

Marine Department

Dominion Government Dredge for St. Lawrence Ship Channel.

The Marine and Fisheries Department is having constructed a twin screw, self propelling centre ladder, combined hopper and barge loading dredger for service on the St. Lawrence ship channel below Quebec. The principal dimensions are as follows:

Length between perpendiculars	284 ft.
Length overall	292 ft.
Depth moulded	20½ ft.
Mean draft with hoppers full	16½ ft.
Dredging depth	57 ft.
Angle of bucket ladder	45 degrees
Angle of discharge chute	25 degrees
Capacity of hoppers	30,000 cu. ft.
Dredging capacity per hour	1,500 tons
Speed per hour	10 knots

The vessel, which will be the largest of its kind in Canada, will be capable of dredging and discharging into steam hopper barges on either side, or into its own hopper, 1,500 tons of material an hour when working at a depth of 57 ft.

The propelling and dredging machinery will consist of 2 sets of triple expansion, inverted, direct acting, surface condensing engines, each with one high pressure and one low pressure cylinder, working on three cranks and each driving a line of propelling shafting or dredging gear as required, fitted with steam reversing gear and all necessary accessories. The dimensions are as follows:

H. p. cylinders	17 in. dia.
I. p. cylinders	27 in. dia.
L. p. cylinders	43 in. dia.
Stroke	27 in.
Two independent air pumps	18 in. dia. x 10 in. stroke
Two vertical single direct acting feed pumps, 9½ in. steam cylinder 7 in. water cylinder, 18 in. stroke	7 in. bore
Two independent centrifugal circulating pumps	6 in.
One duplex bilge pump	6 in. stroke
steam cylinder, 6 in. water cylinder, 6 in. stroke	7 in. steam
Two duplex general service pumps	4½ in. water cylinder, 8 in. stroke

Two marine cylindrical horizontal single ended boilers will be installed, working at a pressure of 180 lbs. a sq. in., each having 4 furnaces and of the following dimensions:

Diameter inside	15 ft. 6 in.
Length of ends at top	11 ft. 6 in.
Furnaces inside dia.	3 ft. 6 in.
Tubes outside dia.	3¼ in.

The furnaces will be of the Morison suspension type.

Each boiler will be fitted with a patent temperature balance. All doors on manholes will be of patent design. The usual water gauges, steam gauges, salinometer cocks, scum pans, safety valves and zinc slabs are fitted in each boiler. An ash ejector of the latest type will be fitted and worked in connection with the general service pump.

The dredging machinery will be of the most improved design and construction, the gear in the engine room being fitted with 2 speeds working from either propelling engine. All wheels will be of cast steel with double helical teeth machined on points and edges. All gearing shafts will be of the best forged steel with large bearing surfaces and collars to prevent lateral motion. The tumblers will be of cast steel, the top one having 5 sides and the bottom one 6. Patent protection boxes will be fitted to the bottom tumbler shaft and special oil connections installed. The rollers will be of cast iron, chilled on the outside having forged steel spindles covered by manganese steel sleeves. The bucket backs

will be of cast steel specially designed and constructed. The capacities of the 2 sets will be 30 cu. ft. and 54 cu. ft. for clay and soft material respectively. The shells will be of mild steel and the lips for the smaller bucket will have four teeth. The links will be of forged steel made reversible, and hunting links will be supplied of similar design. The bucket pins will be of forged manganese steel, the heads being square and recessed into side of back. The hoisting gear for the bucket ladder will consist of 2 blocks, each having 5 sheaves 5 ft. in diameter and steel wire rope. Two sets of triple purchase blocks and 6-inch manilla rope falls with all necessary shackles, etc., will be supplied for emergency use. The hoisting engines will be of the vertical double cylinder high pressure type, having cylinders 13 ins. in diameter by 13 ins. dia. by 15 in. stroke geared, to allow for hoisting the ladder at a speed of 10 ft. a minute with steam at 90 lb. pressure. Two powerful mooring winches will be fitted on board, one forward and one aft. These winches will have plain drums for the head and stern wires, and whelped drums for the port and starboard chains arranged to work independently by friction clutches. The hopper space will be divided into 10 divisions each being fitted with a door constructed of white oak, and protected by steel plates, and operated by a heavy winch of the usual hopper door winch design. The lifting gear will consist of chain of heavy scantlings, working over pulleys, fitted on hopper beam and connected to door by eye plates. The hoppers will be fed by two chutes, one forward and one aft, on both sides, each division being filled by the shutting of its directing door which will be of heavy design.

