Archives I—10,006—16-8 77.

(1) Number of pages 100

(2) Date of repair April 87.

(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W.D. DEPARTMENT

G.O. No. B.P. No.	1805.W.	Press. Mis.
Dated	15.7.1882	197 .

Not to be folded or roughly handled

1805/1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read the following papers :—

No. 101. From the Consulting Engineer for Railways, dated 15th June 1882.

Note by the Deputy Consulting Engineer for Railways.

Beypore Erosion.

At the request of the Agent of the Madras Railway Company, I inspected on Saturday, the 9th, the protective works along the foreshore at Beypore.

2. The Railway Company's Engineers attribute the erosion now going on to the sea wall connecting the mainland with the island ; principally, as I understand, because, up to the time of the construction of this wall, no erosion has been recorded.

3. As far as I have seen the records, I think there is reason to doubt whether this is the case ; but setting this aside, as well as the absence of all evidence that during the last ten years any great volume of the river has passed between the island and the mainland, there stands the fact that at this moment erosion is proceeding at a part of the coast two miles or more to the south of the sea wall, and far beyond the reach of its influence or of that of the river.

4. I have myself in bygone years walked along the ~~same spot~~ sand spit connecting the island with the shore, and I did not gather from Mr. Wilkinson that he had at any time seen the whole or any large proportion of the river passing between the island and the mainland ; but that, in his time, it was generally breached in bad weather, and a considerable body of water passed through.

At the time of my inspection, the difference of level of water north and south of the groyne was not more than a few inches, and small rollers broke through the unfinished portion in each direction.

5. The delay in commencing the groyne sanctioned in No. 708 W., dated 17th March 1882, would have proved fatal to the Railway Company's staff quarters, had not the Company's Engineers constructed a sand bag and timber groyne. This had the required effect ; and now that it has been wrecked by the waves, the permanent groyne of stone will maintain the foreshore thus saved.

6. The erosion to the south of this groyne meanwhile proceeds, and I have authorised the Chief Engineer to protect the coast as far as necessary by further groynes, as there is every probability of the line itself being attacked.

7. The success of the groynes hitherto built affords good reason to conclude that the others will be effective in arresting the erosion. It is greatly to be regretted that a work sanctioned with a view to completion by the 15th May should have only recently been commenced.

The Railway Company did not own the foreshore, and the Local Fund Board declined to protect it. The Government in the Public Works Department undertook the protection, and failed to commence it.

The Railway Company have therefore been obliged to spend over 1,000 rupees in temporary work; and now have to carry out what, had they been allowed to do it, they would have finished in time to save their property.

Madras,
13th June 1882.

(Signed) C. J. SMITH, Lieut.-Col., R.E.,
Dy. Consulting Engineer for Railways.

Copy of above Note forwarded to the Chief Engineer, Public Works Department, for consideration, with advertence to Proceedings of Government, dated 17th March 1882, No. 708 W.

2. From long acquaintance with the locality, I am of opinion that the existence of the causeway connecting the rocky islets with the shore has no connection with the erosion to the south, which has threatened the Madras Railway Company's property.

3. As the Company did not own the foreshore, they were not able to take any measures for the protection of their property until the sea had actually made inroads on to it.

4. Lieutenant-Colonel Smith now states that there is every probability of the *line of Railway* being attacked by the sea. The matter is urgent, and appears to call for concerted action between the Public Works Department and the Railway Officials.

15th June 1882.

(Signed) J. SHAW-STEWART, Colonel, R.E.,
Consulting Engineer for Railways.

No. 101-A. From the Consulting Engineer for Railways, dated Madras, 21st June 1882.

From the Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 20th June 1882, No. 434.

I have the honor to forward, herewith, copy of a letter, No. R. 201/457, dated the 16th instant, which I have received from the Acting Chief Engineer as to the remedial measures which he considers necessary to check the encroachment of the sea along the coast at Beypore; and in submitting herewith an approximate estimate, I have the honor to recommend that immediate sanction may be accorded thereto, and that the Acting Chief Engineer be authorized to proceed with the work forthwith at an outlay of Rs. 5,540.

ENCLOSURES.

From H. R. P. CARTER, Esq., Acting Chief Engineer, to the Agent and Manager, Madras Railway Company, dated Madras, 16th June 1882, No. R. 201/457.

Encroachment of the Sea at Beypore.

After due consideration I am of opinion that we should no longer postpone the remedial measures necessary to check the encroachment of the sea along the coast at Beypore from 405/10 to 405/20 telegraph posts, as the sea is now within 200 feet of the Railway, and any sudden erosion confined to one spot would endanger its safety.

I propose to construct at once ten small groynes 50 feet long at intervals of 250 feet, commencing south of the Government groyne now in progress, and if these fail to arrest the action of the sea I intend to fill up the intervening spaces with a breast-wall so as to form one continuous line of protection; but this latter scheme will not be carried out until the action of the groynes are first ascertained.

Accordingly I enclose an approximate estimate for Rs. 5,540, and shall feel obliged if you will obtain immediate sanction for this expenditure and further authorise me to proceed with the work forthwith.

Telegram from the Consulting Engineer for Railways, to the Agent and Manager, Madras Railway Company, dated 19th June 1882.

Erosion near Beypore. Public Works Department cannot provide special staff immediately to supervise necessary works. Can Madras Railway undertake to devise and execute measures necessary for protection of their property, leaving incidence of cost to be determined hereafter? Wire reply soon.

Telegram from the Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated 20th June 1882.

Beypore Erosion. Your telegram. Am forwarding to-day estimate Rs. 5,540 for sanction construct ten groynes on Beypore beach to protect our property. We can undertake work if sanction is accorded.

To the Consulting Engineer for Railways for information.

20th June 1882.

Submitted for the sanction of Government.

2. The coast line at and near Beypore was recently inspected by the Deputy Consulting Engineer, and that officer is of opinion with the Officiating Chief Engineer of the Madras Railway, that unless protection by groynes is at once supplied, the line will be endangered in the event of there being further heavy weather.

3. Under these circumstances the commencement of the work has been authorised.

Letter from the Superintending Engineer, Fourth Circle, dated 3rd July 1882, No. 251.

Notes of Inspection by the Superintending Engineer, Fourth Circle, dated 3rd July 1882, No. 252.

No. 102.

ORDER—dated 15th July 1882, No. 1805 W., Public Works.

The cost of the construction of groynes now being carried out by the Madras Railway Engineers to protect the beach at Beypore will be charged to advances by the Company pending a decision as to the incidence of the outlay, regarding which the Superintending Engineer will report further after communication with the Railway authorities and the Master Attendant, Madras.

2. As to the utility of the work, a further report will be awaited after inspection of the locality and consultation by the Consulting Engineer for Railways, the Superintending Engineer, and the Chief Engineer of the Madras Railway.

3. The execution of the work sanctioned in G.O., No. 708 W., dated 17th March 1882, has been reprehensibly delayed, and for this Major Fraser seems to be principally responsible. A copy of these orders will be communicated to that officer by the Superintending Engineer, Sixth Circle.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Fourth Circle.
" " " Sixth Circle.
" Consulting Engineer for Railways, }
" Examiner of Railway Accounts, } with extract paragraphs 1 and 2.
" Master Attendant, Madras, }
" Marine Department, }

Exd. A. F. Goodall.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS. V.

Govt. of {1882} Madras.

PUBLIC WORKS.

Dated July, 15th.

Recd. *Encl.*

G.O., 15th July 1882, No. 1805 W.

