase in temperature will decrease the oxygen adsorptive capacity of the water and will decrease overall oxygen content.

Item 2. The channelization will reduce the assimilative capacity of the streams, and pollutional loads (covered on pages 6-10) will be transferred farther downstream before being assimilated. This will have an adverse effect on water quality in the lower portion of Sowashee Creek and Okatibbee Creek where low oxygen problems already exist under low flow conditions.

Item 3. Farm pollutants which enter the channelized streams will have a greater adverse effect on water quality values than those which presently enter the natural stream. Farming activity will increase in the

flood plains below the dams and farm pollutants such as animal excretion, herbicides, pesticides, and the nitrates and phosphates found in farm fertilizers will enter directly into the channelized stream where it will not have the benefit of the natural stream biota and the flood plain environment. The net result will be that these farm pollutants will not be as readily assimilated and will tend to degrade water quality values.

Item 4. Urban runoff will have a greater adverse effect on water quality as a result of the channelization. This pollution will be directed to a channelized stream where it will not have the benefit of the purification process afforded by the natural stream bottoms or flood plain environment. This feature of the project will also tend to degrade water quality values.

Response  
to  
Items 1-4:

Item 1. A statement that water temperatures will be increased has been included in the adverse effects section. Also, a discussion of the effects on stream temperature as a result of the project was added in the environmental effects section.

Item 2. The statement as recommended in item 2 above was not included in the adverse effects section because we do not believe that the overall assimilative capacity of the streams will be reduced.

The channel will have three drop structures with stilling basins and the drop distance at the structures will vary from 9 to 11 feet. The stilling basins will be below the drop structures, which will create a ponding effect in the channel. The ponding effect of the stilling basin plus the 9 to 11 foot drop should increase the reaeration rate of the stream.

The stream's reaeration ability or waste assimilation ability should be reviewed realistically. The present benefit of the stream to assimilate waste water is minimal due to the large waste water flows into the stream.

According to the "Draft Copy" of the Pascagoula River Basin Water Quality Management Plan, the stream is receiving a total waste water flow of 11.88 cfs from the City of Meridian and two industries. The waste water exerts a loading on the stream of 8,468 lbs. of

carbonaceous biochemical oxygen demand (CBOD) and 1,018.4 lbs. of total Kjeldahl nitrogen (TKN) per day. The 7-day, Q10 flow of the stream is only 0.3 cfs; therefore, the waste water flow is almost 40 times larger than the low flow of the stream. Other waste sources are listed in the above document, but flows and waste loads were not given. The present oxygen content in the stream is usually zero below the waste sources down to the confluence of Okatibbee Creek, which is approximately 3 miles.

The above document presented various alternatives for waste treatment to improve the water quality of Sowashee and Okatibbee Creek. To maintain a dissolved oxygen content of 4.0 mg/l in Sowashee Creek under the present circumstances, the City of Meridian would have an effluent limitation of 2mg/l for CBOD and 2mg/l for TKN plus the industry would have to achieve 90% removal of CBOD and 100% removal of TKN. This criteria is required to retain an oxygen content of 4.0 mg/l for approximately 3 miles of Sowashee Creek and would require an unusually high degree of treatment.

The best alternative recommended by the study was to relocate the effluent outfall from Sowashee Creek to Okatibbee Creek. Therefore, the waste assimilative capacity of Sowashee Creek is not going to be used in the assimilation of waste water effluent.

Item 3. The statement as recommended in item 3 above was not included in the adverse effects section because the issue of the project creating more water quality problems is debatable.

The surface runoff water should enter the stream system and not spread over the flood plain terrain during flooding as stated in the comments, but the feasibility of this creating more water quality problems is a debatable issue. With the present condition of flooding, the flood water may create a substantial amount of erosion inside the stream and on sections of the flood plain. The flood conditions should increase the nutrient content of the water and any waste material in the flood plain would probably be suspended in the flood waters. Thus, the flooding will tend to degrade water quality values. To clarify this issue will require a detailed study above the scope of this project or readily available facilities.



Item 4. The statement as recommended in item 4 above was not included in the adverse effects section because the issue of the urban runoff having a greater adverse effect on water quality as a result of channel work is debatable.

The surface runoff water should enter the stream system and not spread over the flood plain terrain during flooding as stated in the comments, but the feasibility of this creating more water quality problems is a debatable issue. With the present condition of flooding, the flood water may create a substantial amount of erosion inside the stream and on sections of the flood plain. The flood conditions should increase the nutrient content of the water and any waste material in the flood plain would probably be suspended in the flood waters. Thus, the flooding will tend to degrade water quality values. To clarify this issue will require a detailed study above the scope of this project or readily available facilities.

Under present flooding conditions, it should be emphasized that during high floods the overflow water will flood sewers, manholes, and buildings. The flood water would create very high infiltrations into the sewer system and disrupt the treatment system. The waste water would flow through the treatment system inadequately treated or completely by-pass sewage treatment. The flooding would definitely tend to degrade the water quality.

- (7) Comment: There may be short-term adverse effects on the ambient air quality if vegetation from land clearing and construction waste materials are disposed of by open burning. If these materials are disposed of in this manner, it should be done in accordance with applicable state and air pollution regulations.

Response: Proper statements were added in the planned project section stating that all applicable state laws and regulations will be followed, including the air quality standards.

#### Federal Power Commission

Comment: Our review of the data submitted indicates that the project would pose no major obstacle to the construction and operation of facilities under the jurisdiction of the Commission. However, there are electrical power

transmission facilities and interstate natural gas pipelines in the vicinity of the proposed work which should be protected from damage during construction activities.

Response: The Service contracting procedures include provisions for the protection of electrical power transmission lines, natural gas lines and other utilities during the construction process.

United States Water Resources Council

(1) Comment: The number of floodwater retarding structures and the extent of channel improvement have increased substantially over that contemplated in the Comprehensive Plan for the Pascagoula River Basin, resulting in higher annual costs and benefits and a higher level of flood protection. Since the benefits accrue substantially to urban values in the Meridian metropolitan area, the state's second largest city, the higher level of flood protection is warranted.

Response: None.

(2) Comment: There is no indication that item 4 of the Water Resources Council's Views and Findings to the Comprehensive Plan dealing with flood plain management has been observed.

Response: Flood plain management in the form of flood plain zoning, flood proofing, floodways and the flood insurance program were considered in the planning of this project. Flood plain management can be considered by the city of Meridian and Lauderdale County for those areas of the flood plain not already developed. The extent of the project measures is for the reduction of damages to existing properties. The 100 year frequency level of protection was provided where there were urban damages as required under Service criteria. A lesser degree of protection was provided outside of the urban areas. For the unprotected portion of Gallagher Branch, it is anticipated that flood protection will be provided from some source (city, drainage district, etc.). Therefore, the flood plain management consists of encouraging people to refrain from any further development in the flood prone area and the limiting of building permits until such time as protection is provided.

(3) Comment: The recreation proposal is consistent with the recreation needs recognized in Appendix II of the Pascagoula River

Basin Comprehensive Plan and with the New Water Areas Proposed in the Early-Action Program.

Response: None.

