Magees Creek Watershed Implementation Plan

Final Draft

Magee's Creek Watershed Implementation Plan

Prepared for:

Pearl River/South Independent Streams Basin Team
Mississippi Department of Environmental Quality

Developed by:

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I. Executive Summary

Magees Creek Watershed was identified as a priority watershed by the Pearl River- South Independent Streams Basin Team due to its listing on Mississippi's 303(d) list of impaired waters. The impairment in this watershed is fecal coliform. The Mississippi Soil and Water Conservation Commission (MSWCC) and USDA Natural Resources Conservation Service (NRCS) thought a great impact on water quality could be made in this watershed. MSWCC submitted a proposal to apply best management practices to address the fecal coliform issue. That proposal was selected for funding by MDEQ and a contract was awarded to MSWCC. MSWCC has taken the lead to assemble a Watershed Implementation Team to address the fecal coliform issue along with any other issues and concerns within the watershed and write a Watershed Implementation Plan.

The key natural resource issue in this watershed is fecal coliform loading to the streams. This Watershed Implementation Plan has the goals of reducing fecal coliform entering streams and creeks in the watershed, and removing the impaired segments of the streams and creeks in the Magees Creek watershed from the state's 303(d) list of impaired waterbodies. MSWCC plans to implement a 319 water quality project on agricultural lands within the watershed. The targeted area for this project is land within Walthall County that is located in the Magees Creek watershed. This project is a three year project that began in 2005 and will end in August 2008. The organizations and agencies that will be implementing the project to reduce fecal coliform loading will be the Walthall County Soil and Water Conservation District, Natural Resources Conservation Service, and the Mississippi Soil and Water Conservation Commission. The Walthall County Soil and Water Conservation District and the Natural Resources Conservation Service can be contacted at 601-876-0962 ext. 3 for information and assistance about this project.

Table 1.1 Magees Creek Management Action Plan

Goal	Who	What	Where	When	Contact
Reduce fecal coliform loading to achieve water quality standards and both designated uses: primary contact and aquatic life support	MSWCC, USDA NRCS, MSU Extension, Mississippi Farm Bureau	Continue existing programs and projects related to farmer education, BMP Implementation and habitat conservation	Entire Watershed	2005-2008	Mark Gilbert, MSWCC 601-354-7645 , USDA NRCS 601-876-0962 Brook Stuart, Mississippi Farm Bureau 601-977-4243
	Local Landowners and Operators	- Critical Area Planting - Grade Stabilization Structures - Pasture and Hayland Planting - Water and Sediment Control Basins -Nutrient Management - Livestock Water Ponds - Tank/Trough - Stream Crossings - Fencing - Lagoons - Waste Storage Facilities - Composting Facilities - Grassed Waterways - Prescribed Grazing - Incinerators - Tree Planting - Alum Treatment of Poultry Houses - Conservation Cover - Chiseling and Subsoiling			

II. VISION STATEMENT

The vision of the Magees Creek Watershed Implementation Team is to improve and/or protect the quality of water in Magees Creek Watershed by reducing sediment transport, improving drainage, and reducing fecal coliform loading from agricultural lands in the watershed.

III. MISSION STATEMENT

The mission of the Magees Creek Watershed Implementation Team is to educate landowners on new and innovative best management practices and land use planning methods and implement the appropriate best management practices that will result in the enhancement and conservation of all the natural resources in the watershed.

IV. Watershed Implementation Team

Members of the Watershed Implementation Team for the Magees Creek Watershed include as follows:

Melvin Holiday- Producer

Brent Bracey- Walthall Co. SWCD Commissioner/ Producer (WCSWCD)

Larry Martin- Walthall Co. SWCD Commissioner (WCSWCD)

Steven Williams- Mississippi Forestry Commission (MFC)

Jennifer Stringer- Natural Resources Conservation Service (NRCS)

Mark Gilbert- Mississippi Soil and Water Conservation Commission (MSWCC)

Billy Davis- Mississippi Soil and Water Conservation Commission (MSWCC)

Patrick Vowell- Mississippi Soil and Water Conservation Commission (MSWCC)

Brook Stuart-Mississippi Farm Bureau Federation (MFBF)

Janet Chapman- Mississippi Department of Environmental Quality (MDEQ)

Kenneth LaFleur- Mississippi Department of Environmental Quality (MDEQ)

Ann Porter- Mississippi Department of Environmental Quality (MDEQ)

Lamar Adams- Walthall Co. Extension Service (MSU-Ext)

Nathan Graves- Walthall Co. SWCD Commissioner (WCSWCD)

Mike Davis- Pearl River Basin Development District (PRBDD)

Ken Ainsworth- Natural Resources Conservation Service (NRCS)

Jimmy Armstrong- Pearl River Basin Development District (PRBDD)

V. WATERSHED DESCRIPTION

Magee's Creek lies within Walthall, Marion and Lawrence Counties in the Southwest portion of Mississippi (Figure 5.1) (MDEQ 2004). There are 143,266 acres located within the watershed boundaries. This rural watershed is sparsely populated. The city of Tylertown is located in this watershed, and there are several communities including Kioto, Dillon, Simonds, Lehr, Kirklin, Davo, Carto, Mesa, Lexie, China Grove, Melis, Salem, Darbun, and Sartinville. Economic conditions that influence this watershed include lumber mills, timber producers, poultry farms, dairy farms, and a very limited amount of row crop farms. Several unmarked Indian mounds are located in the watershed.

The land uses in the watershed include agriculture lands (62%), forestlands (32%), barren, urban and water (all together less than 1%). Cotton was the major crop in the watershed until the 1950's when dairy farming became the major type of farming. Due to economics in the 1970's, soybean production became the major land use due to increased profitability. The 1990's brought along poultry production as the major land use in the Magees Creek watershed. Also, an increase in timber production has caused a decrease in the number of acres of row crops grown throughout this cycle. Since Hurricane Katrina hit in 2005, there has been an increase in the amount of urbanizaton in the watershed. A large number of five to ten acre homesite communities are being developed within the watershed.

The soils in the watershed are primarily of the Ora-Ruston association. The other soil associations in the watershed include Brookhaven-Providence-Ora, Ora-Savannah-Ruston, Ruston-Ora, Cascilla-Collins-Falaya, and Mantachie-Ochlockone-Wehadkee. The geology of the watershed is Citronelle of the Pliocene epoch and the Hattiesburg and Catahoula of the Miocene epoch. Magees Creek watershed is located in the Southern Pine Plains and Hills ecoregion. About 4%, or 6,424 acres, of the watershed are wetlands.

Collins Creek, Varnell Creek and two unnamed tributaries all have point source discharges on them. There are no state or federal parks, wildlife management areas, national forests or other significant management areas located within this watershed.

