



Implementing Private & Public Retrofits to Reduce Stormwater Runoff Volume & Pollutants in the Bradley Creek Watershed

FUNDING SOURCE & AMOUNT

EPA 319 Grant

\$255,804 funded, including match

TIMEFRAME

2.5 year grant

January 2021 – June 2023

GRANT ADMINISTRATOR

North Carolina State University (NCSU)

GRANT PARTNERS

City of Wilmington –
Stormwater Services & Heal
Our Waterways Program
UNCW
Site Centers Property Group
BrixMor Property Group

SUMMARY / DESCRIPTION

North Carolina State University (NCSU) is partnering with the City of Wilmington to implement stormwater retrofits on public and private properties within the Bradley Creek Watershed. These projects will complement the Clear Run Branch Capital Improvement Project initiated by the City of Wilmington to improve consistent drainage and water quality problems in the area, just upstream of the North Branch of Bradley Creek.

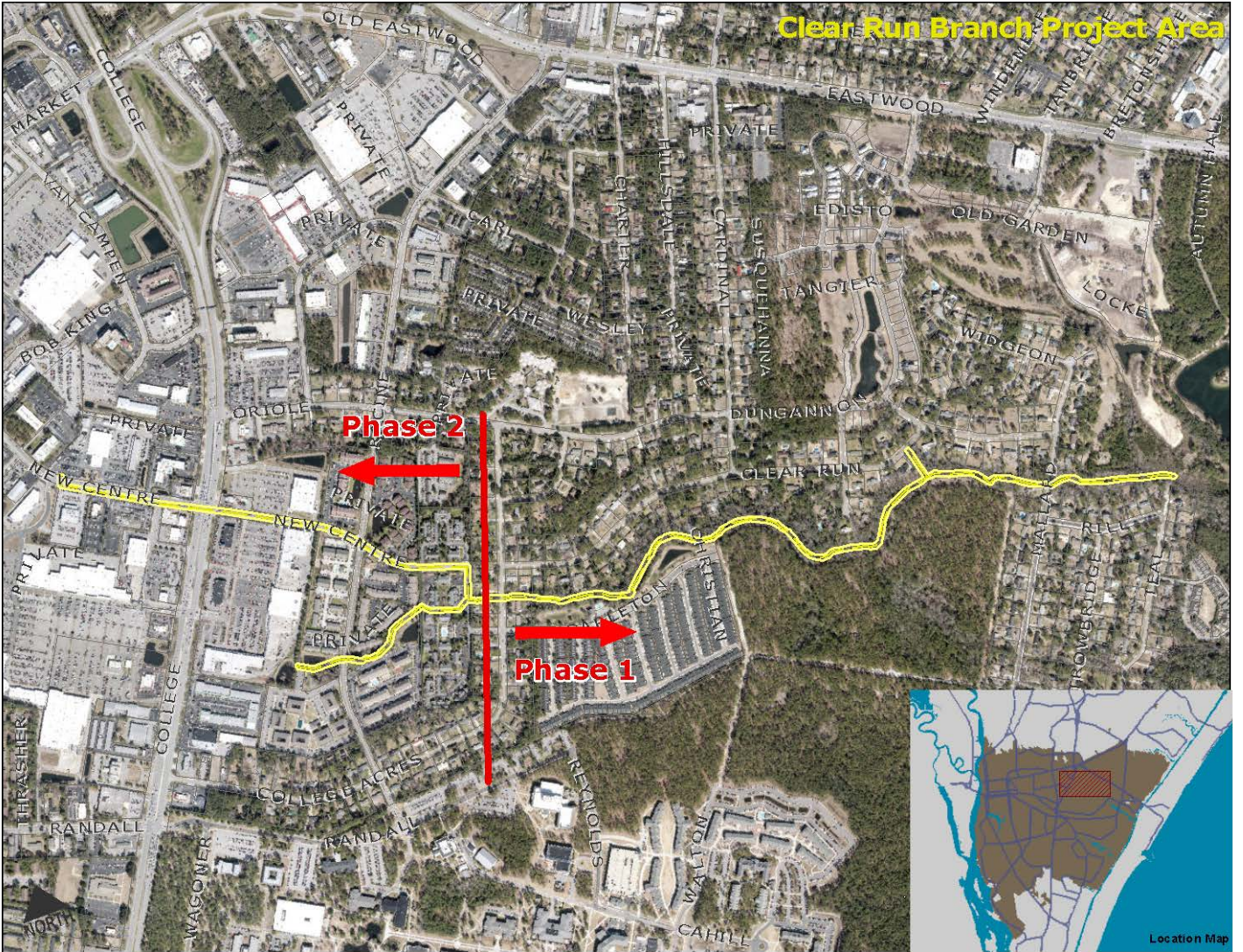
Bradley Creek is one of two watersheds targeted by the City of Wilmington's voluntary Bradley and Hewletts Creeks Watershed Restoration Plan. The plan focuses on reducing stormwater runoff and subsequent bacterial pollution to eventually improve water quality within the creeks.

