EcoScience

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13 February 2002

Mr. William Gilmore, P.E., Branch Manager
Project Development and Environmental Analysis Branch
N.C. Department of Transportation
P.O. Box 25201
Raleigh, North Carolina 27611

Attn: Ms. Christie Murphy

RE: Yadkin River Basin Mitigation Feasibility Studies **P02-016**

Dear Bill:

EcoScience Corporation (ESC) is pleased to provide you with a scope and fee proposal for performing mitigation feasibility studies on seven potential mitigation sites within the Piedmont region of the Yadkin River Basin. These sites were identified during a mitigation site search as exhibiting potential for mitigation use based primarily on review of aerial photography, tax maps, and a brief in-field site visit.

We understand the need to move expeditiously on this work, if our proposal is approved. Therefore, we are prepared to initiate services within 14 days of receipt of notice to proceed, with completion of the first site within 45 days and the rest of the sites within six months. Completion assumes that some baseline mapping (preferably tax maps on aerial photography and/or topographic surveys) will be available at the beginning of this study, and right of entry into the property is assured.

Please review this information and provide comment as necessary. We appreciate the opportunity to be of assistance to your Department.

Sincerely,

ECOSCIENCE CORPORATION, INC.

Jerry McCrain, Ph.D., CEP
President

YADKIN RIVER BASIN MITIGATION FEASIBILITY STUDIES

INTRODUCTION

EcoScience Corporation, Inc. (ESC) proposes a preliminary mitigation feasibility study for seven potential mitigation sites within the Piedmont region of the Yadkin River Basin:

1) Coble Property
2) Suther Property
3) Back Creek
4) Barrier Property
5) Helms Property
6) Hahn Property
7) Park Road Shopping Center

Based on tax maps, these sites may include stream restoration potential along channel lengths ranging from 1,500 to 12,000 linear feet and/or potential wetland mitigation acreages ranging from 1 to 5 acres. Landowners have agreed to allow review of sites in the field.

In an effort to determine site suitability and landowner willingness, the project is expected to be subdivided into 2 phases: Agency and Landowner Coordination (Phase 1) and Fatal Flaw Study (Phase 2). The scope of services for Phase 2 will depend upon the results of Phase 1 planning. Agency and landowner coordination (Phase 1) will entail the generation of a mitigation strategy for use in discussion of the project with agency personnel and landowners. The primary goal of the Phase 1 study is to obtain a conservation easement within the property. Phase 2 will entail the preparation of a feasibility/fatal flaw document which evaluates potential off-site impacts, examines Threatened and Endangered species issues, coordinates with the State Historic Preservation Office, conducts a hazardous materials database review, and evaluates alternatives for restoration.

The project is intended to include the following activities:

PHASE 1: AGENCY AND LANDOWNER COORDINATION

1) Project Coordination/Administration
2) In-field Site Visit
3) GPS Site Boundary
4) Landowner Discussions
5) Agency Packet Preparation and Site Visit

PHASE 2: FATAL FLAW STUDY

6) Hazardous Materials
7) Federal Protected Species
8) Final Report

ESC will undertake a preliminary mitigation feasibility study on the seven sites to generally assess the potential for mitigation and identify approximate mitigation boundaries. Subsequently, ESC will assist NCDOT with landowner contact concerning acquisition or easements within the identified boundaries. Future conceptual and/or detailed mitigation studies and plans will be performed after land acquisition/protection tasks have been completed by NCDOT.

This feasibility study will utilize a relatively rapid assessment procedure based primarily upon professional judgement and visual observations in the field. The study represents a limited effort designed to provide potential mitigation property boundaries, additional assurance that the site may provide mitigation credit, and an idea as to landowner interest. The evaluation will consist primarily of field observations and best professional judgement concerning issues such as impacts to adjacent properties, drainage effects associated with ditches/dredged channels, restoration verses enhancement areas, and potential modifications for mitigation use.

This study will not quantitatively prove if wetlands or streams can be restored to the site. This determination will require additional studies such as placement and analysis of stream gauge data, detailed topographic surveys, and modeling of surface water profiles among other tasks. For purposes of this study, best professional judgement, coupled with limited field investigations, will address this matter. Recommendations as to hydrological restoration potential will be made, as well as recommendations for additional studies, as part of future mitigation planning efforts.

