

GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 8.2663501 TIP NO.: B-3623 COUNTY: CABARRUS

DESCRIPTION(1): BRIDGE NO. 176 OVER REEDY CREEK ON SR 1136

◆ **INFORMATION ON EXISTING BRIDGES** Information obtained from Field Inspection
 Microfilm (Reel: Position:)
 Other

COUNTY BRIDGE NO. 176 BRIDGE LENGTH 81.0' NO. BENTS 3 NO. BENTS IN: CHANNEL 1 FLOODPLAIN 2

FOUNDATION TYPE: TIMBER DECK ON I-BEAMS

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: PORTIONS OF BANK ERODED

INTERIOR BENTS: NONE

CHANNEL BED: NONE

CHANNEL BANKS: PORTIONS OF BANK ERODED

◆ **EXISTING SCOUR PROTECTION:**

TYPE(3): RIP-RAP ON CREEK BANKS AND TIMBER ABUTMENT WALL

EXTENT(4):

EFFECTIVENESS(5): OKAY

OBSTRUCTIONS(6) (DAMS, DEBRIS, ETC.): LARGE TREES, CAMPER SHELL

◆ **DESIGN INFORMATION**

CHANNEL BED MATERIAL(7) (Sample Results Attached): (SS-11) GRAY, LOOSE-MED. DENSE, SAT.-WET, CLAYEY SILTY SAND, A-2-4(0)

CHANNEL BANK MATERIAL(8) (Sample Results Attached): (SS-12) GRAY-BROWN, MOTTLED, MED. STIFF, MOIST, CLAYEY V. SANDY SILT, A-4(0)

FOUNDATION BEARING MATERIAL(9): WEATHERED ROCK & CRYSTALLINE ROCK

CHANNEL BANK COVER(10): LARGE TREES, SHRUBS

FLOOD PLAIN WIDTH(11): 350'

FLOOD PLAIN COVER(12): LARGE TREES, SHRUBS, FIELD

STREAM IS: DEGRADING AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS:

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 ◆ **DESIGN INFORMATION CONT.**

CHANNEL MIGRATION TENDENCY(14): SLIGHT

GEOTECHNICAL ADJUSTED SCOUR ELEVATIONS (15): THE NCDOT HYDRAULICS UNIT HAS COMPUTED THE 500 YEAR CONTRACTION SCOUR ELEVATION TO BE APPROXIMATELY 525' FOR BENT 1, AND 517' FOR BENT 2. DUE TO THE OCCURRENCE OF SOFT ALLUVIAL SOILS IT WAS NECESSARY TO ADJUST THE PREDICTED SCOUR ELEVATIONS. GEOTECHNICALLY ADJUSTED SCOUR ELEVATIONS ARE AS FOLLOWS:

	100YR	500YR
B1-A -	521.5'	520.0'
B1-B -	523.5'	523.0'
B2-A -	524.0'	523.0'
B2-B -	520.0'	518.0'

PLEASE NOTE THAT GEOTECHNICALLY ADJUSTED SCOUR ELEVATIONS WERE LOWERED FOR BENT 1 AND RAISED FOR BENT 2.

REPORTED BY: T.A. MECHUM DATE: 5/13/03

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 (RIPRAP, 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, RIPRAP, 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 GEOTECHNICAL 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 GEOTECHNICAL ADJUSTED SCOUR ELEVATION. IF THE GEOTECHNICAL ADJUSTED SCOUR ELEVATION IS DEPENDENT ON SCOUR COUNTER MEASURES, EXPLAIN. (RIPRAP ARMORING ON SLOPES, ETC.) THE GEOTECHNICAL ADJUSTED SCOUR ELEVATION IS BASED ON THE ERODABILITY OF MATERIALS WITH CONSIDERATION FOR JOINTING, FOLIATION, BEDDING ORIENTATION AND FREQUENCY; CORE RECOVERY PERCENTAGE; PERCENT RQD; DIFFERENTIAL WEATHERING; SHEAR STRENGTH; OBSERVATIONS AT EXISTING STRUCTURES; OTHER TESTS DEEMED APPROPRIATE; AND OVERALL GEOLOGIC CONDITIONS AT THE SITE.