

WIARTON, ONT.—Hot water heating system in residence of Robert Young: J. W. Falls & Son, contractors.

COLCHESTER SOUTH, ONT.—Dolson Creek improvement work: Yens Olsen, contractor; contract price over \$10,000.

RIDGEWAY, ONT.—Summer cottage at Crystal Beach for Homer & Daubert, of Buffalo: Hanna Bros., contractors.

EDMONTON, N.W.T.—The Dominion Securities Corporation, Toronto, have purchased \$150,000 of Edmonton 4½ per cent. debentures.

BUXTON, ONT.—Construction of bridge over Government drain No. 2: Jenks & Dresser, of Port Huron, Mich., successful tenderers, \$1,223.

MINUDIE, N.S.—The contract for grading the Minudie Railway from River Hebert to this place has been awarded to W. Sutherland, of King's County.

WINNIPEG, MAN.—J. H. G. Russell, architect, has awarded contracts for the McClary block as follows: Masonry, Hindson & Davidson; carpentry, C. McBean. The contract for alterations in Dufferin block has been given to the Imperial Building & Plumbing Co.

WINNIPEG, MAN.—The City Council have decided to purchase both fire engines from the Watrous Engine Works Co., of Brantford, Ont.—The tender of R. D. Wood & Co. has been accepted for the supply of cast iron pipe and specials, as follows: 4-in., 6-in., 8-in., 10-in., 12-in. and 14-in. pipe, \$36.40 per ton; 18-in. pipe, \$40.50 per ton; specials, \$83 per ton, and specials with faced flanges, \$82 per ton, f.o.b. Winnipeg.—Dobson & Jackson are the successful tenderers for sewer on McGee street, at \$1,663, and on Beverley street and Sargent ave., at \$3,024.50.—The tender of H. M. Howell for purchase of \$100,000 of debentures has been accepted.

CYLINDER FOUNDATIONS FOR HARBOR PIERS.

Foundation cylinders for a 900-foot extension of the harbor pier at Folkestone, England, were sunk under uncommonly difficult circumstances. The cylinders in the outer row—that nearest the sea—are of steel, 11 feet in external diameter, built up in segments 5 feet deep, with inside flanges for connecting them together. The metal is 9-16 inch thick, and the cutting edge was stiffened by diaphragm plates in the usual way.

The cylinders were all lowered under pneumatic pressure to a depth of 22 feet below low-water line. The material pierced was very rough, being in part rock-

work apron tied in with old rails, and this obstructed from time to time the sinking of the cylinders. In addition to this, the site was exposed to the full force of the southwesterly gales, and special precautions had to be taken by binding the cylinders externally with heavy cross timbers, secured with strong wire ropes, until the cylinders had a good grip into the bed. For the sinking of the cylinders, a temporary inner airtight lining, 7 feet in diameter, was used, being securely bolted to the cutting edge of the permanent cylinder; the annular space between the inside wall of the one and the outer surface of the other was filled with shingle, with cast-iron kentledge on the top. After the cylinder had been sunk to its full depth, a seal of 4 to 1 concrete was made in the bottom, equal to the depth of the cutting edge (5 feet). Due time having elapsed to allow this seal to harden, the bolts connecting the inner tube to the cylinder were removed, and the air-pressure relieved, whereupon the inner tube was raised by the Goliath crane overhead, and the shingle allowed to fall in on the top of the seal, whence it was removed by a grab; and the cylinder was then filled with 6 to 1 concrete. An interesting precautionary measure was meanwhile taken, so that when the air pressure was withdrawn from

the interior, there would be no possibility of water leaking from outside, percolating under the cutting-edge and through the concrete seal, and finally destroying the cement. To obviate this, a hole 4 inches in diameter was made near the top of the permanent cylinder, and was connected by a pipe to the inside of the tube. While sinking operations were in progress, the inner end of this pipe was closed by a plate secured by tap screws. Immediately before the temporary air-cylinder was removed, and the pressure taken off, the screws were removed, enabling water to flow in from the top to counterbalance any flow by percolation under the seal, so that the water-pressure above and below was equalized. The extensive new works at Folkestone were recently fully described and illustrated in "Engineering," London.

C. E. Chantler, brick manufacturer, Penetanguishene, Ont., is advertising his business for sale.

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