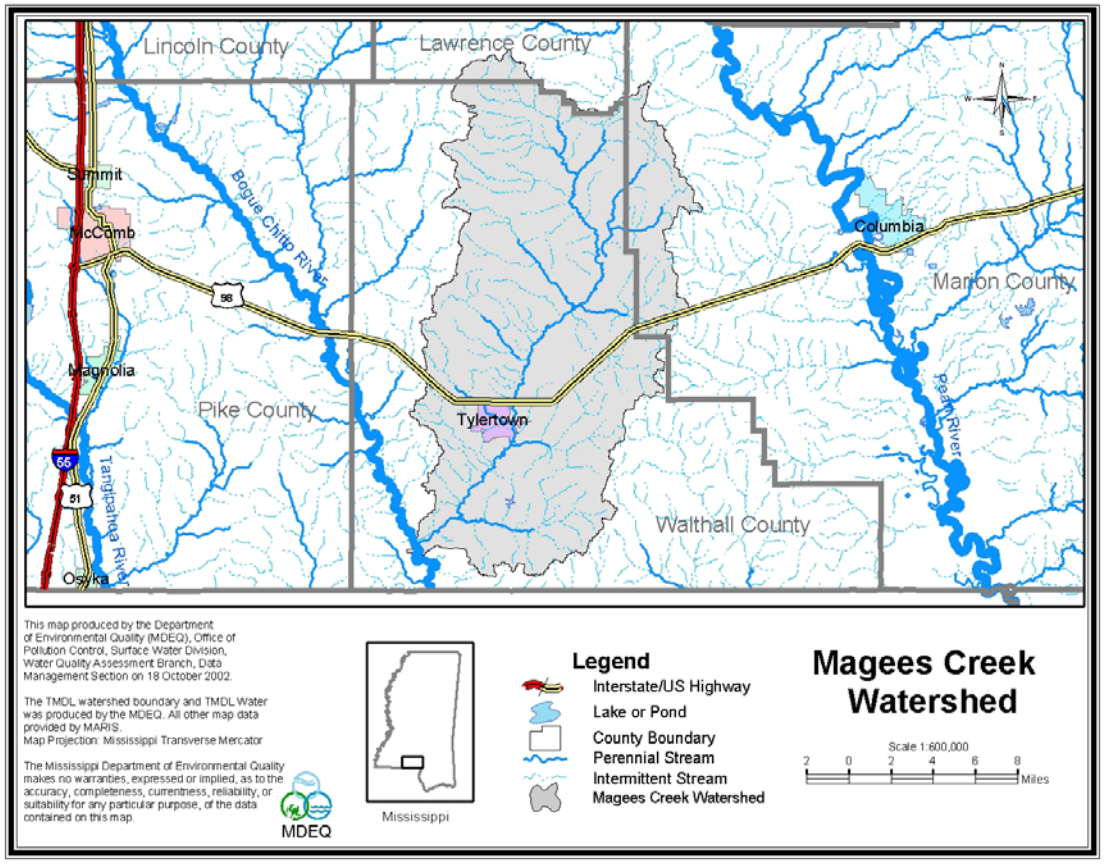


Figure 5.1 Magees Creek Watershed

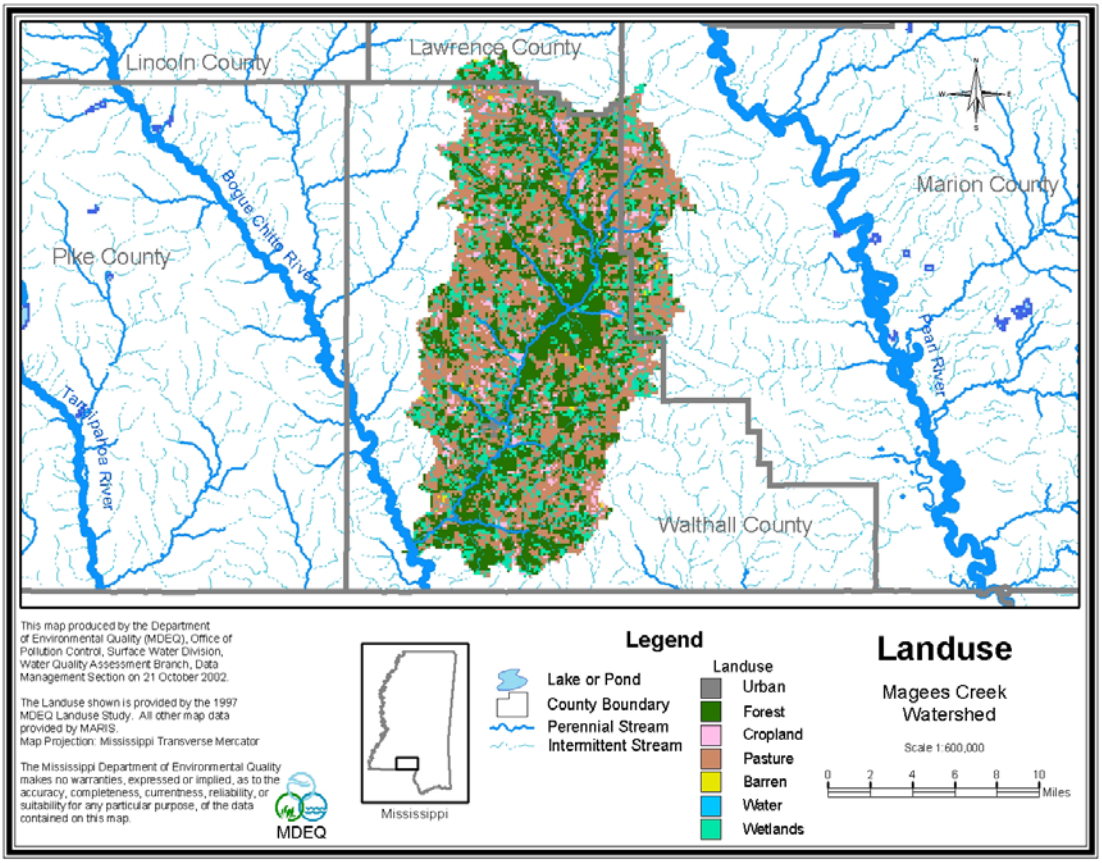


Figure 5.2 Land Use in Magees Creek Watershed

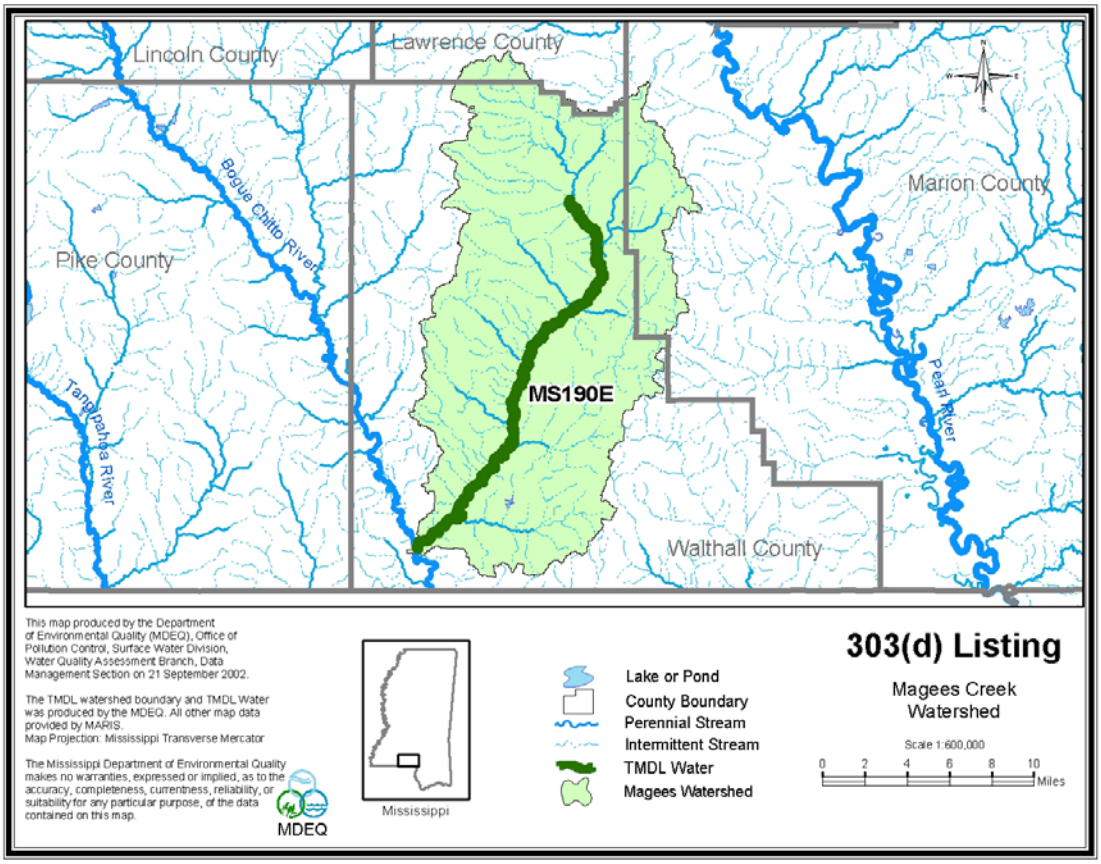


Figure 5.3 Impaired Segment of Magees Creek

VI. STAKEHOLDER INTERESTS

The major interests and concerns of the stakeholders in the Magees Creek watershed are as follows:

Interest

- to maintain an agricultural/silvacultural base in the watershed
-

Concerns

- decline in profit for dairy producers due to decreasing milk prices and rising costs to stay in environmental compliance

- kudzu, cogongrass, and smutgrass- invasive weed species in the state

- decrease in natural regeneration of native hardwoods due to the abundance and rapid growth of privet hedge and wild hogs eating the acorns and other nuts before they are able to sprout

Interest

- the water quality of streams and creeks in the watershed

Concerns

- beavers damming up streams and creeks in the watershed causing flooding, also no help with trapping (funding)

- sedimentation from agricultural lands

- the disposal of litter and trespassing on private lands of recreational tubers along the creek

Interest

- the overall quality of life in the Magees Creek watershed

Concerns

- DNA source tracking to identify the sources of pollution entering the streams

- the odors produced by dairy and poultry operations

- the overall impacts that urban development might have on the watershed

VII. Water Resources

A. History of Activity in the Watershed

The primary players in restoration and /or conservation efforts in the Magees Creek Watershed are the Natural Resources Conservation Service (NRCS), Walthall County Soil and Water Conservation District, the Mississippi Soil and Water Conservation Commission (MSWCC), and the local landowners. Local landowners and operators will play a major role in the restoration and conservation of the natural resources in this watershed by installing needed BMPs on their land.

