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# CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL  
OF THE BUILDING INDUSTRY

PUBLIC WORKS • TENDERS •  
ADVANCE INFORMATION •  
AND MUNICIPAL PROGRESS

EVERY WEDNESDAY

*This paper reaches every week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers Purchasers of Municipal Debentures and leading Contractors in all lines throughout Canada.*

VOL. 10

AUGUST 30, 1899

No. 31.

**THE CANADIAN CONTRACT RECORD,**  
PUBLISHED EVERY WEDNESDAY  
As an Intermediate Edition of the "Canadian Architect and Builder."

Subscription price of "Canadian Architect and Builder" (including "Canadian Contract Record"), \$2 per annum, payable in advance.

**C. H. MORTIMER PUBLISHING COMPANY**  
of Toronto, Limited,  
Publishers,

CONFEDERATION LIFE BUILDING, TORONTO.  
Telephone 2362.

Branch Office:  
New York Life Insurance Building, Montreal.  
Bell Telephone 2299.

Advertising Rates on application.  
Information solicited from any part of the Dominion regarding contracts open to tender.

## TENDERS

Will be received until WEDNESDAY, SEPTEMBER 6th, for the various works required in making Alterations to a Warehouse on Front Street. No tender necessarily accepted.

GORDON & HELLIVELL, Architects,  
Confederation Life Bldg., Toronto.

## NOTICE TO

### Sewer Contractors

Sealed tenders, addressed to the undersigned, will be received until

Friday, the 1st Day of September, 1899,

for the construction of a Concrete Sewage Screen Tank, about 7,000 feet of 8-inch Sewer, with Manholes, Inverted Siphon, etc., leading from the present outlet of main sewer to the tank and from the tank to filter beds and creek. Also for the construction of one small Filter Bed, with Under-Drains, etc.

Drawings, specifications and forms of tender can be seen at the office of the undersigned on and after August 26th.

W. F. VANBUSKIRK, A.M. Can. Soc. C. E.,  
City Engineer, Stratford, Ont.

## TOWN OF LINDSAY

Separate tenders, addressed to the undersigned, will be received up to 6 o'clock p.m. on

**TUESDAY, 5TH SEPTEMBER NEXT,**

for the construction of the following works—

1. About 12,000 square feet of Granolithic Walk on Keat Street.
2. About 2,400 feet of 18-inch, 15-inch and 9-inch Sewer, in Concrete, with 12-inch Cellar Drain and 70 Side Drains.

Each tender must be accompanied by a deposit in the form of a marked cheque for 5 per cent. of the tendered price, which will be returned upon a contract being entered into.

Plans and specifications may be seen and forms of tender obtained at the office of the Town Clerk, or at the office of the Engineer, W. T. Ashbridge, C.E., Temple Building, Toronto.

The lowest or any tender not necessarily accepted.

GEO. INGLE,  
Chairman Board of Works.

## TOWN OF BERLIN

Sealed tenders, addressed to P. S. Lautenschlager, Esq., Chairman of Water Commissioners, will be received up to 12 o'clock noon, SATURDAY, SEPTEMBER 2ND, for the laying of about 8,000 feet of 6-inch and 4 inch WATER MAINS, all material being supplied by the Water Commissioners. Specification may be seen and forms of tender obtained at the office of the undersigned.

WM. MAHLON DAVIS, M. Can. Soc. C. E.,  
Superintendent Berlin Waterworks.

## NOTICE TO Sidewalk Contractors

Sealed tenders, addressed to the undersigned, will be received until six o'clock p.m. on

Thursday, the 31st Day of August, 1899,

for the construction of about 6,500 square feet of Cement Concrete Sidewalk, and about 4,000 square feet of Sidewalk composed of Vitrified Brick laid in Cement Mortar.

Specifications can be obtained from the undersigned on and after August 26th, 1899.

W. F. VANBUSKIRK, A.M. Can. Soc. C. E.,  
City Engineer, Stratford, Ont.

## DATE OF PUBLICATION.

Architects, Engineers, Municipal Authorities and others are reminded that the CONTRACT RECORD is printed every Tuesday afternoon, and that advertisements should reach the office of publication not later than 2 o'clock p.m. on that day to ensure insertion in the issue of the current week. Advertisements are frequently received too late for insertion, to avoid which special attention is directed to this announcement.

## CONTRACTS OPEN.

DIGBY, N. S.—The building of a town hall is talked of.

LEAMINGTON, ONT.—A. Setterington will build a residence.

BURK'S FALLS, ONT.—A. A. Agar is about to build a residence.

BEDFORD, N. S.—The Methodists will probably build a new church.

PRESTON, ONT.—Ratepayers have decided in favor of a market building.

TILBURY, ONT.—There is some talk of putting down granolithic sidewalks.

NIAGARA FALLS, ONT.—John Sears will rebuild his store burned recently.

TEESWATER, ONT.—John Joynt, of St. Helens, will build an evaporator here.

KENPTVILLE, ONT.—The town purposes building an iron bridge this fall.

METCALFE, ONT.—It is reported that a Methodist church will be built on the 10th line.

LIVERPOOL, N. S.—The council will issue debentures on October 1st for \$39,000.

MANITOWANING, ONT.—B. H. Turner is preparing to introduce a local telephone system.

YARMOUTH, N. S.—Tenders will be invited for heating the Ryerson school by hot water.

INWOOD, ONT.—Mr. Carson intends building a brick front to the Royal Exchange.

HUMBERSTONE, ONT.—The contract of constructing the Roth ditch will be let this week.

