

The portion of the Sand-spit above water is entirely composed of loose fine sand, which has formed into a number of hills, the highest of which is about eighty feet above high water mark. The small plateaus of level ground at the foot of these sand hills are, in some places, two or three feet above the water level; and in others as much below it. The sand hills are constantly shifting their position, and some of them bear a low straggling scrub. During the strong winds the sand is borne to seaward in dense clouds. Bushend Point is the last of these sand hills, the general elevations of which are about ten feet above high water. The test shafts which were sunk showed nothing but fine sand, but no great depth was arrived at, as they were soon flooded with water; but I believe that had it been possible to continue the sinkings, the same sort of sand would have been found to a great depth.

On account of the peculiar nature of the sand hills which compose the Farewell Spit, I am of opinion that it is impossible to establish a lighthouse on any part of the spit which is at all elevated above high water mark. The permanency of the high sand is not to be depended on for a single day. The nearest point where any elevation could be obtained is on Cape Farewell, where the land is very high. If a light were established there it would serve chiefly as a mark for making Cook's Strait, on account of the great range it would have. I do not believe that any iron tower would be required, but only a good stone foundation to carry the lantern. The light should be white, of the first order, revolving, to distinguish it from the neighbouring Mana and Nelson lights. The prime cost would be about six thousand pounds.

I also directed my attention to the practicability of establishing a lightship off Spitend; and I consider that this would be the best and most efficient means of protecting shipping from the dangers of the Sandspit. There is excellent holding ground and good shelter for a lightship to ride in security just inside Spitend. A double white light would be required, as it might be mistaken for Nelson or Mana light, and a sufficient elevation could be obtained to make the light visible from a ship's deck at a distance of twelve miles.

The light could be established in a comparatively short time, as the ship might be built in the Colony, and the light apparatus can be obtained from Sydney.

I believe the entire prime cost of such a lightship would not exceed four thousand pounds, and the yearly expense of maintenance would be about the same as of a first-class lighthouse.

I have, &c.,

The President, Marine Board, Wellington.

R. AYLMEY, C.E.

### No. 3.

COPY of a Letter from Mr. G. ELLIOTT ELLIOTT to Mr. R. AYLMEY.

SIR,—

General Post Office, Wellington, 19th January, 1866.

With reference to your Report upon the proposed light at Cape Farewell, dated 28th December last, forwarded to this department by the Marine Board, I am directed to inform you that the Government is not prepared to sanction at present the establishment of a lightship at Cape Farewell without further information, as it is considered that it would be attended with great risk and expense.

Be good enough to state in what manner a lighthouse could be best constructed at Bushend, in the event of the Government deciding to erect one there.

I have, &c.,

R. Aylmer, Esq., Auckland.

G. ELLIOTT ELLIOTT,  
Secretary.

### No. 4.

COPY of a Letter from Mr. C. AYLMEY to the Hon. the POSTMASTER-GENERAL.

SIR,—

Marine Board Office, Auckland, 1st March, 1866.

I have the honor to acknowledge the receipt of your letter (H.-66-6), informing me that my Report upon the Cape Farewell Sand-spit had been received, and directing me to state in what manner I consider a lighthouse could be best constructed at Bushend.

I presume that at present the general principles only of the plan I would recommend are required, therefore I shall not now enter into details.

Taking into consideration the very peculiar nature of the Sand-spit (as fully described in my first Report), I am of opinion that the foundations should be either cast or wrought iron screw piles—the former would, perhaps, be preferable—which should be screwed into the sand to a depth of not less than twenty-five or thirty feet. These piles to be of the ordinary description, but having very broad screw heads, in order that the weight of the superstructure may be spread over as great an area as possible. On the top of these piles should be firmly bolted an entablature of cast iron segments or beams, fitted with planed fitting strips, key-ways, and bolt holes, for securing the first tier of tower plates. The tower to be, say, sixty feet high, fifteen feet six inches diameter at the base, tapering to ten feet six inches at the top, and to be of cast iron flanged plates, bolted together with planed joints caulked with rust. The total height from the ground to the vane would be about ninety-two feet. All the internal fittings, such as floor girders, stairs, floor plates, and the outer balcony to be of wrought iron, and as light as possible. The entrance door of the tower should be on the second floor, approached by a ladder; the first or ground floor to be used as a store.

The lantern to be of the most approved modern construction, the astrigals and horizontal pieces to be of gun-metal, the former to be fixed diagonally, and the whole roofed with sheet copper outside and wrought iron inside. The light apparatus to be dioptric, revolving, of the second order.