JULY.
Nos. 101-102.

Beach at Beypore.

Construction of groynes to protect the —

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

1805/3

26th November 1880, No. 2,722 W.

Buildings and Roads.
Civil Works.

Read the following papers:—

No. 123. Endorsement of the Chief Secretary to Government, Marine Department, dated Ootacamund, 23rd June 1880, No. 1,288.

From J. H. TAYLOR, Esq., Lieutenant, R.N.R., Master Attendant, Administrative Department, to the Chief Secretary to Government, Marine Department, dated Madras, 16th June 1880, No. 4,956.

I HAVE the honor to report that an encroachment of the sea has occurred at Beypore, that a portion of the roadway near the Marine Office and Flagstaff has been washed away, and that the compound walls are threatened. The President of the District Local Fund Board proposes the construction of two groynes, 20 yards in length, opposite the site of the abrasion, and he further suggests that a moiety of the expenses should be borne by the Port Fund, as the work is equally indispensable for the safety of the flagstaff as for the preservation of the roadway. While, however, concurring with him in this view, I beg to represent that the prevention of any further encroachment at this spot, and the preservation of the coast line, would appear quite as advantageous to the Madras Railway Company's interests as to this Department, as their property abuts on to the Marine Office compound, and as will be seen by the accompanying rough sketch by the Port Officer, Calicut, is apparently in greater jeopardy than the former.

2. In these circumstances, I herewith submit an estimate and specification of the work amounting to Rs. (843) eight hundred and forty-three for sanction of His Grace the Governor in Council, and will leave it to the Government to decide whether or not the Railway Company should participate in the expenditure about to be incurred. In either case a moiety or one-third of the amount of the estimate will have to be borne by the General Port Fund.

FORWARDED to the Chief Engineer for his opinion on the groynes proposed.

(Signed) R. DAVIDSON,
Chief Secretary.

To the Chief Engineer, Public Works Department.

No. 123-A. Endorsement of the Superintending Engineer, Second Circle, dated Erode, 15th September 1880, No. 279.

From Major J. L. L. MORANT, R.E., Executive Engineer, West Coast Division, to the Superintending Engineer, Second Circle, Coimbatore, dated Calicut, 17th July 1880, No. 113.

IN reply to your endorsement No. 620 W.C, dated 28th June 1880, on memorandum No. 194, dated 25th idem, from the Chief Engineer, with its three enclosures herewith returned, regarding the encroachment of the sea at Beypore and the proposals for its prevention, I have the honor to report that, in my humble opinion, the sea encroachment has been somewhat exaggerated, and that the proposed remedies are likely to prove mischievous to a portion of the harbour and inutile in protecting the Local Fund road and compound walls, &c.

2. Groynes similar to those now estimated for and advocated by the Local Fund Engineer were constructed just at the spot where the recent encroachment has occurred a year or two years ago. The effect of these was to silt up the whole of the

shore on which the Prince of Wales' Jetty was erected, rendering it quite useless as a jetty. At the end of June 1880 one of these groynes (built last year) was washed away with the immediate effect of carrying away some of the sand around the jetty. The adjoining sketch explains.

The red figures being the breadths of sand around the jetty in May and the black figures those in June. Thus—

in *May* the breadths were		In *June* the breadths were	
200	feet.	64	feet.
80	,,	38	,,
50	,,	7	,,
60	,,	19	,,
90	,,	27	,,
250	,,	124	,,

When the jetty was built, some four or six years ago, the water around it (where now there is dry land) was 10 feet deep.

It is thus clear (by the groyne built only last year being washed away and by the above figures and facts) that the groyne system is not only defective in the purpose it is immediately intended to serve, but that it also is injurious to the harbour in causing a portion of it to silt up.

3. I beg further to remark that the Local Fund Engineer has collected stone for the two groynes estimated for, and is, I presume, about to build them. I venture to point out that it seems to me objectionable for the Local Fund Engineer to start a work of this nature without the prior sanction of Government. It is not a question where the only safety of a local road is concerned, but also where Imperial interests are involved, and in protecting his road he is injuring a harbour.

4. The best remedy, in my humble opinion, is to drive 10 feet piles along and parallel to the road side, backed by a wall of rubble stone. This was done by a former Government Engineer near the same spot and appears to have succeeded. This plan would preserve the road and not injure the harbour.

5. The survey of this part of the harbour is ready and only requires plotting, inking in and printing.

From Major J. L. L. MORANT, R.E., Executive Engineer, West Coast Division, to the Superintending Engineer, Second Circle, dated Calicut, 31st August 1880, No. 262.

I HAVE the honor to address you with reference to your memorandum No. 758 W.C., dated the 27th July 1880, regarding the Beypore harbour beach.

2. I beg to submit, as required, a plan* and sheet of sections* of the south portion of the Beypore Harbour, showing the nature and extent of the encroachment of the sea in last May which has given rise to this correspondence.

* By banghy parcel.

3. In order that the subject may be better understood, I beg briefly to indicate what has transpired during the last ten years in connection with the Beypore Harbour.

In February 1871 Mr. George Robertson inspected the Beypore Harbour, and reported that "outside the harbour mouth. and to the south of it there is a reef of laterite rocks connected with the shore by an isthmus of sand. It is very likely this reef extends underneath the sand of the bar. The reef with its isthmus acts as a groyne and confines on one side the ebb and flow through the entrance. The isthmus has often been cut through by the fishermen, and a channel made by which their boats could get out to sea in certain winds without having to pass through the surf on the bar. Whenever it is so cut a diminution in the depth of water on the bar is noticed, so Captain Gillham has very properly stopped the practice. It would be well to have the isthmus heightened, its level is so nearly that of high water that a channel can be cut in a few hours. A bad sea coming on when the channel is open would enlarge it to such an extent as seriously to injure the depth on the bar."

4. In March 1873 the Master Attendant, Madras, urged on Government the advisability of connecting the rocky islet on the south of the harbour entrance with the mainland. By this means he believed the water on the harbour bar would be deepened. The Collector of Malabar, to whom this opinion was referred, agreed, on the 21st of May 1873, with the Master Attendant's suggestion and in its probable effect on the bar. The Government of Madras, therefore, in their Marine Department Order No. 207, dated 8th August 1873, desired the Public Works Department "to prepare a plan and estimate for connecting the rocky islet at the mouth of the Beypore river with the mainland, in view to deepening the river entrance by increased scour."

1805/4

5. On the 11th of April 1874 a plan, section, and an estimate of Rs. 3,740 were submitted to Government with the above object by the Inspecting Engineer for Ports and Communications. This was subjected to a criticism by the then Chief Engineer, who suggested another method of connecting the islet with the shore, to cost at first Rs. 900 and subsequently Rs. 2,500. This estimate was sanctioned in Marine Department G.O., No. 159, dated 13th May 1874, and Rs. 900 allotted for the smaller portion of the work in Public Works G.O., No. 173, dated 16th June 1874. This amount was increased to Rs. 1,600 in April 1875, and subsequently in December 1875 Rs. 1,070 more were expended, making a total of Rs. 2,670.

6. Since the construction of this so-called "sea wall" it has been three times repaired. But no records exist nor have any soundings at any time been made, to show whether it has in any way answered the purpose for which it was built, viz., "to deepen the river entrance by increased scour." While much attention and criticism were bestowed on the wall itself, nothing was done to ascertain whether the object to obtain which the work was constructed resulted therefrom. It is impossible now to decide this point, as levels should have been taken across the wall before the sea-wall was built. I now send you one estimate for putting it into thorough repair amounting to Rs. 315; and another for strengthening it by some additions as indicated in my letter No. 322, dated 24th February 1880; this latter estimate amounts to Rs. 795.