GALT, ONT.—No decision has yet been reached regarding tenders for heating town hall.

MILLTOWN, N. B.—An addition will shortly be built to the cotton mill here, at cost of \$25,000.

ST. CATHARINES, ONT.—John N. Chive has broken ground for a double house on Welland ave.

DIGBY, N. S.—The promoters of the proposed town hall have not yet completed their plans.

PEMBROKE, ONT.—J. L. Morris, C. E., is preparing plans for the proposed Mary street bridge.

PENETANGUISHENE, ONT.—The establishment of an apple evaporating factory here is spoken of.

METEGHAN RIVER, N. S.—It is understood that the Meteghan river bridge will be rebuilt next year.

BRIDGEWATER, N. S.—Robertson & Allison, of St. John, will erect a building here containing two stores.

COATICOOK, QUE.—The Penman Mfg Company will commence the work of enlarging their factory at once.

COLUMBIA, B. C.—Tenders are being called for the erection of a school house, 52 x 28 feet, two storeys high.

MARKDALE, ONT.—A by-law will be submitted to the ratepayers to raise \$1,500 to macadamize the main street.

BROCKVILLE, ONT.—Heman Sheppard is having plans prepared for improvements to terrace on Victoria ave.

NANAIMO, B. C.—A by-law has been introduced in council to raise \$100,000 to purchase the water works plant.

PORT COLBORNE, ONT.—The corporation offer for sale \$3,000 of school debentures. Particulars from F. Noble.

SHELBURNE, ONT.—Tenders for lighting the streets for a term of ten years are invited by H. C. Dunbar, clerk.

FORT WILLIAM, ONT.—The Oxilvie Milling Company are believed to have decided to erect a large flour mill here.

TRENTON, ONT.—M. B. Morrison, Mayor, wants tenders by Friday, Sept. 1st, for purchase of \$10,000 of debentures.

HULL, QUE.—The ratepayers voted on Monday on a by-law to raise \$4,000 for waterworks extension. Result not learned.

SOURIS, P.E.I.—The ratepayers have voted in favor of issuing \$2,000 of debentures for the erection of a tank, and for

purchase of hand engine and four pumps for fire protection. C. C. Carleton, secretary, will give particulars.

OWEN SOUND, ONT.—By-laws to raise \$18,000 for a central school and \$4,000 for waterworks extension were carried last week.

TORONTO JUNCTION, ONT.—Dr. Aiken, of Brampton, has had plans prepared for a new residence to be built on Prospect avenue.

WESTON, ONT.—Next month a by-law will be voted on to raise \$7,000 by debentures for the purchase of an electric light plant.

SOURIS, MAN.—J. F. Dezell is building a frame residence, hot water heating; cost \$2,000; W. H. Shillinglaw, Brandon, architect.

CHATHAM, ONT.—J. L. Wilson & Son, architects, are preparing plans for frame dwelling for John Symington, Raleigh, cost \$400.

SMITH'S FALLS, ONT. On September 18th the ratepayers will vote on a by law to raise \$150,000 for waterworks and sewerage purposes.

HARROW, ONT.—C. I. Pastorius, secretary school board, will receive proposals up to September 1st for purchase of \$2,500 school debentures.

GOUDERICH, ONT.—D. Cantelon wants tenders by Sept. 5th for erection of chimney at waterworks. Plans by J. A. Fowler, architect.

CATAWOGUE, ONT.—The Hamilton Steel & Iron Company have taken over the iron mine at this place and will put in a large plant at once.

THESSALON, ONT.—It is said that the Rock Lake Mining Company propose constructing an electric railway from Bruce Mines to their mine.

ALVINSTON, ONT.—B. Richardson, commissioner, desires tenders by Saturday, September 23rd, for the construction of the McVicar-Kennedy drain.

WALKERTON, ONT.—The Streets Committee have been instructed to ask for tenders up to September 11th for open trestle work at Yonge street bridge.

WOODHOUSE, ONT.—The trustee board of Methodist church want tenders by September 6th for repairs and improvements. Address, Rev C. T. Bennett.

GRENVILLE, QUE.—The Keystone Graphite Company, of Wilkesbarre, Pa., have commenced the erection of a mill here for the manufacture of plumbago.

MOOSE JAW, N.W.T.—D. Smith, inspector of Dominion public works, has been instructed to carry out proposed improvements to court house here, cost \$600.

BERLIN, ONT.—Three tenders were submitted for macadamizing Queen street north. All were higher than the estimate, and the work may be done by day labor.

STRATFORD, ONT.—The Whyte Packing Company are about to commence work on a new factory, having given a contract to Mr. Jarvis for 600,000 bricks.

THREE RIVERS, QUE.—It is reported that the International Paper Company propose enlarging their wood preparing mill here, and installing from 20 to 25 barkers.

DOWNSVIEW, ONT.—John Goulding, of this place, wants tenders by September 5th for building dwelling house in Weston. For plans apply to Jacob Bull, John street, Weston.

RAT PORTAGE, ONT.—R. H. Ahn is considering the purchase of the Rat Portage Reduction Works, with the object of transforming the premises into a first-class hotel.

SYDNEY, C.B.—Wm. McMaster, of the Montreal Rolling Mills Company, states that it is the intention of his company to locate here as soon as a suitable site can be secured.

WOODSTOCK, ONT.—New tenders will be asked for the construction of a fire hall.—The new post-office to be built here will be of Credit Valley and grey stone, three storeys, cost \$75,000.