- (4) Comment: The Work Plan contains a substantial land treatment program and calls for the installation of water level control devices in 13 structures to partially mitigate damage to watershed habitat and/or fishery resources caused by stream channel improvements. This conforms to the recommendation contained in the WRC Report on the Comprehensive Plan that, in the development of specific plans, compatibility should be provided to the extent possible between preservation of fish and wildlife resources and the agricultural interests in those areas where stream channelization is undertaken.

Response: None.

- (5) Comment: The Sowashee Creek Watershed Work Plan transmitted with your letter of April 4, 1973, is consistent and compatible with the Pascagoula River Basin Comprehensive Plan.

Response: None.

Governor, State of Mississippi

- (1) Comment: The Sowashee Creek Watershed Work Plan has been reviewed and approved. This is a component of the Southeast Mississippi RC&D project which I have approved and I endorse the aims and objectives of this Work Plan and the others included in this RC&D program

Response: None.

- (2) Comment: The Draft Environmental Impact Statement was reviewed by my staff and a letter from the State Clearinghouse for Federal Programs covering this review was mailed to the State Conservationist on June 14, 1973.

Response: None.

State Clearinghouse for Federal Programs

- (1) Comment: The Mississippi Board of Water Commissioners' summary of state agency comments and their individual letters of comment are a part of the "Clearinghouse" action.

Response: None.

- (2) Comment: The requirements of U. S. Office of Management and Budget Circular No. A-95 have been met and this is the "Final Clearinghouse Review and Comment".

Response: None.

Summary - Board of Water Commissioners

- (1) Comment: None of the review participants made opposition to the statement from an overall standpoint, however, several participants had comments warranting attention at this time. These are as follows:

Item 1. Mississippi Game and Fish Commission comments that on page 7, under Recreational Resources, Tom Bailey Lake, a 240 acre lake owned and operated by the Mississippi Game and Fish Commission, located just to the east of the watershed is not mentioned. This lake provides about 15,000 man days of recreation per year in the form of swimming, camping, picnicking, boating and fishing.

Item 2. Mississippi Game and Fish Commission comments that, on page 14, paragraph 3, it is stated that a temporary reduction in stream fishery resource will be experienced because of channel modification. We do not believe this is temporary but one of a long-lasting effect.

Item 3. Mississippi Game and Fish Commission comments on page 15, 3. q. Because of our experience on Lake Tom Bailey, we believe you are claiming more recreational useage than you will have.

Item 4. Mississippi Game and Fish Commission comments on page 15, 3. k. We doubt that the 50 acres of wildlife habitat will ever develop nor does past experience lead us to believe the 2,500 acres of wildlife habitat will be preserved.

Response to  
Items 1-4:

Item 1. Discussion of Lake Tom Bailey was certainly omitted through error and was included in the final statement.

Item 2. The only existent fishery resources are in the upper reaches of the watershed where the channel modifications will consist of clearing only. The clearing will be accomplished with as little disturbance to the within channel banks as possible and as little clearing of overbank right-of-way as possible. The present stream alignment, sizes, flows, etc. will



remain. Therefore, we believe that the fishery resource reduction will be more temporary than long ranged.

Item 3. The recreation usage claimed is based on Service criteria. This criteria includes quality and quantity of facilities being provided, the population within the travel area, income of the population and other factors affecting recreation usage.

Item 4. It is the intention of the Service, the local sponsors, and the U. S. Forest Service in cooperation with the Mississippi Forestry Commission to carry out the plans for developing an additional 50 acres of wildlife food plantings and the preservation of an additional 2,500 acres of wildlife habitat. This will be accomplished through the development of conservation plans and/or timber management plans by the land owners and the appropriate agency or sponsor. Accelerated technical assistance will be made available for the preparation of and carrying out of these plans.

(1) Comment  
(Cont.):

Item 5. Mississippi State Board of Health comments that there appears to be little in this environmental statement pertaining to the many problems which could develop with the municipal water supply at Meridian. As you know, the Okatibbee Reservoir is located on the opposite side of Meridian from the municipal water treatment plant. No definite plans or proposals have been submitted for utilizing this reservoir as a raw water source for the Meridian water supply. Also, the Okatibbee Reservoir is, in our opinion, more subject to contamination than the existing water supply reservoir in that the drainage basin is relatively uncontrolled and the area is at the present time experiencing development. Before any commitments are made to abandon the existing reservoir as a source of raw water, it would be necessary that more definite plans be submitted. Also, we feel that a complete change-over to the Okatibbee Reservoir would be necessary before any construction work is initiated at the existing water supply reservoir sites.

Response

to Item 5: Most of this comment seems to be within the jurisdiction of the City of Meridian in its relations with outside interests. Since Meridian will be making available the rights-of-way for the multiple-purpose reservoir and the basic recreational facilities, the people of Meridian

will have a control over the start of construction even after money is available for construction.

(1) Comment  
(Cont.):

Item 6. Mississippi Forestry Commission comments that the economic impact by reduced flooding to the Meridian area and to row crop farmers will offset the adverse environmental and economic impact created by clearing 719 acres of woodland. We do not oppose the project for this reason. However, the Commission recommends that land clearing be discouraged in the watershed area by the Soil Conservation Service.

Response

to Item 6: The Work Plan does not plan for clearing of forestland except for the clearing necessary to the construction of the structural measures. Forestland (clearing, planting, management, etc.) will be discussed on an individual basis between requesting landowners and Service personnel. The Service personnel will discuss the advantages and disadvantages of all forestland changes with the landowner so that he can reach final decisions regarding his forestlands.

(1) Comment  
(Cont.):

Item 7. Department of Archives and History comments that although we have no sites recorded in the watershed, it is certain that there are some. We would like to survey the area before any work is done in order to locate any sites which could be affected.

Response

to Item 7: A survey of the lands that will be flooded by the retarding structures and affected by channel works for the purposes of determining archeological and/or historical values will be of great benefit to the proper development of this watershed project. A construction schedule will be given to the Mississippi Department of Archives and History for their information and use in the making of an archeological survey of the area.

(2) Comment: State Agencies not specifically mentioned in the summary report made the following comments:

Item 1. Water Pollution Control Commission comments that the pollution of the air and water in the area is minimal and unavoidable if the project is to proceed.

Response

to Item 1: None.

Item 2. Mississippi State Highway Department comments that a preliminary review of the Draft Environmental Statement has disclosed no effects on the quality of the human or natural environment within the area of jurisdiction of the Mississippi State Highway Department.

Response  
to Item 2: None.

Item 3. Bureau of Outdoor Recreation-Mississippi Park Commission stated that it has no recommendations or comments.

Response  
to Item 3: None.

East Central Planning and Development District

Comment: After notifying the appropriate local and regional officials and reviewing the overall economic development program for the District, we endorse the proposed project as being consistent with regional plans, goals, and objectives.

Response: None.

