Greenville County

Little Creek & North Chastain Stream Improvements, Restorations, & Reclamations

Public Meeting / Thursday, June 27, 2024

SOUTH CAROLINA OFFICE OF RESILIENCE

MEET THE TEAM

GREENVILLE COUNTY

Destiny Macon, *Land Development Project Manager*

Judy Wortkoetter, *County Engineer*

SCOR

Pam Kendrick, *Infrastructure Program Manager*

Amy Azarias, *Infrastructure Project Manager*

Samantha Brooks, *Infrastructure Program Coordinator*

WOOLPERT ENGINEERING

James Riddle, *Program Director/Vice President*

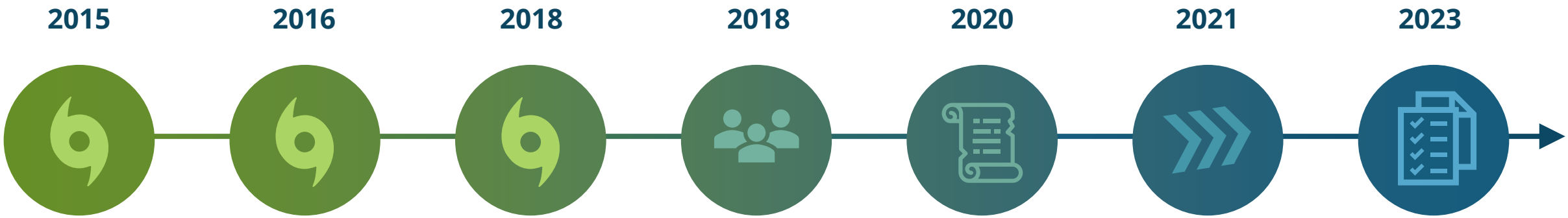
Brian Behrens, *Project Manager*

Zach Smoot, *Project Engineer*

SCOR's Mission

To lessen the impact of disasters on the communities and citizens of South Carolina by planning and coordinating statewide **resilience**, **long-term recovery,** and **hazard mitigation.**

History of SCOR



2015 — SC Disaster Recovery Office was created following Historic Floods of 2015, which resulted from Hurricane Joaquin

2016 — Hurricane Matthew

2018 — Hurricane Florence

2018 — Floodwater Commission established

2020 — Disaster Relief and Resilience Act was signed, creating the Office of Resilience

2021 — Officially began operation at the start of FY 2022

2023 — Published South Carolina's first Statewide Resilience Plan

What We Do

DISASTER RECOVERY

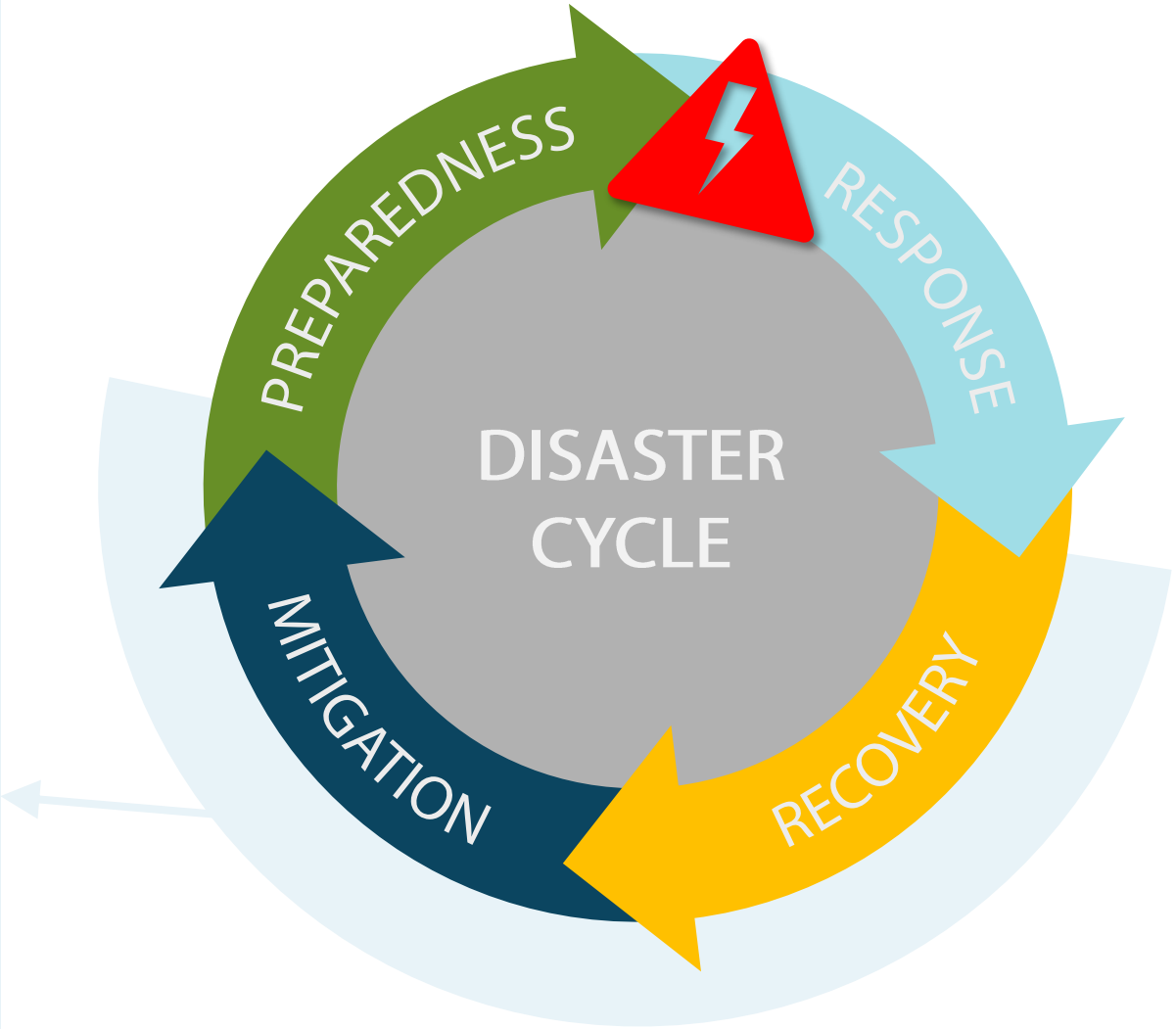
- **Long-term Recovery**: Rebuild and replace homes damaged by hurricanes and flooding in FEMA-declared counties; funded by HUD CDBG-DR
- **Disaster Case Management**: Wholistically assisting SC citizens thru the disaster recovery process

