



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

June 13, 2012

EUGENE A. CONTI, JR.
SECRETARY

Mr. David Wainwright
NC Division of Water Quality
1650 Mail Service Center
Raleigh, NC 27699-1650

ATTN: Ms. Amy Euliss
NCDOT Coordinator

Dear Madam:

Subject: **REQUEST FOR THE LIFTING OF "ON HOLD STATUS"** for the Section 401 Water Quality Certification for the proposed replacement of Bridge No. 118 over Lanes Creek on SR 1937 (Old Pageland Marshville Road) in Union County, Federal Aid Project No. BRZ-1937(2); Division 10; TIP No. B-4652; WBS 33818.1.1.

Reference: NCDOT Permit Application for a 404 Permit and 401 Water Quality Certification dated April 13, 2012.
NCDWQ on hold letter notification dated May 30, 2012.

This letter is in response to the NC Division of Water Quality's (DWQ) Incomplete Application Notification for Transportation Improvement Project B-4652.

In this letter, the DWQ indicated:

"A site visit indicates that the streambank for the proposed slope reinforcement appears to be fairly stable (including trees). It is unclear why this activity is necessary as the new bridge will be longer and provide additional floodplain availability for the stream. Additional floodplain availability will allow for energy dissipation on the floodplain rather than the streambanks. Provide information to support the request for the proposed 74 linear feet of stream impact. Additionally, if the need for the impact can be supported, DWQ does not typically authorize stabilization using gabions and would prefer a more natural method of streambank stabilization. Please provide an alternative form of stream bank stabilization."

NCDOT Response:

Though the current bank identified above is currently stable, it is evident that channel flow has, over time, impacted the upstream, right bank causing the channel to migrate behind the

existing bridge's end bent. This is shown in the enclosed Figure 1, which is the plan view from the Bridge Survey Report.

In the bridge profile view, also depicted in Figure 1, shows that despite having a longer proposed structure, it does not provide any additional significant flow area in the floodplain than the existing bridge. The excavation (hatching) shown on the left (right upstream bank-yellow arrow) has been done to provide minimal area for future structure inspections and not increased floodplain flow. The design year and 100 year flood events do not even reach this excavated area. The attached plan sheet with contours (Figure 3) may help display a clearer picture of the situation.

Photos are also included (Figure 2) which indicate damage from erosion of this bank, trees leaning in towards the channel and that this bridge has experienced flooding events exceeding the 100 year event (see the debris caught in the existing bridge's superstructure). NCDOT Hydraulics Unit designed a longer bridge per the Department's minimum bridge criteria which specifics that we set back the proposed bridge 10 feet or more from the top of bank (TB in the plan view below). We believe that the gabion mattress bank reinforcement is warranted to impede channel migration which could occur during excessive flooding events. This mattress is designed to be placed on top of the existing bank and stay in place (not launch stabilization material into the channel). If left unprotected, the channel migration could, over the life of the new structure, cause the right abutment to fail.

In the Department's Hydraulic model, the average Design (25 year) channel velocities are near 7 feet per second. As flow impacts this bank, flow vortices and increased velocities occur which cannot be numerically determined without a much more complex hydraulic model. Therefore, the best structure, in this situation, to handle the velocities is the use of a gabion mattress.

NCDOT feels the above explanation satisfies the deficiency noted on your letter dated May 2-, 2012 and the Department hereby requests the lifting of the "On Hold" Status and subsequent processing of the application thereof.

A copy of this request and its distribution list will be posted on the NCDOT Website at: <http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>. If you have any questions or need additional information, please contact Michael Turchy at maturchy@ncdot.gov or (919) 707-6157.

Sincerely,



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Gregory J. Thorpe, Ph.D.