7. With regard to the encroachments by the sea, as complained of in the papers sent with memorandum No. 194, dated 25th June 1880, from the Chief Engineer, and reported on in my letter to your address No. 113, dated 17th July 1880, I have the honor to invite your inspection of the accompanying plan, on which the encroachment is shown. The sections have been made in order to exhibit the levels of the adjoining ground, so that the effects of a breach of the coast road by the sea or of a high tide might be at once apparent.

8. The cost of the proposal made in paragraph 4 of my last letter to your address on the subject will be about Rs. 3 per running foot. About 600 running feet will have to be thus protected at a cost of about Rs. 2,000. The portion to be protected is where the encroachment took place in May last between the red figures 9 and 12.

9. This letter has been delayed owing to the Survey mentioned at the conclusion of my last letter having been found to be incorrect. The Sub-Divisional Officer has been engaged in making a fresh one.

Two copies of letters from Executive Engineer.
One original letter from Master Attendant with estimate and sketch.
Two plans by banghy.

COPY of letter No. 262, dated 31st August, and No. 113, dated 17th July 1880, from the Executive Engineer, West Coast, are forwarded to the Chief Engineer with reference to his endorsement No. 194, dated 25th June 1880.

The Survey shows the extent of the encroachment, and the undersigned does not consider it advisable for anything to be done at present as most probably the sea will in a few months throw up again what it has removed.

2. Further, it is considered that the Local Fund Board should bear all expenses in protecting their road, should protection be found necessary, but they ought not to be allowed to throw out groynes further than 50 feet west of the road, as it is believed that long groynes might be disadvantageous to the harbour.

3. The sea-wall connecting the laterite reef with the mainland which was constructed in 1875 ought to be maintained, and the Superintending Engineer agrees with Major Morant that it ought to be repaired and that two additional groynes should be built, the cost of the first is estimated at Rs. 315 that of the latter at Rs. 795. He requests therefore that Rs. 1,110 may be granted for these works.

(Signed) H. R. MEAD, Major, R.E.,
Superintending Engineer, Second Circle.

No. 123-B. From J. H. TAYLOR, Esq., Lieutenant, R.N.R., Master Attendant, Administrative Department, to the Chief Engineer, Public Works Department, dated Madras, 15th November 1880, No. 10,106.

Letter from the Superintending Engineer, Second Circle, No. 279, dated 15th September 1880.
Plan and sheet Sections of Beypore Harbour.

IN returning the correspondence and plans marginally noted, I have the honor to remark that there appears to be no immediate danger of any further erosion at Beypore, and to suggest that, as I hope to visit the Western Coast in January with you, and personally inspect the situation, the proposals of Major Morant could then be considered.

2. I imagine that, owing to a prevalence of northerly winds, there has been a scour from the groynes southward, at the same time as the monsoon has been comparatively scant there has been no scour from the river to carry away the sand accumulated in the vicinity of the jetty.

3. I have noted in blacklead pencil the line of coast, as nearly as I can remember, as it was in 1876.

4. I regret to say no systematic record of soundings on the bar has been made, but I have instructed the Port Officer of Calicut to take soundings at intervals of a month during the fine weather season.

No. 124. ORDER THEREON, 26th November 1880, No. 2,722 W.

THE measures to be adopted in connection with the encroachment of the sea at Beypore will be considered by the Chief Engineer and Master Attendant after personal inspection of the locality in January next.

2. Meanwhile the Port Officer will take careful observations at regular intervals, and report any extraordinary changes that may occur.

3. The Local Fund Board should be informed that their action must be confined to the work indicated by Major Morant as required for the protection of the road.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer, Public Works Department.
" Superintending Engineer, Second Circle.
" Marine Department.
" Financial Department.

Exd. S. T. Austin.
Spare Copies

1805/6

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of [1880] Madras.

PUBLIC WORKS.

To

THE CHIEF ENGINEER,
PUBLIC WORKS DEPARTMENT,
&c., &c., &c.

Dated November, 26th.

Issued

Recd. *Encl.*

G. O., 26th *November* 1880, *No.* 2,722 W.

NOVEMBER.

Nos. 123-124.

Encroachment of the sea at Beypore.—Intimating that the measures to be adopted in connection with the — will be considered after the inspection of the locality by the Chief Engineer and the Master Attendant.

1808/6

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

30th March 1882, No. 210 R.

Railway.

Read the following paper :—

No. 60. From the Consulting Engineer for Railways, dated Madras, 22nd March 1882, No. 8

Inspection Report on the Madras Railway for the half year ended 31st December 1881.

THE permanent way is maintained at the usual high standard, and the line is fully ballasted. The stone drains inserted in the old bank between 37/8 and 38/8 miles, as well as those in the new bank of double line between Chinnammápet and Arkónam, appear to act satisfactorily, and to have improved the condition of the banks.

2. The length of the catch-siding at Vellore has been increased from 100 to 200 feet, and the gradient steepened. It acted satisfactorily in the experimental case of a wagon run at 20 miles an hour.

3. The substitution of iron for wooden sleepers between Pálghat and Beypore is almost completed as regards the main line, but the work has still to be carried out in some of the station-yards.

4. The creosoted pine-sleepers on the Wálayár Ghát are failing rapidly, and it is, I think, desirable to make renewals with iron bowls. At present prices the latter cost only about 25 per cent. more than pine-sleepers.

5. The condition of the bridges, with the exceptions noted in former reports, is satisfactory.

6. The laying of new permanent-way on bridges progresses steadily, and is almost completed on the first and second divisions, North-west Line. The work is of doubtful necessity, and there appears to be no object in proceeding with it more rapidly than at present; but the large stock of material on hand goes to increase the stores balances, which have lately been the subject of a reference from the Government of India.

7. Arrangements have been made for the erection of the new girders for the Cauvery bridge, and the work will soon be commenced. Advantage is being taken to slightly raise the level of this bridge, in order to provide a short length of level line on each side. At present an ascending gradient commences at each abutment.

8. The flanges of some of the girders of smaller span are being strengthened in accordance with Sir John Hawkshaw's design. The result, as regards deflection, is said to be satisfactory.

9. The rough-stone floorings to the Pálár, Poiney, and Gudiyátam bridges are in progress. The design does not appear to be the best that can be adopted, and the Acting Chief Engineer undertook to reconsider it.

10. A commencement has been made in fixing the bracings for cylinders in the Cheyér bridge, but the work will occupy some time. The flooring of this bridge is also in progress.

1805/7

11. The station buildings are in good order, and the sanitary arrangements are generally satisfactory. The comfort of stations has been increased by planting trees, and their appearance has been improved by the gardens on platforms. The new station buildings at Kámasamudram and Súlúr are completed; but the works at Bangalore Pettah are in abeyance, pending the revision of estimate ordered by the Government of India.

12. The new running bungalows for drivers at Jalárpet, Tirupati, Gooty, and Raichúr are almost completed. Additional accommodation is still required at some stations; at Tirupati and Gooty the temporary bungalows built during the famine are still in use, and the cost of maintaining them is considerable.

13. The water-supply is short at Bangalore, Guntakal, and Raichúr, owing to an unusually dry season. In some cases the water level is lower than in the corresponding month of 1877. Pressure is most likely to be felt at Raichúr; and it appears desirable to establish permanent watering arrangements at the Tungabhadra river, which is the nearest source of unfailing supply.

