GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: *8.1830503* TIP NO.: *R-2206C* COUNTY: *Lincoln*

DESCRIPTION(1): *Bridges on NC 16 over Killian Creek between SR 1349 and NC 150*

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

COUNTY BRIDGE NO. *N/A* BRIDGE LENGTH *N/A* NO. BENTS NO. BENTS IN: CHANNEL FLOODPLAIN

FOUNDATION TYPE: *None - New Structure*

EVIDENCE OF SCOUR(2):

ABUTMENTS OR END BENT SLOPES: *N/A*

INTERIOR BENTS:

CHANNEL BED: *None*

CHANNEL BANKS: *None*

♦ ***EXISTING SCOUR PROTECTION:***

TYPE(3): *None - New Structure*

EXTENT(4):

EFFECTIVENESS(5):

OBSTRUCTIONS(6) (DAMS, DEBRIS, ETC.):

♦ ***DESIGN INFORMATION***

CHANNEL BED MATERIAL(7) (Sample Results Attached): *Sand, Gravel, Rock (SS-11)*

CHANNEL BANK MATERIAL(8) (Sample Results Attached): *Sand and Gravel (SS-11)*

CHANNEL BANK COVER(10): *Mature Trees*

FLOOD PLAIN WIDTH(11): *Approximately 60-70 meters*

FLOOD PLAIN COVER(12): *Mature trees, Grass, Shrubs*

STREAM IS: ☐ DEGRADING ☒ AGGRADING (13)

OTHER OBSERVATIONS AND COMMENTS: *Banks are sand and unstable. Trees are leaning in toward creek. Channel Meanders in Creek are starting to connect together.*

♦

♦

♦

♦ ***DESIGN INFORMATION CONT.***

CHANNEL MIGRATION TENDENCY(14): *High*

GEOTECHNICAL ADJUSTED SCOUR ELEVATIONS (15):

The Hydraulics Unit Theoretical Scour elevations for the interior bents fall between 250.5 to 252.0 meters for both NBL and SBL structures. Channel scour is predicted at approximate elevation 250.0 meters. Due to the possibility of channel migration we would be more comfortable using the scour elevation of the creek channel.

Boring data obtained at Bent 1 indicates that scour may reach a potential depth of approximately 250.0 meters on the SBL structure and 251 to 252 meters for the NBL structure. The delineating scour boundary for Bent 1 is weathered rock.

Boring data obtained at Bent 2 indicates a uniform dense to very dense layer of residual sand beginning at elevation 250.0 meters. Potential scour depth into very dense residual sand would likely not extend below elevation 248.5 to 249.0 meters across this bent location.

REPORTED BY: *JEB / CEB* DATE: *12/8/03*

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.