A complete system of electric light will be provided, each room being supplied with the usual fittings and all deck clusters navigating and dredging lights being of the usual requirements. The generating set will be in duplicate, coupled to high speed enclosed forced lubrication compound engines, developing 43 b.h.p. at 50 r.p.m. There will be 2 dynamos, each capable of generating an output of 25 k.w. at 110 volts. The steam steering gear will be in the engine casing and connected to steering column on bridge by chains and controlling rods. The engine will be of the combined hand and steam type. The navigating and dredge masters' bridges will be on main and fore framing respectively, each being fitted out complete with steering column, compass, engine room dredging and winch telegraphs.

The accommodation for officers and men will be very complete, the former being located on the bridge deck, the latter on the lower deck. Each officer will have his own room with the usual fittings in a vessel of this class. The bathrooms, galleys, messrooms, and pantries will be on the bridge deck and all fitted out with due regard to the service intended. The crew will be divided into separate rooms for seamen, firemen, oilers, etc., each room being fitted up with the usual beds, seats, lockers, etc.

A large crane capable of lifting the lower tumbler, or one of the buckets,

will be fitted on the forecastle deck so as to be available for overhauling purposes. A large cold storage room will be fitted up with all necessary fittings for the preservation of supplies.

The hull structure will be in excess of Lloyd's requirements for the 100 A.1 class in which the vessel will be registered, and nothing is being spared to add strength and rigidity to the vessel, to resist the heavy stresses which will be brought to bear on the various members during dredging operations. The vessel will be divided into 14 watertight compartments, each being pumped by a separate steam suction. Protection to the shell will be by 2 large fenders extending round the vessel and having vertical fenders between and chafing posts in way of barge moorings. The sanitary, steam heating and water systems will be complete in all details, each room being supplied with all necessary accommodation. The life saving appliances will be in accordance with the latest rules of the Canadian Steamship Inspection Act, and will include 2 life boats, an anchor boat and a dinghy. The fire service will be complete in all details, with full amounts of hose, buckets, hatches, fire extinguishers, etc.

The dredge, the completion of which has been delayed owing to war conditions was designed by Charles Duguid, naval architect, Marine and Fisheries Department is in an advanced stage of construction at the Canadian Vickers works, Montreal, and is expected to be launched during the autumn so that dredging operations can be commenced in the early spring of 1917.

Shipping Documents and Censorship Delays.

Owing to complaints which have been made as to the delay caused by postal censors in dealing with shipping documents passing through the mails, the Port and Transit Committee, Admiralty House, London, Eng., has issued a notice as follows:—"Difficulties are being caused in arranging the removal of goods from docks, wharves and warehouses, by the late delivery of shipping documents, necessary for customs clearance, sent through the post and therefore passing through the Postal Censors' department. This committee has been in communication with the authorities of the Postal Censors' department, and has arranged, in consultation with them, that if such documents are posted in envelopes distinctly marked as containing shipping documents only, the staff of the Postal Censors' department will endeavor to deal with them with special expedition. Envelopes containing these documents should be clearly marked 'Shipping Documents' by means of a rubber stamp and not by handwriting. Shipping documents are defined to be,—bills of lading with or without drafts, invoices, manifests, parcel receipts and certificates of origin or destination. The enclosure of other correspondence in an envelope so marked is forbidden, and it is essential that this restriction be strictly observed. Any departure from this rule will assuredly cause greater delay."