14. The erosion of beach at Beypore still continues, and a small portion of the Railway Company's land has been cut away, in addition to the public road outside their boundary. At present this road is impassable, and people going to and from the ferry use the old road through the Company's property. This passes near the goods shed, and its use is undesirable on general grounds. It is not known if the Public Works Department propose to take steps to reclaim the land and restore the road; but unless this is done the Railway Company will have to throw out a few small groynes for the protection of their property.

10th March 1882. (Signed) W. H. COAKER, Captain, R.E.,
Deputy Consulting Engineer for Railways.

SUBMITTED for the information of Government.

2. The suggestion made in paragraph 4 will be brought to the notice of the Agent.

3. With respect to the suggestion made in paragraph 13, it is understood that a similar proposal will probably be brought forward by the Railway officials.

No. 61. ORDER THEREON, 30th March 1882, No. 210 R.

RECORDED.

2. Proposals for protecting the shore at Beypore were sanctioned in Proceedings No. 708 W., dated 17th March 1882.

(True Extract.)

(Signed) J. SHAW-STEWART, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.

Exd. S. T. Austin.
Spare Copies

RAILWAY.

Govt. of (1882) Madras.

PUBLIC WORKS.

To

THE CONSULTING ENGINEER
FOR RAILWAYS.

Dated March, 30th.

Issued

Recd. *Encl.*

G.O., 30th March 1882, No. 210 R.

MARCH.

Nos. 60-61.

Inspection Report of the Madras Railway for the half-year ended 31st December 1881, recorded with remark.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

23rd February 1881, No. 495 W. 185/8

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 90. MEMORANDUM ON THE BEYPORE HARBOUR.

AFTER personal inspection of the Beypore Harbour with reference to G.O., 26th November 1880, No. 2,722 W., we the undersigned have arrived at the conclusion that the measures recommended by the Superintending Engineer are well considered and should be acted on.

2. Though all immediate necessity for groynes to preserve the road has now for some time disappeared, any future action on the part of the Local Fund Board should be limited as suggested by Major Mead, and there need be no objection to their making a longitudinal revetment on the sea face of the road if they wish to do so.

3. There can, in our opinion, be no doubt that the sea wall with lateral groynes connecting the laterite island on the south of the harbour with the shore should be maintained in good order, and that the funds asked for, Rs. 1,110, should be placed at the Superintending Engineer's disposal at latest from 1st April next.

4. The Chief Engineer has authorised the early collection of material with this object as the work in its present condition is very liable to be breached.

5. As this portion of the work solely concerns the harbour, the Master Attendant will not object to the available balance at credit of the Port Funds being utilised for this purpose.

(Signed) J. H. TAYLOR,
Master Attendant.

(Signed) R. H. SANKEY, Colonel, R.E.,
Chief Engineer.

3rd February 1881.

No. 91. ORDER THEREON, 23rd February 1881, No. 495 W.

THE measures proposed by the Chief Engineer, Public Works Department, and the Master Attendant, Madras, to prevent encroachment of the sea at Beypore are approved.

2. The Superintending Engineer will expedite the work, materials for which are under collection; and a sum of Rs. 1,110 will be placed, by the Financial Department, at the disposal of the Public Works Department from Port Funds early in April at latest.

3. Meanwhile a regular estimate should be submitted for formal sanction.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Second Circle.
„ Examiner of Public Works Accounts.
„ Marine Department.
„ Financial Department.

Exd. S. T. Austin.

Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1881) Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,
SECOND CIRCLE,
&c., &c., &c.

Dated February, 23rd.

Issued

Recd. *Encl.*

G. O., 23rd February 1881, *No.* 495 W.

FEBRUARY.
Nos. 90-91.

Encroachment of the sea at Beypore.—The measures proposed to prevent — approved, and the Superintending Engineer directed to expedite the work and to submit a regular estimate for the same for formal sanction.

8/9

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

17th March 1882, No. 708 W.

Buildings and Roads.
Civil Works.

Read the following papers :—

No. 125. No. 56.

Report to accompany Estimate for repairing the sea-wall and constructing groyne to protect the Beach at Beypore.

One Sketch of Beach.
,, Survey of Sea-wall.
,, Sheet of Cross Section.
Two detailed Estimates.
,, Reports with Specifications.
One Abstract.

THE correspondence and orders in G.O., No. 2722 W., dated 26th November 1880, and No. 495 W., dated 23rd February 1881, will show that it is considered that the sea-wall built from the main land at Beypore to the rocky island at the recommendation of Mr. Robertson should be maintained.

Last year in G.O., No. 495, dated 23rd February 1881, Rs. 1,110 were sanctioned for these repairs, the work was carried out; but in the month of June unusual weather occurred and the wall was much injured and breached in places. This action went on in subsequent months. Besides this the Local Fund road south of the wall which adjoins the railroad property was washed away. The estimate now forwarded, amounting to Rs. 5,340, provides for the thorough repair of the sea-wall at a cost of Rs. 3,470 and for the erection of a groyne of 70 feet in length ordered by the Chief Engineer on his inspection on the 19th January 1882; this groyne is intended for the protection of the sea beach to the west of the railroad property, the cost of this will be Rs. 1,870.

These works ought to be completed by the 15th May, and to enable this to be done orders have been given for the collection of materials, to meet this a grant of Rs. 2,000 will be required this year, and next official year a grant of Rs. 3,340, the balance of the estimate.

COIMBATORE,
7th February 1882.

(Signed) H. R. MEAD, Major R.E.,
Superintending Engineer, Fourth Circle.

To the Chief Engineer, Public Works Department.

No. 433 C.

FORWARDED to the Marine Department for the approval and countersignature of the Master Attendant to the estimates, &c.

17th February 1882.

(Signed) R. H. SANKEY, Col., R.E.,
Secy. to Govt., P.W.D.

No. 127.

FORWARDED to the Master Attendant.

23rd February 1882.

(Signed) R. DAVIDSON,
Chief Secretary.

No. 125-A. Endorsement of the Chief Secretary to Government, Marine Department, dated 10th March 1882, No. 74, Routine.

From J. H. TAYLOR, Esq., Lieutenant, R.N.R., Master Attendant, Administrative Department, to the Chief Secretary to Government, Marine Department, dated Madras, 7th March 1882, No. 1850.

I HAVE the honor to return the plan and estimate for repairs to Beypore, with the remark that I cannot consider that any portion of the work is debitable to Port Fund, except the trifling restoration of the sea-wall near the beach, which can, I imagine, be easily effected by removing the surplus stone from that portion of the wall nearest the rocky islet, and supplementing the remainder, if necessary, with some of the rock from the islet itself. I do not consider that the real benefit of this sea-wall has ever been established. The bar of Beypore is not, so far as I can observe, lower or the entrance more regular than it used to be. The impression on my mind, after visiting the spot with the Chief Engineer, was that a little readjustment of the materials of the wall was all that we considered necessary so far as the Port Fund was concerned. I cannot imagine any action, such as is described on the south beach opposite the Railway buildings and the camp road, being attributable to the sea-wall, which surely must have had a protective tendency. When the last erosion, which it was sought to throw the expense of on Port Funds, took place, it was on the flagstaff or north side of the wall. If therefore the wall is a source of serious detriment and expense to the neighbourhood, and cannot show any adequate advantage to the port in improving the bar, I would respectfully recommend its being removed.

FORWARDED to the Public Works Department.