Conservation activities in this watershed have been an ongoing activity for many years. There has been approximately $150,000 spent on Best Management Practices (BMPs) in the past three years under the NRCS's Environmental Quality Incentives Program (EQIP). It is projected that over the next three years another $120,000 will be spent in this watershed under EQIP. Other conservation activities taking place in the watershed include tree planting using the FSA's Conservation Reserve Program (CRP) and the Mississippi Forestry Commissions state cost share programs. These practices are resulting in better water quality for the Magees Creek watershed.

The Magees Creek Watershed was selected as a priority watershed by the Pearl River/ South Independent Streams Basin Team. As the management agency for agricultural nonpoint source pollution in the state of Mississippi, the Mississippi Soil and Water Conservation Commission (MSWCC) determined that Magees Creek Watershed would be a good candidate for restoration. After meetings with local landowners and NRCS employees that work in this area, MSWCC determined there was enough interest in the watershed to make a measurable difference and consequently submitted a 319 proposal to the Mississippi Department of Environmental Quality (MDEQ). Through a collaborative effort between NRCS, MDEQ and MSWCC, the team members for the Watershed Implementation Team were assembled.

B. Wildlife and Fisheries

There is an abundance of wildlife and fisheries located throughout the watershed. The recreational species in the watershed include whitetail deer, turkey, rabbit, ducks, dove, bass, bream, catfish and feral hogs. Wildlife is very important to this watershed. In addition to hunting and fishing on private lands, there are fee-based operations located in the watershed. One of these operations is a quail hunting enterprise.

C. Designated Use Classification and Water Quality Standards

The designated beneficial uses of the waterbodies in the Magee's Creek Watershed are primary contact and aquatic life support. The water quality standards for Magees Creek Watershed are listed below in Table 7.1.

Table 7.1 Water Quality Standard

Parameter	Beneficial Use	Water Quality Criteria to Meet Use
Fecal Coliform	Contact Recreation	Fecal coliform colony counts not to exceed a mean of 200 per 100ml based on a minimum of 5 samples taken over a 30-day period with no less than 12 hours between individual samples, nor shall the samples examined during a 30-day period exceed 400 per 100ml more than 10 percent of the time.

D. Current Status of Water Bodies in the Magees Creek Watershed

Magees Creek is listed on the states 303d list for segment MS190E with the impairment being fecal coliform. (See map 5.3 Impaired Segment of Magees Creek.)

E. TMDLs

There has been a TMDL approved by EPA for Magees Creek in Walthall County, Mississippi Watershed ID-MS190E, HUC-03180005. The impairment for this waterbody is fecal coliform. The sources of the impairment are as follows: wildlife, failing septic systems, land application of poultry litter and cattle manure, urban development, and permitted facilities discharging into the water source. There is a 45% reduction recommended in the TMDL. Education projects that teach best management practices regarding urban bacteria loads, manure management, and septic tank management should be used as tools for reducing the nonpoint source contributions. There will be no NPDES permit applications approved that do not plan to meet the water quality standards for disinfection.

VIII. WATERSHED MANAGEMENT ACTIONS

FECAL COLIFORM

A. Stakeholder Interests

One of the major interests of the stakeholders is the fecal coliform loading into Magees Creek. This is the reason for Magees Creek being listed on Mississippi's 303(d) list of impaired waters.

B. Goals/Objectives

The goal and objective of this management action is to reduce the fecal coliform loading coming from agricultural lands. Reducing this ag contribution may be sufficient enough to remove Magees Creek from the state's 303(d) list.

C. Management Actions

The management action that will be taken to address fecal coliform is the installation of agricultural BMPs. These BMPs include but are not limited to:

- Critical Area Planting,
- Grade Stabilization Structures,
- Pasture and Hayland Planting,
- Nutrient Management,
- Fencing,
- Stream Crossings,
- Grassed Waterways,
- Water and Sediment Control Basins,
- Livestock Watering Ponds,
- Tank or Troughs as Alternative Water Sources,
- Lagoons,
- Animal Waste Control Facilities,
- Prescribed Grazing,
- Tree Planting,
- Chiseling and Subsoiling, and
- Alum Treatment of Poultry Houses.

These BMPs will be installed by cooperating landowners in the watershed. The program that these BMPS will be installed under is the MSWCC cost-share

program. The Natural Resources Conservation Service (NRCS) will provide the technical/planning assistance for this project. Most of the BMPs that will be installed that are permanent structures must be maintained by the landowner for a period of 10 years. NRCS identified landowners in the watershed that had agricultural land using maps provided by the Mississippi Department of Environmental Quality (MDEQ).

D. Project Tracking/Assessment of Progress

The Magees Creek 319 project began in October 2005 and is scheduled to end August 2008**.** The milestones for the Magees Creek Watershed 319 project are listed below:

1. Sign grant contract with MS Department of Environmental Quality. (Month 0)

2. Determine priority areas that are contributing significant pollutant loads in the watershed. This will be carried out with assistance from the Magees Creek WIT. (Month 1)

3. Issue policies and procedures for implementing the project to the SWCD office. (Month 1)

4. Meet with the board of SWCD commissioners to get their understanding of their responsibilities and participation. (Month 2)

5. Provide training to district staff. (Month 2-3)

6. Assist in establishing an evaluation system in conjunction with the MS Department of Environmental Quality to indicate the benefits of the project. (Month 2-3)

7. Conduct a landowner meeting to inform potential participants about the project. (Month 3)

8. Secure commitments from several landowners and operators who are willing to participate in the project. (Month 3-4)

9. Assist participants in developing a conservation plan and applying best management practices. (Month 4-12)

10. Establish at least one demonstration farm. (Month 4-12)

11. Document pre-existing site conditions. (Before and after photo documentation will be conducted). (Month 2-12)

12. Accelerate conservation planning and application assistance. Special effort will be made to complete conservation plans during this time frame. (Month 13-24)

13. Conduct at least one informational field day/tour to inform the public about the project. (Month 13-24)

14. Establish at least one demonstration farm. (Month 13-24)

15. As requested, assist MDEQ with evaluations. (Month 0-36)

16. Collect GPS coordinates and other data required by MDEQ on all BMPs installed in the project. (Month 0-36)

17. Assemble data on the amount of soil saved. (Month 0-36)

18. Erect project roadside signs which designate where water quality practices are in progress or have been completed. (Month 4-36)

19. Provide continued conservation planning and application assistance to participants. (Month 25-36)

20. Review the status of applying best management practices to reach the objectives of the project. (Month 25)

21. Based upon the needs and finding of milestone 18, assistance in planning and/or application will be redirected and/or accelerated. (Month 25-36)

22. Publish at least four articles about the project. (Month 0-36)

23. Publicity of the project will be increased; at least one field day/tour will be conducted and at least 1,000 fact sheets will be developed and distributed. (Month 25-36)

24. Bi-annual reports will be made to MDEQ. (Month 0-36)

25. Make final report to MDEQ. (Month 36)

E. Desired Results/Benefits

The desired benefit of this project will be to reduce the fecal coliform loading by 45% to implement the TMDL. Hopefully, this will reduce the pathogen loadings sufficiently enough to remove Magees Creek from the state's 303(d) list.

