

GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 8.2353001 ID: B-3450 COUNTY: Durham

DESCRIPTION(1): Bridge No. 217 over Tributary to Sandy Creek on SR 1116 (Garrett Road)

INFORMATION ON EXISTING BRIDGES Information obtained from: field inspection
 microfilm(Reel: Pos:)
 other Bridge Survey and Hydraulic Design Report dated 5/10/02
 COUNTY BRIDGE NO. 217 BRIDGE LENGTH 31 NO. BENTS IN: CHANNEL 2 FLOOD PLAIN 0

FOUNDATION TYPE: Steel H-Piles and timber abutments

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: Slumping/sloughing downstream of End Bent-1, erosion around wingwalls, collapsing wingwall upstream side of End Bent-2.

INTERIOR BENTS: N/A

CHANNEL BED: Channel is deeper on upstream side of bridge than downstream side.

CHANNEL BANKS: Undermining of trees (trees fallen across creek)

EXISTING SCOUR PROTECTION:

TYPE(3): Wingwalls, rough concrete at base of wingwalls

EXTENT(4): At end bents of existing bridge

EFFECTIVENESS(5): moderately effective, some parts of wingwalls are damaged and rotted

OBSTRUCTIONS(6) (DAMS,DEBRIS,ETC.): Fallen trees are across channel upstream and downstream of existing bridge; 50' downstream of existing bridge are vegetated sand/silt bar islands in channel as well as exposed roots and tree debris.

DESIGN INFORMATION

CHANNEL BED MATERIAL(7) (SAMPLE RESULTS ATTACHED): Silty coarse to fine very sandy CLAY (A-6)

CHANNEL BANK MATERIAL(8) (SAMPLE RESULTS ATTACHED): Clayey silty fine to coarse SAND (A-2-4, A-2-6, and A-2-7) with gravel, and clayey coarse to fine very sandy SILT (A-4) with gravel

FOUNDATION BEARING MATERIAL(9): Weathered rock and non-crystalline rock (triassic mudstone and sandstone)

CHANNEL BANK COVER(10): Hardwood trees, grass, brush

FLOOD PLAIN WIDTH(11): Approximately 600 feet
Hardwood trees, grass, brush; much of ground surface is scoured clean of vegetation

FLOOD PLAIN COVER(12): leaving floodplain silts exposed.

DESIGN INFORMATION CONT.

STREAM IS DEGRADING AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS:

CHANNEL MIGRATION TENDENCY (14): channel is meandering through soft alluvial materials; there is a high potential for stream migration over next 100 years

REPORTED BY: *Paul W. ...* DATE: 11/1/2002
Trigon Engineering Consultants, Inc.

GEOTECHNICALLY ADJUSTED SCOUR ELEVATION (15):

2 EFA tubes were submitted to the Materials and Test Lab and adjusted scour will be provided by the Hydraulics Unit based on EFA results

REPORTED BY: *Cheryl A. ...* DATE: 11/18/2002
NC DOT 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.