

City of Sanford, NC
Application for
NC Department of Public Safety
NC Emergency Management Disaster Relief and Mitigation Fund Grant
Little Buffalo Creek Flood Mitigation and Stream Restoration Design Project

Project Narrative

I. Applicant Information

City of Sanford, NC
P.O. Box 3729
Sanford, NC 27331
919-777-1112
T. Chet Mann, Mayor
Chet.mann@sanfordnc.net
Phillip (Hal) Hegwer, City Manager
Hal.hegwer@sanfordnc.net

II. Project Description

The City of Sanford is requesting grant funding assistance from the NC Department of Public Safety under the NC Emergency Management Disaster Relief and Mitigation Program to add two box culverts where the Little Buffalo Creek crosses under Weatherspoon Street. Currently, there are two 8 ft. X 10 ft. box culverts under Weatherspoon Street through which the Little Buffalo Creek flows. Over time, the amount of storm water and sediment has increased resulting in stormwater to back up at Weatherspoon Street, resulting in subsequent flooding. The increased flow has now reached a point where additional flow capacity is needed. The proposed solution is to add two new 5 ft. X 10 ft. box culverts to accommodate the additional storm water flow.

The addition of the two new box culverts is a critical component of a larger stream restoration project the City is planning to undertake on Little Buffalo Creek. In addition to funds for the installation of the box culverts, funds are included in the project budget to undertake the planning and design of the overall stream restoration project.

According to Freese and Nichols' Stream Restoration engineer: *The main concept is that the natural channel design will incorporate an increase in flood capacity by 2 methods: 1) increases in conveyance area on the floodplain each side of the geomorphic channel and 2) a natural channel design fundamentally accounts for both sediment loading and flood flows, which provides a long-term stable channel that*

maintains the intended flood conveyance by moving sediment through the stream reach. With traditional channel designs that solely focus on flow capacity, the sediment load from upstream usually fills in the intended flood channel and ultimately causes a loss of design capacity.

III. Future Flood Mitigation and Community Impact

Little Buffalo Creek is a natural waterway that runs through the City of Sanford. While not a navigable waterway, the Creek provides a critical means of collecting and moving storm water from the downtown area. Stormwater collected by Little Buffalo Creek is carried to Deep River and then on to the Cape Fear River.

This area consists of residential homes, as well as retail and commercial businesses. A substantial number of residential households are low to moderate-income. Over the years, this area of the City has experienced significant flooding during moderate to heavy rain events. The mitigation activities proposed in this project will provide a tremendous benefit to the residents and businesses located in proximity to the Little Buffalo Creek flood plain.

In the early planning stages of this project, the City engaged the services of the WithersRavenel Engineering firm to provide a flood impact study. The attached map depicts the Little Buffalo Creek drainage area and flood plain delineations, both existing and projected after the additional box culverts are installed under Weatherspoon Blvd. As depicted on the attached project area map the 100-year flood plain will be significantly reduced, thus removing a number of houses and commercial structures out of the flood plain, minimizing risks of future flooding.

Further, the City has had many discussions and informational meetings with the membership of Downtown Sanford, Inc., a NC Main Street Community, regarding the needed improvements and restoration of Little Buffalo Creek. Representing over sixty-five local businesses in downtown Sanford, the organization's Board of Directors has wholeheartedly endorsed and encouraged the City to undertake these critically needed improvements to Little Buffalo Creek. Once complete, this project will have a long-lasting positive impact on the continued viability of these businesses.

The installation of the two additional box culverts combined with the eventual stream restoration activities for Little Buffalo Creek will be sustainable in the future with regular maintenance of the creek banks and removal of unnecessary brush that will likely grow without regularly scheduled mowing and/or clearing. These activities undertaken by the City will ensure the sustainability of the waterway and its intended long-term function as a stormwater drainage system.

IV. Scope of Work (Sections IV and V shown below)

V. Project Schedule

The Little Buffalo Creek Flood Mitigation and Stream Restoration Project will entail the following Scope of Work and approximate completion dates. Completion dates are based on the estimated grant award date of May 15, 2022.

Project Scope of Work and Timeline:

Project Component	Responsible Entity	Target Completion Date
Project Design - Box Culverts	Freese and Nichols	September 30, 2022
Project Design - Stream Restoration Project	Freese and Nichols	October 31, 2022
Project Construction Bid Package - Box Culverts	Freese and Nichols	November 30, 2022
Construction Contract Award-Box Culverts	City of Sanford	January 31, 2023
Construction Complete	Contractor	April 30, 2023
Project Closeout	City of Sanford	June 30, 2023

Little Buffalo Creek Flood Mitigation and Stream Restoration Design Project Budget

Project Component	Budget Amount
Stream Restoration Design	\$108,000.00
Culvert Design	\$54,000.00
Culvert Installation	\$600,000.00
Permitting	\$59,700.00
Surveys	40,000.00
Contingency	\$258,510.00
Cost Escalation Factor (3%)	\$33,606.00
Total Grant Request Amount	\$1,153,816.00

An Opinion of Probable Construction Costs (OPCC) was prepared by Freese and Nichols Engineers on March 30, 2022, providing the basis for the feasibility of this project. The proposed culvert installations and eventual stream restoration were deemed to be the most cost-effective alternatives with the highest degree of sustainable resiliency for continued control and prevention of significant flooding in the future. A copy of the OPCC is included in the section labeled Attachments.