Projects slated for the grant include one wet pond retrofit, one wet pond conversion to a constructed wetland, swale improvements, and a downspout disconnection campaign in a nearby neighborhood.

The EPA 319 Grant Program provided funding of \$255,804 for design, engineering, and construction of the installations. The City of Wilmington's in-kind support will include staff time, a portion of the City's monitoring contract with UNC-Wilmington, and a portion of design costs for Phase 2 of the Clear Run Branch Capital Improvement Project.

GRANT GOAL(S)

- Continue implementation of the Bradley and Hewletts Creeks Watershed Restoration Plan with lead partners -- North Carolina State University (NCSU) and the City of Wilmington.
- Install and modify Stormwater Control Measures (SCMs) at University Commons, University Landing, Sam's Club, and Carleton Place, including a constructed wetland, check dams, vegetation, a solid baffle, and a downspout disconnection campaign.
- Monitor runoff volume and pollutant removal capabilities to serve as a model for future improvement projects. Partners will highlight the combined benefits of wet pond modifications, including reduced stormwater runoff and flooding, and increased pollution treatment and pedestrian safety.
- Foster partnerships between community groups and watershed stakeholders, particularly commercial property owners near Clear Run Branch.
- Demonstrate simple, cost-effective wet pond retrofits and SCMs to commercial property owners, the local development community, and surrounding neighborhoods.



