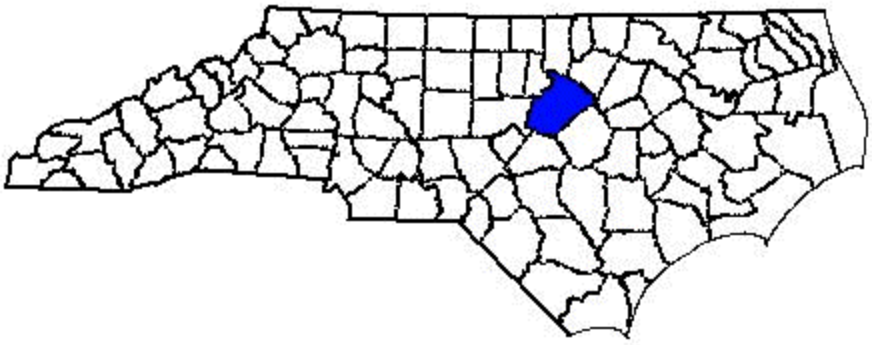
ANNUAL REPORT FOR 2001



Lake Wheeler Mitigation Site
Wake County
Project No. 8.U401721
TIP No. R-2000 WM

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North Carolina Department of Transportation
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SUMMARY

The following report summarizes the monitoring activities that have occurred in the past year at the Lake Wheeler Mitigation Site. The site was constructed and planted between December, 1996 and March, 1997. Monitoring activities for 2001 include the fifth year of vegetation monitoring for the site.

The mitigation encompasses approximately 114 acres total. The site consists of Bottomland Hardwood Wetland Enhancement, Streamside Levee Preservation, and Upland Preservation. No hydrologic monitoring is required by the project; however, vegetation monitoring is required for five years.

Based on the results of the fifth year of vegetation monitoring, NCDOT recommends discontinuing monitoring at this site

1.0 INTRODUCTION: LAKE WHEELER MITIGATION SITE

1.1 Project Description

The Lake Wheeler Mitigation Site is located off US 401 near Garner, NC (Figure 1). The site consists of approximately 114 acres and provides for the following types of mitigation:

56 acres of Bottomland Hardwood Wetland Enhancement

37 acres of Streamside Levee Preservation

21 acres of Upland Preservation

1.2 Purpose

The purpose of this report is to detail the vegetation monitoring in 2001 at the Lake Wheeler Mitigation Site. No hydrologic monitoring is required for this particular site.

1.3 Project History

March 1997	Site Planted
October 1997	Vegetation Monitoring (1 yr.)
December 1998	Vegetation Monitoring (2 yr.)
November 1999	Vegetation Monitoring (3 yr.)
November 2000	Vegetation Monitoring (4 yr.)
November 2001	Vegetation Monitoring (5 yr.)

