

Implementing Agricultural Nonpoint Source Components of the Mill Creek Watershed Protection Plan

FINAL REPORT

TSSWCB PROJECT 19-11



**AUSTIN COUNTY AND WASHINGTON SOIL AND WATER
CONSERVATION DISTRICTS**

Funding for this effort is provided through a Clean Water Act §319(h) nonpoint source grant from the Texas State Soil and Water Conservation Board and U.S. Environmental Protection Agency.

TABLE OF CONTENTS

• EXECUTIVE SUMMARY	Page 3
• INTRODUCTION	Page 4
• PROGRAM DEVELOPMENT	Page 6
○ INVENTORY OF COST-SHARED BMPS	Page 6
• CONCLUSIONS	Page 8

EXECUTIVE SUMMARY

The Austin County Soil and Water Conservation District with the assistance of the Washington County Soil and Water Conservation District (SWCDs), working cooperatively with the Texas State Soil and Water Conservation Board (TSSWCB) Wharton Regional Office and the United States Department of Agriculture – Natural Resources Conservation Service (NRCS), provided technical and financial assistance to agricultural producers in the Mill Creek watershed.

The development, installation, and maintenance of water quality management plans (WQMPs) in the Mill Creek watershed were and continue to be a success. A District Technician was hired and worked cooperatively with the TSSWCB Wharton Regional Office and NRCS to provide agricultural producers with the opportunity to voluntarily implement best management practices (BMPs) that would have a positive impact on the Mill Creek watershed.

Through this project, a total of 7 WQMPs were developed and implemented on approximately 1804 acres. A majority of the practices installed were related to livestock management, which included fencing, prescribed grazing, water wells, solar pumps, water storage tanks, livestock pipelines, and water troughs. In addition, nutrient and pest management or herbaceous weed control was applied to all 1804 implemented acres, with the exception of wildlife areas, where those practices do not apply. The District Technician, TSSWCB Wharton Regional Office, and NRCS Field Office worked with the SWCDs and local producers to educate them on their operation, the WQMP program, proper soil sampling, and water quality. They also presented at field events, field days, and were active in the development of the Mill Creek Watershed Protection Plan (WPP).

Implementation of WQMPs has been and will continue to be a key component in the overall effort to reduce bacteria, nutrients, and sedimentation and improve water quality in the Mill Creek watershed.

INTRODUCTION

The Mill Creek is formed by two forks, East and West Mill Creek, in southwest Washington County which unites near Bellville, TX in Austin County to form the main stem. The watershed is almost 412-square-miles (263,450 acres) and lies within the Brazos River Basin. Both the East and West forks' headwaters are just north of SH 290 near Burton. These forks flow south parallel with each other until they join 4 miles west of Bellville. Then the creek continues for 14 miles until it reaches the Brazos River. There are many pools in the East and West Forks that are connected when the creek is flowing after rainfall events. The East fork is also fed by springs and therefore flows more consistently than the West fork. The main stem of Mill Creek flows consistently throughout the year receiving flows from the East and West forks as well as the Bellville wastewater treatment facility. The East and West forks of the creek are in the Oaks and Prairies Region of Texas and the lower portion of the watershed is in the Coastal Prairies Region. Cities in the watershed include Bellville, Burton, and Industry with populations of 4,236, 301, and 326, respectively. Also, 10% of the watershed comes from the city of Brenham, pop. 16,951. Over two-thirds of the watershed is used for livestock and hay production or wildlife habitat. Many pastures are planted in improved bermudagrasses or bahiagrasses for grazing and/or hay production. Only one percent of the watershed, near the mouth of Mill Creek, is cropland where rice, corn, cotton, and sorghum are grown. In recent years, there has been an increasing interest in providing wildlife habitat, which often includes planting native tall grasses, such as bluestems, Indian grass, and switchgrass. Wooded areas account for roughly 10% of the watershed and wooded riparian areas account for an additional 5%. It has also been noted that the creek supports a high degree of biodiversity and rare gamagrass-switchgrass species that grow in its bottomlands. Fish species include channel catfish, common carp, spotted gar, and multiple species of sunfish and minnows as well as macroinvertebrates such as mayflies, midges, worms, and aquatic beetles.

Mill Creek has been monitored by Texas Commission on Environmental Quality (TCEQ) under various programs since 1974. In 2006, Mill Creek was listed on the Texas Integrated Report of Surface Water Quality, formerly known as the Texas Water Quality Inventory and 303d list, with a concern for impaired fish communities in its downstream portion; it was listed again in 2008. In 2010, 2012, 2014, and 2016, Mill Creek appeared on the list as impaired for elevated levels of bacteria and contact recreation.