MITIGATION

- **Buyouts**: Voluntary acquisitions of repetitively flooded land and property in order to return it to green space
- **Infrastructure**: Traditional "Gray" and Nature-based "Green" Infrastructure
- **Plans & Studies**: Funding for local governments and state agencies to develop and/or update hazard mitigation plans, stormwater plans, and more
- **Matching Grants**: Provide the local cost share for other federal flood mitigation programs

RESILIENCE

- **Strategic Planning**: Development and management of the Strategic Statewide Resilience & Risk Reduction Plan
- **Grant Management**: Secure and manage federal and non-federal resilience related grants
- **Fund Management**: Administer the Disaster Relief and Resilience Reserve Fund and the SC Resilience Revolving Fund



South Carolina Office of Resilience (SCOR)

- Office of the Governor
- S.C. Office of Resilience
- Disaster Recovery Division
- Mitigation Department

SOUTH CAROLINA OFFICE OF RESILIENCE

ASIP Program

The South Carolina General Assembly appropriated **American Rescue Plan Act (ARPA) – State Local Fiscal Recovery Fund (SLFRF)** funding to the South Carolina Office of Resilience (SCOR) to reduce flooding across the state.

SCOR developed the **ARPA-Funded Stormwater Infrastructure Program (ASIP).**

- Eligible to Local Governments Statewide
- Grey and/or **Green*** Stormwater Infrastructure Projects
- Program goal to lessen impacts of future flood events
- State-run or Subrecipent-run

ASIP Project Awards

- SCOR awarded Greenville County **$1,510,626.00 in ASIP funding** between the **two** projects:
  - **$919,128** for the Little Creek Stream Improvement & Reclamation Project
  - **$591,498** for the North Chastain Stream Restoration & Reclamation Project
- Both projects are **Subrecipient-run** meaning:
  - Greenville handles the day-to-day project implementation
  - SCOR provides technical assistance and funding.
- ASIP funds are for **construction only**

GREENVILLE COUNTY WANTS HEALTHY STREAMS

- Healthy Streams mean:
  - Water safe for contact:
    - For Wading
    - For Swimming
    - For Kids Playing
  - Stability
    - Floodplains are allowed to flood
    - Lower risk to property and infrastructure
    - Less sediment in stream
  - Thriving Ecology
    - Healthy populations of bugs
    - Native vegetation
    - Thriving populations of fish

Improving a 200 mile Watershed: A Tall Order

- Historically, the Reedy River has been abused.
- Since at least 2002, Greenville County has worked to change that:
  - Provided more regulation and oversight for construction.
  - Implemented and maintained a river monitoring network.
  - Provided guidance for designers and engineers to encourage more nature-based solutions.
  - Performed stream restorations and implemented Stormwater BMPs with a focus on water quality.
  - Pursued and won $11.5M in grants to speed up implementation of stream restoration and stormwater BMPs in the Reedy River Watershed.

What exactly is a stream restoration?

- Goals of stream restoration include:
  - A stable stream (Less erosion)
  - A functional stream (the stream does what it's supposed to)
  - Lower risks (loss due to failing banks, falling trees, decreased risk for infrastructure loss)
  - Improved ecosystem(s)
  - Improved Aesthetics (a healthy or restored stream just looks good!)

PROJECT NEED

Recurring road and residential flooding.

PROJECT NEED

Converting flood areas to urban assets

- Remove people and homes from harms' way
- Repair streams:
  - Reduces risk to infrastructure
  - Reduces nutrient and sediment loading
- Return areas to natural buffers:
  - Becomes a community asset
  - Treats stormwater
  - Provides additional habitat
  - Root systems stabilize stream

PROJECT HISTORY

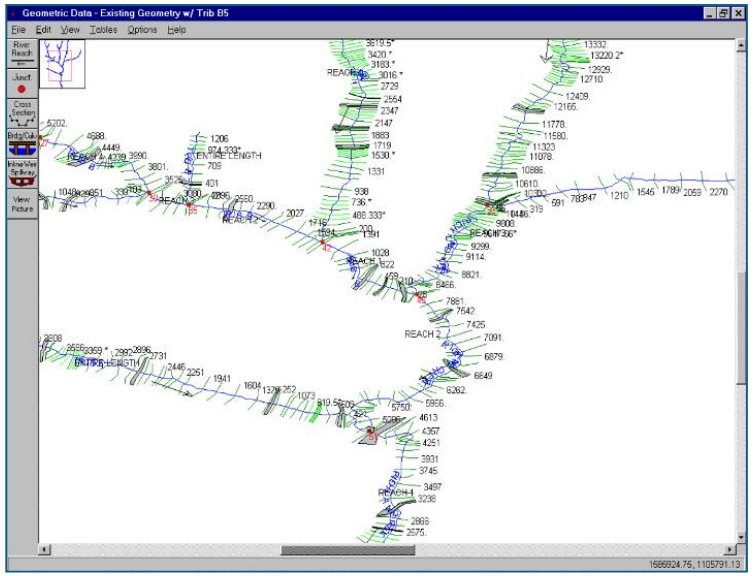
Field data collection and flood modeling