VI. Project Management

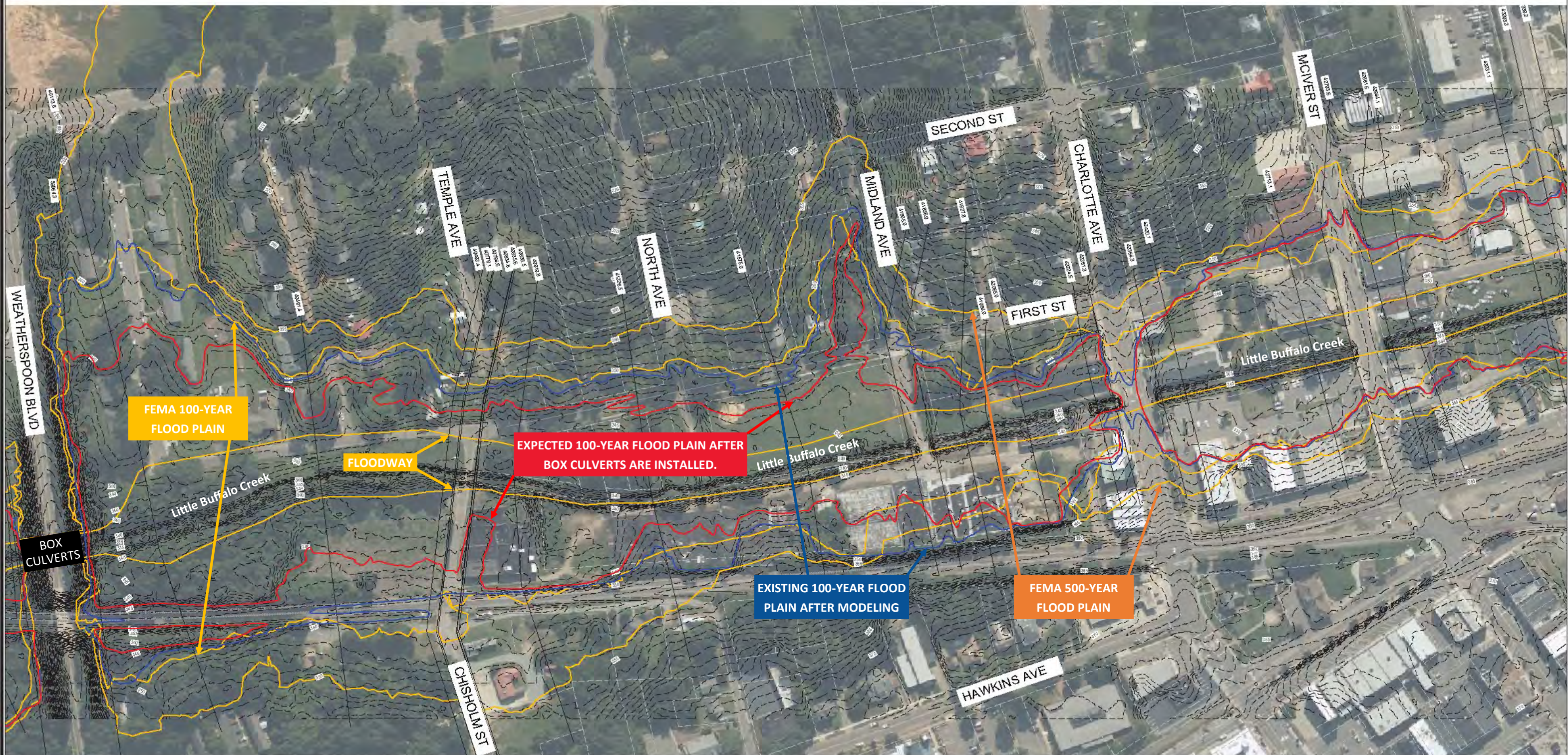
The project will be managed through a contract with Freese and Nichols Engineers. Freese and Nichols is based out of Fort Worth, TX and has twenty-eight offices nationwide, with over 950 employees. This project has been designed and will be managed

out of their Winston-Salem, NC office. Freese and Nichols will be responsible for project design; on-site construction observation; verification of work completed and stored materials; verification of all contractor Request for Payments; preparation of change orders, if necessary; and final inspections. The engineer will also conduct monthly construction progress meetings with the contractor, the City and affected utilities and state agencies.

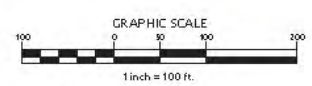
The City of Sanford will manage communications with the NC Department of Public Safety for financial and reporting matters, as well as coordinating interim and final inspections.

VII. Attachments

- a. Project Opinion of Probable Costs
- b. Project Area Flood Plain Map



- FEMA FLOODLINES
- EXISTING 100 YR FLOODLINE
- SCENARIO 100 YR FLOODLINE



No.	Revision	Date	By

Drawn by	
Checked by	
Date	12/10/2021
Scale	AS SHOWN
	022 10 904

LITTLE BUFFALO CREEK
 SANFORD LEE COUNTY NORTH CAROLINA

SCENARIO 1 - UPSIZE WEATHERSPOON


WithersRavenel
 Engineers | Planners | Surveyors
115 MacKenzie Drive | Cary, NC 27511 | t 919.469.3340 | license # G-0832 | www.withersravenel.com

Sheet No.