F. Roles/Responsibilities

There are several different groups with responsibilities in this watershed. MSWCC has the responsibility and role of handling all payments and recordkeeping that goes along with the 319 project. The Walthall County Soil and Water Conservation District and the local NRCS staff have the role of technical assistance on the project. Landowners have the responsibility of implementation of BMPs in the project area. The Magees Creek Watershed Implementation Team has the role of helping compile all the information needed to write the Watershed Implementation Plan. MSWCC also has the responsibility of compiling all the information and writing the initial plan for the watershed.

G. Budget

The table below shows a list of potential Best Management Practices to be installed with the 319 grant.

Table 8.1 Funded 319 Project Budget for BMPs

Practice	Area Affected	BMP Cost	BMP Total
Critical Area Planting	25 acres	$200/ac	$5,000
Grade Stabilization Structure	5 structures	$1,500/ea	$7,500
Pasture & Hayland Planting	75 acres	$100/ac	$7,500
Water and Sediment Control Basin	3 basins	$2,500/ea	$7,500
Nutrient Management	500 acres	$154/ac	$77,000
Livestock Watering Pond	10 ponds	$3,000/ea	$30,000
Tank/Trough	10 tanks	$2,000/ea	$20,000
Stream Crossing	5 crossings	$3,000/ea	$15,000
Fencing	40,000 feet	$1.10/ft	$44,000
Waste Treatment Lagoon	2 lagoons	$17,000/ea	$34,000
Waste Storage Facility	2 facilities	$17,000/ea	$34,000
Composting Facilities	4 facilities	$17,000/ea	$68,000
Grassed Waterways	5 acres	$500/ac	$2,500
Prescribed Grazing	200 acres	$11/ac	$6,600
Incinerator	5 units	$5,500	$27,500
Tree Planting	100 acres	$94/ac	$9,400
Alum Treatment in Poultry Houses	36 houses	$2000/ea	$72,000
Conservation Cover	200 acres	$176/ac	$35,200
Chiseling and Subsoiling	200 acres	$10/ac	$2,000
Total			**$504,700**

Table 8.2 Contractual Services for BMP Design

Item	Cost
Contractual Services for BMP Design	$8,333
Total	**$8,333**

Table 8.3 Technical Assistance

Item	Cost
Technical Assistance	$25,000
Total	**$25,000**

IX. EDUCATION/OUTREACH ACTIVITIES

A. Educational Activities to be Implemented

The overall objective of community education in the Magees Creek watershed is to develop an atmosphere that promotes sustained, long-term protection and improvement of aquatic resources in the watershed. Specific objectives of education efforts in the watershed include the following.

- Increase public awareness of the value of clean water.
- Increase public awareness of how common activities affect water quality and critical flora and fauna.
- Increase public awareness of how BMPs can be used to reduce negative water quality and habitat effects.
- Increase public awareness of the long term environmental and economic advantages of protecting and improving water quality and habitat in the Magees Creek watershed.

1. Signage

Signs identifying the BMPs that have been installed will be erected in areas where they will be visible and landowners will allow the signs to be erected.

Primary partners- Mississippi Soil and Water Conservation Commission, Mississippi Department of Environmental Quality, Walthall County Soil and Water Conservation District, Natural Resources Conservation Service, and Environmental Protection Agency.

a. Indicators

There will be field days held to show other landowners and the interested public these BMPs. Participants will be counted at these field days. Also, these signs will be seen by individuals riding through the watershed. We have no way of documenting the number of people who will actually see these BMP signs while traveling.

b. Schedule

The BMP signs will be erected as practices are completed and landowners agree to placing the signs on their property.

c. Budget

Table 9.1 Projected Costs for Signage.

Item	Unit	Cost	Total Cost
Signs	20	$100.00	$2,000.00
Total			**$2,000.00**

2. Field Days

There will be at least two field days held to highlight the BMPs that have been installed during the project period. This will allow other landowners and the interested public to view some of the practices that are being installed to benefit water quality in the watershed.

Primary partners- Mississippi Soil and Water Conservation Commission, Mississippi Department of Environmental Quality, Walthall County Soil and Water Conservation District, Natural Resources Conservation Service ,and Environmental Protection Agency

a. Indicators

Attendance at these field days will be documented and reported to MDEQ. The number of BMPs implemented as a result of that landowner attending the field day will also be documented.

b. Schedule

Field days in the watershed will take place in 2007-2008.

c. Budget

Table 9.2 Projected Costs for Field Days.

Item	Units	Cost	Total Cost
Event Flyers	375	.80/each	$300.00
Mailing/Delivery	375	.39/each	$146.25
Miscellaneous (facilities, supplies)	2	$6,6110.37	$13,220.74
Total			**$13,667.00**

3. Fact Sheets

A fact sheet will be developed at the end of the project. This fact sheet will contain information about the watershed, the number and type of BMPs that were installed, the number of tons of soil being saved, and the number of acres impacted by the BMPs.

Primary Partners- Mississippi Soil and Water Conservation Commission, Walthall County Soil and Water Conservation District, and Natural Resources Conservation Service.

a. Indicators

Fact sheets will be handed out at the final field day and will also be available in the district office.

b. Schedule

The fact sheet will be developed once all BMPs are in place to get a total on all tons of soil saved, the correct number of BMPs installed, and the total number of acres affected by the project.

c. Budget

Table 9.3 Projected Costs for Fact Sheets.

Item	Unit	Cost	Total Cost
Printing	1,000	1.00/each	$1,000.00
Total			**$1,000.00**

4. Adopt-A-Stream

There will be at least one Adopt-A-Stream workshop conducted for the watershed. Adopt-A-Stream is a program that promotes environmental stewardship through training workshops, outdoor field activities, and by introducing participants to watershed action projects. One and two-day workshops inform participants about watershed topics such as stream health, stream ecology, aquatic life and water chemistry.

Primary Partners- Mississippi Department of Environmental Quality and Mississippi Wildlife Federation.

a. Indicators

The number of participants for the workshop will be documented. Also, the number of participants that move forward with the stream stewardship project will be documented.

b. Schedule

This workshop will take place before August 2008.

c. Budget

Table 9.4 Projected Costs for Adopt-A-Stream Workshop.

Item	Unit	Cost	Total Cost
Adopt A Stream Workshop	1 day workshop	$1,500.00	$1,500.00
Total			**$1,500.00**

5. Project Learning Tree

At least one Project Learning Tree (PLT) workshop will be held for the watershed. PLT is an award winning education program designed for teachers and other educators, parents, and community leaders working with youth from pre-K to 8th grade. PLT activity guides and modules are not sold, but are earned by educators who attend a six-hour workshop. The PLT activity guide is a 400 page book containing 96 activities written in the form of lesson plans. PLT's goal is to "teach students HOW to think, not WHAT to think about environmental issues."

Primary Partners- Mississippi Department of Environmental Quality and Mississippi Forestry Commission.

a. Indicators

The number of participants for the workshop will be documented.

b. Schedule

This workshop will take place before August 2008.

c. Budget

Table 9.5 Projected Costs for Project Learning Tree.

Item	Unit	Cost	Total Cost
PLT Workshop	1 workshop	$1,350.00	$1,350.00
Total			**$1,350.00**

6. Watershed Harmony Puppet Show

At least one Watershed Harmony puppet show will be held in the watershed. Watershed Harmony is a musical puppet performance aligning with the fourth and fifth grade Mississippi Framework and National Science Standards. Audiences of all ages will delight in environmental stewardship through this toe tapping musical. Performances are not only enjoyed by school groups, but also by adults attending teacher workshops, civic clubs, and conferences. This program serves to inform, excite, and enlist the help of citizens in an ongoing effort to promote water quality in their communities.

Primary Partners- Mississippi Department of Environmental Quality and Bayou Town Productions.

a. Indicators

The number of participants will be documented and submitted to MDEQ.

b. Schedule

Watershed Harmony will be presented before August 2008.

c. Budget

Table 9.6 Projected Costs for Watershed Harmony Puppet Show

Item	Unit	Cost	Total Cost
Watershed Harmony Puppet Show	1 show	$500.00	$500.00
Total			**$500.00**

7. Total Projected Cost of Education/Outreach Activities

Table 9.7 Total Projected Education Budget

Item	Unit	Cost	Total Cost
Signage			$2,000.00
Field Days			$13,667.00
Fact Sheets			$1,000.00
Adopt-A-Stream			$1,500.00
Project Learning Tree			$1,350.00
Watershed Harmony Puppet Show			$500.00
Total			$20,017.00

8. Total Budget for Magees Creek Watershed Implementation Plan

Table 9.8 Magees Creek Watershed Implementation Plan Total Budget

Item	Total Cost
BMPs	$504,767.00
Contractual Services	$8,333.00
Technical Assistance	$25,000.00
Education	$20,017.00
Total	**$558,117.00**

X. EVALUATION

A. Plan Evaluation Procedure

This watershed implementation plan will be evaluated and revised every five years or on an as needed basis. The evaluation of this plan will be organized by the Magees Creek Implementation Team (see Chapter II). At this time, the Implementation Team will develop a detailed schedule for review and revision of this watershed implementation plan. The Implementation Team members will be responsible for notifying their stakeholders of the opportunity to propose changes to the watershed implementation plan. One month will be allowed for notification of stakeholders.