(Signed) R. DAVIDSON,
Chief Secretary.

Note by the Chief Engineer.

IN last January I visited Beypore and examined the erosions which are the subject of the annexed correspondence in company with the Superintending and Executive Engineers.

The result of the instructions then given is the accompanying estimate, the items of which are—

	RS.
(1.) Repairing the sea-wall between the shore and the rocky island ...	3,470
(2.) Constructing a groyne, 70 feet long, south of the above	1,870
Total ...	5,340

Captain Taylor, in his letter No. 1850 of the 7th instant, questions the utility of the sea-wall, cannot see the connection between its being breached and the erosions of the shore south, and considers that Port Funds should not be called on to pay for any work.

To this it must be said that the sea-wall connecting the shore with the rocky island was constructed under the advice given by Mr. Robertson after visiting the place.

Captain Taylor thinks that the real benefit of the sea-wall has never been established. I am however certainly inclined to think that as, in the *first* place, such scour as is produced by the river in monsoon floods is by its means concentrated in the bar, and as, in the *second* place, sand travelling from south to north in the usual way is thereby arrested, the sea-wall ought to do good. Whether as a fact it has done so or not I am not in a position to prove. I should certainly advise its being repaired as now estimated for, till by constant observation we are in a better position to form a definite opinion. To leave it in its present state will only invite its general destruction.

Admitting that there may be some doubt on the subject, I think if the work be sanctioned the Port Funds should bear at least a moiety of the cost, viz., Rs. 1,735.

As regards the groyne south, I considered it essential, judging from the very serious erosions that had taken place along the whole length of shore, which if allowed to go on unchecked may in time cut back into, and endanger the property of, the Railway.

If the work prove successful in arresting further erosion in its immediate neighbourhood, other groynes of the same character will in all probability be needed.

I would strongly advise this being gone on with without delay.

Properly speaking these works are carried out more in the joint interest of the Local Fund Road and the Railway than in that of Provincial, but in any case they should go on, leaving, if necessary, the final incidence of the charge to be determined hereafter.

(Signed) R. H. SANKEY, Colonel, R.E.,
13th March 1882. Chief Engineer, P.W.D.

No. 126. ORDER THEREON, 17th March 1882, No. 708 W.

THE estimate, amounting to Rs. 5,340, for repairing the sea-wall and constructing a groyne to protect the beach at Beypore, is sanctioned.

2. The Right Honorable the Governor in Council concurs in the views expressed by the Chief Engineer in his note above recorded, and accordingly directs that a moiety (Rs. 1,735) of the cost (Rs. 3,470) of repairing the sea-wall be borne by Port Funds. The balance (Rs. 3,605) of the total estimate (Rs. 5,340) will, for the present, be met from Provincial Funds, but the incidence of the cost (Rs. 1,870) of constructing the groyne will be determined hereafter.

3. The sum of Rs. 2,000 is allotted from the Provincial Reserve of 1881-82 to meet the current year's expenditure. Funds to meet expenditure in 1882-83 will be provided in April as follows:—

To be placed at the disposal of Public Works Department from Port Funds—

	RS.
Works	1,735
Establishment at Rs. 23 per cent.	399
Tools and Plant	43
Total ...	2,177

to be allotted from the Provincial Reserve Rs. 1,605.

4. This sanction has been registered as Excluded Local No. 58 W. of 1881-82, and classified as Miscellaneous Public Improvement, Repairs.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Fourth Circle, with eight enclosures.
„ Examiner of Public Works Accounts, with duplicate Abstract Estimate.
„ Financial Department.
„ Marine „
„ Consulting Engineer for Railways.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,
FOURTH CIRCLE,
&c., &c., &c

Dated March, 17th.

Issued

Recd. *Encl.*

G.O., 17th March 1882, No. 708 W.

MARCH.
Nos. 125-126.

Beach at Beypore.—Estimate amounting to Rs. 5,340 for repairing the sea-wall and constructing a groyne to protect the — sanctioned with remarks.

24TH APRIL 1882, No. 1002 W., PUBLIC WORKS.

(83/1)

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 63.

READ—the following paper :—

Office Note from the Examiner of Public Works Accounts, dated 14th April 1882, No. 32.

No. 64.

ORDER—dated 24th April 1882, No. 1002 W., Public Works.

In supersession of paragraph 3 of G.O., No. 708 W., dated 17th March 1882, the Government direct that the entire sum to be expended during the present official year on the improvements to the beach at Beypore, viz., Rs. 3,340, be met in the first instance from the Provincial Reserve, and that the amount to be debited to Port Funds be adjusted hereafter in the Civil Exchange Accounts, in accordance with paragraph 1970 of the Public Works Code.

2. The sanction accorded in paragraph 4 of the same G.O. is now registered as Provincial No. 7 W. of 1882-83 in cancellation of Excluded Local No. 58 W. of 1881-82.

(True Extract.)

(Signed) R. H. SANKEY, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Fourth Circle.
„ Examiner of Public Works Accounts.
„ Financial Department.
„ Marine „

Exd. A. F. Goodall.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.

PUBLIC WORKS.,

To

The SUPERINTENDING ENGINEER,
FOURTH CIRCLE.
&c., &c., &c.

Dated April, 24th.

Issued

Recd. *Encl.*

G.O., 24th April 1882, No. 1002 W.

APRIL.
Nos. 63-64.

Beach at Beypore.—The entire sum to be expended this official year in the improvements to the — to be met in the first instance from the Provincial Reserve, the adjustment being effected hereafter.

4968

INDIAN TELEGRAPH.

Class [illegible] Madras to Ootacamund (Station) Local No.

Other Instructions 18/10

Words 22 Day 21 17 Minute 50

From (Person) chief assistant

To (Person) Second assistant P.W. secretariat.

wanted soon any
available plans shown
line of beach
and protective works
at Beypore x

L. N.

Recd. from L. N. Sent to

At Hrs. Mts., By At Hrs. Mts., By

MADRAS 21-6-82

Date Telegraph Master.

Traffic Code Form C. I. S. P. No. 4000—G. T. Press.—No. 499.—20-9-81.—500000.

C.C.W.
The enclosed
is the only map
of the Beyfore
there can
be found.
C.
22/6/92

To C.W.
Submitted
[illegible] 22/6

E R
4808/13

Please see annexed report by Col Mead on the Beyfore groynes' walk before circulation

The necessity as shewn in para 5 for extending inland the root of the seawalls & the erosion at its south west corner shew I fear that the set of the ocean has a tendency such as I feared rather to isolate works of this character than to arrest the sand travelling from south to north

In this case as apprehended by Col Mead it seems doubtful whether the groynes as now projected by the Railway Engineer will have the desired effect.

In any case the point is one which it seems to me should be carefully watched as the work progresses and I am therefore the more desirous that the effect of a longitudinal revet-ment as before suggested should be tried.

Please return the file at early con-venience

6/7/82

All that I have as yet done in the matter of these groynes is to authorise their immediate construction by the agency of the M. R. Co.'s officers, at estimated cost of R 5,450.

Also to request the Agent to forward fortnightly reports on progress of the work, and on its results.

It appeared to me that the construction of a longitudinal revetment would more properly be suggested in the Govt. order, — but if W wishes it I will at once call on the Railway Co. to make the experiment.

I would however suggest that the details of the experiment should be in some measure defined in the first instance.

I hope to be able to visit Beypore about the middle of the month, & to inspect the work in progress.

6.7.82.