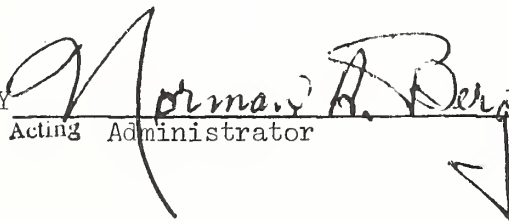
LIST OF APPENDIXES

Appendix A - Comparison of Benefits and Costs for Structural Measures

Appendix B - Letters of Comment Received on Draft Environmental Statement

Appendix C - Project Map

APPROVED BY

  
Acting Administrator

DATE

OCT 13 1973

APPENDIX A

TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES

Sowashie Creek Watershed, Mississippi

Evaluation Unit	AVERAGE ANNUAL BENEFITS					Total	Average Annual Cost	Benefit Cost Ratio
	Damage Reduction	More Intensive Agriculture	Urban Use	Planned Recreation	Secondary			
13 floodwater retarding structures; 1 multiple-purpose structure with basic facilities; and about 55 miles of channel improvement	532,540	16,958	22,967	126,022	61,967	760,454	465,323	1.6:1.0
Project Administration	--	--	--	--	--	--	50,548	--
GRAND TOTAL	532,540	16,958	22,967	126,022	61,967	760,454	515,871	1.5:1.0

1/ Price base: Adjusted normalized.  
 2/ In addition, land treatment benefits are estimated to be \$11,139 annually.  
 3/ From Table No. 4.





DEPARTMENT OF THE ARMY  
OFFICE OF THE UNDER SECRETARY  
WASHINGTON, D.C. 20310

6 JUL 1973

RECEIVED HALL 1973  
1973 JUL 12 PM 4:00  
SOIL CONSERVATION SERVICE

Honorable Robert W. Long  
Assistant Secretary of Agriculture  
Washington, D. C. 20250

Dear Mr. Long:

In compliance with the provisions of Section 5 of Public Law 566, 83d Congress, the Administrator of the Soil Conservation Service, by letter of 4 April 1973, requested the views of the Secretary of the Army on the work plan for Sowashee Creek Watershed, Mississippi.

We have reviewed this work plan and foresee no conflict with any projects or current proposals of this Department. The draft of the environmental statement satisfies the requirements of Public Law 91-190, 91st Congress, insofar as this Department is concerned.

Sincerely,

Charles R. Ford  
Acting Special Assistant to the  
Secretary of the Army (Civil Functions)





# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

In reply refer to:  
PEP ER-73/489

JUL 13 1973

RECEIVED  
1973 JUL 17 11:00 AM  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

Dear Mr. Grant:

Herewith are our views and comments on a proposed work plan and draft environmental statement for the Sowashee Creek Watershed, Lauderdale County, Mississippi.

The proposed project will not adversely affect any existing or proposed units of the National Park System nor will it affect any registered National Historic, Natural or Environmental Education Landmark or any site now in process for registration as a landmark.

Lauderdale County produced only minor amounts of sand, gravel and clay in 1971 and 1972 but the quantity and value cannot be disclosed. Sand, gravel and clay resources are available in the County and surrounding areas in substantial quantities and we do not believe these structures will have any significant adverse impact on these mineral resources or their development.

There are plans to expand the industrial area between U.S. Highway 11 and Sowashee Creek which will result in the clearing of 200 acres of bottom land hardwoods. The development does not appear to be feasible in the absence of the proposed project. Such action warrants further discussion since Guideline No. 5 of Watershed's Memorandum 108 states that channel improvements should not be used to make flood plain land suitable for non-agricultural development. In addition, the project also appears to be in conflict with Guideline No. 3 of Watershed's Manual 108 which prohibits the use of channel improvements to bring new land into agricultural production.

While this work plan calls for land treatment measures, there does not appear to be any firm commitment on the part of the local sponsors to implement these measures. We would urge the Soil Conservation Service to make implementation of these

land treatment measures a condition of project authorization since realization of the positive effects of these measures is assumed in the report and the draft statement.

Both the report and the draft statement do not provide a clear understanding of the impact of these project structures on downstream fishery habitat. Minimum streamflows should meet or exceed natural medial monthly flows and additional storage should be provided to offset reservoir losses. Also we believe public access to all project reservoirs should be provided.

We have completed our review of the draft statement and submit the following comments for your consideration and use.

### Environmental Setting

We are pleased to note that the Mississippi State Historic Preservation Officer (State Department of Archives and History) was consulted during project planning, and that that official affirmed that no "recorded" cultural (historic, archeological, architectural) resources exist in the project area. We assume that this determination means that no properties listed in the National Register of Historic Places will be affected, but we cannot be sure. The statement should indicate whether the National Register (published annually and updated monthly in the "Federal Register") has been consulted to determine whether any listed sites will be affected. If any National Register properties exist in the project area, the statement should describe each one, assess its relation to the project, and indicate what steps are being taken to assure compliance with Section 106 of P.L. 89-665 according to the procedures published in the "Federal Register" of February 28, 1973.

We wish to point out that simple consultation of lists of previously recorded cultural resources does not constitute the sort of interdisciplinary investigation of environmental resources required by the National Environmental Policy Act. Nor does neglect of this integral element of the environment reflect recognition of the requirements of Executive Order 11593 and the National Historic Preservation Act (P.L. 89-665; 80 Stat. 915). A statement, based solely on correspondence,



that no currently known cultural resources exist in the affected environment does not constitute professionally derived evidence that no such values exist. The contrary, in fact, is likely. Accordingly, since the statement neglects this portion of the environment, we believe the basis for evaluation is not properly supported as it must be based on a survey by competent professionals if any realistic appraisal of the resources is to be made.

The statement indicates that the Mississippi State Historic Preservation Officer will be notified if any cultural resources are discovered during construction. However, it does not explain what further steps will be taken in the event of such discovery. We wish to point out that such resources are usually of such a nature that they can be recognized only by persons trained to investigate them, so that it is unlikely that observance on the part of untrained construction crews will result in substantive protection for cultural resources. The best way to assure against the inadvertent loss of such values-- and to obviate delays in construction while salvage investigation is undertaken--is to conduct a professional examination of the affected area prior to construction.

The presence or absence of cultural resources should be established by a direct examination of the affected area by archeologists, historians, and others competent to investigate such values. The results of this interdisciplinary investigation should be reflected in all parts of the environmental statement, which should describe them, analyze their relation to the project by assessing project effects upon them, explain what measures will be taken to obviate or mitigate loss of cultural values to project developments, explain unavoidable adverse effects, and account for irreversible and irretrievable commitments of cultural resources. We wish to point out that any loss of cultural resources constitutes an irreversible and irretrievable commitment of such values. Cultural resources should also be considered in discussion of alternatives.

Finally, the statement should discuss the applicability of the Reservoir Salvage Act of 1960 (P.L. 86-523; 74 Stat. 220) to this project.

The treatment of the fish and wildlife resources in this section of the statement is not adequate. It should contain an inventory of the fish and wildlife resources (game and nongame species) that exist in the study area and provide some

reasonable insight as to the quality and quantity of habitat available to them. With this information as a base, one can then assess the project's impact on these resources.

### Environmental Impacts

One of the objectives of this project is to reduce the frequency and duration of flooding so that the flood plain can be used more efficiently. Based on discussion in the work plan, we are led to believe that about 2,000 acres of bottom land hardwood will be cleared in the agricultural flood plain. This section should assess the impact of this land clearing especially as it relates to wildlife habitat foregone.

