GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 8.2502001 ID: B-3885 COUNTY: Orange

DESCRIPTION(1): Br. No. 174 Over Cane Creek on SR 1958

INFORMATION ON EXISTING BRIDGES Information obtained from: X field inspection
___ microfilm(Reel: ___ Pos: __)
X other: Br. Survey and Hydraulic Design Report

COUNTY BRIDGE NO. 174 BRIDGE LENGTH 120' NO. BENTS IN: CHANNEL 2 FLOOD PLAIN 5 (3 int., 2 end)

FOUNDATION TYPE: (Unknown) No spread footing detected; 3 timber piers with concrete cap near ground surface and 2 concrete piers.

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: Large boulder incorporated into concrete wing wall at EB1. No evidence of scour except 2-3 inches of concrete gone from EB1 concrete cap corner at base of abutment.

INTERIOR BENTS: Bottom of 2 concrete piers in channel (concrete has eroded away up to 0.5 ft). At approximately Sta. 18+00 to 18+20, scour hole between concrete pier and timber pier underneath existing bridge 2-3 ft. deep up to 10 ft. wide.

CHANNEL BED: Bedrock and boulders throughout channel; stream has cut down through approx. 6 ft. of soil to bedrock. Large boulders have been moved during flood stage.

CHANNEL BANKS: Being undercut severely; many trees hanging into stream channel; some fallen roots exposed.

EXISTING SCOUR PROTECTION:

TYPE(3): Concrete wing wall at EB1 / Timber abutments at EB1 and EB2: some old asphalt and boulders on the slopes behind concrete piers; vegetation growing on slopes.

EXTENT(4): Not extensive. Do not cover all slopes.

EFFECTIVENESS(5): Poor

OBSTRUCTIONS(6) (DAMS,DEBRIS,ETC.): Pile of wood debris at End Bent 1. Trees and boulders in channel.

DESIGN INFORMATION

CHANNEL BED MATERIAL(7) (SAMPLE RESULTS ATTACHED): coarse sand with gravel (A-1-a)

CHANNEL BANK MATERIAL(8) (SAMPLE RESULTS ATTACHED): coarse to fine sandy clayey silt A-4(3) with gravel
coarse to fine sandy silty clay A-6(5) with gravel

CHANNEL BANK COVER(9): Hardwoods, underbrush, rock outcrop, soil

FLOOD PLAIN WIDTH(10): Approximately 50 feet

FLOOD PLAIN COVER(11): Hardwoods, underbrush

DESIGN INFORMATION CONT.

STREAM IS X DEGRADING ___ AGGRADING (12)

OTHER OBSERVATIONS AND COMMENTS: Large pile of wood debris under bridge at EB1. Large rock outcrop upstream 90 ft. from bridge. Sharp meander 200 ft. upstream. Large tree across stream at meander; small tributary feeds main stream near ourcrop.

CHANNEL MIGRATION TENDENCY (13): Bedrock/joints controlled stream channel. Lateral migration tendency toward EB2 side due to meander (outside) at the EB2 side of bridge.

REPORTED BY: Dana Godnight DATE: 7/23/2003
TRIGON ENGINEERING CONSULTANTS, INC.

GEOTECHNICALLY ADJUSTED SCOUR ELEVATION (14): To be determined by NCDOT Geotechnical Unit.

Location	100 YR GASE	500 YR GASE
B1-A	411.5'	411.5'
B1-B	413.2'	413.2'
B2-A	413.1'	413.1'
B2-B	413.1'	413.1'

REPORTED BY: ___ DATE: 9/3/2003
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 BANK COVERING (GRASS, TREES, RIP RAP, NONE, ETC.
(10) GIVE THE APPROXIMATE FLOOD PLAIN WIDTH (ESTIMATE).
(11) DESCRIBE THE FLOOD PLAIN COVERING (GRASS, TREES, CROPS, ETC.)
(12) CHECK THE APPROPRIATE SPACE AS TO WHETHER THE STREAM IS DEGRADING OR AGGRADING
(13) DESCRIBE THE POTENTIAL OF THE BODY OF WATER TO MIGRATE LATERALLY DURING THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS).
(14) 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 ELEVEVATION 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.