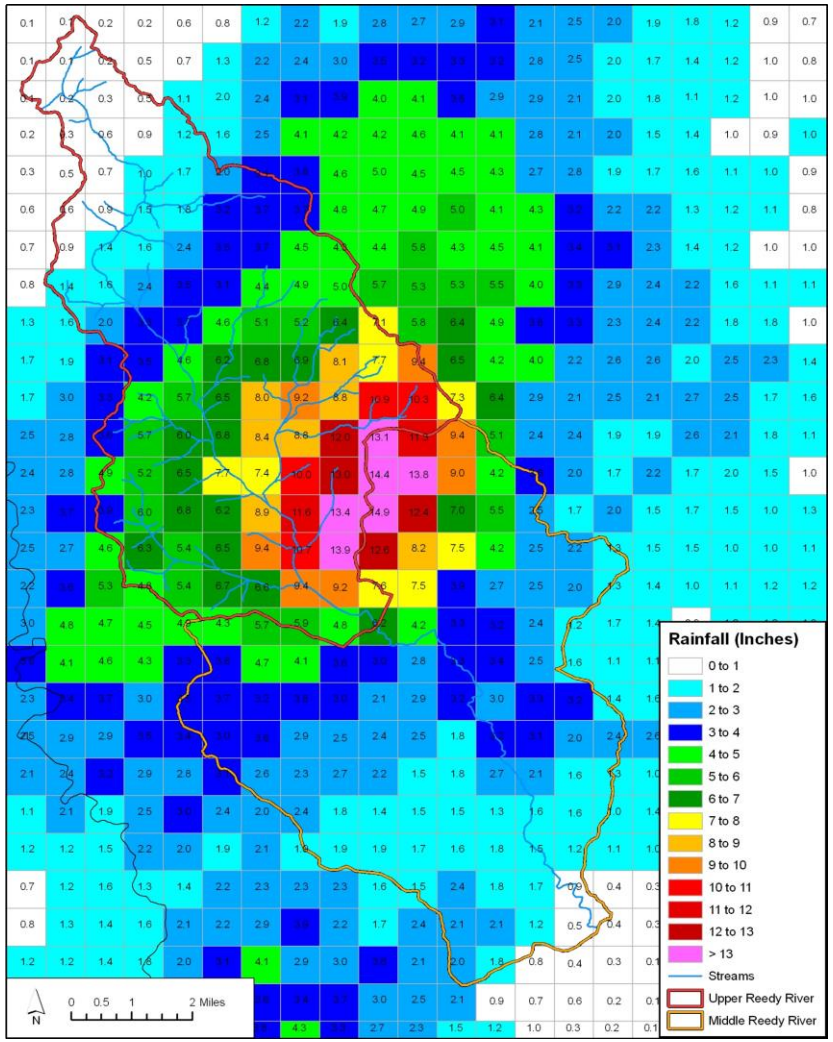
- Field inspections - 58 stream miles
- Surveying
  - 400 homes
  - 140 Public bridge/culvert crossing
- Approximately 32 square mile watershed
- Modeled Reedy River and 51 tributaries
- Included nearly 200 sub-watersheds