We believe that the proposed channel modifications and subsequent maintenance of these channels could result in a permanent loss of stream fishery not a temporary reduction as implied in this statement. The degree of impact will in a large measure depend on how channel modifications and maintenance is carried out. More information on this subject is needed for evaluation purposes.

We do not anticipate any significant adverse environmental impacts from the project as it relates to geology and hydrology.

### Favorable Environmental Effects

Items J and K of this section state that scenic beauty and wildlife habitat will be enhanced by land treatment measures. Although wildlife habitat will be treated and preserved, the statement should not claim wildlife benefits from planting loblolly pine. If any wildlife benefits are to be claimed, tree planting in hardwoods, particularly oaks and shrubs such as autumn olive should be discussed in the statement.

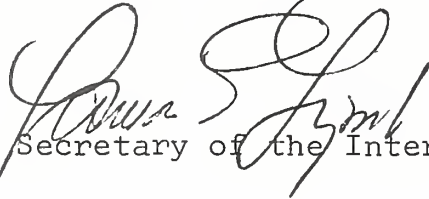
### Alternatives

We believe this section should give more consideration to the identification of the favorable aspects of the various alternatives, particularly floodways, zoning and flood insurance. A discussion of an alternative which permits partial use of floodways and some zoning to prevent further

encroachment of urban and industrial development in the flood plain should also be included in this section.

We wish to thank you for the opportunity to review this report and draft environmental statement.

Sincerely yours,



Assistant Secretary of the Interior

Mr. Kenneth E. Grant  
Administrator  
Soil Conservation Service  
U.S. Department of Agriculture  
Washington, D. C. 20250







DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
REGION IV  
50 7TH STREET N.E.  
ATLANTA, GEORGIA 30323

OFFICE OF THE  
REGIONAL DIRECTOR

May 16, 1973

Re: 280-5-73

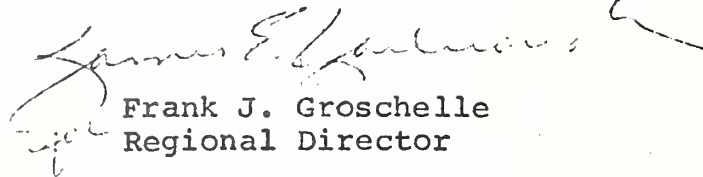
Mr. Kenneth E. Grant  
Administrator  
U. S. Department of Agriculture  
Soil Conservation Service  
Washington, D. C. 20250

Subject: Draft Environmental Statement  
Sawashee Creek Watershed  
Lauderdale County, Mississippi

RECEIVED MAIL ROOM  
1973 MAY 22 PM 3: 06  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

We have reviewed the draft EIS prepared for the above subject project. The draft EIS together with the Watershed Work Plan presents adequate data justifying the decision making process for this project. It appears that one of the main benefits to be derived in the urban area is the utilization of the former flood plain. If such potential development is to consist of multi-family or single family residential dwellings, some consideration should be given to the secondary effects on public education facilities, health care delivery systems, etc., that such development creates.

Very truly yours,

  
Frank J. Groschelle  
Regional Director





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

1421 PEACHTREE ST., N. E.  
ATLANTA, GEORGIA 30309

June 7, 1973

Mr. Kenneth E. Grant, Administrator  
U.S. Department of Agriculture  
Soil Conservation Service  
Washington, D. C. 20250

Dear Mr. Grant:

We have reviewed the Draft Environmental Impact Statement and Watershed Work Plan for the Sowashee Creek Watershed in Lauderdale County, Mississippi and find that we have reservations concerning the environmental effects of certain aspects of the proposed action. It is recommended that further study be given to the suggested alternatives, and we also suggest that certain additional information be included in the Final Statement so that the environmental impact of the proposed project can be fully assessed.

Specifically, we find that both reports fail to discuss or state all the adverse impacts which will result from the project.

Among other adverse effects, the drainage of wetlands in the Sowashee Creek Watershed may significantly affect the recharge of the groundwater reservoir which is the main source of water supply for domestic use and livestock in the agricultural areas, as well as the main source for municipal and industrial uses within and outside the watershed.

The Water Quality Standards for the State of Mississippi are being upgraded statewide to provide a minimum standard of fish and wildlife; therefore, the Sowashee Creek Watershed needs a project which will upgrade the waters of Sowashee Creek and its tributaries to a quality suitable for fish propagation. The proposed channelization, on the contrary, will be detrimental to aquatic life in the streams and to the animals of the natural bottomland ecosystem. Besides increasing erosion and waterborne sedimentation, channelization will also degrade the water quality of Sowashee Creek and its tributaries as a result of increased agricultural runoff from new or more intensively cultivated land close to the channels.

RECEIVED MAIL ROOM  
1973 JUN 13 PM 9:20  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

The Statement should describe the effect of reservoirs and channelization on the low flow characteristics of Sowashee Creek and also the effect of channelization on the reaeration rate of the stream. Any action which lowers the drought flow and the natural reaeration rate is discouraged.

Under Chapter 4, "Adverse Environmental Effects Which Cannot be Avoided", we recommend addition of the following:

1. Water temperatures in the streams will be increased as a result of the impoundments and the clearing operations in which trees and valuable shade will be removed along the streams. This increase in temperature will decrease the oxygen adsorptive capacity of the water and will decrease overall oxygen content.

2. The channelization will reduce the assimilative capacity of the streams, and pollutional loads (covered on pages 6-10) will be transferred farther downstream before being assimilated. This will have an adverse effect on water quality in the lower portion of Sowashee Creek and Okatibbee Creek where low oxygen problems already exist under low flow conditions.

3. Farm pollutants which enter the channelized streams will have a greater adverse effect on water quality values than those which presently enter the natural stream. Farming activity will increase in the floodplains below the dams and farm pollutants such as animal excretion, herbicides, pesticides, and the nitrates and phosphates found in farm fertilizers will enter directly into the channelized stream where it will not have the benefit of the natural stream biota, and the floodplain environment. The net result will be that these farm pollutants will not be as readily assimilated and will tend to degrade water quality values.

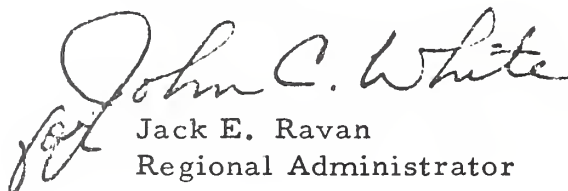
4. Urban runoff will have a greater adverse effect on water quality as a result of the channelization. This pollution will be directed to a channelized stream where it will not have the benefit of the purification process afforded by the natural stream bottoms or floodplain environment. This feature of the project will also tend to degrade water quality values.



Finally, there may be short-term adverse effects on the ambient air quality if vegetation from land clearing and construction waste materials are disposed of by open burning. If these materials are disposed of in this manner it should be done in accordance with applicable State and air pollution regulations.

We would appreciate your furnishing us with five copies of the Final Environmental Impact Statement when it is available. If we can be of further assistance in any way please let us know.

