

GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 6.529005T ID: R-2610B(1) COUNTY: Chatham

DESCRIPTION(1): Bridge on SBL US 421(-L-) over Bear Creek

INFORMATION ON EXISTING BRIDGES Information obtained from: field inspection
 microfilm(Reel: Pos:)
 other

COUNTY BRIDGE NO. 8 BRIDGE LENGTH 62m NO. BENTS IN: CHANNEL 0 FLOOD PLAIN 2

FOUNDATION TYPE: Concrete Shaft/Pier and driven piles at end bents.

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: Scour not apparent at End Bent 1, some scour at base of End Bent 2 slope.

INTERIOR BENTS: Some scour apparent around all Bent 1 piers. The channel bank at Bent 1 is mostly intact.

Most soil has been scoured away to bedrock at Bent 2.

CHANNEL BED: Channel bed shows exposed bedrock.

CHANNEL BANKS: Exposed bedrock along northern channel bank.

EXISTING SCOUR PROTECTION:

TYPE(3): Concrete wing walls and slope protection.

EXTENT(4): Concrete covers and wraps around ends of embankment slopes at End Bents.

EFFECTIVENESS(5): Wing walls and slope protection seem to be working.

OBSTRUCTIONS(6) (DAMS,DEBRIS,ETC.): Flood debris lodged against the upstream pier of Bent 2.

DESIGN INFORMATION

CHANNEL BED MATERIAL(7) (SAMPLE RESULTS ATTACHED): Alluvium: F. to cse. SAND and GRAVEL (A-1-a)
and scattered small outcrops of Crystalline Rock: META-Argillite.

CHANNEL BANK MATERIAL(8) (SAMPLE RESULTS ATTACHED): Residual: F. to cse. sandy, SILT and CLAY (A-4/
A-6/A-7-6)

FOUNDATION BEARING MATERIAL(9): Weathered and Crystalline Rock: META-ARGILLITE

CHANNEL BANK COVER(10): Grass, moss, bushes and small trees.

FLOOD PLAIN WIDTH(11): 40 meters.

FLOOD PLAIN COVER(12): Grass, moss, bushes and small to large trees.

DESIGN INFORMATION CONT.

STREAM IS DEGRADING AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS: During the field investigation, several days of rain caused Bear Creek to overtop its bank and flood the site. High water during this event was estimated to be 117.00m MSL.

CHANNEL MIGRATION TENDENCY (14): The channel is migrating toward the northeast as evidenced by the loss of residual soil along the northern channel bank and undermining and sloughing of the northern channel bank at the proposed bridge site.

REPORTED BY: Michael B. [Signature] DATE: 4/15/2003
 MACTEC Engineering & Consulting, Inc.

GEOTECHNICALLY ADJUSTED SCOUR ELEVATION (15):

	100-year	500-year
B1-A	114.78	114.52
B1-B	114.65	114.39
B2-A	115.52	115.26
B2-B	115.06	114.8

REPORTED BY: Bradley D. Worley [Signature] DATE:
 NCDOT GEOTECHNICAL UNIT

INSTRUCTIONS

- (1) GIVE THE DESCRIPTION OF THE SPECIFIC SITE GIVING ROUTE NUMBER AND BODY OF WATER CROSSED.
- (2) NOTE ANY EVIDENCE OF SCOUR AT THE EXISTING END BENTS OR ABUTMENTS (UNDERMINING, SLOUGHING, SCOUR LOCATIONS, DEGRADATIONS, ETC.)
- (3) NOTE ANY EXISTING SCOUR PROTECTION (RIP RAP, ETC.)
- (4) DESCRIBE THE EXTENT OF ANY EXISTING SCOUR PROTECTION.
- (5) DESCRIBE WHETHER OR NOT THE SCOUR PROTECTION APPEARS TO BE WORKING.
- (6) NOTE ANY DAMS, FALLEN TREES, DEBRIS AT BENTS, ETC.
- (7) DESCRIBE THE CHANNEL BED MATERIAL: A SAMPLE SHOULD BE TAKEN FOR GRAIN SIZE DISTRIBUTION, ATTACH LAB RESULTS.
- (8) DESCRIBE THE CHANNEL BANK MATERIAL: A SAMPLE SHOULD BE TAKEN FOR GRAIN SIZE DISTRIBUTION, ATTACH LAB RESULTS.
- (9) DESCRIBE THE FOUNDATION BEARING MATERIAL.
- (10) DESCRIBE THE BANK COVERING (GRASS, TREES, RIP RAP, NONE, ETC.)
- (11) GIVE THE APPROXIMATE FLOOD PLAIN WIDTH (ESTIMATE).
- (12) DESCRIBE THE FLOOD PLAIN COVERING (GRASS, TREES, CROPS, ETC.)
- (13) CHECK THE APPROPRIATE SPACE AS TO WHETHER THE STREAM IS DEGRADING OR AGGRADING
- (14) DESCRIBE THE POTENTIAL OF THE BODY OF WATER TO MIGRATE Laterally DURING THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS).
- (15) GIVE THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION EXPECTED OVER THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS). THIS CAN BE GIVEN AS AN ELEVATION RANGE ACROSS THE SITE, OR ON A BENT BY BENT BASIS WHERE VARIATIONS EXIST. DISCUSS RELATIONSHIP BETWEEN THE HYDRAULICS THEORETICAL SCOUR AND THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION. THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION IS BASED ON THE ERODABILITY OF MATERIALS WITH CONSIDERATION FOR JOINTING, FOLIATION, BEDDING ORIENTATION AND FREQUENCY; CORE RECOVERY PERCENTAGE; PERCENTAGE RQD; DIFFERENTIAL WEATHERING, SHEAR STRENGTH; OBSERVATIONS AT EXISTING STRUCTURES; OTHER TESTS DEEMED APPROPRIATE; AND OVERALL GEOLOGIC CONDITIONS AT THE SITE.