PROJECT HISTORY

Flood modeling and calibration

- Hydrologic model – HEC-HMS
- Hydraulic model – HEC-RAS



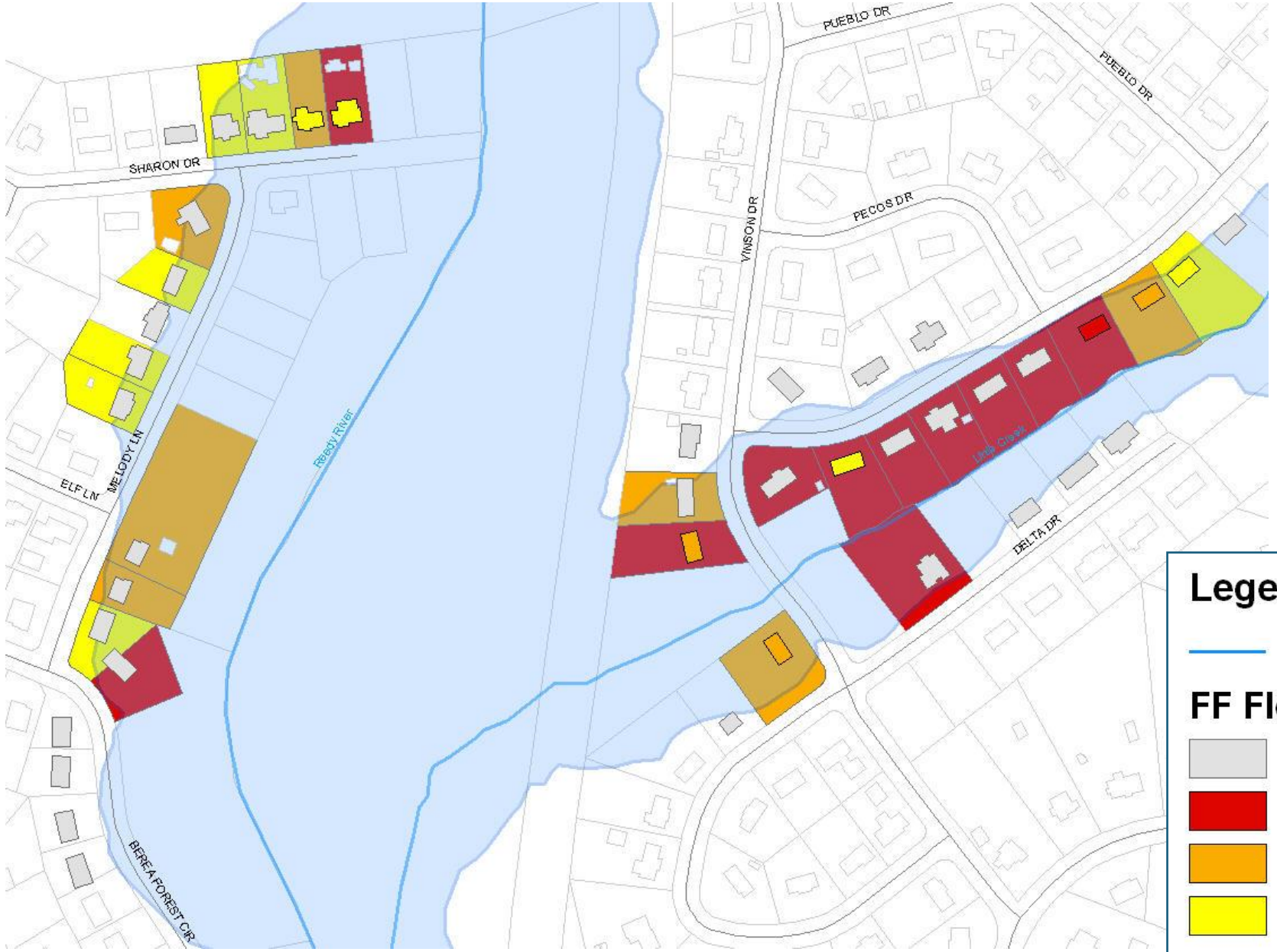


PROJECT HISTORY

Model Results

- Culvert/Bridge Overtopping
  - 21 County roads – 2-year storm
- Structures at Risk
  - 35 homes – 100-year storm
  - No neighborhoods with more than 8 flooded homes

Residential Flooding (100-yr)	Number of Homes
Vinson/Plano Drive area	6
Dukeland/Langston Drive area	6
Agnew/Bramlett Road area	8



Example Risk Profile at Plano Drive

Residential Flooding

Address	River	River Station (ft)	Finish Floor Elevation (ft)	Lowest Adjacent Ground Elevation (ft)	Cost (Fair Market Value) (USD)	Finish Floor Flooding Recurrence (yr)	Benefit to Cost Ratio
14 N. Chastain Dr	Langston Creek	7432	954.3	953.5	$57,000	<10	0.39
1603 Old Cedar Lane Rd	Tributary F	3844	976.0	971.5	$10,000	<25	0.39
204 Claxton Dr	Tributary A-5	583	986.3	986.3	$125,000	<25	0.36
201 Alice Farr Dr	Tributary G-3	516	963.3	962.9	$44,000	<10	0.34
109 Aladdin St	Tributary D-1	873	943.5	943.0	$34,000	<10	0.29
12 Eunice Dr	Tributary A-9	4616	1030.7	1028.4	$86,000	<25	0.26
218 Alice Farr Dr	Tributary G-3	1195	968.3	968.3	$103,000	<25	0.20
102 Plano Dr	Little Creek	2347	953.7	953.3	$81,000	<25	0.17
1408 Bramlett Rd	Long Branch	5912	940.7	940.1	$21,000	<25	0.13
207 Vinson Dr	Little Creek	1467	952.1	951.8	$62,000	<25	0.12
104 Plano Dr	Little Creek	2439	954.2	954.1	$76,000	<25	0.09
56 / 58 Circle Dr	Tributary D-2	525	956.5	956.4	$116,000	<25	0.08