The plan will be evaluated by the Team, or their designee, and any interested stakeholders. One month will be allowed for evaluation and submittal of comments. Therefore, comments will be due two months after the evaluation procedure is initiated. The plan will be evaluated in two ways. First, to determine if the plan goals have been achieved, and second, to determine if it reflects the current condition of the watershed, state of science, and issues in the watershed.

B. Implementation Evaluation Strategy

The monitoring that will take place on this project will include the following:

- Before and after photo documentation on a representative sample of the BMPs installed,
- Before and after soil loss collection on each BMP installed, and
- An R5 Load Estimation Model Field Data Entry Sheet completed on each BMP installed.

Agencies responsible for implementing management activities will track implementation and provide annual reports to the Basin Group III Coordinator. Progress will be assessed based on meeting the scheduled management activity milestones outlined in Chapter VIII. Success of Section 319 funded projects in the watershed will be evaluated based on the criteria specified in the project proposals (Appendix B).

During 2009, the Assessment year of the Basin Group III Basin Management Cycle, progress towards the goals of this watershed implementation plan will be assessed. Water quality data, as well as information on activities occurring in the

watershed and stakeholder concerns collected during the period from 2005 through 2008, will be utilized. The criterion that will be used to determine progress toward plan goals is achievement of all state water quality criteria in previously impaired stream segments. Not meeting this criterion warrants investigation of the effectiveness of implementation of management practices, and/or the effectiveness of the management practices.

XI. PLAN REVISION

A. Plan Revision Procedure

After evaluation, the watershed implementation team will prepare a revised watershed implementation plan incorporating the changes requested by the reviewersafter five years. At this point it may be necessary to call a meeting to reconcile any conflicting comments or requests for change.

If the evaluation criteria are all being met in Magees Creek surface waters, the watershed implementation plan will be revised to address a different restoration issue or issues, or to protect the water quality of the watershed. If the evaluation criteria for the watershed are not being met, the approach for restoring Magees Creek watershed will be revised based on the knowledge that has been gained since 2005.

The draft watershed implementation plan will be submitted to the Implementation Team, and all others who submitted comments. Within two weeks of receiving the draft watershed implementation plan, the Implementation Team will notify their stakeholders of the availability of the revised watershed implementation plan for stakeholder review. One month will be allowed for review of the draft. Comments will be due at the end of this review period.

Within a month after the comments on the draft watershed implementation plan are received, MDEQ will prepare a DRAFT watershed implementation plan. The DRAFT watershed implementation plan will be submitted to the Implementation Team for review and approval. After the DRAFT watershed implementation plan has been approved, the Implementation Team will notify their stakeholders of the completion and availability of the DRAFT plan for use as a guide to watershed restoration and protection activities.

XII. RESOURCES

MDEQ. 2000. Pearl River Basin Status Report 2000. Mississippi Department of Environmental Quality. Jackson, Mississippi.

MDEQ. 2003. Phase One Fecal Coliform TMDL for Magees Creek, Pearl River Basin, Walthall County, Mississippi. Mississippi Deaprtment of Environmental Quality. Jackson, Mississippi.

SCS. 1968. Soil Survey Walthall County, Mississippi.

"Natural Heritage Inventory: Search Animal Database." *Mississippi Museum of Natural Science.* <http://www.mdwfp.com/museum/html/Research/query_animals.asp>

"Natural Heritage Inventory: Search Plant Database." *Mississippi Museum of Natural Science.* <http://www.mdwfp.com/museum/html/Research/query_plants.asp>

Appendix A

Plant and Animal Species of Special Concern

Animals of Special Concern in Walthall County

Scientific Name	Common Name	Threatened	Endangered
ACIPENSER OXYRINCHUS DESOTOI	GULF STURGEON	X	
GOPHERUS POLYPHEMUS	GOPHER TORTOISE	X	
MICRURUS FULVIUS	EASTERN CORAL SNAKE		
NOTURUS MUNITUS	FRECKLEBELLY MADTOM		
PROCAMBARUS PENNI	PEARL BLACKWATER CRAYFISH		

At this time, there are no Plants of Special Concern in Walthall County.

Animals of Special Concern in Lawrence County

Scientific Name	Common Name	Threatened	Endangered
ALOSA ALABAMAE	ALABAMA SHAD		
CRYSTALLARIA ASPRELLA	CRYSTAL DARTER		
ELANOIDES FORFICATUS	SWALLOW-TAILED KITE		
GRAPTEMYS OCULIFERA	RINGED MAP TURTLE	X	
NOTURUS MUNITUS	FRECKLEBELLY MADTOM		
OBOVARIA UNICOLOR	ALABAMA HICKORYNUT		

Plants of Special Concern in Lawrence County

Scientific Name	Common Name	Threatened	Endangered
NYMPHAEA MEXICANA	BANANA WATER-LILY		
POTAMOGETON EPIHYDRUS	CREEKGRASS		
POTAMOGETON PUSILLUS VAR TENUISSIMUS	SMALL PONDWEED		

Animals of Special Concern in Marion County

Scientific Name	Common Name	Threatened	Endangered
AIMOPHILA AESTIVALIS	BACHMAN'S SPARROW		
ALOSA ALABAMAE	ALABAMA SHAD		
CRYSTALLARIA ASPRELLA	CRYSTAL DARTER		
GOPHERUS POLYPHEMUS	GOPHER TORTOISE	X	
GRAPTEMYS OCULIFERA	RINGED MAP TURTLE	X	
MICRURUS FULVIUS	EASTERN CORAL SNAKE		
NOTROPIS CHALYBAEUS	IRONCOLOR SHINER		
NOTURUS MUNITUS	FRECKLEBELLY MADTOM		
ONTHOPHAGUS POLYPHEMI	ONTHOPHAGUS TORTOISE COMMENSAL SCARAB BEETL		
PICOIDES BOREALIS	RED-COCKADED WOODPECKER		X
PITUOPHIS MELANOLEUCUS LODINGI	BLACK PINE SNAKE		
PROCAMBARUS PENNI	PEARL BLACKWATER CRAYFISH		
PSEUDOTRITON RUBER	RED SALAMANDER		
PTERONOTROPIS WELAKA	BLUENOSE SHINER		
PUMA CONCOLOR CORYI	FLORIDA PANTHER		X
URSUS AMERICANUS LUTEOLUS	LOUISIANA BLACK BEAR	X	

Plants of Special Concern in Marion County

Scientific Name	Common Name	Threatened	Endangered
ALOPHIA DRUMMONDII	PINEWOODS-LILY		
CAREX BALTZELLII	BALTZELL'S SEDGE		
CAREX IMPRESSINERVIA	SOUTHERN FEW-FRUITED SEDGE		
CAREX PICTA	PAINTED SEDGE		
CORNUS ALTERNIFOLIA	ALTERNATE-LEAF DOGWOOD		
DIRCA PALUSTRIS	EASTERN LEATHERWOOD		
EULOPHIA ECRISTATA	SMOOTH-LIPPED EULOPHIA		
LILIUM SUPERBUM	TURK'S-CAP LILY		
LOBELIA APPENDICULATA	APPENDAGED LOBELIA		
MACRANTHERA FLAMMEA	FLAME FLOWER		
RUELLIA PEDUNCULATA SSP PINETORUM	PINE BARREN RUELLIA		
SABATIA CAMPESTRIS	PRAIRIE PINK		
SORGHASTRUM APALACHICOLENSE	OPEN INDIAN GRASS		
STEWARTIA MALACODENDRON	SILKY CAMELLIA		

Appendix B

Funded 319 Project Proposal

PROJECT TITLE:
Magees Creek Watershed Nonpoint Source Pollution Project

PROJECT ABSTRACT:
This project will be located in the central portion of Walthall County in Mississippi. The objectives of this project will be:

To improve water quality and protect high quality waters through the implementation of selected BMPs in targeted areas.