HICKSON, ONT.—F. J. Ure, C.E., has been instructed by the East Zorra council to prepare plans for improving Timms creek drain. Same council will borrow \$2,000 to meet current expenses.

LACHINE, QUE.—Tenders for the construction of a drainage system for the town are invited by H. Roberts, secretary-treasurer, up to Wednesday, September 6th. Plans by Dupont, Leduc & Amos.

VANCOUVER, B.C.—Plans for the Dunn block, corner Alexander and Carroll streets, have been approved by council.—The purchase of a donkey engine, pile driver and other appliances for carrying out public works is under consideration by council.

SHERBROOKE, QUE.—The plans for the new court house, as prepared by Mr. Charest, provincial government architect, have been approved of by the Council of the Bar of the St. Francis district. Contracts will be let this fall and work commenced next spring.

WALLACEBURG, ONT.—The Presbyterian congregation will erect a church, 41 x 67 feet, with addition for choir gallery and auditorium with seating capacity for 350, the basement to be fitted up for Sunday school room. Plans will be asked for. Rev. D. Currie, pastor.

PARIS, ONT.—A by-law to raise \$11,000 was carried on the 25th inst., \$9,000 to be used for repairing Dundas street bridge and \$2,000 to extend the water main.—The question of expending \$5,000 for a central school will be submitted to a vote of the ratepayers.

GREENWOOD, B. C.—The Presbyterian congregation have decided to build a church, to cost \$2,000.—It is said to be the intention of W. A. Campbell and John McGregor, representing eastern capitalists, to install an electric light plant, using the Boundary Falls water power.

INGERSOLL, ONT.—F. W. Waters has decided to make improvements to his jewellery store.—The Board of Trade has passed a resolution in favor of granting a bonus to the Tilsonburg, Port Burwell, Lake Erie & Pacific Railway Company, for the extension of the road to this town.

HALIFAX, N.S.—Herbert E. Gates, architect, is inviting tenders for the installation of a hot air system in the residence of Judge Johnstone, Dartmouth. He is also preparing plans for a large brick residence to be built at Grand-Pre, and extensive additions to the premises of Jas. Simmonds & Co., Dartmouth.

WINDSOR, ONT.—The city council last week passed the third reading of the macadam pavement by-law. This provides for the expenditure of \$200,000 on the city streets, and work will be commenced at once.—Fifteen offers have been submitted for the proposed drill hall site, but no decision has as yet been reached.

NEW WESTMINSTER, B. C.—T. E. Julian, architect, has invited tenders for building brick and stone block, corner Columbia and McKenzie streets.—The Capital Box Co., of Tacoma, Wash., have purchased a site in this city on which they will build a large establishment for the manufacture of woodenware; probable cost, \$40,000.

BRANDON, MAN.—Strome & White will build a new block.—Brown & Mitchell are building a two-storey and basement brick warehouse, 25 x 120 feet; cost \$6,000; W. H. Shillinglaw, architect; contracts now being let.—Improvements to Grandview hotel are contemplated. Plans are now being prepared by W. H. Shillinglaw, architect; A. F. Bonsian, proprietor.—A new felt factory will be established here.

SARNIA, ONT.—The council propose constructing granolithic sidewalks on both sides of Front street, cost \$2,070.—Contractors are this week figuring on plans for the Wire Nail Works' buildings. Particulars from David Mackenzie.—John Brebner, public school inspector, is having plans prepared for residence to be built on Christina street.

KAMLOOPS, B. C.—Willis Chipman, C. E., of Toronto, will prepare plans at once for proposed improvements to the water works and electric light plants.—J. G. Tiarks, architect, is making some alterations in the plans for new hotel, after which tenders will be invited.—The town offer debentures for sale, bids to be received by 27th inst.

KINGSTON, ONT.—Queen's University authorities are taking steps towards the erection of a building on the campus, cost \$60,000.—Mr. Storey, architect, is preparing plans for large addition to hotel at Stella Point for Major Maxwell.—During the coming winter the Frontenac Milling Company will erect a large warehouse on Ontario street.

VICTORIA, B. C.—The council has decided to construct a water main on Moss street.—The council is considering the offer of the Canadian Pacific Navigation Company to provide transportation facilities between the city and the main land. The city clerk desires tenders by October 30th for purchase of \$210,100 of debentures, in sums of \$1,000.

HAMILTON, ONT.—W. W. Lachance, architect, has completed plans for residence for John Inkseter, of Dundas.—Thomas Allen has been granted a building permit for two-storey brick house on Catherine street south, cost \$1,400. E. R. Patterson has also been granted a permit for a brick dwelling, corner Main street and Victoria ave., for Dr. Day-Smith, cost \$3,600.

BRANTFORD, ONT.—The governors of the John H. Stratford hospital will meet in a few days to take steps for the erection of an addition to the hospital, and to consider ways and means for building an isolation hospital.—The Massey-Harris Company propose making a large addition to their works here.—The water commissioners have decided to put in a new pump, new pipe to the river, and make other improvements, at an outlay of \$50,000.

WELLAND, ONT.—The council will engage an engineer to prepare plans and specifications for macadamizing North Main street.—Estimates are being obtained by the council of the cost of a stone crusher.—Tenders close September 10th for the purchase of \$40,000 debentures. Particulars from E. R. Hellesms, town clerk.—A. O. Beatty will receive tenders up to September 1st for excavating, pipe laying and back filling of sewer about 600 feet in length.—Clark & Ellis, architects, are completing plans for the new public school.—It is the intention of the council to carry out a portion of the permanent street and sidewalk work this year.