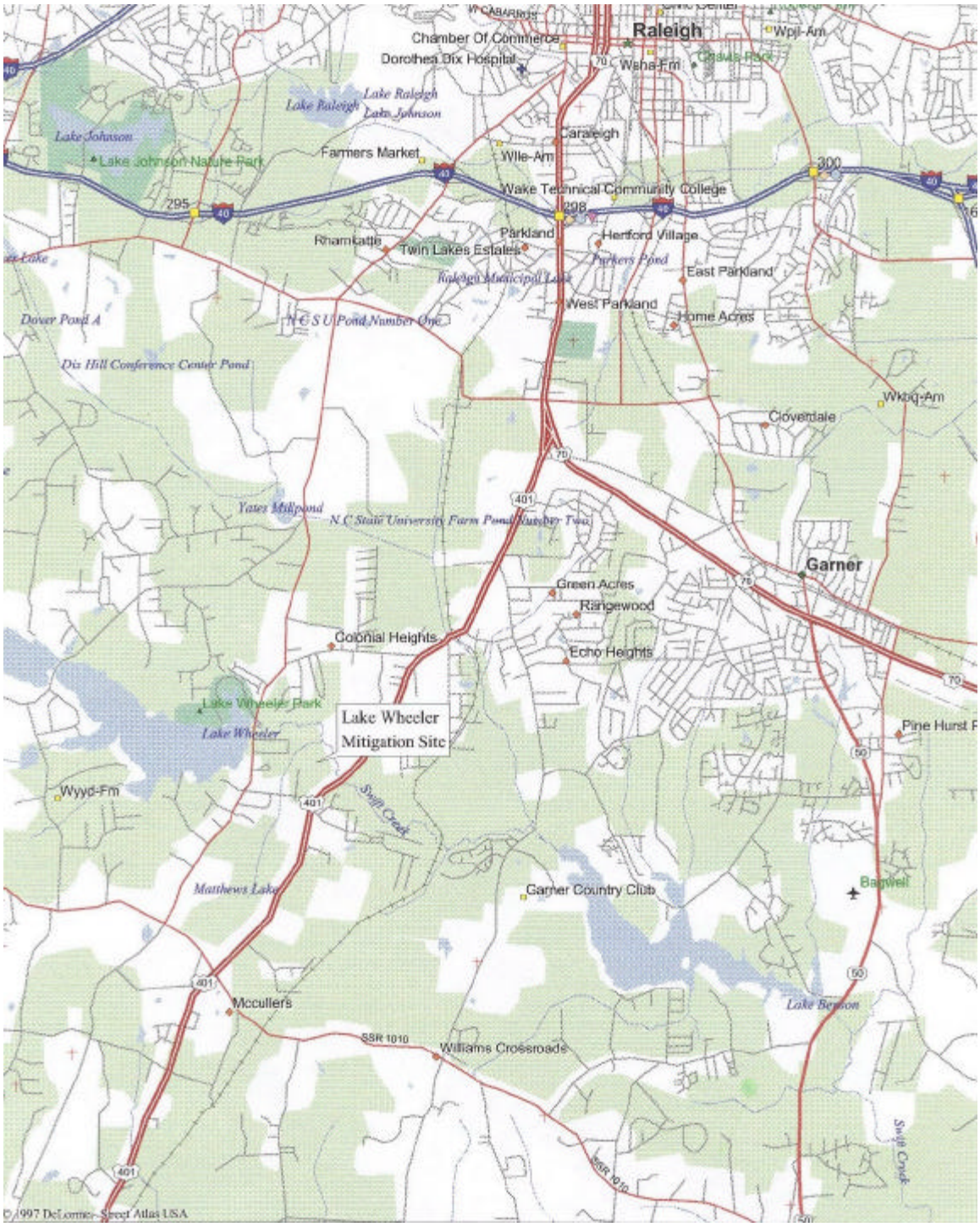

Figure 1: Lake Wheeler Mitigation Site Vicinity Map

2.0 VEGETATION: LAKE WHEELER MITIGATION SITE

2.1 Success Criteria

NCDOT will monitor the site for five years. A 320 stems per acre survival criterion for planted seedlings will be used to determine success for the first three years. The required survival criterion will decrease by 10% per year after the third year of vegetation monitoring (i.e., for an expected 290 stems per acre for year 4, and 260 stems per acre for year 5). The number of plants of one specie will not exceed 20% of the total number of plants of all species planted.

2.2 Description of Species

The following species were planted in the Wetland Enhancement/Preservation Area:

Zone 1: Clear-cut Wetland Areas (49 Ac.)

Betula nigra, River Birch
Quercus falcata var *pagodaefolia*, Cherrybark Oak
Fraxinus pennsylvanica, Green Ash
Nyssa sylvatica, Blackgum
Quercus lyrata, Overcup Oak
Quercus michauxii, Swamp Chestnut Oak
Quercus laurifolia, Laurel Oak
Quercus nigra, Water Oak
Quercus phellos, Willow Oak
Quercus rubra, Northern Red Oak

Zone 2: Levee Area (17 Ac.)