1407 Bramlett Rd	Long Branch	5801	941.5	937.8	$63,000	<50	0.07
203 Vinson Dr	Little Creek	1528	952.7	952.1	$60,000	<25	0.07
306 / 308 Meadow St	Reedy River	288183	928.4	928.2	$45,000	<50	0.07
15 Wood St	Long Branch	5726	941.2	938.6	$29,000	<50	0.06
107 Aladdin St	Tributary D-1	804	945.1	944.7	$21,000	<25	0.06
1409 Bramlett Rd	Long Branch	5813	941.5	936.8	$47,000	<50	0.06
1501 Bramlett Rd	Long Branch	5829	941.3	937.8	$12,000	<50	0.06
2408 Old Parker Rd.	Little Creek	11653	1004.9	1001.7	$171,000	<100	0.05
1503 Bramlett Rd	Long Branch	5826	941.7	938.4	$12,000	<50	0.04
1505 Bramlett Rd	Long Branch	5819	942.4	938.7	$44,000	<100	0.04
108 Plano Dr	Little Creek	2512	954.9	954.7	$77,000	<50	0.04
48 / 50 Circle Dr	Tributary D-2	543	957.2	957.1	$122,000	<50	0.03
113 Sharon Dr	Reedy River	311488	953.9	950.2	$68,000	<100	0.03
13 N. Chastain Dr	Langston Creek	7565	957.5	954.6	$60,000	<100	0.03
8 Plano Dr	Little Creek	1779	955.2	951.5	$58,000	<100	0.02
1406 Bramlett Rd	Long Branch	5912	942.9	941.1	$73,000	<100	0.02
310 Mcmakin Dr	Tributary D-2	2677	966.2	964.1	$46,000	<100	0.02
4 N. Chastain Dr	Langston Creek	7166	957.6	954.0	$49,000	<100	0.02
310 Dukeland Dr	Tributary D-2	3400	968.2	966.0	$54,000	<100	0.02
12 Eunice Dr	Tributary A-9	4610	1033.1	1032.9	$86,000	<100	0.02
306 Dukeland Dr	Tributary D-2	3463	968.5	966.5	$21,000	<100	0.01
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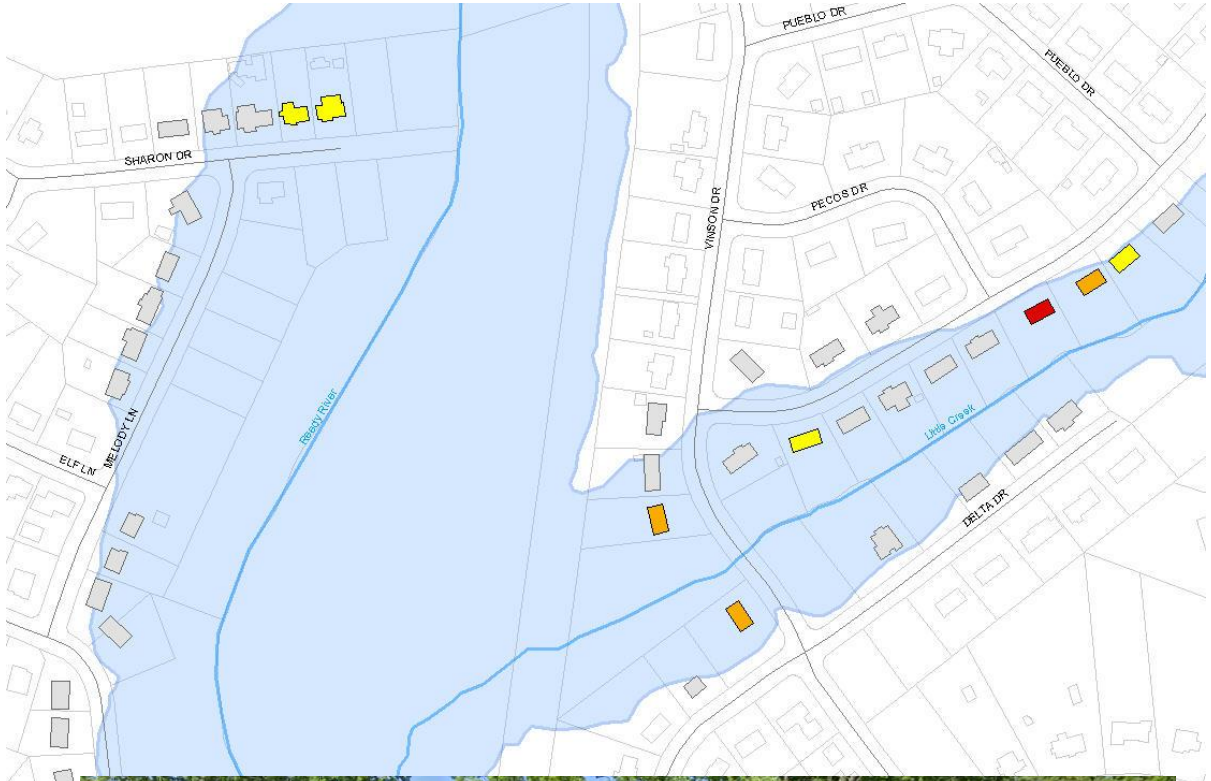

