

Centre-line and Formation-level.

The centre-line is shown by a red line on plan and section, and is midway between the top of the inner and outer slopes.

Formation-level is the level of the top of the concrete floor as shown on sections.

Quarrying

The materials for the mole will be taken from Paretutu, and from the rocks lying to the north-eastward from it. In quarrying only very large blasts will be allowed, so that the rock will be got out in the largest pieces possible, and no stone weighing 25 tons or less which may be quarried shall be broken up into smaller pieces. The largest blocks shall be reserved to form the sea-facing of that portion of the mole above the level of 6ft. below low-water springs, and, unless it is found that more than a sufficiency of large blocks is procurable for this purpose, those that are procured shall be stacked until required. The hearting and inner slope to be of the smaller materials, and the whole of the material quarried is, large and small, to be used up in the work.

Form of Mole.

The mole will be 30ft. wide on top at formation-level the slopes will be such as the material will take under the action of the waves. The drawings show a slope of 5 to 1 for the outer slope, and 2 to 1 for the inner, down to 6ft. below low water. Should the stones be of large size steeper slopes will be practicable, thus decreasing the bottom width.

After the mole has been completed up to the level of the under-side of the concrete floor it shall be left until it has become consolidated by the action of the waves. It shall then be levelled off and all the interstices filled up with rock-spalls and rammed solid, when the concrete will be put on.

Concrete.

A floor of concrete of the full width of top of mole, and of the form shown in section, will bring the work up to formation-level. A parapet of concrete 6ft. high, 6ft. wide at base, and 4ft. wide at top will be placed on the floor of the seaward side of the formation.

The concrete to consist of one part, by measure, of Portland cement of the best quality, two parts of clean, sharp sand, and five parts of broken stone or quarry-chippings. It shall be set in layers not more than 6in. thick, and well rammed. It shall be placed in lengths of not more than 30ft. long, each length to be completed before the next is begun, the parapet to be completed on each length in advance of the flooring.

Railway

A double line of railway shall be laid in the concrete floor in the manner shown in drawing, the rails to weigh 52lb. per lineal yard, and fished at the joints.

Tramways.

The dotted red lines on the general plan indicate the position of two tramways which are to be made for conveying stone from the quarries to the works. The one to Paretutu can be arranged as a self-acting incline, the other will require locomotive-power. They will be 7ft. gauge, with rails not less than 70lb. per lineal yard.

JOHN CARRUTHERS.

 REPORT ON NEW PLYMOUTH HARBOUR WORKS.

SIR,—

I have the honour, under your instructions, to report on the New Plymouth Harbour works, as provided in "The New Plymouth Harbour Board Ordinance 1875 Amendment Act, 1877"

The mode of executing the works is finally defined and determined by the detailed plans and specifications marked P.W.D 6129, and which His Excellency the Governor was advised to approve in a memorandum dated the 21st January, 1878, and which he has approved.

The estimated cost of the works therein specified is £160,000 sterling.

JOHN CARRUTHERS,

The Hon. the Minister for Public Works.

Engineer-in-Chief.

 B.

COPY OF REPORT BY MESSRS. CARRUTHERS AND BLACKETT.

SIR,—

Public Works Office, Wellington, 27th November, 1875.

In accordance with your instructions, we have the honour to submit the following report on the proposed harbour of New Plymouth in connection with the establishment of a central prison for New Zealand:—

Former Reports.—On the 17th May, 1865, Messrs. Balfour and Doyne reported to the Provincial Government of Taranaki on the subject of a harbour for local purposes, and a copy of their report is herewith enclosed. Numerous soundings and measurements were then taken, which work, on inquiry, we found to have been very carefully done, and we have therefore adopted it as the basis of our report. Before, however, work is actually commenced, we should recommend a resurvey, as a means of insuring complete accuracy. A tracing showing the soundings and the position of the several works described is herewith enclosed.

Messrs. Balfour and Doyne have reported on two sites—one at the Sugarloaves, and the other in front of the town, near the present landing-place.

Sugarloaf Site.—This, the first of these sites, is not recommended by them, and in this conclusion we agree, as the sheltered area enclosed by the works would consist almost entirely of shallow