Branch Manager, Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List

Figure 1

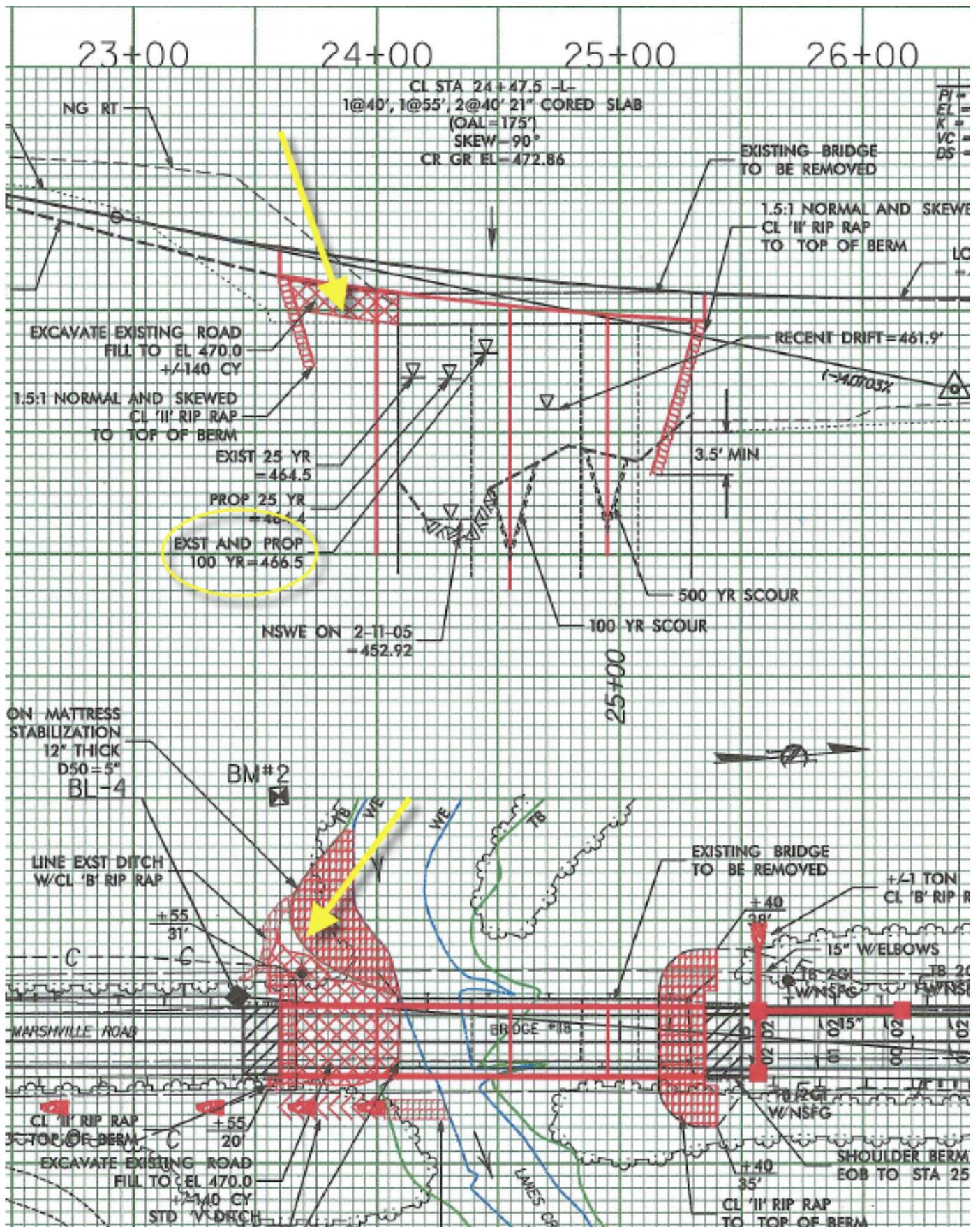


Figure 2 Photos:

Right Upstream Abutment (same side as the bank in question).



Upstream facing bridge (bank in question on right). Subsidence noted with bent trees.



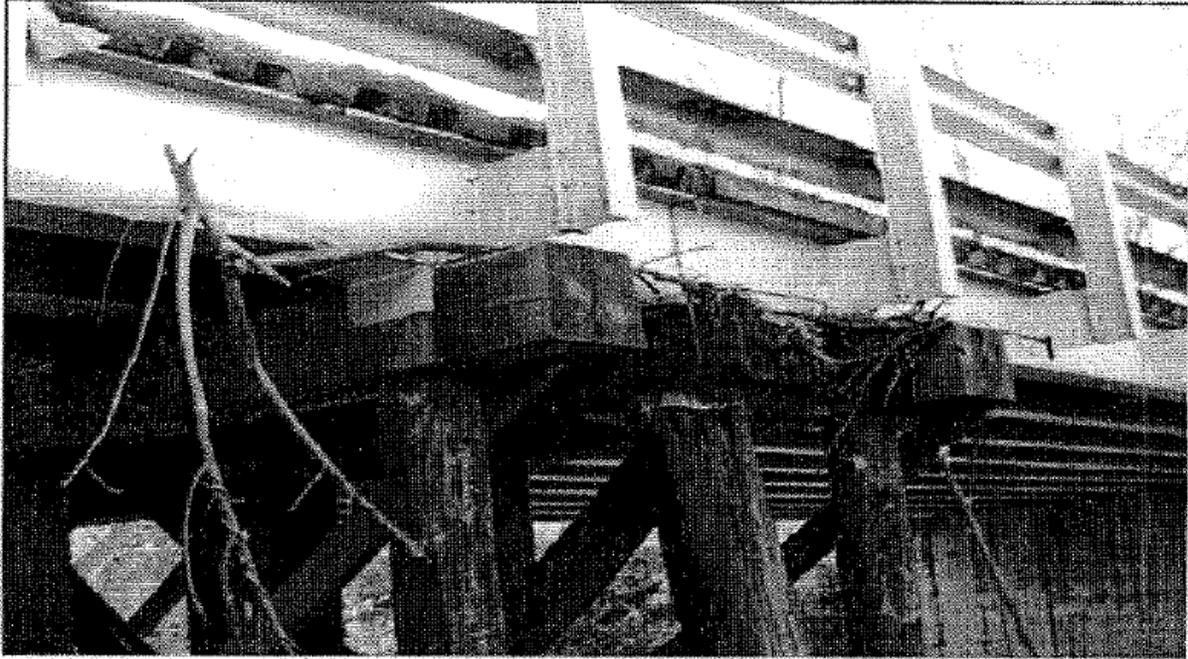
Condition Photos from Bridge Maintenance Inspection Report:

Bridge #: 890118

County: UNION

Date: 04/10/2006

Condition Photos



HIGH WATER SIGNS ON THE CAPS

Figure 3: Drainage file with contours