PROJECT HISTORY

Model Results

- The County retained a third party to broker potential negotiations with homeowners for residential buyouts
- Purchase and removal of structures took place over several years
- There are some owners that chose to remain.

**Buyouts help everyone!

Less flooded homes = Lower Insurance Rates

PROJECT OVERVIEW

Little Creek Stream Improvement & Reclamation

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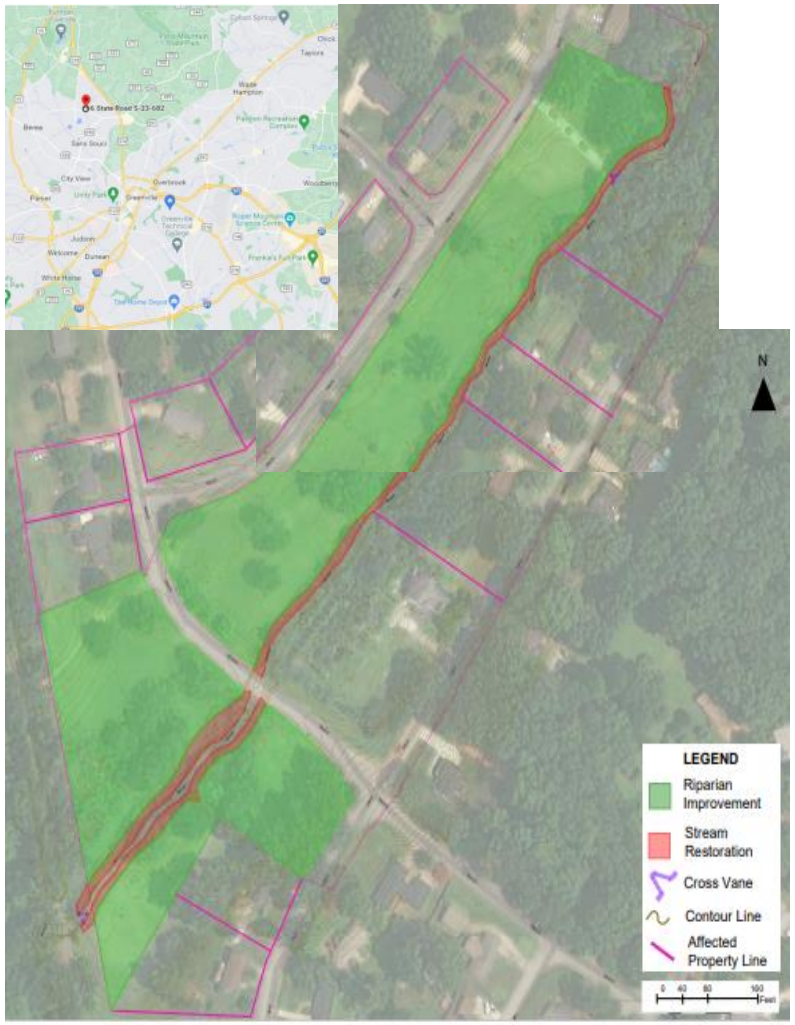
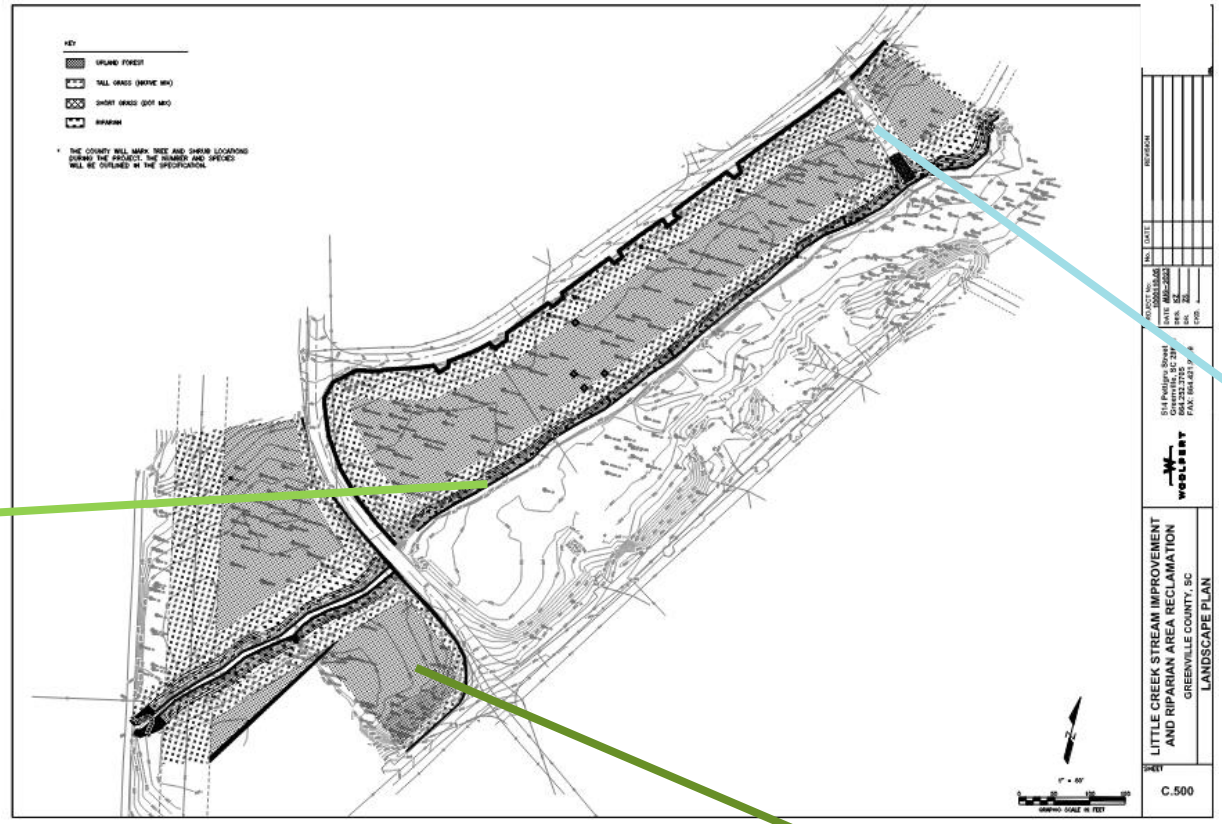


- Multiple contiguous buyout properties
- 1,400 linear feet of stream improvements
- 6.5 acres of riparian reforestation