To apply Best Management Practices (BMPs) to pasture and hay lands in the project area so as to reach the desired outcome of reduced cattle access to streams and to reduce the amount of sediment entering streams in the watershed.

To properly manage animals and animal waste.

To inform and educate the public about Best Management Practices that benefit water quality.

The project cost is $ 554,767 Of this amount, $ 332,860 in 319 funds are requested with the balance of $221,907 to be supplied as match.

LEAD ORGANIZATION:

Mississippi Soil and Water Conservation Commission
Mark Gilbert, Project Manager
P.O. Box 23005
Jackson, MS 39225-3005

Phone: (601) 354-7645
Fax: (601) 354-6628
e-mail: mgilbert@mswcc.state.ms.us

COOPERATING AGENCIES AND ORGANIZATIONS:

Walthall County Soil and Water Conservation District; USDA Natural Resources Conservation Service; Mississippi Department of Environmental Quality; United States Geological Survey; Ms Cooperative extension Service

GRANT ADMINISTRATOR:

Mark E. Gilbert, Environmental Administrator
MS Soil & Water Conservation Commission
P.O. Box 23005
Jackson, MS 39225-3005

Phone: (601) 354-7645
(601) 540-4210 (cell)
Fax: (601) 354-6628
e-mail: mgilbert@mswcc.state.ms.us

PROJECT LOCATION:

Magees Creek Watershed (031800050401, 031800050402, 031800050403, 031800050404)
(see attachment 1 for a maps depicting the location, 303(d) listed segment and land use for the watershed)

PROJECT OBJECTIVE:

The water quality impairments to be addressed by this project are fecal coliform bacteria and sediment. Fecal coliform bacteria are used as indicator organisms. They are readily identifiable and indicate the possible presence of other pathogenic organisms in the water body. The Mississippi Department of Environmental Quality (MDEQ) has placed segment MS190E of Magees Creek River on the 1998 Section 303(d) List of Waterbodies as an evaluated water body segment, due to pathogens. The State's 1998 303(d) list of evaluated water bodies lists the designated used of Magees Creek as primary contact and aquatic life support. MDEQ has developed a TMDL for the listed segment of Magees Creek MDEQ and it has been targeted for implementation by the Pearl River/South Independent Streams Basins Group management team. The TMDL model indicates violation of the percent of time that transcends the fecal coliform standards. The existing condition load was based on the load for the 30-days during which the critical violation occurred and resulted in an overall 45% reduction in sources of fecal coliform to the water body to meet the TMDL as determined by a thirty day sample data set that meets both portions of the standards and is indicative of possible water quality conditions. (a copy of the TMDL is attached)
Another objective of this project will be to reduce soil loss on pasture land in the watershed. BMPs listed on the following page will not only reduce nutrients and pathogens but will also reduce the amount of sediment entering Magees Creek from pasture land in the watershed.

PROJECT DESCRIPTION:

This project will implement selected Best Management Practices (BMPs) on targeted areas in the Magees Creek Watershed that will result in reduced pollutant loadings from agricultural nonpoint sources. The main water quality problem to be addressed by this project is animal waste nutrients from agricultural nonpoint sources. Of primary concern are animal waste runoff and the disposing of animal waste from cattle and poultry operations in the watershed. Also, soils in the watershed are very erosive, with sheet and gully erosion occurring on sloping hayland and pastureland. Erosion is occurring from pasture and hay land in the project area at the rate of 8-10 tons per acre per year. Nutrients and pathogens from animal waste as well as sediment contained in runoff is entering Magees Creek and its tributaries causing degradation of the resource base.
The erosion of the soil resource base removes nutrients, reduces water holding capacity, undermines plant rooting systems, reduces the soil's organic matter content, reduces soil tilth and degrades water quality within the project area.
The Magees Creek Watershed is approximately 140,000 acres. The watershed is predominately rural. The current land uses in the Magees Creek Watershed include 7,136 acres of cropland, 82,182 acres of pasture land, 46,461 acres of timber land, 483 acres of urban land, 349 aces of barren land, 6,424 acres of wetlands and 231 acres of water.

This project will be implemented in three phases. Phase 1 will consist of analyzing existing assessment data, determining target areas within the watershed where the stressors are causing the greatest damage and if the application of needed Best Management Practices will yield a beneficial reduction in pollutant loadings. Education and outreach activities will also be conducted during this phase to inform landowners in the watershed about the objectives of the project. The Mississippi Soil and Water Conservation Commission (MSWCC) will cooperate with the Mississippi Cooperative Extension Service, United States Geological Survey and the Walthall County Soil and Water Conservation Districts in identifying the appropriate Best Management Practices for targeted areas in the watershed and educating landowners as to the need for their participation.

Phase 2 will consist of (based upon the finding of phase 1) the application of best management practices on targeted areas in the watershed that will result in desired pollutant load reductions. The Mississippi Soil and Water Conservation Commission will accomplish this trough it's water quality cost share program. In this project, records will be kept at both the state level and local level so as to determine the progress being made in carrying the project out and the benefits that are being received as related to the improvement of water quality within the project. During the planning process with participants, the amount of soil loss from the area to be treated with a particular BMP will be determined and recorded. The amount of soil saved as a result of applying the BMP will also be determined and recorded. Additional information will be collected on each BMP installed in the project that will be provided to MDEQ and used to calculate the pollutant load reduction for each BMP installed. This information will indicate the project effectiveness in reducing

pollutant loadings. Participants in the project will be required to maintain BMPs for a period of up to ten years after installation.

Additional education and outreach efforts will be conducting during this phase to inform and educate the public about Best Management Practices that benefit water quality. This will be accomplished by the following:
Establishing at least 2 demonstration farms to inform the public about best management systems.
Conduct at least 2 field day/tours during the life of the project.
Prepare and distribute at least 1,000 fact sheets highlighting the benefits derived from the project.
Publish at least 4 articles about the project in newsletters and local newspapers.
Erect at least 20 project roadside signs that designate where water quality practices are in progress or have been completed.

To address the above stated water quality problems, Best Management Practices (BMPs) will be installed on agricultural lands in the project area. Potential BMPs to be installed include but are not limited to:
25 acres of critical area planting
5 grade stabilization structures
75 acres of pasture & hayland planting
3water and sediment control basins
500 acres of nutrient management/grazingland improvement
10 livestock watering ponds
10 watering troughs or tanks
40,000 feet of fencing
5 stream crossings
2 waste treatment lagoon
2 waste storage facility
200 acres chiseling and subsoiling
4 composting facilities
5 acres of grassed waterways
10 acres of heavy use area protection
200 acres of prescribed grazing
5 incinerators
100 acres tree planting
36 alum treatment of poultry houses
200 acres of conservation cover

Phase 3 will consist of post BMP monitoring to determine the pollutant load reductions achieved by the application of Best Management Practices. The MSWCC will coordinate with the MDEQ in conducting these activities.