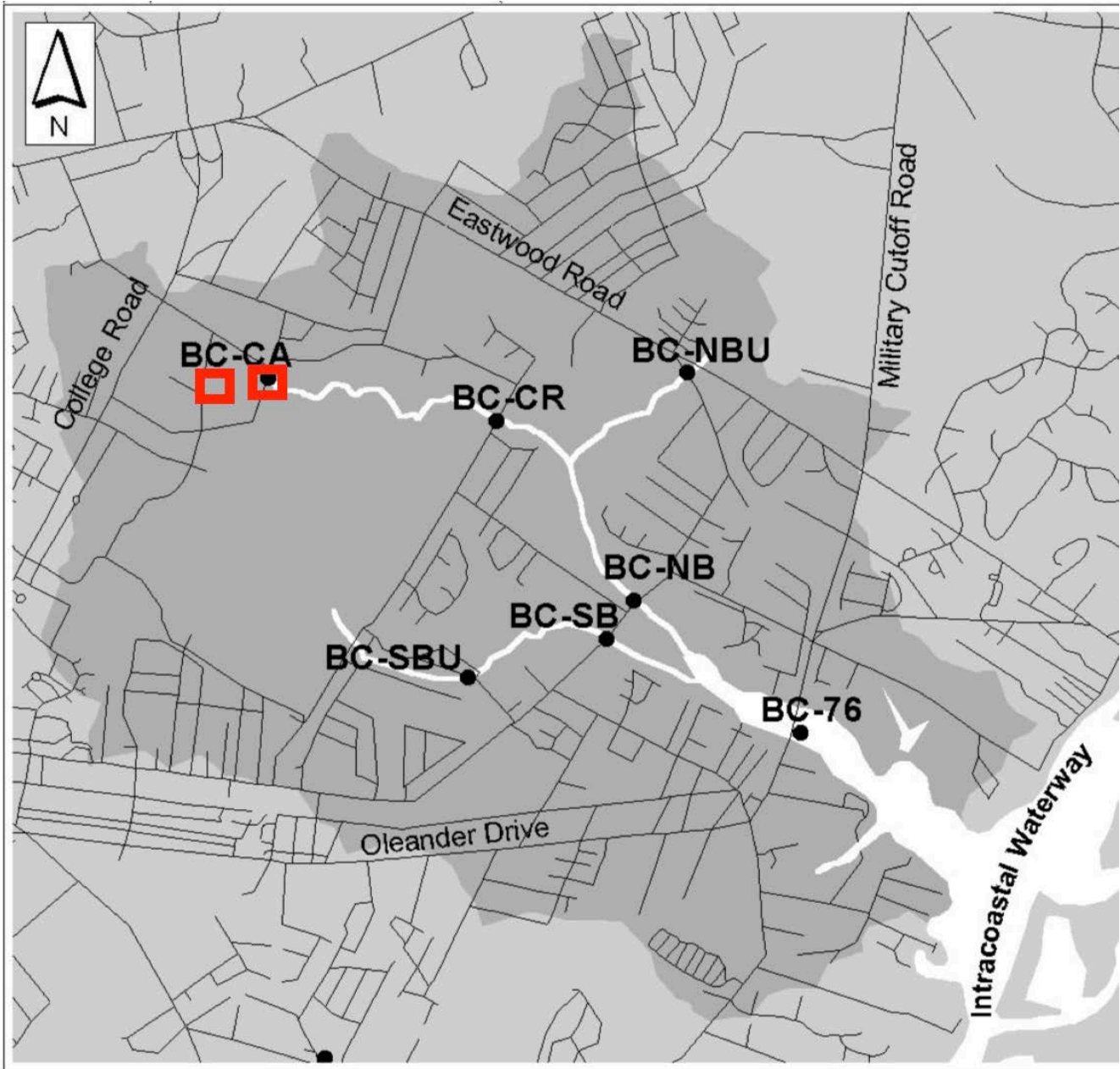
The Clear Run Branch Capital Improvement Project will be taking place just downstream from the proposed grant project area, in the Bradley Creek Watershed.



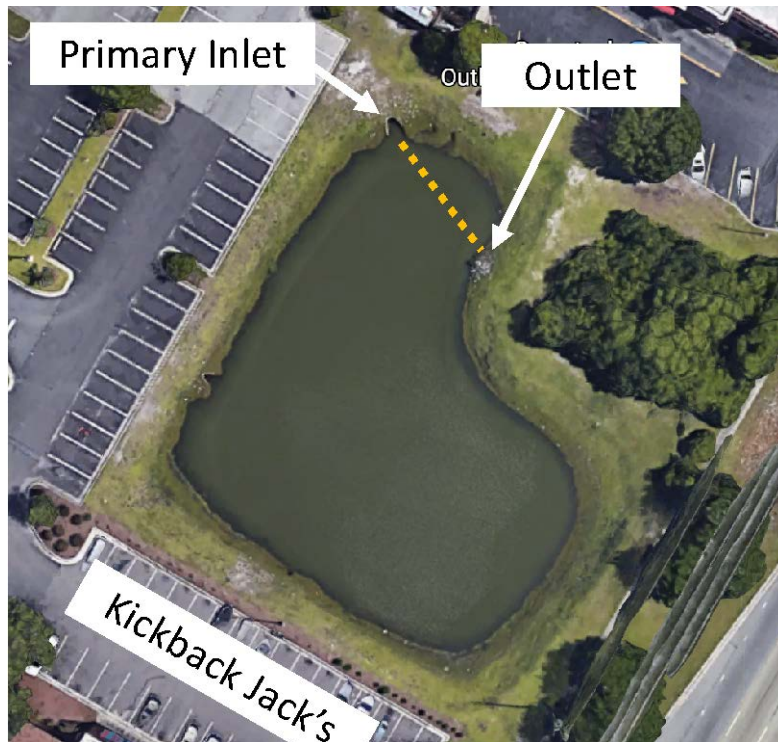
The proposed grant project locations are upstream of the Bradley Creek North Branch.