PHASE 1: AGENCY AND LANDOWNER COORDINATION

1.0 PROJECT COORDINATION / ADMINISTRATION

This project will be administered and performed by the Raleigh office of ESC. Dr. Jerry McCrain will serve as project manager. Administrative tasks (monthly reports, phone calls, letters, etc) are included under this task. ESC senior project personnel will be available for four NCDOT meetings and one interagency site visit, if requested.

2.0 IN-FIELD SITE VISITS

ESC personnel will review available information including NWI mapping, NRCS soil surveys, and available baseline mapping. A site visit will be conducted to review the general environmental

setting including existing plant communities, wetland presence, Natural Resource Conservation Service (NRCS) soil map units, topography, and existing land use.

Jurisdictional wetland mapping is not included in this scope of service. However, the location and acreage of potential wetland restoration/enhancement areas will be approximated on available mapping, based primarily on observed surface hydrology conditions, vegetation patterns, NRCS soil mapping, and drainage structures. No soil sampling or quantitative measurements are proposed at the current time to support the identification of potential wetland mitigation areas. Based on professional judgement, the potential wetland mitigation areas will be identified on available mapping and included in the stream mitigation corridor that is forwarded to NCDOT for land acquisition studies.

Aerial photography and USGS topographic maps of each site will be reviewed to assess main-stem stream hydrology. The site will be visited to discern current drainage patterns, potential areas of artificial channelization, and hydraulic gradients which potentially affect restoration of over bank flooding. Feeder tributaries, inter-field ditches, and other point- or non-point source dischargers which flow into the potential mitigation area will be evaluated through the use of best professional judgement.

For stream mitigation, evaluations will include a preliminary analysis of stream geometry relative to drainage area. A preliminary characterization of stream channels will be undertaken by calculating drainage area on USGS quads and surveying one representative cross-section along the existing channel. The cross-section will be compared to regional curves depicting potentially stable channel dimensions. The frequency and extent of overbank flooding, wetland/stream function, and potential for restoration of function will be assessed based on observations in the field.

The width of a potentially stable stream restoration corridor will be mapped based upon estimates of stable bankfull channel width, stable belt width (10+ times the bankfull width), and a 50-foot buffer each side of the stable belt width. The boundary will incorporate potential wetland mitigation areas described above. Possible impacts on adjacent properties outside of the identified boundary will also be qualitatively assessed and described. Subsequently, the proposed mitigation area boundary will be forwarded to NCDOT for land acquisition studies.

3.0 GPS SITE BOUNDARY

Upon completion of field studies, a mitigation site boundary will be determined and located utilizing Global Positioning Technology (GPS) with reported sub-meter accuracy. The data will be post-processed with Trimble survey grade software. The site boundary will be overlain on aerial

photography to be utilized in landowner negotiations of a conservation easement. The data will be provided to NCDOT for property acquisition use.

4.0 LANDOWNER DISCUSSIONS

ESC will assist with land owner negotiations, including a preliminary contact meeting and initial interviews. Subsequently, ESC will be available for four on-site meetings with landowners and NCDOT personnel to walk the approximate mitigation area boundary and to discuss technical aspects of mitigation as related to land uses. If applicable, options for an conservation easement will be secured upon presentation of the basic mitigation plan to the landowner.

5.0 AGENCY PACKET PREPARATION AND SITE VISIT

ESC will prepare an agency packet containing a description of mitigation strategies proposed at each site. The packet is expected to contain a brief site writeup, proposed mitigation options, and a graphical depiction of the mitigation plan. The agency packet is expected to be utilized during interagency meetings held at the site. Mitigation options outlined in the agency packet may be modified during the interagency meeting. Modifications are expected to be addressed during Phase 2 of the project.

PHASE 2: FATAL FLAW STUDY

6.0 HAZARDOUS MATERIALS

ESC will work with NCDOT to obtain computerized mapping of possible contaminated sites on file with NCDENR (it is assumed this information is available and can be generated by NCDOT in a map format). In addition, our staff will re-check the following data bases:

- **Federal Agencies:**
  CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Act
  (Federal List of Superfund Sites)
  NPL - National Priority List of Superfund Sites
  FINDS - U.S. Environmental Protection Agency (EPA) Master List
  ERNS - National Spill Report
  RCRIS - Resource Conservation and Recovery Information System
  PCS - Permit Compliance System - (National Pollution Discharge Elimination System)
  TRIS - Toxic Release Inventory System

- **North Carolina Department of Health, Environment, and Natural Resources:**
  Solid Waste Section:
  Open Dumps Inventory and Solid Waste Facilities Directory
  Superfund Section:
  Federal Superfund Sites List
  State Superfund Sites List
  Hazardous Waste Section:

Hazardous Waste Generators Inventory (Large Quantity and Small Quantity)
Treatment, Storage, Disposal Facilities Inventory

Division of Environmental Management:

UST Registrations
UST Leak/Pollution Incident List/Files
Spill Incident Files
Central Files - Air and Water Permitting
Regional Office Files (As Applicable)

ESC will visit the mitigation areas in an effort to assess and confirm areas of potential concern including: (1) evidence of past or present use or storage of hazardous or regulated materials and/or waste; (2) evaluating the presence of potentially illicit dumping of solid or hazardous waste; (3) inspect streams, ponds, or other surface water features for signs of degradation; (4) inspect soils and vegetation at select sample/entry points for signs of staining and/or stress; and (5) verify topographic features. Additional field work may be necessary after site selection is finalized to quantify, or fully determine, the extent of potential contamination at a particular location. The influence of potential hazardous materials on mitigation potential will also be evaluated.

7.0 FEDERAL PROTECTED SPECIES

ESC will review N.C. Natural Heritage file records and U.S. Fish and Wildlife Service listings for known presence of protected species. Evaluations to determine the presence or absence of protected species on the site will involve a review of the literature, a check of agency record, and a field reconnaissance to determine habitat potential. This effort will not include extensive field surveys, but will be limited to an evaluation of habitat potential and obvious sightings in the field.

8.0 CULTURAL RESOURCES

ESC will review information on file with the State Historic Preservation Office (SHPO), N.C. Department of Cultural Resources to determine presence or absence of cultural resource sites within the corridor. Any additional effort associated with detailed cultural resource investigations is beyond this scope of service. The purpose of this task is to identify critical natural and cultural resource features which may be affected by mitigation activities.

9.0 FINAL REPORT

ESC will prepare a report incorporating collected information on the sites. ESC will discuss site suitability for mitigation based on observations generated by the feasibility assessment. Significant issues of concern associated with mitigation potential will be included, along with recommendations for future mitigation studies. For suitable sites, the report will include mapping of potential mitigation area boundaries on tax maps or other available sources.

NCDOT: Yadkin River Basin Mitigation Site Feasibility Studies

TASK		Project Mgr	Senior Sci.	Project Sci.	Hydrologist	Graphics	Clerical	TOTAL MAN HOURS	TOTAL MAN DAYS
1.0 Project Coordination / Administration									
- Administrative tasks									
- NCDOT Meeting									
- Interagency Meeting									
2.0 Ecology									
- Information Review/Mapping									
- Field surveys (Soils, Veg, Hydro)									
- Wetland Mitigation Mapping									
- Stream Mitigation Mapping									
- Stream Geometry Assessment									
3.0 GPS Site Boundary									
- Data Collection									
- Post Processing									
4.0 Landowner Discussions									
- Landowner Negotiations									
5.0 Agency Packet Preparation and Site Visit									
- Document Preparation									
- Site Visits									
6.0 Hazardous Materials									
-Records searches									
-Site inspections									
7.0 Federal Protected Species									
8.0 Cultural Resources Review									
9.0 Final Report									
- Document Preparation									
- Report review and mapping									
- Comments and corrections									
TOTAL									

ECOSCIENCES CORPORATION, INC.

CLIENT NAME:	NCDOT	DATE:	02/11/02
PROJECT:	Yadkin River Basin Mitigation Site Feasibility Study	SIZE:	Variable
COUNTY:	Variable		

PROJECT EXPENSES

SALARIES:

CLASSIFICATION		MAN HOURS		HOURLY RATE	SALARY COSTS
PROJECT MGR.	(McCrain)		X	$44.24	
SENIOR SCI.	(Lewis)		X	$22.12	
PROJECT SCI.	(McIntyre)		X	$16.83	
HYDROLOGIST	(Sweet)		X	$16.83	
GRAPHIC	(Ferguson)		X	$21.16	
ADMIN	(Manzo)		X	$13.47	
TOTAL					

Overhead: 1.2549

SUBTOTAL:

Fee: 9%

SUBTOTAL:

DIRECT COSTS

Travel ($0.365/mi):

Per diem ($91/day):

Field supplies:

ERIS haz mat file search

Misc.:

DIRECT COST TOTAL:

PER SITE TOTAL:

PROJECT GRAND TOTAL (Seven Sites)