MILESTONES:

1. Sign grant contract with MS Department of Environmental Quality. (Month 0)
2. Determine priority areas that are contributing significant loads in the watershed. This will be carried out with assistance from the Lower Bogue Chitto WIT. (Month 1)
3. Issue policies and procedures for implementing the project to the SWCD office.
   (Month 1)
4. Meet with the board of SWCD commissioners to get their understanding of their responsibilities and participation. (Month 2)
5. Provide training to district staff. (Month 2-3)
6. Assist in establishing an evaluation system in conjunction with the MS Department of Environmental Quality to indicate the benefits of the project. (Month 2-3)
7. Conduct a landowner meeting to inform potential participants about the project. (Month 3)
8. Secure commitments from several landowners and operators who are willing to participate in the project. (Month 3-4)
9. Assist participants in developing a conservation plan and applying best management practices (Month 4-12)
10. Establish at least demonstration farm (Month 4-12)
11. Document pre-existing site conditions. (Month 2-12) (Before and after photo documentation will be conducted).
12. Accelerate conservation planning and application assistance. Special effort will be made to complete conservation plans during this time frame. (Month 13-24)
13. Conduct at least 1 informational field day/tour to inform the public about the project . (Month 13-24)
14. Establish at least 1 demonstration farm. (Month 13-24)
15. As requested, assist DEQ with evaluations. (Month 0-36)
16. Collect GPS coordinates and other data required by MDEQ on all BMPs installed in the project. (Month 0-36)
17. Assemble data on the amount of soil saved. (Month 0-36)
18. Erect project roadside signs which designate where water quality practices are in progress or have been completed. (Month 4-36)
19. Provide continued conservation planning and application assistance to participants. (Month 25-36)
20. Review the status of applying best management practices to reach the objectives of the project. (Month 25)
21. Based upon the needs and finding of milestone 18, assistance in planning and/or application will be redirected and/or accelerated. (Month 25-36)
22. Publish at least 4 articles about the project. (Month 0-36)
23. Publicity of the project will be increased; at least 1 field day/tour will be conducted and at least 1,000 fact sheets will be developed and distributed. (Month 25-36)

24. Bi-annual reports will be made to MDEQ. (Month 0-36)
25. Make Final report to MDEQ. (Month 36)

CRITERIA FOR EVALUATION
(also see Phase 1 and 3 information under Project Description)
The following measures and indicators of progress will be utilized to track the success of this project:

NPS Pollutant Load Reduction – the amount of soil saved as a result of the installation of best management practices (BMPs) in this project will be a direct indicator of sediment load reduction to Magees Creek along with it's tributaries. Since nutrients and animal waste are transported to the waters by over land flow along with sediment, any reduction in sediment loadings will result in a reduction of nutrient loadings thereby enhancing the effectiveness and success of the project. Other data collected for MDEQ will be used to calculate pollutant load reductions for each BMP installed in the project.

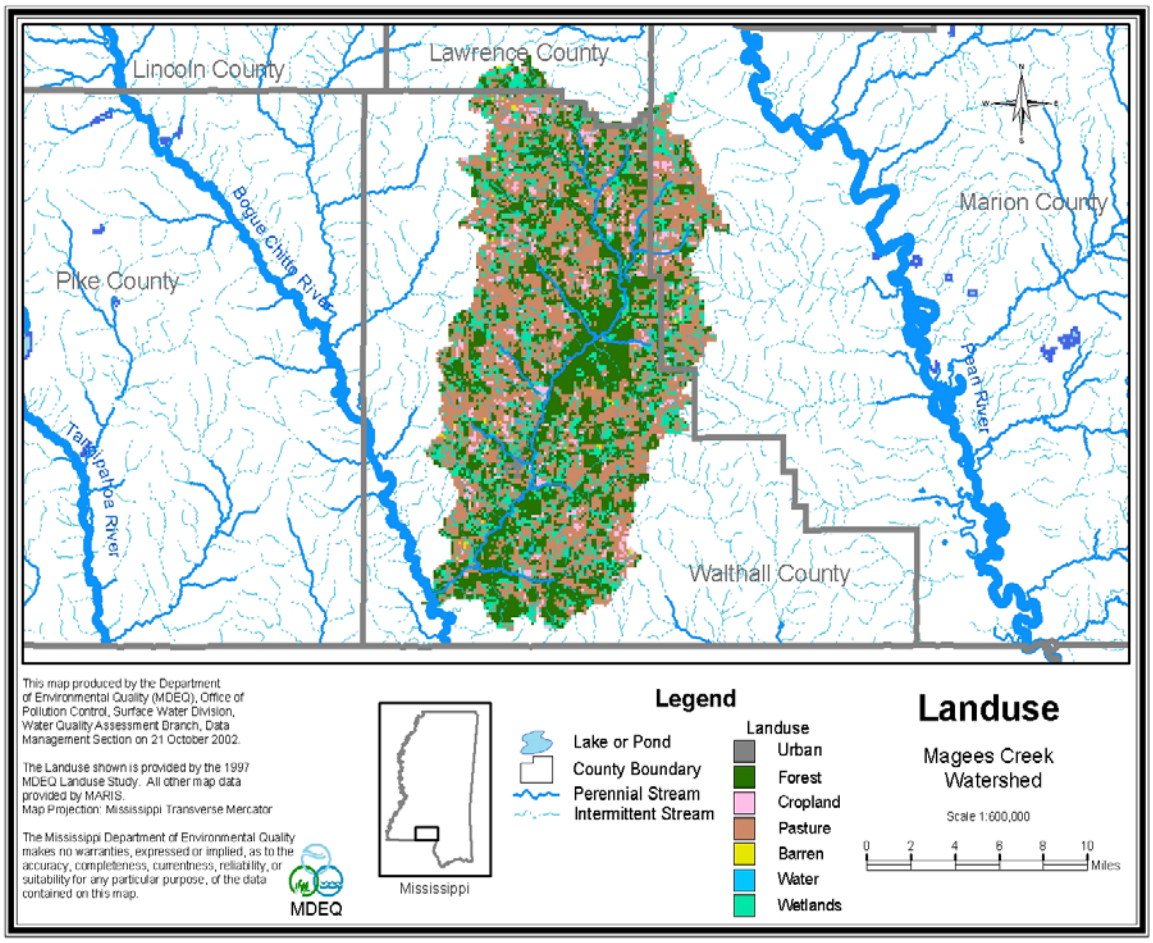
Implementation of NPS Controls – this project will involve the installation of Best Management Systems. Best Management Systems are defined as a combination of BMPs, both structural and vegetative, which are the most practical, effective and economical means of preventing or reducing pollution from nonpoint sources to a level compatible with water quality goals. **The estimated types and numbers of BMPs to be installed as part of Best Management Systems are listed in the project description of this proposal.** The application of best management systems in the project will be the responsibility of the landowners and operators participating in the project as cooperators of the local soil and water conservation district.

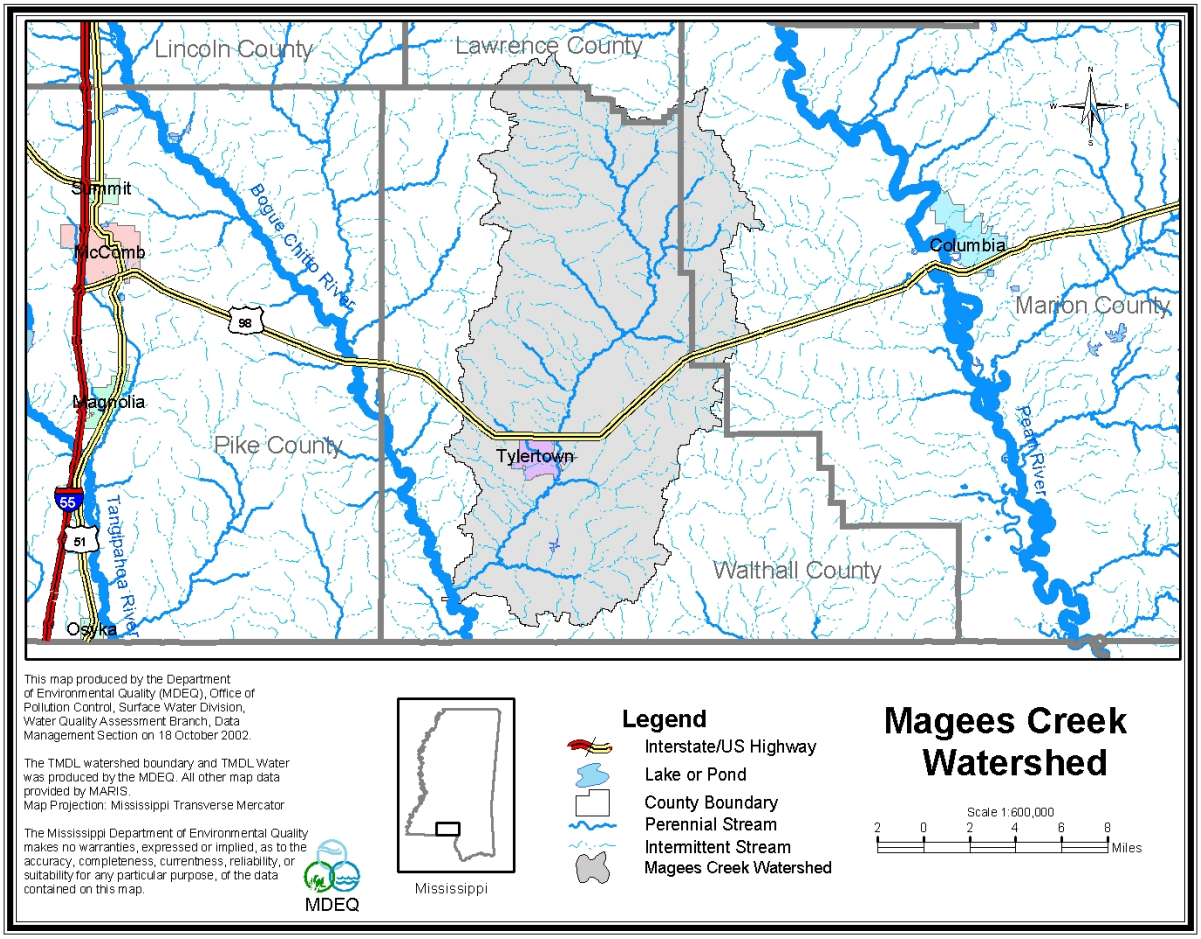
Public Education, Awareness, and Action - this project will include the establishment of at least 2 demonstration farms that will be used to inform the public about best management systems. These will be utilized during the 2 field day/tours that will be conducted in the project. Also, at least 1,000 informational fact sheets highlighting the benefits derived from the project will be developed and distributed as well as the publishing of at least 4 articles about the project in newsletters and local newspapers. At least 20 project roadside sign will be erected where water quality practices are installed in the project. Other educational actions will be conducted to measure the success of the project. These include such things as increased public awareness; before and after photo documentation; increased cooperation among agencies, associations, public bodies and educational institutions; and the economic benefits of applying best management practices. The Mississippi Soil and Water Conservation Commission will request information through the local soil and water conservation district that will assist in measuring the success of the project in the demonstration area.