Betula nigra, River Birch
Quercus falcata var *pagodaefolia*, Cherrybark Oak
Quercus nigra, Water Oak
Quercus phellos, Willow Oak
Quercus alba, White Oak
Quercus rubra, Northern Red Oak
Carya cordifomis, Bitternut Hickory
Quercus michauxii, Swamp Chestnut Oak
Quercus laurifolia, Laurel Oak
Fraxinus pennsylvanica, Green Ash
Nyssa sylvatica, Blackgum

2.3 Results of Vegetation Monitoring

Plot # (Zone 1)	River Birch	Cherrybark Oak	Green Ash	Blackgum	Overcup Oak	Sw. Chestnut Oak	Laurel Oak	Bitternut Hickory	Willow Oak	Water Oak	White Oak	Northern Red Oak	Total (5 year)	Total (at planting)	Density (Tree/Acre)
2	9	2	10			2			4				27	34	540
3	13	1	11	1	3	1			4				34	34	680
6	3	1	10	2	3								19	34	380
7	5	1	20	1		1			1				29	34	580
9	2	2	4	1	6		2		1	8			26	34	520
10	6	3	6	4	3	3				5		1	31	34	620
					AVG. DENSITY (MIX 1)										553

Plot # (Zone 2)	River Birch	Cherrybark Oak	Green Ash	Blackgum	Overcup Oak	Sw. Chestnut Oak	Laurel Oak	Bitternut Hickory	Willow Oak	Water Oak	White Oak	Northern Red Oak	Total (5 year)	Total (at planting)	Density (Tree/Acre
1	10	4		3					2	14	1	3	34	34	680
4	5	5	12			3	1	1	4	2	1		34	34	680
5	20		12					3					35	35	680
8	7	2	1					3	2	1			16	34	320
					AVG. DENSITY (MIX 2)										590

TOTAL AVG. DENSITY	568

Site Notes:

Zone 1: Other species noted: *Juncus* sp., briars, *Baccharis* sp., reed, vine, cattails, pine, tulip poplar, wool grass, black willow, and red cedar. Plot 7 had 2" of standing water.
Zone 2: Other species noted: *Juncus* sp., briars, holly, pine, volunteer water oak, *Baccharis* sp., red cedar, reed, river birch, vine, fennel, woolgrass, and tulip poplar.
Overall: Few sweetgum and red maple throughout site. Heavy briars and vines throughout site made it very difficult to find the trees. Some older beaver activity noted but it was not affecting planted areas.

2.4 Conclusions

Of the 114 total acres on this site, approximately 66 acres involved tree planting. There were 10 vegetation monitoring plots established throughout the planted areas, encompassing all plant communities. The 2001 vegetation revealed an average tree density of 572 trees per acre for the entire site. Both planting zones are well above the minimum required by the success criteria.

3.0 OVERALL CONCLUSIONS/RECOMENDATIONS

Based on the results of the 2001 vegetation data provided in this report and the four previous annual monitoring reports, the Department proposes to discontinue all monitoring activities at this site.

APPENDIX A

SITE PHOTOS

Lake Wheeler

Photos of Site

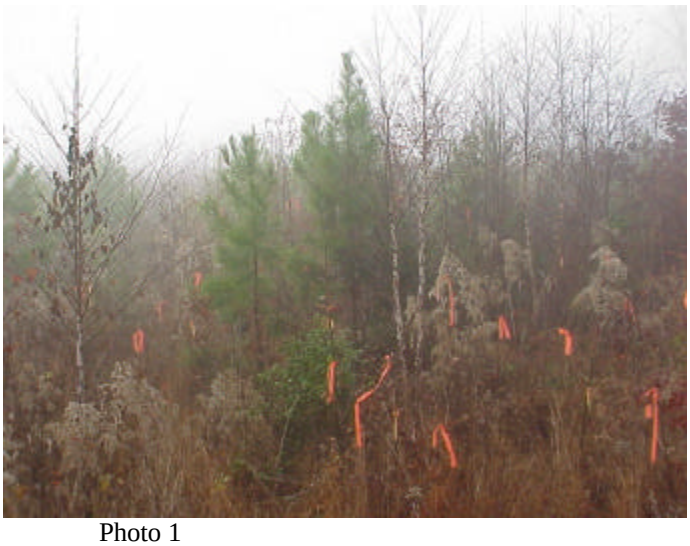

Photo 1

Photo 2

Photo 3

Photo 4

2001

Lake Wheeler

Photo 5

Photo 6

2001

Lake Wheeler Mitigation Site
Photo and Plot Locations
2001 Monitoring