OTTAWA, ONT.—E. F. E. Roy, Secretary Department of Public Works, will receive tenders up to Thursday, 31st inst., for construction of addition to Rideau Hall. Plans at above department.—The C. P. R. are preparing to construct a line of railway six miles long from the St. Lawrence and Ottawa track, south of the White bridge, to connect with the New York and Ottawa railway.—Plans for the extension of the Ottawa electric railway to Britannia have been filed in the county registry office.—Rev. Canon Bouillion, architect, has completed plans for new novitiate for the Dominican Order. The building will be erected adjoining the St. Jean Baptiste church.—C. W. Morrison, of Brooklyn, N. Y., is negotiating with Gilmour & Hughson for the purchase of spruce limits on the Gatineau river, with

A view to the erection of a large pulp mill near Ironsides.—A company has been organized here, in which Mr. W. Y. Soper is interested, to manufacture automobiles on an extensive scale.—Application will be made to Parliament at next session for a subsidy for line of railway between Ottawa and Brockville, a distance of 73 miles. George Kidd is solicitor for the company.—The city engineer went to Montreal last week to meet the directors of the Interprovincial Bridge Company to discuss with them the style of approaches to be built for the interprovincial bridge.

ST. JOHN, N. B.—Directors of the Intercolonial Railway recently conferred with the authorities here relative to improvements.—Edward Manning, secretary, desires bids by September 4th for the erection of Indian town school building, from plans by R. C. John Dunn, architect.—Hon. Wm. Pugsley went to Montreal last week to meet capitalists who, it is said, will build the St. John Valley and River du Loup Railway from Fredericton to Woodstock, a distance of 60 miles. It is also said that the construction of the Central Railway from the Grand Lake coal fields to Fredericton, 40 miles, will be commenced shortly.—The city engineer has submitted an estimate of the cost of an asphalt pavement on Germain street, it being in the vicinity of \$15,000.—A new building is to be erected by the vestry of St. Luke's church.

WINNIPEG, MAN.—The foundation for a residence on Assiniboine street for Capt. Goutier was commenced last week; probable cost, \$5,000; plans by Walter Chesterton, architect.—The city solicitor has been requested to prepare a by-law to provide \$25,000 by debentures for the cost of service pipes. The council is considering the tender of the Pittsburg Testing Company to put in softening plant in connection with the waterworks system. Their tender is \$16,000.—Robert Watson, Minister of Public Works, will receive tenders up to Friday, Sept. 8th, for construction of bridge over Snake creek, for masonry abutments for bridge, and for alteration and extension of Rideout's bridge.—The Department of Public Works is calling for tenders for the construction of a bridge over Taylor's creek, in the municipality of Richot.—Tenders will be invited for construction of sewer on Main street and on Redwood ave.

MONTREAL, QUE.—It is probable that at an early date the Grand Trunk authorities and members of the city council will discuss the building of an overhead viaduct from St. Henri to Bonaventure station. The cost is estimated at \$1,800,000.—The council has given notice of its intention to construct a sewer on Montana street, from Mount Royal avenue to Perrault street.—The Harbor Grain Elevator System, a corporation with a capital of \$500,000, has been formed here. It is proposed to establish elevators, steam lighters, etc.—Plans are being prepared by local architects for a new annex to McGill University, to accommodate the departments of Pharmacology and Medical Jurisprudence and Practical Hygiene.—C. R. Hosmer, of the C. P. R. Telegraph Company, has acquired property at head of Drummond street, and intends erecting thereon a handsome residence for himself.—Negotiations are under way for the construction of a new general hospital at corner of Tupper street and Essex ave. Plans have been prepared for building to cost about \$75,000.—A number of ministers and laymen prominent in Congregational circles have purchased a piece of land in Amherst park, and purpose erecting a church thereon, to be completed this fall.—Some of the citizens of St. Denis Boulevard are opposing the erection of a new school house.—H. E. Hand, architect, of Buffalo, is in the city inspecting different sites on which a Buffalo syndicate will build elevators.

TORONTO, ONT.—Mr. F. H. Herbert, architect, wants tenders by 5 p.m. to day (Wednesday), for brickwork, carpentry, plastering, painting, glazing and sheet metal work required in alterations to building on south-east corner of Yonge and Richmond street for Alex. Leslie.—It is said to be the intention of the Lakeside Navigation Company to build a new steel steamer, at a cost of \$40,000. The contract has not yet been let.—The authorities of the Western Hospital have purchased property at corner of Bathurst and Nassau streets, and will erect a new building adapted to their requirements.—The Dominion government will let the contract at an early date for dredging Toronto Bay.—The Grand Trunk Railway Company have decided to enlarge and remodel their York street yard.—The council has given notice of its intention to construct a brick pavement on Robinson street, from Bathurst to Palmerston avenue, cost \$5,060.—Canadian firms have been asked to submit tenders for the heating and lighting of the British section at the Paris Exposition.—Building permits have been granted as follows. B. Panter, brick store and dwelling, Spencer ave. and King street, cost \$3,000; Dr. Wagner, brick and stone addition, Gerrard and Victoria streets, cost \$1,000; John L. Pears, brick dwelling and stable, Davenport road, cost \$3,000; Dr. A. McPhedran, two-storey brick residence, No. 151 Bloor street west, cost \$9,000; T. E. Black, two 2-storey brick and roughcast houses on Niagara street, near Bathurst street, cost \$2,000.—Messrs. Darling & Pearson, architects, have prepared plans for a large hotel to be built in Muskoka, work on which will commence as soon as the purchase of site is completed. The building will contain 200 rooms. Hamilton capitalists are interested.—Plans are being prepared by the Ontario government architect for the reconstruction of the Penetanguishene reformatory into an asylum, and for a new reformatory to be built in Oxford county.—The city engineer has recommended the dredging of the slip at foot of Berkeley street, cost \$2,000.