Sincerely,

The image shows a handwritten signature in cursive that reads "John C. White". To the left of the signature, there is a small, stylized handwritten mark that appears to be "JER".

Jack E. Ravan  
Regional Administrator



FEDERAL POWER COMMISSION  
REGIONAL OFFICE

730 Peachtree Building  
Atlanta, Georgia 30308  
April 26, 1973

RECEIVED MAIL ROOM  
1973 MAY -1 PM 9:45  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

Mr. Kenneth E. Grant  
Administrator  
U. S. Department of Agriculture  
Soil Conservation Service  
Washington, D. C. 20250

Dear Mr. Grant:

This is in response to your letter, with attachments, dated April 4, 1973, concerning the Work Plan and Draft Environmental Impact Statement for the Sowashee Creek Watershed in Lauderdale County, Mississippi.

The Federal Power Commission's principal concern regarding projects and work affecting land and water resources is the possible effects on the construction and operation of bulk electric power facilities and interstate natural gas systems.

Our review of the data submitted indicates that the above-noted project would pose no major obstacle to the construction and operation of facilities under the jurisdiction of the Commission. However, there are electrical power transmission facilities and interstate natural gas pipelines in the vicinity of the proposed work which should be protected from damage during construction activities.

Very truly yours,



C. L. Fishburne  
Regional Engineer







DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

MAILING ADDRESS:  
U. S. COAST GUARD (GWS/83)  
400 SEVENTH STREET SW  
WASHINGTON, D. C. 20590  
PHONE: 202 426-2262

• 1 JUN 1973

• Mr. Kenneth E. Grant  
Administrator, Soil Conservation  
Service  
Washington, D. C. 20250

Dear Mr. Grant:

This is in response to your letter of 4 April 1973 addressed to Admiral Bender concerning a draft environmental impact statement for the Sowashee Creek Watershed, Lauderdale County, Mississippi.

The Department of Transportation has reviewed the material submitted. We have no comment to offer nor do we have any objection to the project.

The opportunity for the Department of Transportation to review this project is appreciated.

Sincerely,

J. D. McNeill  
Captain, U. S. Coast Guard  
Acting Chief, Office of Marine  
Environment and Service

RECEIVED MAIL ROOM  
1973 JUN -5 PM 9:18  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.





THE CAPITOL  
JACKSON

BILL WALLER  
GOVERNOR

July 16, 1973

Mr. Kenneth E. Grant, Administrator  
Soil Conservation Service  
United States Department of Agriculture  
Washington, D. C. 20250

Re: Watershed Work Plan, Sowashee Creek  
Watershed, Lauderdale County,  
Mississippi

Dear Mr. Grant:

The subject Watershed Work Plan has been reviewed and approved. This is a component of the Southeast Mississippi RC&D project which I have approved last year. I endorse the aims and objectives of this Work Plan and the others included in this RC&D program.

The Draft Environmental Impact Statement for this Work Plan was reviewed by my staff. The letter from the State Clearinghouse for Federal Programs covering this review was mailed to the State Conservationist on June 14, 1973. I wish you every success in accomplishing the objectives of this plan.

Sincerely,

A handwritten signature in cursive script that reads "Bill Waller".

GOVERNOR

Enclosures

RECEIVED MAIL ROOM  
1973 JUL 28 9 14 AM  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

STATE CLEARINGHOUSE FOR FEDERAL PROGRAMS

Federal-State Programs  
Office of the Governor  
510 Lamar Life Bldg.  
Jackson, Mississippi 39201  
Telephone 354-7570

State Clearinghouse No.

73042401

Date: June 14, 1973

Mr. W. L. Heard  
State Conservationist  
U.S.D.A., Soil Conservation Service  
Post Office Box 610  
Jackson, Mississippi 39205

PROJECT DESCRIPTION: Draft Environmental Statement, Sosashee Creek Watershed,  
Lerdale County, Mississippi.

- ) 1. The State Clearinghouse has received notification of intent to apply for Federal assistance as described above.
- ) 2. The State Clearinghouse has reviewed the application(s) for Federal assistance described above.
- ) 3. After proper notification, no State agency has expressed an interest in conferring with the applicant(s) or commenting on the proposed project.
- ) 4. The proposed project is ( ) consistent ( ) inconsistent with an applicable State Plan for Mississippi.
- ) 5. Although there is no applicable State Plan for Mississippi, the proposed project appears to be ( x ) consistent ( ) inconsistent with present State goals and policies.

REMARKS: The attached summary statement from the Mississippi Board of Water Commissioners with the detailed comments from all concerned State agencies are made a part of this CLEARINGHOUSE action.

This notice constitutes FINAL STATE CLEARINGHOUSE REVIEW AND COMMENT. The requirements of U. S. Office of Management and Budget Circular No. A-95 have been met at the State level.

E. R. Mayfield





**BOARD OF WATER COMMISSIONERS**

416 NORTH STATE STREET  
JACKSON, MISSISSIPPI 39201

354-7236

June 13, 1973

Mr. W. L. Heard  
State Conservationist  
U.S.D.A., Soil Conservation Service  
Post Office Box 610  
Jackson, Mississippi 39205

Subject: Draft Environmental Statement,  
Sowashee Creek Watershed,  
Lauderdale County, Mississippi.

Dear Mr. Heard:

Review of the above captioned Draft Environmental Statement by appropriate agencies of the State of Mississippi is now complete, and individual letters of response are attached for your reference.

In summation, none of the review participants made opposition to the statement from an overall standpoint. However, several participants had comments warranting attention at this time. The Game and Fish Commission made specific comments concerning recreation, fisheries and wildlife habitat which need some reconsiderations. Incidental comments were brought out by Board of Health and Forestry Commission. The Board of Health points out that additional emphasis could be placed on problems pertinent to municipal water supply. The Forestry Commission states that the loss of woodland area is offset by project benefits, but recommends that future land clearing be discouraged in the watershed.

The Department of Archives and History desires coordination with construction units in advance of any work so that a survey can be made for unrecorded sites of interest.



Mr. W. L. Heard  
Jackson, Mississippi  
6/13/73  
-2-

We feel that, with adequate revisions, the overall statement will be an acceptable document.

We appreciate the opportunity to participate in this review.

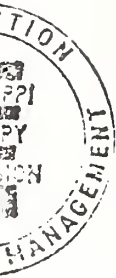
Sincerely yours,

MISSISSIPPI BOARD OF WATER COMMISSIONERS

A handwritten signature in cursive script that reads "Jack W. Pepper".

Jack W. Pepper,  
Water Engineer

JWP:mm  
Attachments



Mississippi

FORESTRY COMMISSION

908 ROBERT E. LEE BLDG. • JACKSON, MISS. 39201 • 354-7124

May 7, 1973

File: 945.0

WILLIAM LOWE WALLE  
GOVERNOR, CHAIRMAN  
COMMISSIONERS  
G. R. CAVINESS  
H. J. CURRAN  
POLK EVANS  
M. W. MCCORMICK  
G. B. PETERS  
J. D. SIBLEY  
J. W. SLAY  
BILLY T. GADDIS  
STATE FORESTER

Mr. James I. Palmer, Jr.  
Director of Resource Planning  
Mississippi Board of Water Commissioners  
416 North State Street  
Jackson, Mississippi 39201

Dear Mr. Palmer:

This is in reply to your correspondence dated May 1, 1973 concerning the Draft Environmental Statement prepared by the Soil Conservation Service for the Sowaskee Creek Watershed in Lauderdale County.