Little Creek Stream Improvement & Reclamation

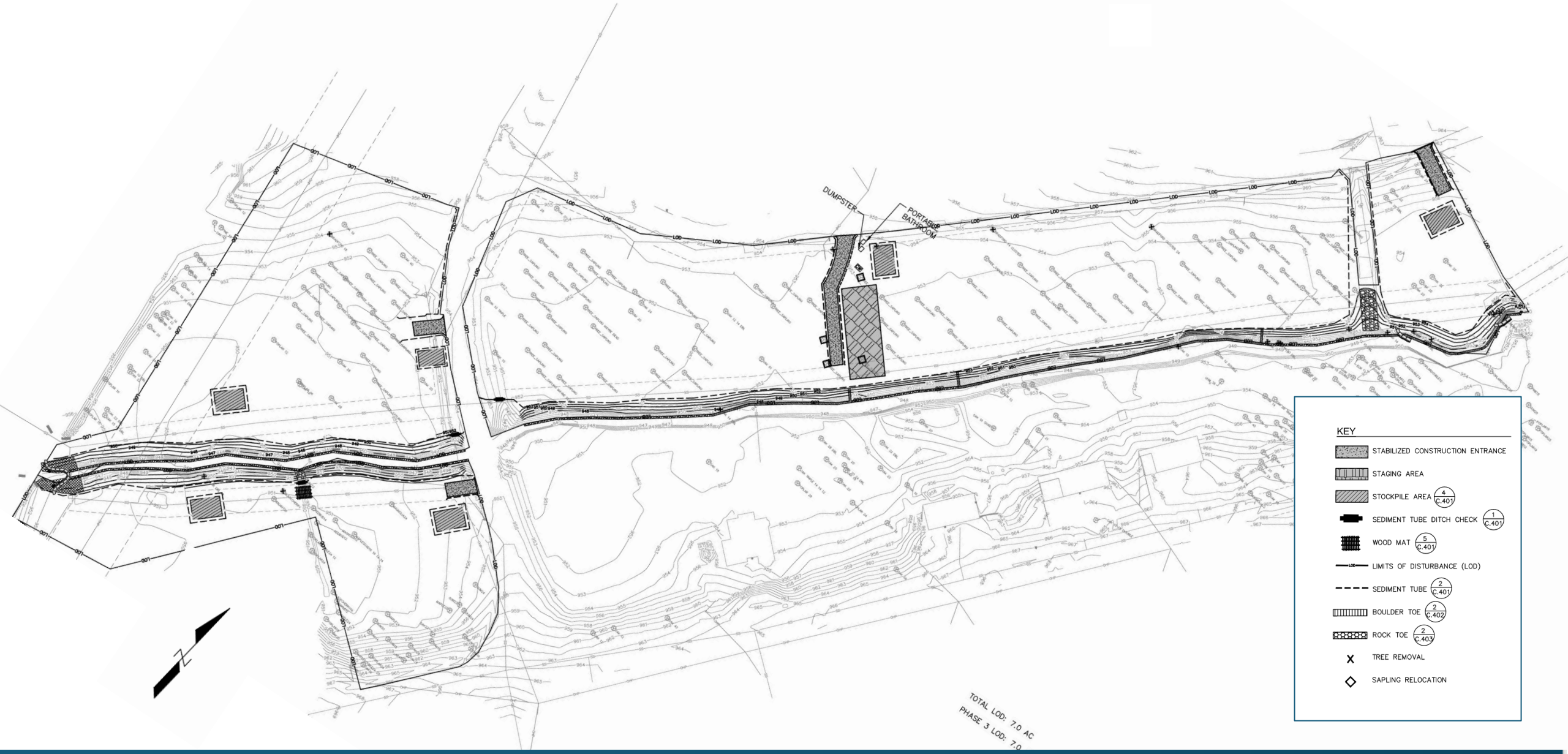
Stream restoration is among the best "bang for buck" for target nutrients/pollutants



County Council just adopted a stream buffer requirement, so why not restore them where possible if we're protecting existing ones?

Regenerative Stormwater Conveyance already installed in 2021

Little Creek Stream Improvement & Reclamation



PROJECT OVERVIEW

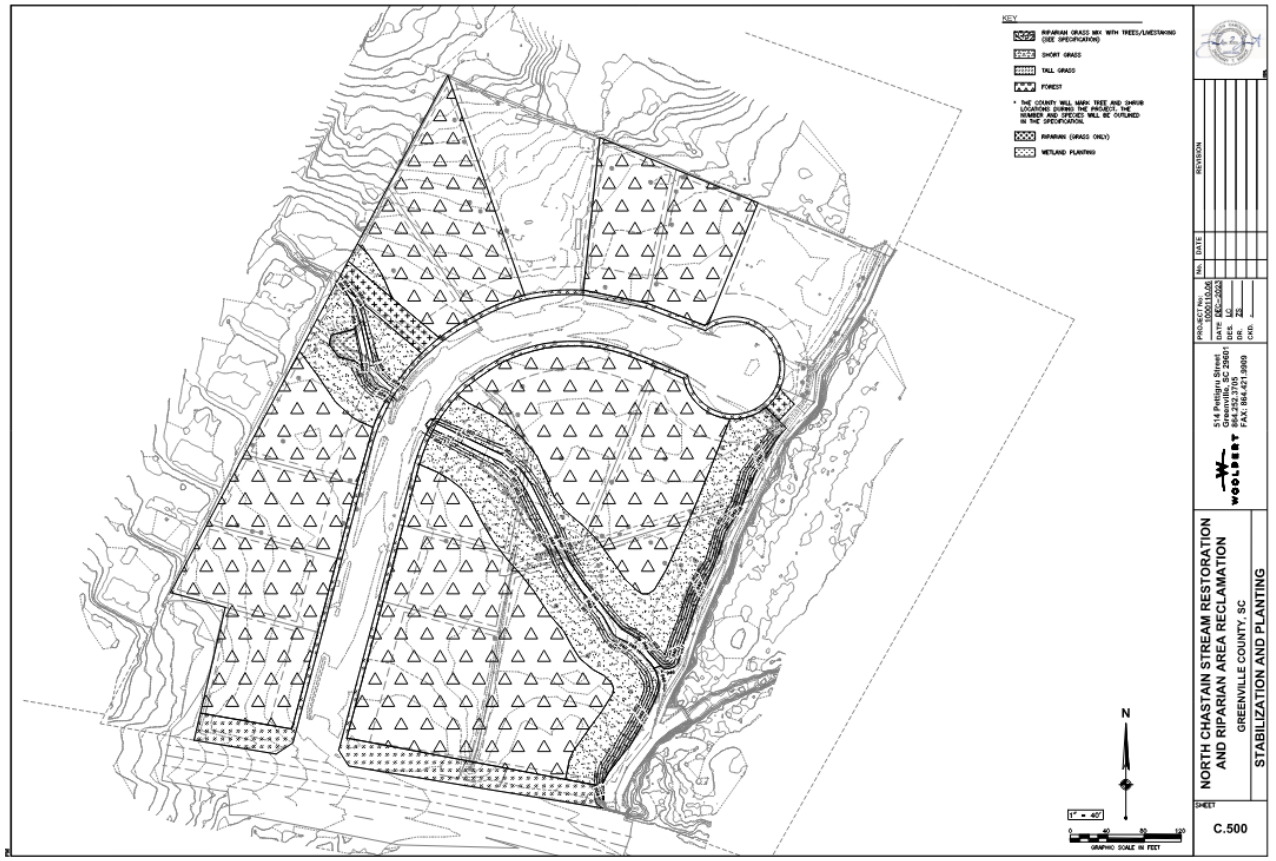
North Chastain Stream Improvement & Reclamation