**FIRES.**

Residence of William DeWolfe at Musquash, N. B.—Four storey building on Alice Street, Toronto, owned by the Superintendents' Fund of the Methodist Church, damaged to the extent of \$3,000.—The sawmill at Tobacco Lake, Ont., owned by Mr. Carter.—Morris & Co.'s sawmill at Silverwater, Ont.; small insurance.—The Drew block at Burk's Falls, Ont., containing several stores and dwellings, was completely destroyed by fire on Monday last.

**CONTRACTS AWARDED.**

COLUMBIA, B. C.—Hotel for J. Lewis L. McDonald, contractor.

NIAGARA FALLS, ONT.—Doran block. Waugh & Robertson, contractors.

STRATHROY, ONT.—Granolithic sidewalks: A. Graham, of London, successful tenderer.

WOODSTOCK, ONT.—Rectory for old St. Paul's church. Clarkson Bros., contractors, \$2,550.

BRANTFORD, ONT.—Hot water heating of Y. M. C. A. building. C. Taylor, successful tenderer.

REGINA, N. W. T.—Dominion public building. Willoughby & Mollard, of Calgary, successful tenderers.

ROSSLAND, B. C.—Masonic hall. H. J. Raymer, contractor; cost about \$4,000.—Oddfellows hall, H. J. Raymer, contractor.

WATERLOO, ONT.—\$40,000 water works debentures. Ontario Mutual Life Insurance Company, purchaser, \$42,980.35.

HAMILTON, ONT.—J. Hoodless & Son have been awarded the contract for fitting up a branch of the Imperial Bank in Winnipeg.

TORONTO, ONT.—Sewer on Dupont street and Spadina road. John McGuire, contractor, \$2,706.—Piling at Keating's channel: Grant & Co.

VICTORIAVILLE, QUE.—Contracts have been let for branch building for Molson's bank, from plans by Taylor & Gordon, architects, Montreal.

SYDNEY, C. B.—Riler & Connelly, of Boston, have been awarded the contract for structural iron work for the Dominion Iron & Steel Co.'s plant.

MAGOG, QUE.—Improvements to electric light works: Stone foundation for dynamo, D. Pepin, \$350; crib work for tail race, John Osborne, \$200.

CHATHAM, ONT.—\$15,519.24 debentures. F. Marx, Chatham, \$15,843 accepted; O'Hara & Co., Toronto, \$15,812; G. A. Stimson & Co., Toronto, \$15,680.

PRESTON, ONT.—Cement pavements Royal Artificial Stone Paving Company; of Guelph, 10 cents per foot (accepted); Edward Wirsching, 10 3/4 cents; S. C. Branch, 12 cents.

BELMONT, ONT.—Ponford Bros., of St. Thomas, have been given contracts for abutment of bridge over Kettle Creek, at \$1,080; the Hamilton Bridge Co. securing the iron work at \$1,040.

WINNIPEG, MAN.—Walter Chesterton, architect, has let contracts for foundation to residence of Geo. Lindsay, 138 Donald street; cost, \$988.—The tender of Hobson

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& Jackson for construction of sewer in Selkirk ave. has been accepted; price, \$13,617.

ST. JOHN, N. B.—Improvements to Puddington building. Mason and carpenter work, Sproul & Bates.—Galvanized iron work on Mount Allison residence building. J. E. Wilson, contractor.

OTTAWA, ONT.—The contract for a fan system of heating and ventilating for the Ottawa Car Company has been let to E. A. Wallberg, of Montreal.—Building for Ald. Norris. Wilham MacGillivray, contractor.

MONTREAL, QUE.—Tenders for repairs to Civic Hospital were received as follows: Bowie & Belaire, \$1,600 (accepted); Z. Leboeuf & Co., \$2,150; G. J. Feville, \$2,200; F. Sauvageau, \$2,500; Legendre & Choyer, \$2,730.

LIVERPOOL, N. S.—The contract for an electric light plant for the town has been awarded to the Royal Electric Co., at price of \$8,580. The Canadian General Electric Company tendered at \$8,697, and F. W. Clarke at \$8,508.

HALIFAX, N. S.—Herbert E. Gates, architect, is superintending the erection of F. W. Green's house on Young ave; the contractors being as follows: Masonry and plastering, Edwd. Maxwell; carpenter work, Chappell Bros.; painting, Harrison Bros.; plumbing, Power & Co.; sheet metal work, James Donohoe; hot water heating, Lowgard Bros.; electric wiring, John Starr & Co.

SHELBURNE, ONT.—For purchase of school bonds tenders were received as follows: H. W. Brouse, Toronto, \$9,040; G. W. Wood & Son, Toronto, \$9,061; Central C. L. & S. Co., Toronto, \$9,075; G. A. Stinson & Co., Toronto, \$8,978; Ontario Mutual Life Association Co., Waterloo, \$9,075. The tender of the Ontario Mutual Life has been accepted.—The contract for granolithic sidewalks has been let to the Guelph Pavement Company at 10 cents per square foot.