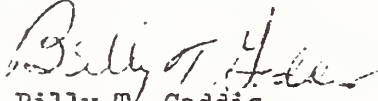
We have reviewed the statement and determined that 31,502 acres of woodland are located within the watershed. The 13 floodwater retarding structures will inundate 270 acres of this woodland area and 54.2 miles of channel modification will require 449 acres of woodland for rights-of-way.

The proposal indicates that 4,514 acres of forestland are in need of land treatment measures which include planting, thinning, T.S.I. and harvest cutting.

Since the economic impact by reduced flooding to the Meridian area and to row crop farmers will offset the adverse environmental and economic impact created by clearing 719 acres of woodland, the Mississippi Forestry Commission does not oppose the Watershed Project. However, the Commission recommends that land clearing be discouraged in that area by the Soil Conservation Service.

If additional information is needed, please contact us.

Sincerely yours,

  
Billy T. Gaddis  
State Forester

BTG:kb

CC: Mr. Carl F. Hoover, Field Representative  
U.S. Forest Service  
901 Milner Building  
Jackson, Mississippi 39201

Max West, District Forester





MISSISSIPPI  
STATE BOARD OF HEALTH

JACKSON, MISSISSIPPI 39205

May 29, 1973

JGH B COTTRELL, M.D., M.P.H.  
STATE HEALTH OFFICER

Mr. James I. Palmer, Jr.  
Director of Resource Planning  
Mississippi Board of Water Commissioners  
416 North State Street  
Jackson, Mississippi 39201

Dear Mr. Palmer:                    Re: Draft Environmental Statement  
    Sowashee Creek Watershed,  
    Lauderdale County, Mississippi

This is to advise you that I have reviewed the above Draft Environmental Statement forwarded with your letter of May 1.

There appears to be very little in this environmental statement pertaining to the many problems which could develop with the municipal water supply at Meridian. As you know, the Okatibbee Reservoir is located on the opposite side of Meridian from the municipal water treatment plant. No definite plans or proposals have been submitted for utilizing this reservoir as a raw water source for the Meridian water supply. Also, the Okatibbee Reservoir is, in our opinion, more subject to contamination than the existing water supply reservoir in that the drainage basin is relatively uncontrolled and the area is at the present time experiencing development. Before any commitments are made to abandon the existing reservoir as a source of raw water, it would be necessary that more definite plans be submitted. Also, we feel that a complete change-over to the Okatibbee Reservoir would be necessary before any construction work is initiated at the existing water supply reservoir sites.

If we can be of any further assistance, please let us know.

Very truly yours,

J. D. Brown, P. E., Director  
Sanitary Engineering

JDB/mb

*Mississippi*  
*State Highway Department*  
*Jackson*

BOTELER, JR.  
DIRECTOR

P.O. Box 1850  
Zip Code 39205

May 4, 1973

Mr. James I. Palmer, Jr.  
Director of Resource Planning  
Mississippi Board of Water Commissioners  
416 North State Street  
Jackson, Mississippi 39201

Dear Mr. Palmer:

SUBJECT: Review of Draft Environmental Statement, Sowashee Creek  
Watershed, Lauderdale County, Mississippi

A preliminary review of the Draft Environmental Statement has disclosed no effects on the quality of the human or natural environment within the area of jurisdiction of the Mississippi State Highway Department.

Thank you for the opportunity to participate in this review.

Sincerely,

  
for E. L. Boteler  
Director

ELB/JMW/jrh



Bureau of Outdoor Recreation  
Mississippi Park Commission

PHONE 354-6321 • 717 ROBERT E. LEE BLDG. • JACKSON, MISS. 39201

*A Year Round Vacation Land for Family Fun*

RAE SANDERS  
Liaison Officer

May 4, 1973

PARK COMMISSIONERS

Joe P. Tubb, Chairman  
Jackson

Larry Broadhead, Vice Chairman  
Mendenhall

Mrs. Theresa Duckworth, Secretary  
Aberdeen

Gary Hawkins  
Calhoun City

Perry F. Gibson  
Waveland

Robert A. (Bob) Ashiey  
Hazlehurst

Cory Embrey  
Coldwater

William M. Colmer  
Pascagoula

Dr. Bobby F. King  
Iuka

Mr. James I. Palmer, Jr.  
Director of Resource Planning  
Mississippi Board of Water Commissioners  
416 North State Street  
Jackson, Mississippi 39201

Dear Mr. Palmer:

We have reviewed the Draft Environmental Statement, Sowashee Creek Watershed, Lauderdale County, Mississippi. We have no recommendations or comments.

Thank you for the opportunity of reviewing this draft.

Sincerely,

Rae Sanders  
Director  
Bureau of Outdoor Recreation

RS/mg

# Game and Fish Commission

STATE OF MISSISSIPPI

P. O. BOX 451 • PHONE 354-7333 • JACKSON, MISSISSIPPI 39205

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CHAIRMAN  
JACKSON

JOHN H. VAUGHT  
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DIRECTOR OF CONSERVATION

WILLIAM WINTER  
LIEUTENANT GOVERNOR

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BILLY NASH  
NATCHEZ

J. E. WOLFE  
CLEVELAND

June 7, 1973

Mississippi Board of Water Commissioners  
416 North State Street  
Jackson, Mississippi 39201

Attention: Mr. James I. Palmer, Jr.

Gentlemen:

We have reviewed the Draft Environmental Impact Statement of the Soil Conservation Service on Sowahee Creek.

On page 7, under Recreational Resources, Tom Baily Lake, a 240-acre lake owned and operated by the Mississippi Game and Fish Commission, located just to the east of the watershed, is not mentioned. This lake provides about 15,000 man days of recreation per year in the form of swimming, camping, picnicking, boating and fishing.

On page 14, paragraph 3, it is stated that a temporary reduction in stream fishery resources will be experienced because of channel modification. We do not believe this is temporary but one of a long-lasting effect.

Page 15, 3.g. Because of our experience on Lake Tom Bailey, we believe you are claiming more recreational usage than you will have.

3 k. We doubt that the 50 acres of wildlife habitat will ever develop nor does past experience lead us to believe the 2500 acres of wildlife habitat will be preserved.

Very truly yours

A handwritten signature in dark ink, appearing to read "Avery Wood", written over a horizontal line.

Avery Wood  
Director of Conservation

STATE OF MISSISSIPPI  
DEPARTMENT OF ARCHIVES AND HISTORY  
P. O. BOX 571  
JACKSON, MISSISSIPPI 39205



A. MCLENORE, PH.D., LIT.D.  
DIRECTOR

June 8, 1973

Mr. James I. Palmer, Jr.  
Director of Resource Planning  
Board of Water Commissioners

Dear Mr. Palmer:

Please forgive the delay in our reviewing the Sowashee Creek Watershed Draft environmental statement. Although we have no sites recorded in the watershed area, it is certain that there are some. We would like to survey the area before any work is done in order to locate any sites which could be affected. We would appreciate very much your furnishing us with maps outlining the land which will be flooded and those locations where channel modification is to take place.

