GEOTECHNICAL ENGINEERING UNIT FIELD SCOUR REPORT

PROJECT: 33591.1.1 ID: B-4248 COUNTY: Robeson
DESCRIPTION(1): Bridge No. 170 on -L- (SR 1101) over Shoe Heel Creek
INFORMATION ON EXISTING BRIDGE
BR. NO.: 170 BR. LENGTH: 80.5' NO. BENTS: 5 NO. BENTS IN: CHANNEL: 3 FLOODPLAIN: 2
FOUNDATION TYPE: Wood piles.
EVIDENCE OF SCOUR(2):
ABUTMENTS OR END BENT SLOPES: Lateral scour has exposed north half of EB1 head wall
and all of EB2 head wall.
INTERIOR BENTS: Dark, tannic water prevents observation of conditions at interior bents.
CHANNEL BED: Dark, tannic water prevents observation of channel bed conditions.
CHANNEL BANKS: No scour, except as noted previously for end bents. Banks stabilized by vegetation.
EXISTING SCOUR PROTECTION:
TYPE(3): Timber head and wing walls at end bents.
EXTENT(4): Wing walls are present at all four corners of the bridge, and are approximately 10' long.
EFFECTIVENESS(5): Very effective. No scour has occurred around ends of wing walls.
OBSTRUCTIONS(6) (DAMS,DEBRIS,ETC.): Mill ruins are indicated on the Hydro Rpt. Metal gear observed.
DESIGN INFORMATION
CHANNEL BED MATERIAL(7): Sand (SS-12)
CHANNEL BANK MATERIAL(8): Sand (SS-2)
CHANNEL BANK COVER(9): Brush and grass.
FLOOD PLAIN WIDTH(10): 2,400' (2,100' behind bridge and 300' ahead of bridge).
FLOOD PLAIN COVER(11): Woods and swamp vegetation.

9

	SHEET
DESIGN INFORMATION CONT.	
STREAM IS: DEGRADING AGGRADINGX AT EQUILIBRIUM (12)	
OTHER OBSERVATIONS AND COMMENTS:	
CHANNEL MIGRATION TENDENCY (13): Very low tendency to migrate towards the east.	
GEOTECHNICALLY ADJUSTED SCOUR ELEVATIONS(14):	
Interior Bent 1: 108.8' The geotechnically adjusted scour elevation agrees with theoretical elevation sho on the Bridge Survey and Hydraulic Design Report.	own
Interior Bent 2: 105.2' Geotechnical analysis of material strength verses scourability yields a geotechnic adjusted scour elevation 3.2' higher than the theoretical elevation shown on the Bridge Survey and Hydraulic Design Report.	cally
REPORTED BY: S. P. Brown DATE: 03/17/04	<u> </u>

INSTRUCTIONS

- (1) GIVE THE DESCRIPTION OF THE SPECIFIC SITE, INCLUDING ROUTE NUMBER AND BODY OF WATER CROSSED.
- NOTE ANY EVIDENCE OF SCOUR AT THE EXISTING END BENTS OR ABUTMENTS (UNDERMINING, SLOUGHING, SCOUR LOCATIONS, DEGRADATIONS, ETC.)
- NOTE ANY EXISTING SCOUR PROTECTION (RIR RAP, ETC.)
- DESCRIBE THE EXTENT OF ANY EXISTING SCOUR PROTECTION.
- DESCRIBE WHETHER OR NOT THE SCOUR PROTECTION APPEARS TO BE WORKING.
- NOTE ANY DAMS, FALLEN TREES, DEBRIS AT BENTS, ETC.
- DESCRIBE THE CHANNEL BED MATERIAL BASED ON OBSERVATION AND/OR SAMPLES.
- DESCRIBE THE CHANNEL BANK MATERIAL BASED ON OBSERVATION AND/OR SAMPLES.
- DESCRIBE THE BANK COVERING (GRASS, TREES, RIP RAP, NONE, ETC.)
- 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).
- 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 THE RELATIONSHIP BETWEEN THE HYDRAULICS THEORETICAL SCOUR AND THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION. IF THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION IS DEPENDENT ON SCOUR COUNTER MEASURES, EXPLAIN. (RIPRAP ARMORING ON SLOPES, ETC.) 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.