WELLAND, ONT.—Residence for Major Cohoe: Plumbing and heating, J. H. Crow; other trades, George Ellsworth.—For supply of stone tenders were received as follows: A. H. Bradley, Thorold, on canal bank at Welland, 88 cents per yard; Estate John Battle, Thorold, on canal bank at Welland, 95 cents per yard; Estate John Battle, Thorold, on cars at Welland, 80 cents per yard; Estate John Battle, Thorold, at Thorold, 42½ cents per yard; Carroll Bros., at quarries, 40 cents per yard, Queenston quarries, at Queenston, \$2 per cord; Queenston quarries, at Queenston (crushed), 70 cents per yard; Hagersville quarries, at Hagersville (crushed), 75 cents per yard; Stoney Creek quarries, at quarries, 40 cents per yard; Cartmell & Sons, Thorold, at quarries, on car, \$2.00 per cord; Cartmell & Sons, at Thorold, on boat, \$2.50 per cord. The tender of Carroll Bros. has been recommended for acceptance.

VERNON, B. C.—The council opened tenders last week for waterworks construction. Tenders for the pipes were received from Crane & Co., Portland, and Boyd, Burns & Co., of Vancouver. Their figures were each about \$20,000. Other tenders for parts of the supplies were from Chambers & Co., Vernon; Garshore Co., Hamilton; St. Lawrence Foundry Co., Toronto; Armstrong & Morrison, Vancouver; A. G. Long, Portland; Michigan Brass Works, Detroit; Caldwell Bros., Tacoma; and Drummond, McCall & Co., Montreal. Tenders have been accepted as follows: Cast iron pipe, Garshore Co., Hamilton, \$6,966.19; steel pipe, Boyd, Burns & Co., Vancouver, \$8,500; construction of reservoir, T. E. Crowell, \$2,022; construction of dam, Clark & Haug, \$509; laying pipe, McQuarrie & Co. It is stated that neither T. E. Crowell nor Clark & Haug will accept the contract as awarded, they having tendered for other work besides that given to them. In this case the council will either call for tenders for the dam and reservoir or do the work itself.

Derouin & Thibedeau have registered partnership as roofers in Quebec.

A meeting of the creditors of Isaac Lewis, contractor, of Westmount, Que., will be held on August 28th.

#### FIRE-RESISTENT WOOD.

Fire-resistant wood was recently tested in London by a number of experts. The system experimented upon was that of an inventor called Rous. The test pieces of wood were coated to the depth of three-quarters of an inch with a composition, the contents of which are not all known, and then subjected to the flame of a blowpipe. Similar specimens were thrust into a boiler furnace. The blowpipe, used continuously for twenty minutes, did not sensibly raise the temperature under the compound. The piece of plastered wood that was put into the furnace stayed there half an hour. When it was removed the coating was chipped off with a tool, and the wood showed a temperature of only seventy degrees Fahrenheit. The one costly ingredient in the Rous mixture is tungstate of soda. The experts present seemed to prefer this method to that of treating the wood chemically, as is done on board warships. At the same time the plaster idea is not original with Mr. Rous, as before his discovery such a compost was in vogue. It was made up of lime and vegetable fibre. These afforded a body for fire-resisting chemicals, which were applied to the wood in the same way as the Rous mixture.

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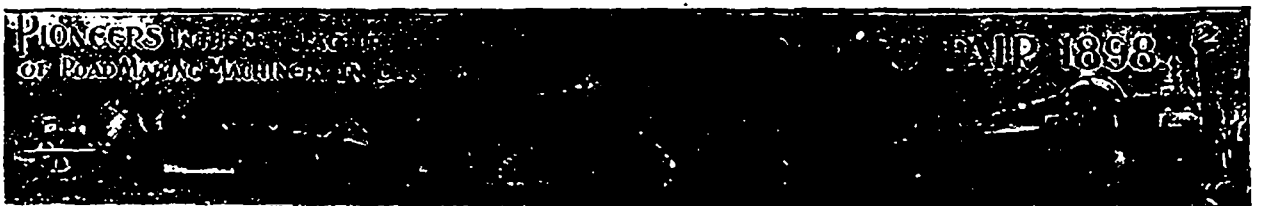
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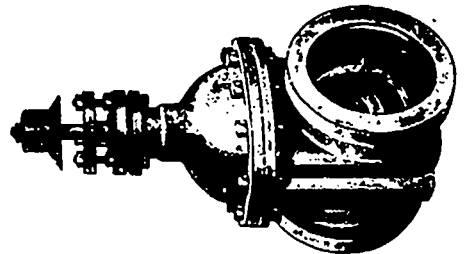
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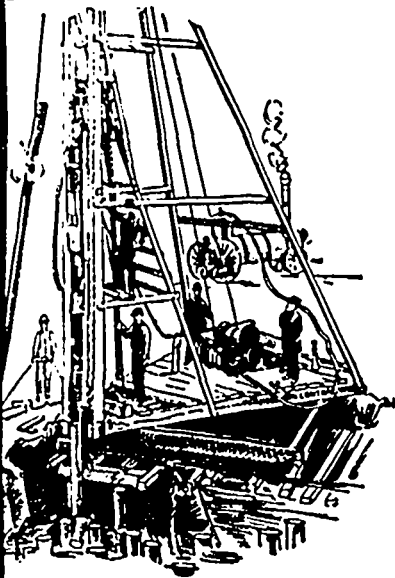
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## HIGHWAY CULVERTS AND BRIDGES\*

By A. W. CAMERON, Ontario Road Commissioner.

