

The approximate estimated cost of the provisional works is therefore as follows:—

Western pier—				£	£
To 300 lineal feet of pier, A to B	...	...	...	12,375	
To 300 " " B to C	...	...	...	7,575	
To 600 " of wharf-walling, C to D	...	...	...	3,150	
To 200 " " B to N	...	...	...	600	
					23,700
Eastern pier—					
To 300 lineal feet of pier, E to F	...	...	...	12,240	
To 400 " " F to G	...	...	...	11,760	
To 300 " of wharf-walling, G to H	...	...	...	6,750	
To 300 " " H to I	...	...	...	3,375	
To 800 " of reclaiming-wall, I to J	...	...	...	2,400	
					36,525
North shore and creek-walls—					
To 1,100ft. of walling, K to L	...	...	...	2,200	
To 400ft. " K to M	...	...	...	900	
					3,100
					£63,325
To contingencies, 10 per cent. on £63,325	...	...	...		6,332
Total cost of provisional works				£69,657	

It will therefore be seen that the total estimated cost approximately of the whole work when completed will amount to £88,093; but it will not be necessary in the first instance to expend more than what will carry out the works provisionally, which will amount to £69,657, as already shown, and which would not occupy more than two years to complete in order to secure a permanent open channel of at least 24ft. in depth at high water and 18ft. at low water. I may add that the estimate is a liberal one; and I have every reason to believe that, in the event of the works herein recommended being required to be carried out, that a closer study of the subject would enable me to modify many portions of the design by which a considerable reduction in the estimate could be effected.

LAKE FORSYTH.

As several projects have from time to time been proposed for draining Lake Ellesmere besides that at Taumutu, the only one appearing at all worthy of notice is that through Lake Forsyth, by means of a canal connecting the two lakes and opening the mouth of the latter. I have been at some pains to investigate the cost of this scheme, together with its merits and prospective value, as may be seen by the plan (Drawing No. 5), which has been carefully prepared for the purpose.

The works I have to recommend for opening the mouth of Lake Forsyth, as shown in pink colour on the plan above named, consist of two piers projecting from inside the estuary through the shingle-bank and into deep water some 150ft. and 100ft. respectively beyond low-water line on the beach.

The western pier is carried the furthest to seaward, as is also the case at Taumutu, as some protection to the entrance against the south-west gales, which are the heaviest. It is divided into four sections, from A to E, including the walls within the estuary.

The eastern pier is divided into two sections, G to I, and the distance between the pier-heads is 350ft.

Both piers and the walls in connection with them have been laid out, after mature study of the configuration of the locality, in the best manner adapted to secure a permanent and deep channel-entrance, as also with reference to vessels making and leaving the channel in all states of the wind. I was unable to take soundings to seaward outside the shingle-bank, but I have every reason to believe that the water is of great depth close in shore.

The depth of water inside the estuary, as shown upon the plan, indicates a very deep channel, as much as 23ft. to 25ft. at high water of sea-level throughout the greater part of a mile in mid-channel from the mouth, which is perfectly sheltered from all winds.

The facility for carrying out works of the character herein proposed—viz., *pierres perdues*—is very great, having the best of rock stone for the purpose ready in inexhaustible quantity on the ground, and also timber close at hand. Hence the very moderate cost of the work, as shown in the following approximate estimate:—

For provisional works only,—

Western pier—				£	s.	d.	£	s.	d.
To 460 lineal feet of pier, A to B	...	...	...	14,820	0	0			
To 280 " B to C	...	...	...	2,688	0	0			
To 120 " C to D	...	...	...	1,200	0	0			
To 750 " D to E	...	...	...	3,700	0	0			
Eastern pier—							22,408	0	0
To 800 lineal feet of pier, G to H	...	...	...	19,200	0	0			
To 120 " H to I	...	...	...	1,820	0	0			
							21,020	0	0
							43,428	0	0
To contingencies, 10 per cent. on £43,428	...	...	...				4,342	16	0
Total cost of provisional works				£47,770	16	0			