

November 15, 2019

Memorandum to: J. L. Pilipchuk, L.G., P.E.
State Geotechnical Engineer

WBS Element: 17BP.5.R.79
TIP: SF-910216
County: Wake
Description: Replacement of Bridge 216 over Buffalo Creek
on SR 2366 (Old Battle Bridge Rd.)

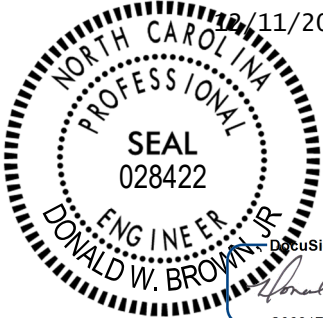
Subject: Design Scour Elevation

After a review of site flooding history, historical scour depth, and geologic conditions encountered at the site, Stewart raises the design scour elevation (DSE) and presents the following:

Location	Theoretical Scour Elevation	Historical Scour Elevation	Design Scour Elevation	Does DSE impact end bents?
Bent No. 1	248.0 feet	260.5 feet	254.0 feet	No

The Theoretical Scour Elevation is from the Bridge Survey and Hydraulic Design Report dated 9/9/2019. The subsurface investigation did not include an interior bent boring due to access constraints; therefore, the conditions at the interior bent location have been interpolated from the end bent borings and a bridge sounding rod performed from the bridge deck. The top of residual soil is estimated at elevations ranging from 260.5 to 263.0 feet and consists of medium dense silty sand. These materials are resistant to scour.

11/15/2019



DocuSigned by:
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Don Brown, PE
Sr. Geotechnical Engineer

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