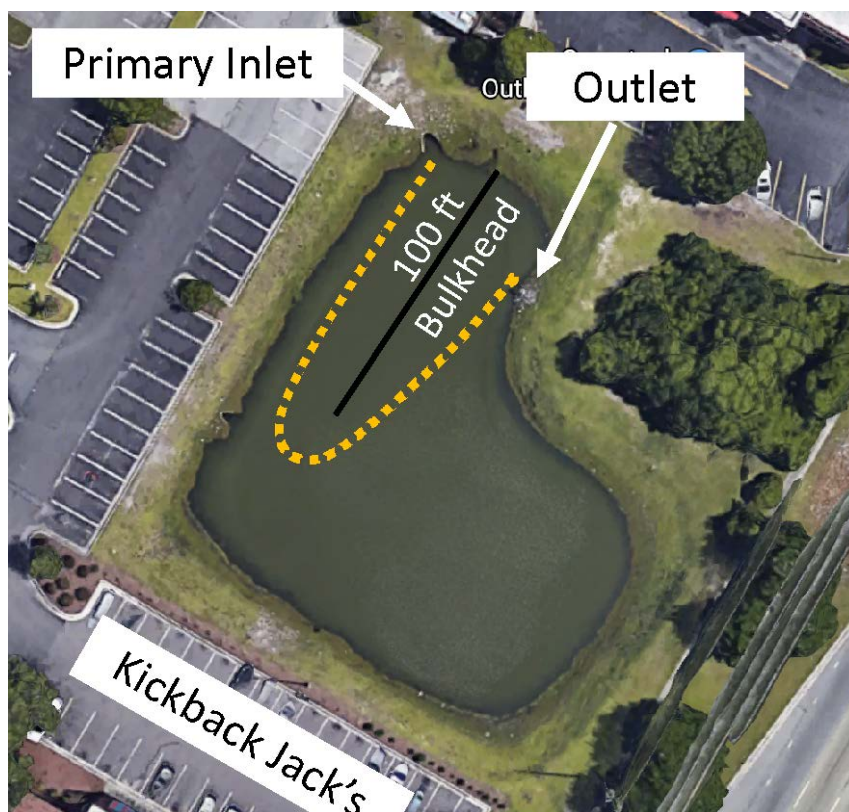
Five total projects are proposed in the upper reaches of Clear Run Branch, which leads directly to Bradley Creek.