Sincerely yours,

Samuel O. McGahey  
Archaeologist  
Division of Historic Sites and Archaeology

SOM:jcs



East Central  
Planning & Development District

PHONE (601) - 683-2007  
683-2401  
410 DECATUR STREET  
Newton, Mississippi 39345

HARRY N. LACKEY  
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PHILLIP MARTIN

REGIONAL CLEARINGHOUSE FOR FEDERAL PROGRAMS

REVIEW AND COMMENTS

JUNE 18, 1973

Mr. R. H. Wells  
Assistant State Conservationist  
U. S. Department of Agriculture  
Soil Conservation Service  
P. O. Box 610  
Jackson, Mississippi 39205

Dear Mr. Wells:

The Soil Conservation Service of the United States Department of Agriculture has provided us with copies of the Draft Environmental Statement for Sowashee Creek Watershed, Lauderdale County, Mississippi. The purpose of the project is to improve land treatment and conservation systems; reduce erosion and sediment on bottomlands and into the stream system; reduce floodwater and sediment damages in rural and urban areas; increase recreation opportunities; improve water quality and increase efficiency in use of lands to improve economic stability of rural and urban areas.

Project measures include proposed conservation land treatment measures supplemented by critical area land treatment measures, 13 floodwater retarding structures, one multiple purpose structure for retarding structures, one multiple purpose structure for recreation and flood prevention, basic recreational facilities and about 54.2 miles of channel modification. The total estimated project cost is \$8,289,038. A portion of these funds will be provided through PL-566 funds (Watershed Protection and Flood Prevention Act).

After notifying the appropriate local and regional officials and reviewing the overall economic development program for the District, we endorse the proposed project as being consistent with regional plans, goals, and objectives.

Very cordially yours,



Colbert Crowe  
Executive Director

# UNITED STATES WATER RESOURCES COUNCIL

SUITE 800 • 2120 L STREET, N.W. WASHINGTON, D.C. 20037

July 10, 1973

Mr. Kenneth E. Grant  
Administrator  
Soil Conservation Service  
Department of Agriculture  
Washington, D.C. 20250

SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

1973 JUL 11 PM 4:46

MAIL ROOM

Dear Mr. Grant:

In accordance with established procedures we have reviewed the work plan and draft environmental statement for the Sowashee Creek Watershed, a part of the Pascagoula River Basin. A Water Resources Council report and Comprehensive Plan for the Pascagoula River Basin were transmitted to Congress in April 1970. The Sowashee Creek Watershed was undergoing planning at that time under provisions of P.L. 566 and was recognized in the Comprehensive Plan as one of the 17 upstream watersheds in which land treatment measures and structural measures were determined to be economically feasible for the initiation of construction in the early action plan.

It is noted that the number of floodwater retarding structures and the extent of channel improvement have increased substantially over that contemplated in the Comprehensive Plan, resulting in higher annual costs and benefits and a higher level of flood protection. Since the benefits accrue substantially to urban values in the Meridian metropolitan area, the State's second largest city, the higher level of flood protection is warranted. However, there is no indication that item 4 of the Water Resources Council's Views and Findings to the Comprehensive Plan dealing with flood plain management has been observed. The Work Plan would be improved if local adoption of flood plain management measures were encouraged since flood plain management can serve to minimize the potential for future damages and to supplement the degree of protection provided by structural measures. It appears that some form of flood plain management has been proposed for Gallagher Branch but this is not well developed in the Work Plan.

The recreation proposal is consistent with the recreation needs recognized in Appendix II of the Pascagoula River Basin Comprehensive Plan and with the New Water Areas Proposed in the Early-Action Program. It is noted that about 65% of the storage capacity of the multipurpose structure is allocated to recreation and about 75% of the total structure cost. Of the costs allocated to recreation about 65% are non P.L. 566 costs. Thus, the Plan requires a significant local contribution.

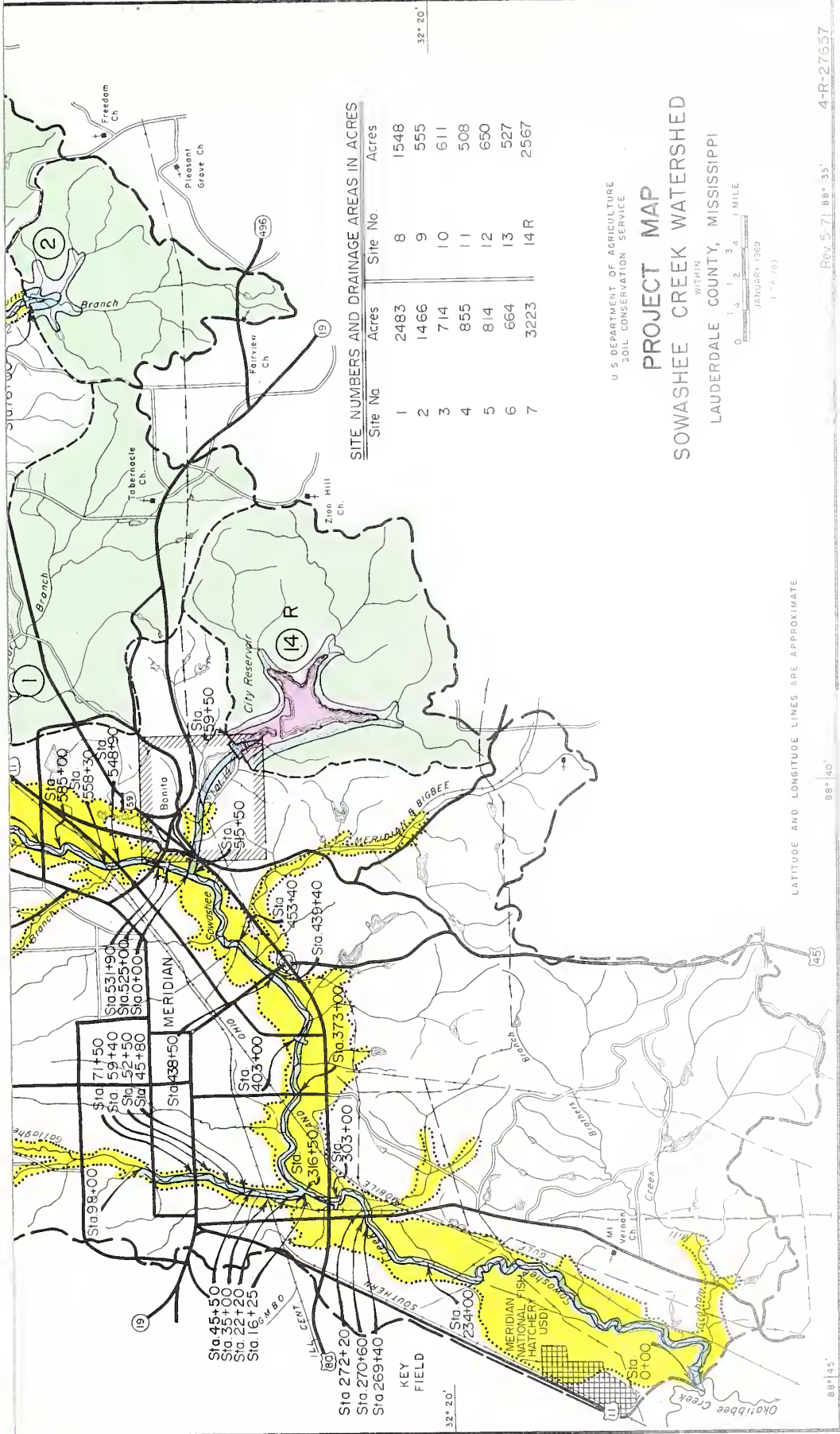
The Work Plan contains a substantial land treatment program and calls for the installation of water level control devices in 13 structures to partially mitigate damage to watershed habitat and/or fishery resources caused by stream channel improvements. This conforms to the recommendation contained in the WRC Report on the Comprehensive Plan that, in the development of specific plans, compatibility should be provided to the extent possible between preservation of fish and wildlife resources and the agriculture interests in those areas where stream channelization is undertaken.

