



PUBLIC INFORMATION

ITEM NO. 4.

DATE OF MEETING: May 2, 2011

REQUESTED BY: Rick Benton, County Manager

SHORT TITLE: Presentation of Calico Bay Drainage Maintenance Project

BACKGROUND: In 1995 Pender County, in collaboration with the Soil and Water Conservation Service, constructed 5,400 feet of drainage ditch and 3.6 acres of vegetative plantings in the Calico Bay area to improve drainage. The Board of Commissioners adopted a resolution in May, 1995 authorizing the project, and accepting responsibility for the operation and maintenance of the project.

This project was identified as one of five priority drainage management projects in a report presented to the Board of Commissioners in February, 2009.

In response to recent and increasing complaints and concerns from property owners in the project area, Greg Thompson of Southern Engineering was asked to inspect the area and make recommendations for maintenance. A copy of the inspection report, and recommendations for maintenance, is attached. The report recommends the County undertake hand work to remove materials, debris and vegetation from the bottom of the ditches to ensure proper water flow through the ditches. The report estimates the cost of this work at \$16,454.

If the Board concurs, County staff will work with Mr. Thompson to seek bids for the maintenance work, and authorization for bid award will be brought back to the Board for approval. Funding for the maintenance work is set aside in the capital improvements budget for Drainage Management.

Mr. Thompson is present to provide the Board with an overview of the project.

March 14, 2011

At the request of the County Manager, an inspection was made of the existing drainage ditch located the Calico Bay area of Pender County on March 3, 2011. Present was Rick Benton, Pender County Manager, Pat Simmons, Pender County Public Works, Marilyn Mears from Cape Fear Resources Conservancy & Development Inc. and Greg Thompson with Southern Engineering.

Background and History

Pender County constructed the ditch in 1995 in an effort to address drainage issues affecting the area. Approximately 5,400 feet of drainage ditch and 3.6 acres of vegetative plantings were constructed as part of the county's effort. After construction, two ditches were established, located to the east and west of Calico Bay Rd. Each ditch runs parallel to the road and drain to Stag Park Rd. Constructed behind existing residential homes, both ditches cross or are congruent with property boundaries of twenty-two privately own lots however the project benefits the area as a whole due to the improved drainage for the sub-basin which includes the surrounding properties.

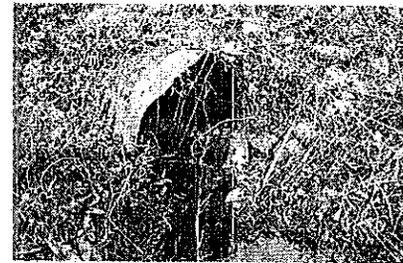
Findings and Status

Since its construction, the ditch and surrounding area has normalized and the majority of the ditch

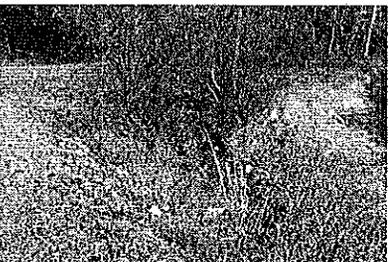


Ditch upstream or east of the culvert pipe crossing Calico Bay Rd.

profile is stabilized with only minor erosion observed primarily in areas that serve as pedestrian or off road vehicle crossings. The ditch crosses the NCDOT right of way at the intersection of Calico Bay Road and Stag Park Road.



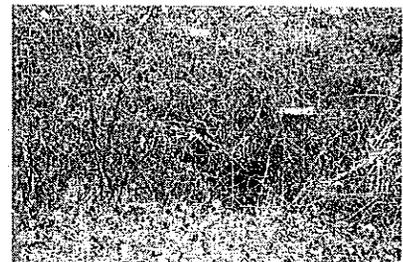
Culvert pipe opening upstream or east of Calico Bay Rd.



Ditch downstream or west of the culvert pipe crossing Calico Bay Rd.

In general, the condition of the culvert pipe is good with minor sediment buildup within the bottom of the culvert profile. The ditch downstream of Calico Bay Rd

appears to be in good condition with some debris observed. The ditch profile up and downstream has a healthy growth of native vegetation on the banks. Vegetation is



Culvert Pipe discharge downstream or west of Calico Bay Rd.

encroaching into the bottom of the ditch profile and if left

unattended will trap debris that is floating in the stormwater. The debris observed during the inspection was organic, such as sticks and leaves, and inorganic, primarily trash and items washed from residential yard areas or items discarded that have somehow migrated into the ditch.



Since its construction, the ditch and surrounding area has normalized and the majority of the ditch profile is stabilized...

