

EARTH FILLED ARCH BRIDGES WITH CLEAR SPAN OVER 100 FEET

Name.	Year.	Clear span of main arch.	No. of spans.	Total length of bridge proper. about	Roadway between curbs.	Sidewalks.	Cost.	Engineer.
Tower Road Bridge, Halifax	1917	114'	1	200'	30'	2 of 6'	.....	W. A. Duff, Bridge Engineer to Canadian National Railways.
Lynhurst Bridge, St. Thomas	1908	116'	1	about 150'	16'	1 of 4'	\$11,000	Jas. Bell.
Chicoutimi River Bridge, Chicoutimi County, Quebec	1916	113'	3	.....	..	.....	.....	Gagne & Jennings.

CONCRETE ARCH BRIDGES WITH SPAN LESS THAN 100 FEET BUT OF TOTAL BRIDGE LENGTH OF OVER 200 FEET (EARTH FILLED EXCEPT AS NOTED)

Name.	Year.	Total length.	No. of spans.	Roadway between curbs.	Sidewalks.	Cost.	Engineer.
Ontario Street Bridge, St. Catharines	1912	750'	13 of 50'	26'	1 of 6'	\$141,000	W. P. Near, City Engineer, Sprague & Reppert, Consulting Engineers.
Bank Street Bridge, Ottawa	1913	626'	7 of 76'	40'	2 of 8'	130,000	N. J. Kerr, City Engineer.
Hurdman's Bridge, Ottawa	.....	about 500'	7 spans	..	.....	.....	J. B. McRae, Consulting Engineer.
Smith Street Bridge, Peterboro	1910	385'	3 of 94'	26'	1 of 5'	35,000	T. S. Hay, City Engineer, W. J. Francis, Consulting Engineer.
Crawford Street Bridge, Toronto (open spandrel)	1914	292'	1 of 81' 4" 2 smaller	21'	2 of 6'	45,000	C. W. Power, Chief of Dept. of Bridges, J. S. Burgoyne, Chief Asst. on Design, L. N. Edwards, Chief Asst. on Construction.
Edinvale Bridge, Simcoe County	1907	286'	4 of 60'	16'	.....	.....	Connor, Clarke & Monds.
Mission Bridge, Calgary	1915	284' 6"	1 of 86' 1 of 76' 2 of 34'	40'	1 of 6'	.....	Geo. W. Craig.
Old Mill Bridge, over Humber River, York County	1916	282'	1 of 82' 2 of 62'	25'	none	45,000	Frank Barber, Engineer, Alfred Chapman, Architect.
Chaudre River, St. Bazile, Que.	1917	about 280'	3 of 79'	..	.....	.....	L. A. Vallee, Chief En- gineer, Dept. of High- ways, Quebec.
Montreal Aqueduct	1917	251'	3 of 57'	36'	.....	.....	Mouchel & Partners and Dominion Bridge Co.
Young Avenue Bridge, Halifax	1917	about 250'	2 of 96' 1 of 60'	48'	2 of 16'	.....	W. A. Duff.
Victoria Bridge, Brantford (open spandrel)	1910	246'	4 shorter	38'	2 of 11'	50,000	T. Harry Jones.

strictly speaking, reinforced concrete, as they have structural steel enough in them to carry the imposed loads.

Dear, old, conservative Toronto does not believe much in reinforced concrete for arches. They are going to be safe and sane about it,—very. How do they know that this new-fangled material, said to last a hundred years and then some, will really do so? They propose to wait and see, and then they will know all about it,—in a hundred years.

Besides the nine bridges mentioned above, there are nine other open spandrel spans ranging from 80 ft. to about 40 ft. as follows:—

The Fergus bridge, Wellington County, by Bowman & Connor, 80 ft. span; the Kleinburg arch, 65 ft. span, for York County Highway Commission, E. A. James, engineer to commission, Frank Barber, consulting engineer; and six by the Manitoba Highway Commission, all under 60 ft. in span, Arden Arches Nos. 2, 3 and 4, and McKinnon's, Woodworth and Edward Creek arches. Three of these have the floor suspended about midway between crown and springings. The approaches of the First Street Bridge, Brandon, three

spans of 40 ft., centre to centre, are also of this type. R. E. Speakman was city engineer.

It is believed that this completes the list of open spandrel arches of Canada, except for a three span foot, bridge in Guelph.

The third list, on this page, gives 12 concrete bridges, consisting of a number of small spans but of total length of bridge proper over 200 ft. The data given on the list is perhaps sufficiently descriptive of these bridges.

The two Ottawa bridges on this list, and one on the first list, Hurdman's and Lemieux Island, by J. B. McRae, and the Bank Street Bridge, are of fine appearance, especially the two latter, and are amongst the longest in Canada.

The lately completed lift bridge over the canal at Ottawa, though having a steel lift span, may also be mentioned as being the handsomest lift bridge known to the writer. A. F. Macallum is commissioner of works. The finish of all the late concrete bridges in Ottawa is washed granite.