Texas A&M AgriLife Extension partnered with the Houston-Galveston Area Council (H-GAC) to initiate a monitoring program on Mill Creek and its tributaries as part of the WPP development. Sampling occurred in the watershed where they were able to identify that increased flow positively correlated to elevated levels of bacteria. They also determined no individual subwatershed was a leading contributor over any other subwatershed.

The Mill Creek Watershed Partnership worked together to develop a Watershed Protection Plan (WPP). The Mill Creek was selected for this based on its repeated appearance on the Texas

Water Quality Inventory and 303d list. In the WPP, the Mill Creek Watershed Partnership identified that bacterial loads needed to be reduced by 43% annually to achieve water quality goals and protect Mill Creek in the future by considering long-term population growth. The Mill Creek Watershed Partnership decided the best way to meet those goals would be to work with TSSWCB and the local SWCDs to implement Water Quality Management Plans on agricultural lands.

A WQMP is a site-specific plan developed through and approved by SWCDs for agricultural or silvicultural lands. The plan includes appropriate land treatment practices, production practices, management measures, technologies, or a combination thereof. The purpose of WQMPs are to achieve a level of pollution prevention or abatement determined by the TSSWCB, in consultation with the local SWCDs, to be consistent with state water quality standards.

PROGRAM DEVELOPMENT

This project consisted of the TSSWCB working with Austin County SWCD #347 and Washington SWCD #348 to provide technical and financial assistance to landowners for the development, implementation, and/or maintenance of WQMPs.

Through this project, a District Technician was hired by the Austin County SWCD to coordinate technical and financial assistance activities between the TSSWCB, cooperating SWCDs, NRCS, and all other interested parties in the Mill Creek Watershed. The District Technician promoted the availability of assistance through the local SWCDs.

Producers applied for assistance and were served on a first come, first serve basis. The District Technician, working in cooperation with the NRCS, developed WQMPs based on the criteria outlined in the Field Office Technical Guide (FOTG), a publication of the NRCS. The FOTG represents the best available technology and is already tailored to meet the needs of SWCDs all over the nation. A WQMP includes the following:

- Water Quality Management Plan Map showing boundaries, fields, land use, acres, and facilities
- Soils Map
- Soils Descriptions
- Topography Map
- Location Map
- Conservation Plan of Operations
- Grazing Management Plan (required when cattle are present)
- Soils Test (required when nutrients are applied)
- Win-Pst Analysis and Integrated Pest Management Jobsheet (when chemicals are applied)

Once the WQMP was developed and approved by NRCS and the local district, it was then sent to the TSSWCB Wharton Regional Office for technical review and certification. Upon certification of the WQMP, the plan could be implemented.

The District Technician worked with landowners to implement the BMPs laid out in the WQMP. The major BMPs installed included:

- Cross-fencing (382): 8918.4ft of fence has been installed
- Prescribed Grazing (528): 621.4 acres of prescribed grazing has been implemented
- Livestock Pipeline (516): 4049.9 ft of livestock pipeline has been installed
- Watering Facilities (614): 8 watering facilities have been installed
- Brush Management (314): 64 acres of brush management has been completed
- Forage and Biomass Planting (512): 98.2 acres of forage and biomass planting have been completed

Other BMPs installed were nutrient management (590), integrated pest management (595), herbaceous weed treatment (315), forage harvest management (511), and upland wildlife management (645). The District Technician helped landowners acquire any cost-share assistance available. Once the practice was implemented and certified, the cost-share was paid. Status reviews were conducted annually on all WQMPs developed and certified through this project to ensure the BMPs were installed and maintained properly.

In addition to the development, installation, and maintenance of WQMPs, the District Technician and TSSWCB Wharton Regional Office worked with the SWCDs and local producers to educate them on their operation, the WQMP program, proper soil sampling, and water quality. The District Technician and TSSWCB Wharton Regional Office attended educational events in the Mill Creek watershed and disseminated information on this project and other agricultural related issues. They were also active in the development of the Mill Creek WPP by serving on the Technical Advisory Group to the Steering Committee.

CONCLUSIONS

The development, installation, and maintenance of WQMPs in the Mill Creek Watershed were and continue to be a success. The District Technician, working cooperatively with the TSSWCB Wharton Regional Office and NRCS, provided agricultural producers with the opportunity to voluntarily implement BMPs that would have a positive impact on the Mill Creek.

Through this project, a total of 7 WQMPs were developed and implemented on approximately 1804 acres. A majority of the practices installed were related to livestock management, which included cross-fencing, prescribed grazing, livestock pipelines, and water troughs.

There is still a need to address agricultural NPS issues in the Mill Creek watershed.