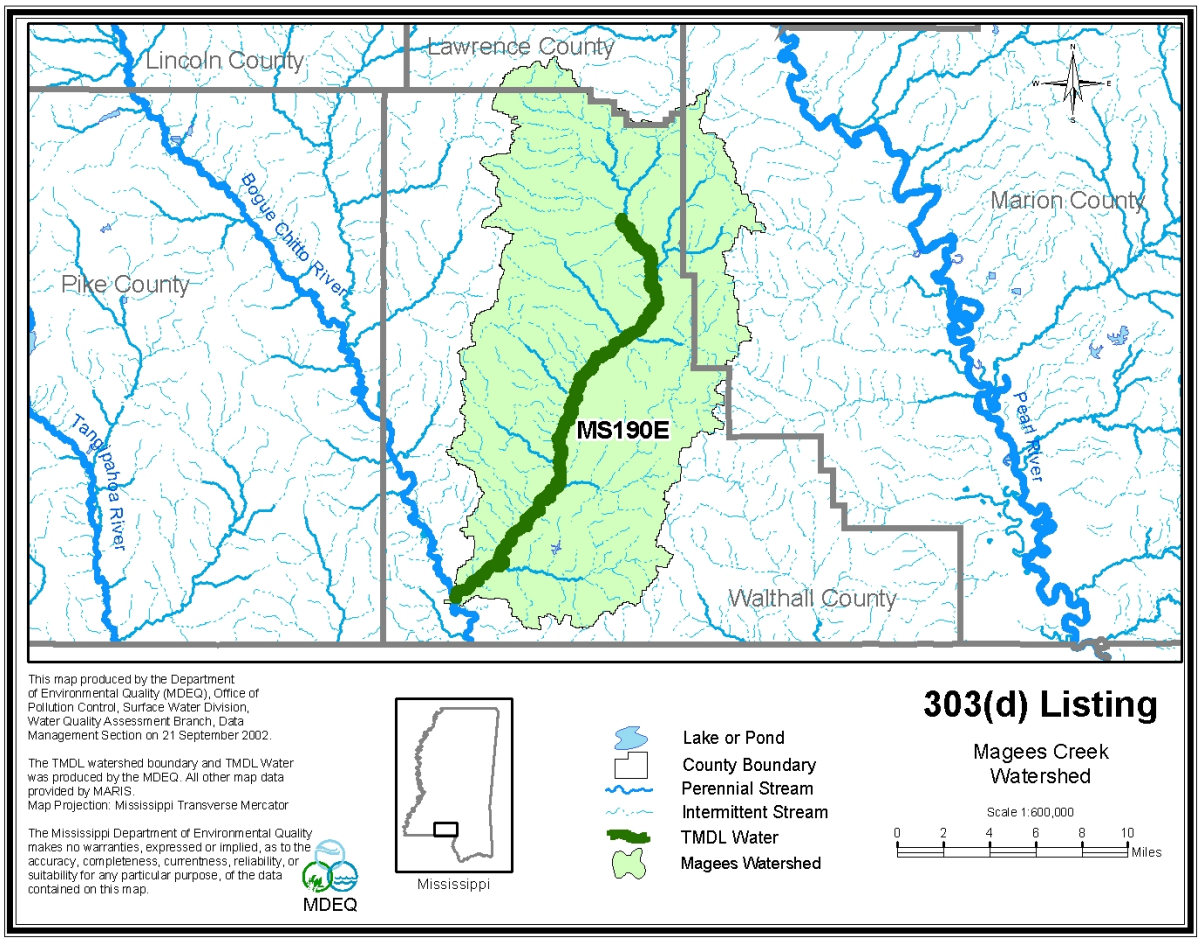
PROJECT PERIOD

The length of this project will be 3 years.

Attachment 1




Lincoln County
Lawrence County
Summit
McComb
Bogue Chitto River
98
Columbia
Marion County
Magnolia
Pike County
Tylertown
Pearl River
55
51
Tangipahoa River
Walthall County
Osyka
N
W
E
S
This map produced by the Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division, Water Quality Assessment Branch, Data Management Section on 18 October 2002.
The TMDL watershed boundary and TMDL Water was produced by the MDEQ. All other map data provided by MARIS.
Map Projection: Mississippi Transverse Mercator
The Mississippi Department of Environmental Quality makes no warranties, expressed or implied, as to the accuracy, completeness, currentness, reliability, or suitability for any particular purpose, of the data contained on this map.
MDEQ
Mississippi
Legend
Interstate/US Highway
Lake or Pond
County Boundary
Perennial Stream
Intermittent Stream
Magees Creek Watershed
Magees Creek Watershed
Scale 1:600,000
2 0 2 4 6 8
Miles


Lincoln County
Lawrence County
Marion County
Pike County
Walthall County
Bogue Chitto River
Tangipahoa River
Pearl River
MS190E
This map produced by the Department of Environmental Quality (MDEQ), Office of Pollution Control, Surface Water Division, Water Quality Assessment Branch, Data Management Section on 21 September 2002.
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MDEQ
Mississippi
Lake or Pond
County Boundary
Perennial Stream
Intermittent Stream
TMDL Water
Magees Watershed
303(d) Listing
Magees Creek Watershed
Scale 1:600,000
0 2 4 6 8 10
Miles

Appendix C

Stressors

Table 2
Stressor Summary Table

Concern	Link/Immediate Cause	Stressor	Description of Stressor	Location/Extent
Fecal coliform loading	wildlife populations, agricultural animal populations, failing septic systems, and urban development	Fecal Coliform	Permitted facilities discharging into water sources, failing septic systems, land application of poultry litter and cattle manure, and urban development	Located throughout the watershed- see attached map (Figure 2.1)

Appendix D

Checklist of Watershed Implementation Elements

Table D. 9 Key Elements of a Watershed Plan for 319 Grant

Required WIP Elements for 319 Grant	Location in Watershed Implementation Plan
1. Watershed Description and Background	Chapter V
2. Implementation	Chapter VIII Section A Subsection 3
3. Project Goals	Chapter VIII Section A Subsections 2 and 5
4. Project Costs	Chapter VIII Section A Subsection 7 Chapter IX Section A Subsection 7
5. Education and Outreach	Chapter IX
6. Implementation Schedule	Chapter VIII Section A Subsection 4
7. Milestones	Chapter VIII Section A Subsection 4
8. Adaptations and Revisions	Chapter X Section A, Chapter XI Section A
9. Monitoring	Chapter X Section B Subsections 1 and 2