S.G.W. Co: 200 - 8/7

Hon H E Sullivan

For information

180/18

The annexed Report dated 3d instant gives the latest information received from the Superintg. Engineer regarding the works proposed at Beypore for arresting the erosion of the sea shore.

Please see also the notes dated 6th instant which have passed between myself and the Chief Engr. for Railways.

It would be premature to express a more absolute opinion than I have done as to the probable utility of groynes to arrest the present action, but as Colonel Shaw-Stewart, Dr. Clark and Mr. Carter, will in all probability meet for consultation on the spot a week hence the Government may look for an early & definitely authoritative professional opinion on the points now at issue.

/ There is the point in

This will be awaited
HM

Ans 8/7. R 11/7

1808/16

[illegible]

18th. His H.E. asked who was to blame for the delay in carrying out the groyne which I had directed to have constructed in January last

Lt. Col. Meade states the circumstances connected with the delays of the work in paras 3 and 4 also 7 to 10

There can be no question that Major Fraser should have pushed on the work with much more energy and his conduct was reprehensible in not doing so

At the same time I may add to Colonel Meade's explanation that the erosion of the beach now sought to be counteracted has as will at once be seen from the plan been in no wise hastened or affected (excepting perhaps for a few feet at the root of the groyne itself) by the delay in carrying out the work – which was purely an experimental work

8/7/82

Tell him so
H.E.

1808/17

C.A.W.

This plan is of no use in reference to the present works which are taking place along shore to the [illegible] of the Island —

In any case none no better can now be taken till reports have been received from the Railway Dept.

24/6

185/18

No. 97 E d/ 22nd June 1882

Note by SE d/ 21.6.82.
Note by W d/ 21.6 82
Note by SE d/ 21 6.82

Copies of the above forwarded to the S.E. IV Circle for information.

(Sd) R H Sankey
Col RE
Chief Engr. P.W.D.

To,
The S.E. Fourth Circle.
Despatched
22nd June 82

IV.

808/9

On 19th current, I telegraphed as follows to Agent. M. R. Co.

"Erosion near Beypore × P.W. Dept. cannot provide special staff immediately to supervise necessary works × Can M. R. undertake to devise and execute measures necessary for protection of their property × leaving incidence of cost to be determined hereafter ×" wire reply soon ×

This morning I received reply as follows:—

"Beypore erosion × Your telegram × Am forwarding today (20th) estimate 5,540 rupees for sanction construct ten groynes on Beypore beach to protect our property × We can undertake work if sanction is accorded ×"

No. 297 Ex/22/10/82

I have not yet received the estimates in question, but if Govt. approve, I propose to telegraph to Agent, sanctioning sum named, R 5,540, for immediate execution by M. R. Co., leaving question as to incidence of cost for future decision; as suggested in W's Note dated 16-6-82.

J. MacStewart

21-6-82.

E R

Give sanction please at once to the proposed outlay Rs 5540 the outlay being debited to "Miscellaneous Advances" till the incidence of the Charge has been finally decided — Along with the proposal I would strongly advise a trial being given in one or two short portions to a longitudinal revetment of sufficient section to test the applicability of this method which it seems to me must be resorted to and the groynes fail to intercept the sand travelling from south to north

I should also be glad to receive some periodical progress reports shewing the state of the work with results if such can be supplied without inconvenience

21/6/82

Please return the file

With reference to above, following telegram has been despatched to Agent: "Beypore erosion x your telegram x Rupees 5540 sanctioned letter will follow on receipt of estimates x

21/6/82

808/82

Telegram to S.A.W. dated 21st June 1882

Wanted soon any available plan shewing line of beach and Protective Works at Beypore

(Sd) R. S. C.A.W.

Despatched 21/6

E. R.

C 805/81

Please peruse the annexed notes by the members of Government and let me know as soon as possible whether the agency at disposal of the Railway Dept. is enabled to undertake the work now urgently required.

Owing to the urgent demand for the presence of an Officer at Cochin I am unable to promise any early assistance from the Provincial Establt. -

The early return of the file is requested.

19.6.82

[illegible]

Hon H E Sullivan
R/ Hon the Governor

For orders

The dangerous erosion of the shore south of Beypore which now threatens the Railway property is not easy to explain without the aid of a map and as immediate action has to be taken I must, till the plans can be collected, content myself with the annexed sketch from memory.

Formerly there existed a spit of sand connecting the shore and the Rocky (Laterite) Island S.W. of the river mouth, and the Harbour Engineer Mr Robertson who visited the place in 1871 (?)

Cw 16/6. Rtd. 19.6 –

commended
^as I think quite rightly ~~that~~ this connection should be made good by a well constructed groyne× and constantly maintained so as to insure the passage of the river floods over the bar, and thus keep it as deep as possible.

This was the more necessary as the fishermen to the South had been in the habit of cutting through the sand spit to get their boats through by a short route, and in so doing had decreased the scour on the bar.

From my examination of the shore last January I was convinced ~~that~~ the eroding action of the current was occasioned by a "set" of the sea either from the West or

× This work was carried out and was repaired last year, but the shore end was cut into and the work turned late in the year

South West, and was not due to any pronounced along shore action.

To ~~test~~ the reliability of this I arranged for the construction of the groyne marked A the execution of which has certainly been delayed longer than desirable, but it makes less ~~[illegible]~~ if as I infer the 'set' is directly in from the West groynes such as ~~that~~ proposed will have no very sensible effect in arresting the sand in movement, and ~~that~~ nothing short of a continuous longitudinal revetment such as we are now constructing ~~north~~ of the Harbour at Madras (to ~~counteract~~ a similar direct inshore action) will be found to check the erosion now going on — [illegible] of the Madras work which is my [illegible] ~~that~~

30 Rs per foot run and consequently half a mile of such protection would cost Rs 80,000

The action may however be arrested by a much less costly work, but I mention this fact to show that there may possibly be a large outlay to be incurred – At the same time however it is right to say that a change in the "set" of the current may at once alter the whole position of matters, and deposit sand in recovery of the old line of shore

That the "set" is somewhat similar to the action now taking place at other places along the west coast is clear from a telegram received this morning from Cochin where it is stated that the lighthouse is in danger of being undermined, and that fears are entertained for the reopening of the Cherai Malipuram gaps — arrangements are being made in emergency for despatch of a competent officer to see to matters in this direction about which I shall soon submit a report, but it is sufficiently clear to me that probably in consequence of the exceptional strength of the present monsoon the ocean level has been somewhat raised along the west coast, and the set of the current become much more pronounced than in previous years

As regards the departments which should be called on to meet the cost of the works required at Beypore

I may mention that so far as regards the construction of the groyne connecting the rocky island with the shore the General Pub. Funds have been made to contribute on the principle that the work was carried out mainly to increase the depth of water on the bar, and therefore in the interests of the navigation

But the matter is quite different as regards these southern erosions here the interests are shared between the Local funds who have a road (or had one) close to the shore and the Railway

