

The following table shows the acreage of sheltered water, and the lengths of the quayage which would be afforded by this design :—

AREAS within the Harbour

| At Low-water Spring-tides. | One Fathom and Upwards at Low Water. | Two Fathoms and Upwards at Low Water. | Three fathoms and Upwards at Low Water. |
|----------------------------|--------------------------------------|---------------------------------------|-----------------------------------------|
| 50 acres.                  | 30 acres.                            | 18½ acres.                            | 1¾ acres.                               |

|                               |          |
|-------------------------------|----------|
| Berthage—                     | Lin. ft. |
| West pier jetty, both sides   | 540      |
| inner face, H to K            | 1,560    |
| East pier, inner face, N to M | 700      |
| Total berthage                | 2,800    |

*Estimates.*—I estimate the cost of the works above described as follows

|                                                                                                                                                                                                                 |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Design A—                                                                                                                                                                                                       | £       |
| 1. The breakwater complete to XX on drawing No. 2, being 1,920ft. from the starting-point, and a jetty of cribwork and rubble-stone, on the line of No. 3, including approach-road and self-acting incline, &c. | 197,240 |
| 2. The breakwater complete to YY on drawing No. 2, being 2,220ft. from the starting-point, and a jetty of cribwork and rubble-stone on the line of No. 2, including approach-road, incline, &c.                 | 237,960 |
| 3. The breakwater complete from A to B, with a jetty of open timber framing and piling on the line of No. 2, including approach-road, incline, &c.                                                              | 284,230 |
| 4. The breakwater complete from A to B on drawing No. 2, including approach-road, incline from quarry, &c.                                                                                                      | 267,800 |
| 5. Jetty No. 1, constructed of cribwork filled with rubble-stone, including formation of masonry, abutment, &c.,                                                                                                | 34,500  |
| 6. Jetty No. 2 of open timber framing and piling, including formation of masonry, abutment, &c.                                                                                                                 | 16,430  |

|                                                                                                       |         |
|-------------------------------------------------------------------------------------------------------|---------|
| Design B—                                                                                             |         |
| West pier complete from G to J on drawing No. 2, with jetty of masonry, incline road from quarry, &c. | 295,400 |

*Extensions*—

|                                                              |         |
|--------------------------------------------------------------|---------|
| Design A—                                                    |         |
| Extension of west mole from B to C                           | 182,300 |
| East breakwater pier from D to F, and approach-road complete | 427,700 |

|                                                                                                |         |
|------------------------------------------------------------------------------------------------|---------|
| Design B—                                                                                      |         |
| Extension of west pier from J to K, and formation of east pier from L to N, with approach-road | 211,700 |

The above estimates include a fair allowance for contingencies and supervision, also of permanent railways of 3ft. 6in. gauge, and are based upon the assumption that the works are executed by free labour in each case.

*Mode of Procedure recommended.*—The point now to be determined is which of the two western works—viz., that of design A or of design B—should be adopted. I think there can be no doubt that the balance of advantage is in favour of design A, coloured red on the drawings. Not only would this design afford a greater area of shelter in deeper water than design B, but the mode of construction proposed would be better adapted for the utilisation of convict labour than the masonry pier and jetty contemplated in the latter design. Moreover, without desiring to lay undue stress upon the importance of providing for future extensions, it will be evident that design A is incomparably superior to B in respect of the scope which it offers for future development.

The alternative modes of procedure are as follow. If the amount which can be raised for the purposes of the works will not exceed £200,000, and convict labour will not be available, then the execution of the west mole to the point XX on Drawing No. 2, together with the construction of a jetty of cribwork filled with rubble-stone, might be undertaken in accordance with estimate No. 1.

The employment of convicts will cheapen construction, although it is impossible now to determine to what extent, seeing that the number of convicts, and the degree to which the works would be debited on their account, cannot be stated. Much also would depend upon the length of the sentences of the men, long-sentenced convicts, by reason of the experience they gain upon the works, being far more useful than men who are imprisoned for short periods. With regard to the terms upon which convict labour is usually obtained on colonial works, I may remark that I am at present engaged in carrying out marine works where convict labour is largely employed, the works being debited only with the cost of the barracks, and with such special overseers as may be required. In these cases a slight gratuity, termed “exertion money,” is given to the convicts as a reward for extra work. If convict labour can be had at New Plymouth upon this basis the cost of the work will