

## RETURN

To an Order of the House for a copy of the report of Messrs. Keefer & Smith, C. E.'s, regarding the proposed bridge at Kamloops.

F. G. VERNON,

*Chief Commissioner of Lands and Works.*

*Lands and Works Department,*

*20th March, 1894.*

PROPOSED HIGHWAY BRIDGE ACROSS THE THOMPSON RIVER BELOW KAMLOOPS, B. C.

CHAMBERS 44 AND 45, FIVE SISTERS' BLOCK,

VICTORIA, B. C., March 14th, 1894.

*To the Honourable Forbes Vernon,*

*Chief Commissioner of Lands and Works :*

SIR,—We beg leave to inform you that, in accordance with your instructions conveyed to us on the 10th ult., we have examined and surveyed the Thompson River below Kamloops, for the purpose of obtaining the necessary data for designing and estimating the cost of a timber highway bridge across that river. We now have the honour to report as follows:—

### THE SITE.

An examination of the river from Kamloops westward showed that a contraction in its width took place immediately below the old Post of the H. B. Co. An accurate traverse of the bed of the river in this vicinity showed that the shortest distance from bank to bank is at a point 267 feet west of this Post. As the soil of the banks, the velocity of the current, and the nature of the river bed are to all appearance unvarying throughout the whole length of the traverse, the shortest crossing is, therefore, the most suitable for bridge construction.

At this point the total distance from bank to bank is 860 feet, from high water mark to high water mark 903 feet, and from low water mark to low water mark 703 feet.

Owing to the river being frozen at the time of our examination, we were unable to gauge the velocity of flow, but common report gives the low water velocity at two miles per hour, and the high water velocity at four miles per hour.

At extreme low water the greatest depth of the river is at a point 500 feet from the south bank. This depth is  $18\frac{1}{2}$  feet. The difference between the extreme flood level of 1882 and extreme low water is  $22\frac{3}{10}$  feet. The south bank is a sand flat, untimbered excepting a narrow fringe of small cottonwoods on the river slope. The north bank is similar.

The bed of the river is of soft yielding material. Borings were taken at frequent intervals by means of a drill attached to an iron gas pipe, fifty feet in total length. The following are the results:—

Distance from south shore.	Depth of water.	First stratum.	Second stratum.	Third stratum.	Fourth stratum.	Total depth.	Remarks.
75 feet . . . . .	4 8-10 ft .	2 ft. gravel . . . . .	7 ft. sand . . . . .	11 ft. clay, sand, and gravel.	1 ft. gravel . . . . .	25 8-10 ft .	Drill stiff.
175 " . . . . .	14 9-10 ft .	$2\frac{1}{2}$ ft. hard gravel .	18 7-10 ft. soft material.	$3\frac{1}{2}$ ft. hard gravel .	3 ft. hard marl . . . . .	32 6-10 ft .	"
375 " . . . . .	13 8-10 ft .	3 ft. hard gravel . .	1 ft. soft material.	1 8-10 ft. hard material.	$\frac{1}{2}$ ft. very hard material.	20 1-10 ft .	Drill stopped.
400 " . . . . .	11 9-10 ft .	8 ft. soft sand . . . .	1 ft. hard material.	20 ft. very soft material.	3 ft. sand . . . . .	43 9-10 ft .	Drill easy.
525 " . . . . .	17 5-10 ft .	$19\frac{1}{2}$ ft. soft material	3 ft. gravel . . . . .	$2\frac{1}{2}$ ft. stiff material	.....	42 5-10 ft .	"
625 " . . . . .	10 6-10 ft .	$3\frac{1}{2}$ ft. gravel . . . . .	4 ft. sand . . . . .	1 3-10 ft. gravel . . .	20 ft. stiff material	39 4-10 ft .	"
725 " . . . . .	3 3-10 ft .	8 1-10 ft. sand . . . .	22 ft. sand & gravel	2 ft. gravel . . . . .	3 6-10 ft. stiff material.	39 ft. . . . .	"

These borings indicate that long pile foundations will be required.