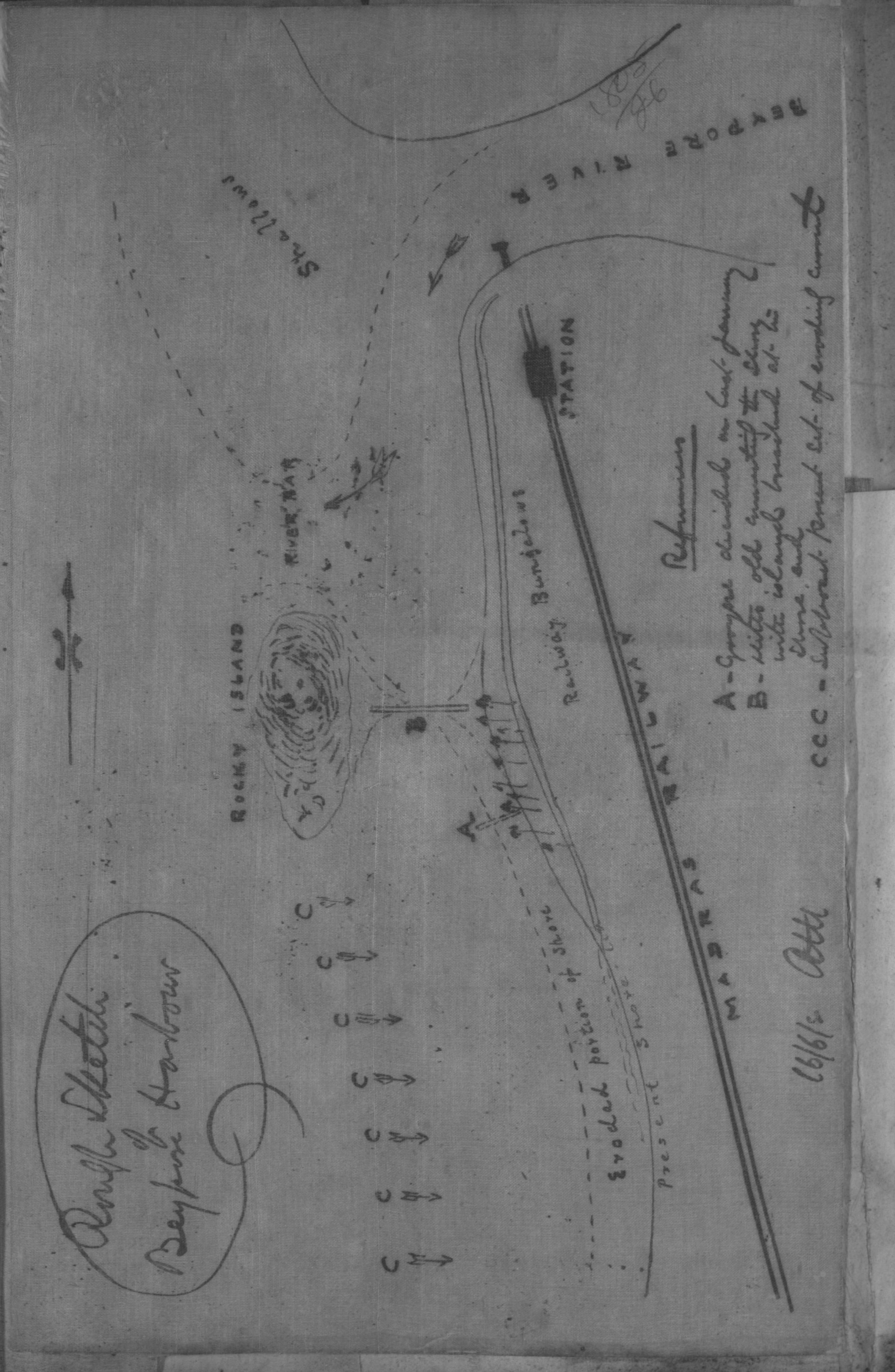
It is not known I

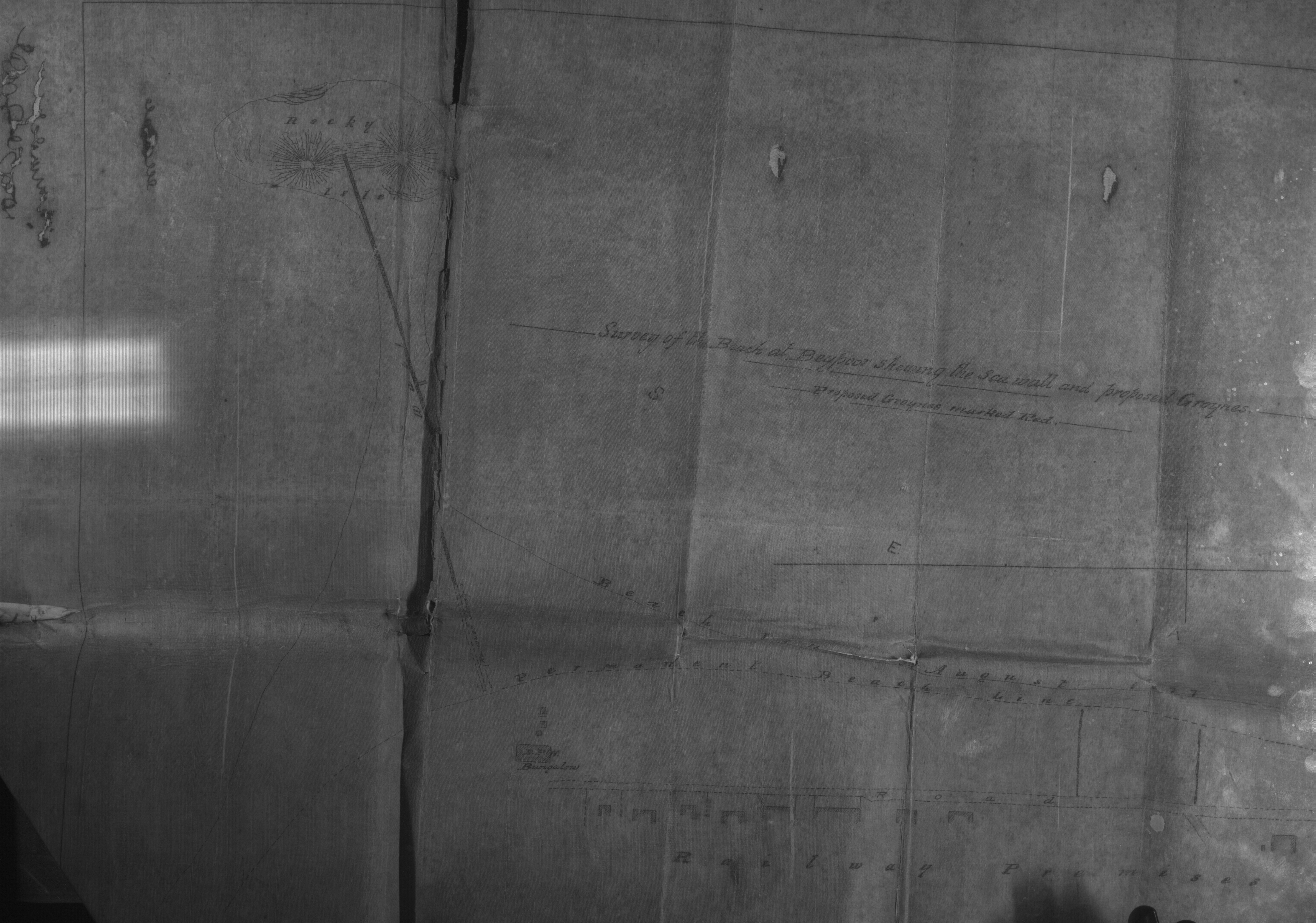
believe essential to the Local Funds to maintain a road in this position and we may be sure they are quite unable to go to any serious expense such as that of a revetment to do so

The fact then remains that the Railway whose property is now endangered is to all intents and purposes the sole dept. seriously interested and I venture to think that on them devolves the necessity for devising and executing the requisite measures, as also for meeting the cost of the same.