The majority of Canadians when visiting Europe are impressed with the durability and solidity which characterizes the structures of that country. Private residences are built to withstand the wear of centuries. Cathedrals, public halls, libraries, and similar civic institutions are constructed, not merely for the present, but for future generations; among the works marked for this durability are to be classed the public highways, with all that pertains to them. Canada in this regard presents a very unfortunate contrast.

It can justly be argued that Canada is a very young country, and that England is a very old country; that Canada is not a wealthy country, and that England is a very wealthy country. While England is in a way a very old country, yet it is not so much older than this country in the arts of civilization which should teach our citizens and municipal councils the necessity for and the means of wisely spending money in permanent improvements. And while England is a richer country than Canada, that greater degree of wealth has been brought about, to some extent, by the very durability which we have so long avoided. Permanent improvements are the cheapest. Structures which need props and repairs within a year or two after they have been built seem to be in a chronic state of starvation with a ravenous appetite for money. Canadians have not yet entirely outgrown the idea that they live in a pioneer land where the needs of the present entirely overwhelm the future.

\* Paper read before the Association of Ontario Land Surveyors.

In nothing is this temporary building more apparent than in our highways; and in no detail of our highways is it more striking than in the matter of bridges and culverts. At the same time, there is no portion of the making of a road that offers more scope to the road maker than in providing substantial and permanent waterways. Instead of the handsome stone and concrete arches that span so many of the streams intersecting the highways of England, there are to-day in this country scores of wooden boxes and trusses, flimsy, disjointed, unsafe, the constant source of accident, and the bottomless pit into which councils are annually throwing money in a vain endeavor to keep them in repair.

### LOCATION.

Considerable attention is generally paid to the selection of a good site for a bridge, and an effort is made to decide in the interest of economy, usually with a considerable measure of success. There is, however, a tendency to cling to the line of original survey, rather than deviate the road slightly, when by doing so much would be gained in lessening the dimensions of the bridge, securing firm foundations for piers and abutments, reducing the cuts and fills of the approaches of the bridge, all of which, while they may not decrease materially the first cost, very frequently are of the utmost consequence with regard to maintenance, and may decide for good or bad the usefulness of the entire roadway. The utility of a road with respect to hauling heavy loads is not governed so much by the condition of the best section as by the worst; not so much by the level portion as by the steepest grade. Bridges forming as they do a means of crossing valleys, are intimately associated with a problem of judiciously choosing between directness of route, easy gradients, and details of construction.

The location of culverts is a matter of very common error. Water should be disposed of in small quantities, along natural watercourses, before it gathers force and headway. Instead of this principle being followed, water is frequently carried long distances by the roadside, past watercourse after watercourse, rather

than build a culvert or culverts to carry away without injury to the road. When culverts are needed, they should pass directly across the road and carry the water away from it.

The size of bridge or size of culvert involves nice discrimination, in which local circumstances and the class of construction introduce various factors. For the size of waterway, no hard and fast rule can be given. Many existing culverts and bridges were at one time of sufficient size, but the clearing, draining and cultivation of the land now permit the water after rainfall to reach the water course in a shorter time with increased volume, causing submerged roadway and flooded roadsides, while culverts and bridges are swept away. The best guide to a proper size of waterway is an intimate acquaintance with the locality or the evidence of others who are, with respect to maximum rainfall, height of water line, previous experience with floods, form and inclination of the stream and area to be drained, kind and condition of the soil and similar details. Talbot's Formula proposed more as a guide to the judgment than as an unalterable rule, is at times very useful; area of waterway in square feet; C.  $\sqrt{\text{Drainage area, in acres}}$ . C. is a variable coefficient and the value given are:

"For steep and rocky ground, C varies from  $\frac{2}{3}$  to 1, etc. For rolling agricultural country subject to floods at times of melting snow, and with the length of valley three or four times its width, C is about  $\frac{1}{2}$ ; and if the stream is longer in proportion to the area, decrease C. In districts not affected by accumulated snow, and where the length of the valley is several times the width, 1.5 or 1.6, or even less may be used. C should be increased for steep side slopes, especially if the upper part of the valley has a much greater fall than the channel at the culvert.

Waterways should be neither needless, large nor of too small dimensions, involving on the one hand unnecessary expense for the first construction, and on the other hand, injury to the road, washouts, expensive repairs, and delay to traffic.

(To be Continued.)

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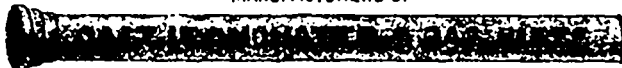
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Vitrified pavers, 1st sz.....	16 00		22 00
" 2nds.....	10 00		15 00

### COMMON BRICK, Per M.

	F.O.B.	F.O.B.	
	Toronto.	Montreal.	
Common Walling.....	7 00	8 00	7 50
Good Facing.....	8 00	9 00	8 50
Sewer.....	8 00	9 00	8 50

### STONE.

Common Rubble, per tonne, delivered.....	10 00		11 00
Large flat Rubble, per tonne, delivered.....	14 00		18 00
Foundation Blocks, per cu. ft. Granite (Stanstead) Ashlar, 6 in. to 12 in. rise 0 in., per ft. Amherst Red Sandstone, Amherst, N.S., per cub. ft. Kent Free stone Quarries, Moncton, N.B., per cu. ft. River John, N. S., brown Free stone, per cu. ft. .... Port Phillip, N. S. Brown Sandstone.....	7 00 8 00 8 00 1 00 1 00 95 90	8 00 9 00 9 00 1 00 1 00 95 90	8 00 9 00 9 00 75 95 95 90