PROJECT OVERVIEW

North Chastain Stream Restoration & Reclamation

- Multiple contiguous buyout properties
- 1,100 linear feet of stream improvements
- 6.5 acres of riparian reforestation

North Chastain Stream Restoration & Reclamation



A stable, well-vegetated stream reduces nutrients and contributes less sediment, encouraging a healthier ecosystem overall

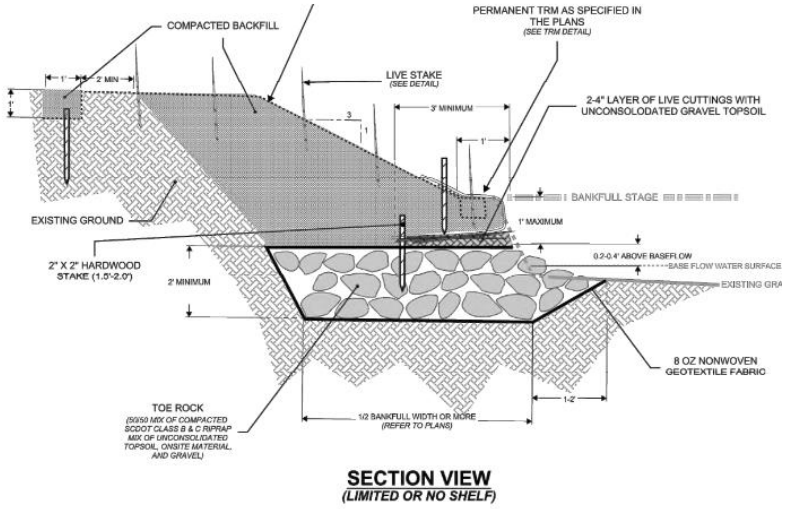
North Chastain Stream Improvement & Reclamation

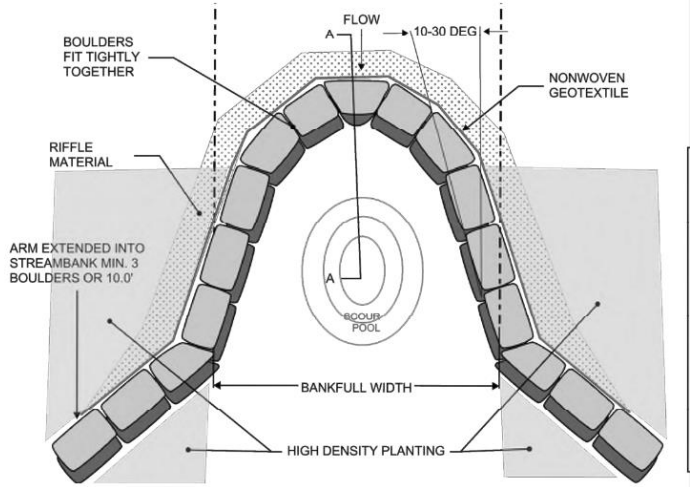
LEGEND

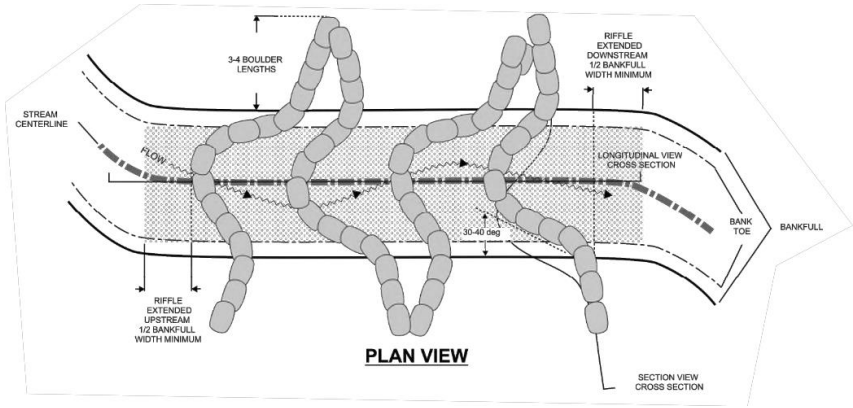
- STABILIZED CONSTRUCTION ENTRANCE *ONLY WHERE NOT PAVED — 2 C.400
- LAYDOWN AREA
- STOCKPILE AREA — 4 C.401
- WETLAND AREA
- DITCH CHECK — 1 C.401
- SEDIMENT TUBE
- LIMITS OF DISTURBANCE (LOD)
- SILT FENCE (SINGLE ROW) — 1 C.402

PROJECT OVERVIEW

Stream features







CONSTRUCTION

Timeline:

- Construction is estimated to begin in Fall 2024
- Active construction is estimated to take 2-3 months
- Additional planting activity may occur afterwards based on weather and season

What To Expect During Construction:

- Crews will be working in the project area. They may be along the side of the roadways, or in ditches/stream beds behind residential properties.

- Construction will primarily occur on weekdays between the hours of 8:00 AM and 6:00 PM unless extenuating circumstances arise (typically related to weather)

NOTE: Please keep pets on a leash, inside fenced yards, or indoors while crews are working.

QUESTIONS?

Public Meeting / June 27, 2024

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