

THE DOMINION ESTIMATES.

(Continued from last issue.)

HARBORS AND RIVERS.

NOVA SCOTIA.—Advocate Harbor, wharf, \$1,000; Canada creek breakwater, repairs, \$800; Cheticamp, repairs to wharf, \$1,000; Clark's Harbor, breakwater, etc., \$5,000; Coffin's Island, repairs and extension of beach protection, \$300; Cow Bay breakwater, repairs, \$15,000; Cribbon's Point, repairs to wharf, \$300; Eastern Passage, boat harbor or channel, \$2,000; East Ragged Island, wharf, \$1,500; East Tracadie, reconstruction of breakwater, \$2,000; Englishtown, wharf, \$3,700; Ingonish, North Bay, beach protection works, \$19,500; Iona, wharf, \$5,500; Judique, McKay's Point, new wharf, \$5,000; L'Ardoise, repairs to breakwater, \$1,500; Livingstone Cove, wharf, \$3,000; McNair's Cove, repairs to wharf, \$600; Meteghan river, reconstruction of superstructure, etc., of breakwater, \$4,200; Morden, repairs to wharf, \$1,600; New Harbor, breakwater, \$4,000; Petit de Grat, reconstruction of protection work and dredging, \$500; Pictou Light, beach protection, \$1,400; Port Hood, repairs to wharf, \$700; Port Latour, breakwater, etc., \$3,000; Port Hillford, breakwater, \$8,000; Port Maitland (Yarmouth), repairs to breakwater, \$2,300; River Hebert Village wharf, \$700; St. Ann's North river, wharf at Seymour Point, \$1,400; Sanford or Cranberry Head, breakwater, \$2,600; Swim's Point, wharf, \$200; Tancook Island, repairs to wharf, \$1,500; Upper Port Latour, wharf, \$400; White Point, breakwater repairs and to remove ledge, \$250; Windsor Harbor, shear dams, training dykes and deepening channel, river Avon, \$4,000.

MANITOBA.—General repairs and improvements to harbor, river and bridge works, \$3,000; Lake Manitoba, opening of additional outlets to prevent overflow of lake, \$25,000; wharf on Lake Winnipeg, \$9,000.

BRITISH COLUMBIA.—Columbia river, improvements above Golden, \$4,000; Columbia river, improvements in narrows between Upper and Lower Arrow Lakes, \$25,000; Columbia river, removal of rocks above Revelstoke, \$3,000; Duncan river, improvement, \$3,000; Fraser river, improvement of ship canal, etc., \$25,000; general repairs and improvements to harbor, river and bridge work, \$3,000; Kootenay river, improvement below Fort Steele, \$5,000; Nanaimo Harbor, improvement of south channel, etc., \$10,000; Skeena

river, \$5,000; Williams Head, quarantine station, additional wharf accommodation and improvement of water service, \$4,000.

CANALS.

The votes for canals are as follows:

Soulanges canal, construction, \$334,000; Sault Ste. Marie canal, construction, \$20,000; Lachine canal, enlargement, \$126,000; Lake St. Louis channel, deepening and straightening, \$3,500; Grenville canal, enlargement, \$25,000; Lake St. Francis, Hamilton Island channel, St. Regis channel, \$35,500; Cornwall canal, enlargement, \$70,000; Farran's Point canal, enlargement, \$90,000; Rapide Plat canal, enlargement, \$92,500; Galops canal, enlargement, \$688,400; North channel, deepening and straightening, \$55,000; Galops Rapids, removing obstructions, \$50,000; St. Lawrence river and reaches, river, reaches and canals, \$50,000; Trent canal, construction, \$845,000; Welland canal, deepening entrance at Port Colborne, \$350,000. Lachine canal—rebuilding masonry wall, basin 2, \$10,000; macadamizing road from Cote St. Paul, about 2½ miles, \$2,500. St. Ours lock—new scow for repairs, \$1,600. Beauharnois canal—steel bridge and masonry at St. Timothy, \$4,000. Carillon and Grenville canal—building 4 scows for repairs, \$1,400; rebuilding dry wall near Lock 6, \$3,100. Lake St. Francis—protection on north side, \$12,850; protection on south side, \$6,500. Trent canal—to construct two concrete piers, Rosedale bridge, \$600; to construct guard boom, Fenelon Falls, \$1,000; to construct entrance pier, Lovesick lock, \$1,200; to construct entrance pier, Burleigh lock, \$1,200; to remove rock in Hastings channel, \$2,500; to dredge shoals, Otonabee river, \$3,500; a contribution towards rebuilding bridge over Chemung Lake, \$10,000. Rideau canal—to deepen rock cut at Kilmarnock, \$7,500; to rebuild hull of dredge "Rideau," \$5,000. Cornwall canal—to provide pair gates for each lock 16 and 21, \$9,500. Williamsburg canal—to complete combined gate and stone lifter, \$6,500. Murray canal—to provide floating landing stage, \$2,000. Welland canal—to continue renewal west pier, Port Dalhousie, \$15,000; towards removing docking superstructure at Lock 1, \$15,000; to renew protection works at Allanburg, \$4,100; to renew protection works at Port Colborne lock and four bridges between Port Robinson and Port Colborne, \$5,500; towards renewal entrance piers at Port Colborne, \$20,000.

MUNICIPAL DEPARTMENT

STRENGTH OF WATER PIPE JOINTS.

By the sliding away of earth from the 16 inch water main supplying the city of Vancouver, B. C., with water, a length of pipe 25 feet long was recently left entirely unsupported. This was a riveted pipe of No. 11 gauge steel, having joints 27 feet 6 inches apart, and was not damaged at all. The joints were made in the usual way, with a thimble of No. 8 steel on the inside and a ½ x 5 inch band of tough iron on the outside sufficiently large to allow the lead joint between the band and the thimble. The pipe remained in place for several days, until a new trench was dug. The water was then shut off and the line changed in a few hours. Several years ago the city of Vancouver had an experience with this class of pipe which shows what it can stand. Loggers felled a large fir tree over the main where there was very little covering. Such an accident would have destroyed a cast iron pipe. While the steel main was badly damaged, and threw a fan-shaped stream of water 100 feet into the air, the supply to the city was not interrupted. This leak was stopped by putting on a cast-iron sleeve in two pieces, bolted together, each piece having a 1½ inch hole in it to allow the water to escape while the lead joints at the ends were being made. The repairs were then completed by plugging these holes.

The town of Waterloo, Que., will take over the waterworks system, at a valuation of \$40,000.

It is stated that Mr. Macpherson, town engineer of Galt, Ont., will tender his resignation, to accept a position in Brockville.

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