"Scoria" Paving Blocks, 8" x 4 1/2" x 4".....	55		
"Scoria" Paving Blocks, 8" x 3 1/2" x 4".....	45 00		
Quebec and Vermont rough granite for building pur- poses, per c.ft. f.o.b. quarry For ornamental work, cu. ft. Granite paving blocks, 8 in. x 12 in. x 6 in. 1/4 in. per M. Granite curbing stone, 6 in. x 20 in. per linear foot.....	30 00 40 40	1 00 50 00	

CREDIT VALLEY STONE.			
	F.O.B.	Quarries.	
Rubble, per car of 15 tons... Brown Coursing, up to 10 in., per sup. yard..... Brown Dimension, per cub. ft. Grey C' coursing, per sup. yard Grey D dimension per cub. ft.		7 00 1 50 to 1 75 60 1 00 45	

LONGFORD STONE.			
Rubble, per 30 M. car.....	5 00		
Ashlar, per cub. yd.....	2 00		
Dimension, per cub. ft.....	18		

SLATE.			
	Toronto.	Montreal.	
Roofing (W square). " red..... " purple..... " unslung green..... " black..... Terra Cotta Tile, per sq..... Ornamental Black Slate Roofing	17 50 8 50 8 50 7 50 20 00 8 80	20 00 10 00 8 00 6 50 25 00 6 80	

CEMENT, LIME, etc.			
German per hl.....	2 55	3 10	2 65
London.....	2 95	3 00	2 45
Newcastle.....	2 70	3 00	1 95
" Josson Bra Portland.....	3 05	3 25	2 70
" Dyckerhoff.....	3 05	3 25	2 75
North's "Condor".....	2 95	3 10	2 65
English, artificial, per bbl.....	2 65	3 00	2 35
Belgian, natural, per bbl.....	2 50	2 75	2 00
Canadian, artificial, ".....	2 85	3 00	2 60
Roman.....	2 0	2 25	2 0
Parian.....	5 25	5 25	5 75
Superfine.....	1 25	7 50	8 25
"Karlstadt" (German).....	3 05	3 25	2 75
"Germania" (German).....	3 05	3 25	2 75
"Rooster" (Belgian).....	2 45	2 70	2 15
"Keystone" (Belgian).....	2 65	2 70	2 15
"Anvil" (Belgian).....	1 95	2 05	1 95
"Burham" (English).....	2 95	3 00	2 25
Hydraulic Cements—			
Thorold, per bbl.....	1 50		1 65
Queenston, ".....	1 50	1 50	1 60
Napanee, ".....	1 50		1 50
Hull, ".....	1 50		1 50
Ontario, ".....	1 25		1 45

Keene's Coarse "Whites".....	5 50	6 00	5 00	5 50
Fire Bricks, Newcastle, per M.....	30 00	35 00	16 00	21 00
" Scotch.....	30 00	35 00	19 00	21 00
Lime, 100 lbs., Grey.....	25			30
" " White.....	30			35
Plaster, Calcined, N. B.....	2 00			1 50
" " N. S.....	2 00			1 50
Hair, Plasterers', per bag.....	80			1 00

HARDWARE.			
The following are the quotations to builders for nails at Toronto and Montreal:			
Cut nails, 50d & 60d, per keg	2 75		1 85
Steel " " " "	2 25		1 95
CUT NAILS, FENCE AND CUT SPIKES.			
40d, hot cut, per 100 lbs.....	2 15		1 85
10 to 12d, hot cut.....	2 25		1 95
8d, 9d, " " " ".....	2 20		2 00
6d, 7d, " " " ".....	2 45		2 15
4d to 5d, " " " ".....	2 55		2 25
3d, " " " ".....	2 80		2 85
2d, " " " ".....	3 15		2 85
Cut spikes, 10 cents per keg advance.			
Steel Nails, 10 c. per keg extra.			
Wire nails, 2 75 base price.			

Iron Pipe:			
Iron pipe, 3/4 inch, per foot..	6c.		6c.
" " 1/2 " " " ".....	7		7 1/2
" " 3/4 " " " ".....	8		8 1/2
" " 1 " " " ".....	12		12
" " 1 1/4 " " " ".....	17		17
" " 1 3/4 " " " ".....	24		24
" " 2 " " " ".....	30		30
" " 2 1/2 " " " ".....	43		43
Toronto, 65 per cent. discount.			
Montreal, 70 per cent. discount.			
Lead Pipe:			
Lead pipe, per lb.....	7c.	25 per	
Waste pipe, per lb.....	7 1/2	cent. dis.	

Galvanized Iron:			
Adam's—Mar's Best and Queen's Head and Opollo:			
16 to 24 gauge, per lb.....	4 1/2c.	4 1/2c.	4 1/2
26 gauge, " " " ".....	4 1/2	5	4 1/2
28 " " " ".....	5	5 1/2	4 1/2
Gordon Crown—			
16 to 24 gauge, per lb.....	4 1/2	4 1/2	4 1/2
26 gauge, " " " ".....	4 1/2	4 1/2	4 1/2
28 " " " ".....	4 1/2	5	4 1/2
Note.—Cheaper grades about 1/2 c. per lb. less.			

Structural Iron:			
Steel Beams, per 100 lbs.....	2 75		2 90
" channels, ".....	2 85		2 90
" angles, ".....	3 50		2 65
" tees, ".....	3 80		2 65
" plates, ".....	2 55		2 00
Sheared steel bridge plate.....			2 90