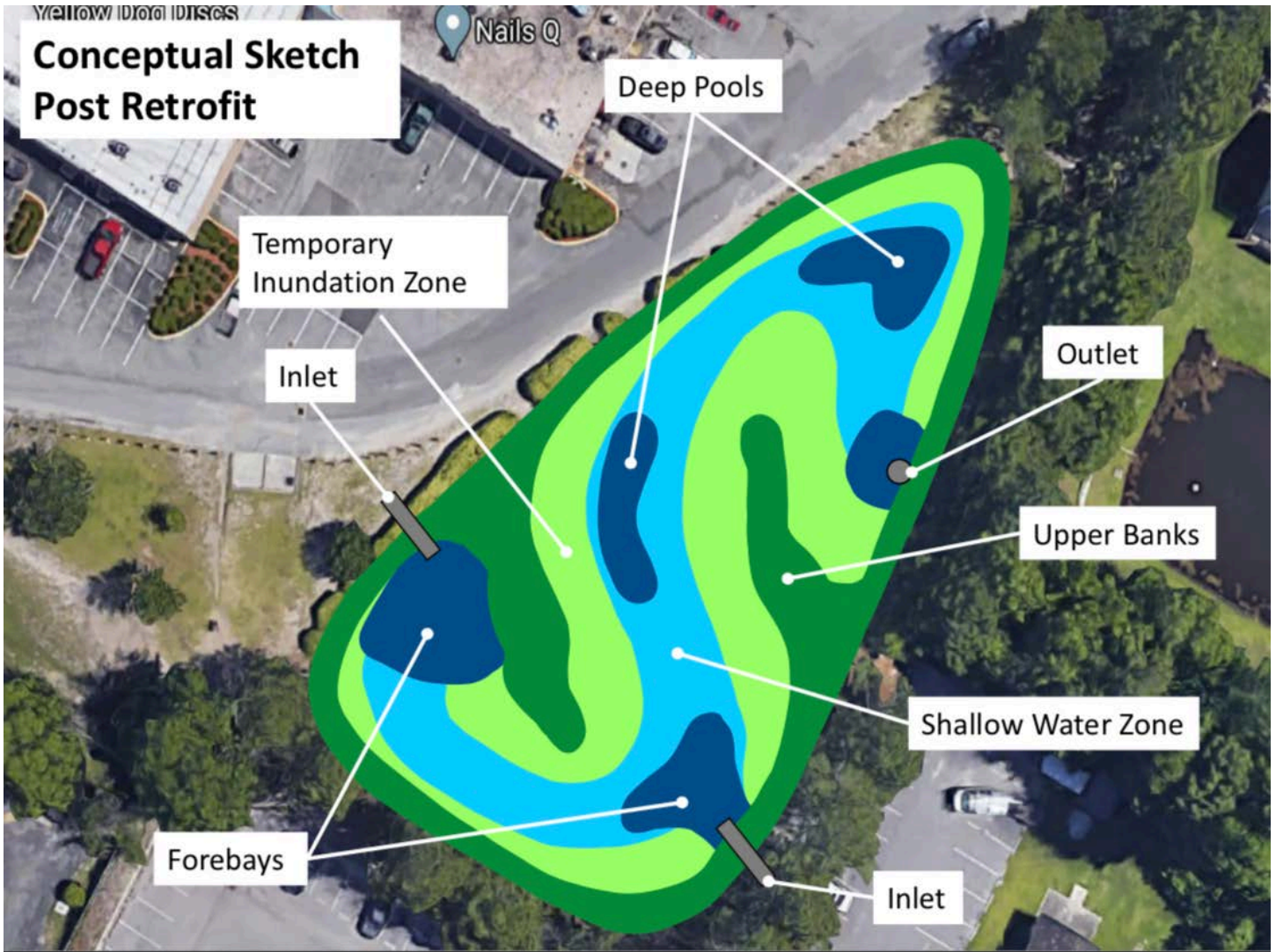
Two UNCW monitoring stations will be used to monitor the efficacy of the projects, one of which is a newly established station downstream from a wet pond that is proposed to be converted to a stormwater wetland.



The Sam's Club wet pond is currently designed with a very short stormwater residence time, meaning that stormwater can essentially flow from the inlet to the outlet without treatment.



A baffle is proposed to increase the residence time of stormwater in the pond, which will increase the amount of pollution that can be settled out before reaching the outlet.



One wet pond in the University Commons complex is proposed to be converted into a stormwater wetland to improve pollution treatment capabilities and increase habitat in the area. Above is a conceptual sketch of the wetland design.



The Carleton Neighborhood has several downspouts that could be rerouted to vegetated areas. This is one potential location.



Another proposed downspout reroute location in the Carleton Neighborhood. A community meeting and re-router giveaway is planned for the neighborhood.



A drainage swale owned by the City of Wilmington in the area is also planned for a wetland conversion to increase pollution treatment.



Wetland plants will help remove pollutants and soak in stormwater more effectively, reducing scenes such as this one during heavy rain events.