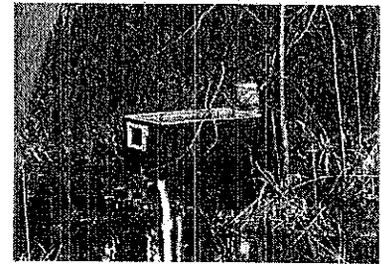
Upstream, both ditches are stable with native vegetation. Some vegetation has started to encroach into the bottom of the ditch profile similar to what was observed in the road right of way. Trash and other inorganic items were noticeable along the ditches, especially in areas closest to residential activities. It should be noted that obstructions from items were the exception. The primary obstruction to flow being the vegetation growing within the normal flow path of the ditch. This vegetation acts as a trap collecting debris which is floating in the stormwater. As debris is trapped, areas of silt, soil, and organic material are established in the flow path that provides an area that can support plant growth. As vegetation is established and root growth expands within these areas, additional material is trapped repeating the cycle.



The ditch profile has a healthy growth of native vegetation on the banks.



Vegetation is encroaching into the bottom of the ditch profile...



The debris observed during the inspection was organic, such as sticks and leaves, and inorganic, primarily trash and items washed from residential yard areas or items discarded that have somehow migrated into the ditch.



Trash and other Inorganic items were noticeable along the ditches especially in areas closest to residential activities.

Recommendations and Current Activities

The drainage structures and ditches within the DOT right of way is the responsibility of the Department of Transportation to maintain in a good working condition in order to protect the integrity of the road and the safety of the traveling public. The DOT has agreed to clear the ditch and culvert pipe located within the right of way. This work will improve the flow leaving the Calico Bay area.

The growth of native vegetation on the banks of the ditch should be allowed as long as the trees and plants do not impact the function of the ditch to move water downstream or prohibit access for maintenance of the ditch. The plant growth observed on the banks during our inspection does not appear to be an issue with the exception of some trees located at or near to the normal water level.

These plants should be reviewed on a case by case bases and vegetation which is acting as a trap or flow obstruction should be cut flush to grade. It is not necessary at this time to remove any root material or bank growth by excavation. Excavation of material within the ditch profile would involve heavy equipment and a review for approval by the Corps. All of the needed work at this time can be accomplished by hand with removal of vegetation and debris aided by trailer to haul material off site.

The plants, trees and debris located within the bottom of the ditch profile should be removed. Trees cut as low as possible will be sufficient to restore flow. Leaving the roots of existing trees within the ditch bottom and along the banks will maintain stability of the ditch profile and will avoid potential erosion.

In conclusion, the overall condition of the Calico Bay ditch is good. With a minor amount of work done by hand, functionality of the ditch can be restored. If left unattended, conditions will deteriorate ultimately leading to a significant work effort, with heavy equipment, being required. This type of work will also involve reestablishment of vegetation to stabilize the ditch profile.

The county has secured easements across the private properties in the area which will allow for access and labor activities. Attached is a map and easement information prepared by the Pender County GIS Department.

Estimate of Cost

At the request of the County Manager, a contractor was consulted in order to secure an estimate for the work required to restore flow to the ditch. Maintenance activities was defined as removal of vegetation, trash and other debris in the bottom of the ditch defined as that portion of the ditch which contains the permanent water surface. Venation along the banks is to remain unless it has the potential to collect debris under normal circumstances. Trash removal is limited to the ditch from bank to bank. Vegetated debris is to be secured within the easement in a manner that will not break free and become an obstruction. Trash is to be bagged and removed to a landfill. Other specific items such as access and insurance was not part of the requested pricing however the contractors number was modified to reflect possible costs.

The cost for maintenance of the Calico Bay Ditch is estimated to be \$16,454.



