

#63-F-69

BRIDGE OVER

BLANCHE RIVER.

EVANTOUREL TWP.

Mr. R. S. Chapman,  
District Engineer,  
New Liskeard, Ontario.

Mr. A. G. Stermac,  
Principal Foundation Engr.,  
Foundation Section,  
Materials & Research Division.

Attention: Mr. J. Moffat,  
Dist. Mun. Engr.

June 27, 1963

Six-Lane Bridge over Blanche River,  
Evanturel Twp., Con. V - VI, Lot #6,  
Dist. of Timiskaming - W.J. 63-F-69.

We have received the plan and profile of the above-mentioned structure, and are now in a position to make specific recommendations regarding the measures which we believe will remedy the defects referred to in our memo dated May 24, 1963.

From our knowledge of the general area, and from a visual examination of the slopes along the river bank, we believe that subsoil at the site consists of extensive deposits of varved clay similar to those encountered at the Blanche River crossing of Hwy. #624 where an extensive foundation investigation has been carried out (Our Report 62-F-120). On the basis of this data, our recommendations are as follows:

Additional spans should be constructed at each end of the bridge and the sides of the river banks trimmed to form a 4:1 slope from the low water level (el. 169.4) to the new abutments. This entails lengthening the bridge by about 70' at the west end and 60' at the east end.

The new spans should be supported by means of timber piles driven into the subsoil for a length dependent on the required

cont'd. /2 ...

June 27, 1963

design load and safety factor. Assuming a safety factor of 3 - (which is usual in the absence of confirming load tests) and a length below ground level of 36', a design load of 12 tons per pile may be used. Design loads for lengths other than 36' may be calculated on the basis of 1/3 ton per foot of embedded pile length.

The trimming of the river banks to 4:1 slopes should be carried out for a distance of at least 25' each side of centre line of the bridge. The transition between the 4:1 slopes and the adjacent river bank slopes (estimated to be about 2½:1), should occur in a horizontal distance of not less than 30'. Excavation should be carried out in such a manner that no conditions of stability more critical than those existing at present, are created. This is particularly important with regard to the disposal of excavated material.

We believe that the above recommendations will be sufficient for your design purposes; however, should any further queries arise, please contact this Office.

KGS/MdeF

cc: Messrs. K. L. Kleinsteinber  
T. J. Kovich

Foundations Office  
Gen. Files.

*K. G. Selby*  
K. G. Selby,  
SENIOR FOUNDATION ENGR.  
For:  
A. G. Stermac,  
PRINCIPAL FOUNDATION ENGR.

Mr. R. S. Chapman,  
District Engineer,  
New Liskeard, Ont.

Attention: Mr. J. Moffat,  
Dist. Mun. Engr.

Mr. A. G. Stermac,  
Principal Foundation Engr.,  
Foundation Section,  
Materials & Research Division.  
May 24, 1963

*W.J. 63-F-69.*

Six-Lane Bridge over Blanche River,  
Evanturel Twp., Con. V - VI, Lot #6,  
District ~~2~~ *OF TIMES KAMING.*

Regarding our visit to the above structure on  
May 15, 1963, a summary of our observations made at the site  
is as follows:

The bridge consists of three steel trusses supported  
on concrete piers and abutments which are founded on timber piles.  
The approach spans are about 60' in length and the centre span  
about 100'. Height of the deck above water level is about 30',  
and the slope of the river banks about 2:1.

All expansion joints on the deck are jammed tight  
and signs of forward movement of both abutments are apparent,  
particularly on the west abutment where the bottom of the ballast  
wall has moved out so far as to shear off and expose some of the  
supporting piles. At the east abutment, as yet, only slight  
forward movements of the ballast wall have taken place. It appears  
also, that the piers may have tilted somewhat, but not sufficiently  
to cause any structural damage.

From our knowledge of the subsoil conditions in this  
area (extensive deposits of varved clay), it is apparent that the  
above conditions have been caused by the instability of the river  
banks and, therefore, the solution to the above problem lies in  
constructing additional spans to the structure and trimming back  
the river banks to form stable slopes. We believe that no foundation  
investigation at this site will be required, but in order for us to  
give specific recommendations, it will be necessary for you to  
provide us with the following data:

(1) A complete profile along the centre line  
commencing 200' west of the west abutment and terminating 200' east  
of the east abutment. Soundings must be taken through the river.

*cont'd. /2 ...*

May 24, 1963

(2) A plan covering the above limits, and showing the positions of the bridge footings.

(3) Elevations of the highest and lowest water levels recorded.

When you have supplied us with the above information, we will be in a position to provide you with definite recommendations as to the remedial measures to be taken.

KES/MdeF

cc: Messrs. K. L. Kleinsteinber  
T. J. Kovich

Foundation Office  
Gen. Files ✓

*K. G. Selby*  
K. G. Selby,  
SENIOR FOUNDATION ENGR.  
For:  
A. G. Stermac,  
PRINCIPAL FOUNDATION ENGR.