The Sowashee Creek Watershed Work Plan, transmitted with your letter of April 4, 1973, is consistent and compatible with the Pascagoula River Basin Comprehensive Plan.

The opportunity to review the Work Plan is appreciated.

Sincerely yours,

*For* *John B. Roose,*  
Reuben J. Johnson *RB*  
Acting Director



**SITE NUMBERS AND DRAINAGE AREAS IN ACRES**

Site No.	Acres	Site No.	Acres
1	2483	8	1548
2	1466	9	555
3	714	10	611
4	855	11	508
5	814	12	650
6	664	13	527
7	3223	14R	2567

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

## PROJECT MAP

### SOWASHEE CREEK WATERSHED

WITHIN  
LAUDERDALE COUNTY, MISSISSIPPI



















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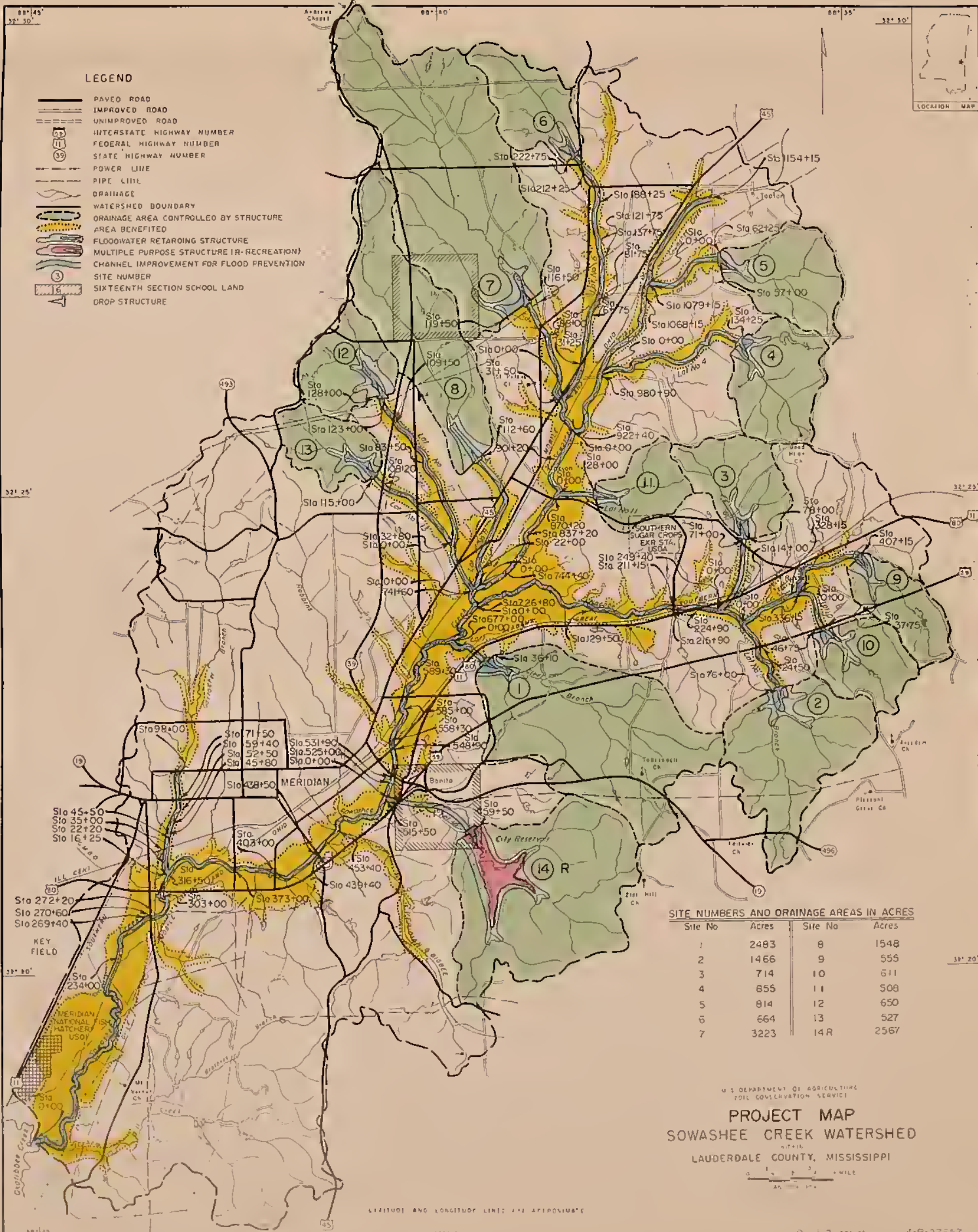
LATITUDE AND LONGITUDE LINES ARE APPROXIMATE





**LEGEND**

-  PAVED ROAD
-  IMPROVED ROAD
-  UNIMPROVED ROAD
-  INTERSTATE HIGHWAY NUMBER
-  FEDERAL HIGHWAY NUMBER
-  STATE HIGHWAY NUMBER
-  POWER LINE
-  PIPE LINE
-  DRAINAGE
-  WATERSHED BOUNDARY
-  DRAINAGE AREA CONTROLLED BY STRUCTURE
-  AREA BENEFITED
-  FLOODWATER RETARDING STRUCTURE
-  MULTIPLE PURPOSE STRUCTURE (RECREATION)
-  CHANNEL IMPROVEMENT FOR FLOOD PREVENTION
-  SITE NUMBER
-  SIXTEENTH SECTION SCHOOL LAND
-  DROP STRUCTURE



**SITE NUMBERS AND DRAINAGE AREAS IN ACRES**

Site No	Acres	Site No	Acres
1	2483	8	1548
2	1466	9	555
3	714	10	511
4	855	11	508
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U.S. DEPARTMENT OF AGRICULTURE  
 SOIL CONSERVATION SERVICE  
**PROJECT MAP**  
**SOWASHEE CREEK WATERSHED**  
 LAUDERDALE COUNTY, MISSISSIPPI



LONGITUDE AND LATITUDE LINES ARE APPROXIMATE