0 200 400 Feet
1 Inch = 400 feet

Calico Bay

EASEMENT



Not Recorded
Recorded





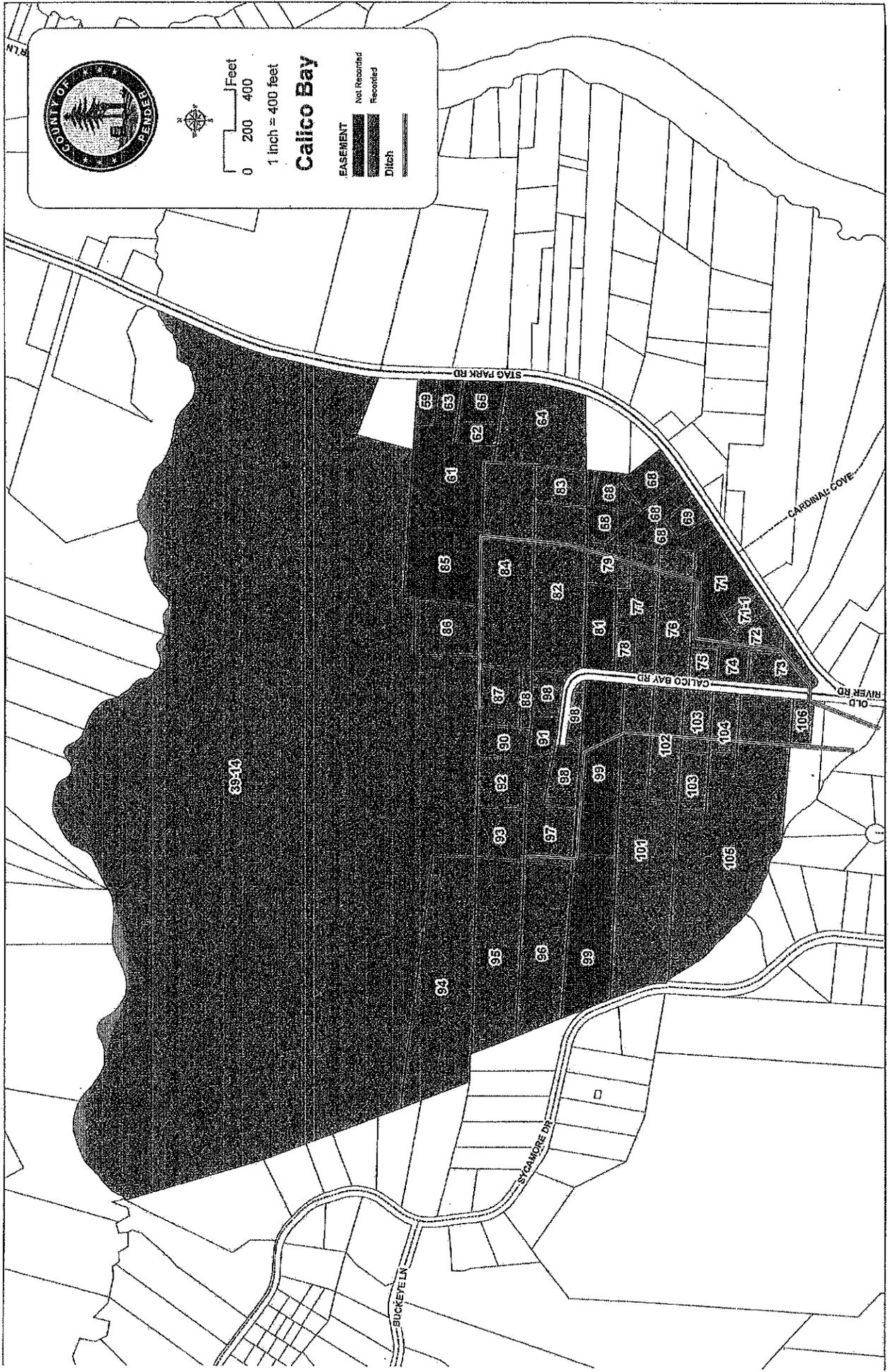
0 200 400 Feet

1 inch = 400 feet

Calico Bay

EASEMENT

	Not Recorded
	Recorded
	Ditch



COUNTY OF PENDER

WHEREAS, the Pender County Board of Commissioners desire to sponsor the CALICO BAY COMMUNITY DRAINAGE PROJECT as it will do the following for the area: (1) Alleviate problems associated with poor surface and subsurface drainage, (2) improve conditions for properly functioning septic systems, (3) significantly reduce conditions suitable for mosquito breeding, (4) reduce the growth of bacteria and other pathenogenic organisms, (5) reduce maintenance costs of housing due to excess moisture, (6) improve general living conditions for these citizens.

NOW, THEREFORE, BE IT RESOLVED THAT:

- 1) The Board requests the State of North Carolina to provide financial assistance to the CALICO BAY COMMUNITY DRAINAGE PROJECT in the amount of \$26,632;
- 2) The Board assumes full obligation for payment of the balance of project costs;
- 3) The Board will obtain all necessary State and Federal permits;
- 4) The Board will comply with all applicable laws governing the award of contracts and the expenditure of public funds by local governments;
- 5) The Board will supervise construction of the project to assure compliance with permit conditions and to assure safe and proper construction according to approved plans and specifications;
- 6) The Board will obtain suitable spoil disposal areas as needed and all other easements or right-of-way that may be necessary for the construction and operation of the project without cost or obligation to the State;
- 7) The Board will assure that the project is open for use by the public on an equal basis;
- 8) The Board will hold the State harmless from any damages that may result from the construction, operation and maintenance of the project;
- 9) The Board accepts responsibility for the operation and maintenance of the completed project.

Adopted by the Pender County Board of Commissioners this 1st day of May, 1995.

John Bauer
Clerk to the Board

Robert S. Murray
Chairperson, Pender County