However this may be they are now the only dept. who have a Staff on the spot capable of carrying out the works, and I would therefore suggest that pending decision as to the incidence of the charge they be called on to execute the work

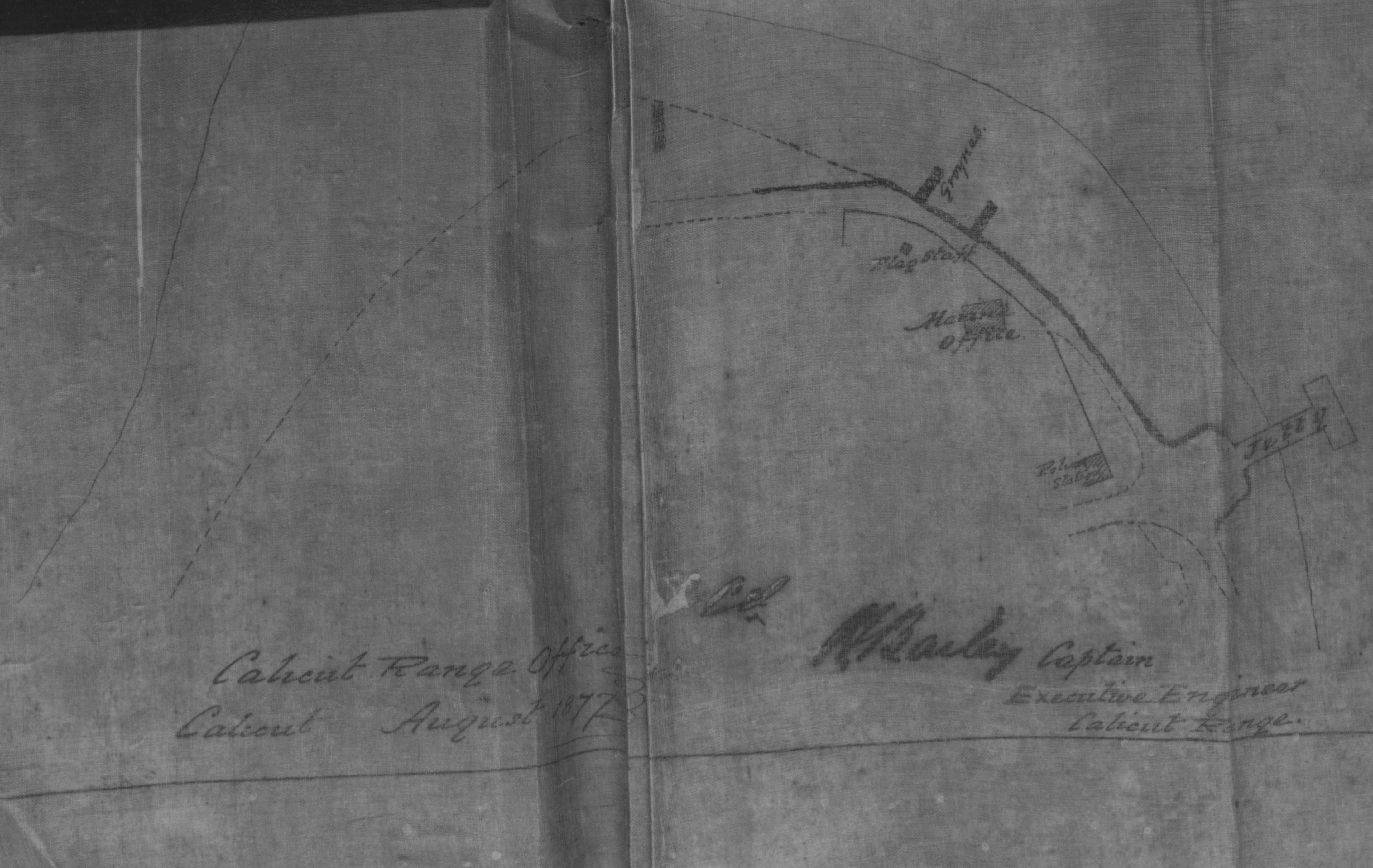
16-6-82


Rough Sketch of Beypore Harbour
ROCKY ISLAND
RIVER BAR
Shallows
BEYPORE RIVER
STATION
Railway Bungalows
MADRAS RAILWAY
Eroded portion of Shore
Present Shore Line
A
B
C
References
A - Groyne decided on last January
B - ditto old connecting the shore with island breached at the shore end
CCC - Supposed present set of eroding current
16/6/82



Survey of the Beach at Beypoor shewing the Sea wall and proposed Groynes.

Proposed Groynes marked Red.



Calicut Range Office
Calicut August 1877

Sd W Bailey Captain
Executive Engineer
Calicut Range.

188/98

Erosion of the shore at Beypoor

Assuming that the set of the current at this season of the year is from the South West I would submit with becoming diffidence for the consideration of the Chief Engineer whether the groyne B recently restored and groyne A newly constructed may not be the cause of the mischief — The current would seem to be arrested by the [illegible] rocky island and the two groynes prevent its finding a passage between the island & the shore and the reflux causes the erosion of the shore to the South. If this view be correct the scour ~~on~~ the bar has been secured at the expense of the Southern shore and in these circumstances it would not be fair to charge the Railway Dept: with the cost of protective works which have never been required from the time the line was ~~repaired~~ constructed & the necessity for which arises from the action taken by the P. W. D of Govt: This point should be cleared up before any demand can be made

on the Railway Coy for funds.
But as immediate action is necessary and the Company have the necessary staff on the spot I agree with Col Sankey that they should be asked to undertake the work in which they are mainly interested leaving the incidence of the cost to be determined hereafter. The Local Fund Board would repudiate any such demand & may come on Govt for endangering their road -

H.E.S.

17/6/82

I had written the above before reading the notes of the Consulting & Deputy Consulting Engineers for Railways - From a perusal of these it appears that the Railway Engineers attribute the erosion to the action of Groyne B but that our Engineers do not share it - There is evidently room for further enquiry -

H.E.S.

Concerted action should be taken without delay by the Railway Company & the P.W.D., but as the former is on the spot in force it should not wait for the latter if immediate measures to protect its property are necessary.

The incidence of charges can be settled afterwards. Govt will have to pay in the end either out of its waistcoat or breeches' pocket

I was told on the spot that the mischief had been caused by attempts & apparently not judicious further attempts to improve the channel

What is the name of the officer who is to blame for the delay in commencing the Groyne. Unless officers of the P.W.D. can be made personally responsible for failures there is no hope of good administration.

MGD June 18/82

5/89

This sanction will lapse at the end of the second quarter after the receipt of sanction.

MADRAS RAILWAY.

ENGINEERING DEPARTMENT.

Revenue Sch: G Budget 1882/83 Estimate.

Required for the Madras Railway in the South West Line

DESCRIPTION	To be expended Departmentally.			To be drawn from Stores.			Total.		
Revenue									
3rd Repairs of Bridges &ca.									
(2) Miscellaneous including, earth work, roads, fencing &ca	5,540	"	"	"	"	"	5,540	"	"
Laterite Groyne to prevent encroachment of the sea from 405/10 to 405/19 miles at Beypore Station as per annexed Estimate									
Total...	5,540	"	"	"	"	"	5,540	"	"

Submitted for approval, and Sanction to the Government of

Arthur G. Saunders
Agent and Manager, Railway.

H K A Carter
Actg *Chief Engineer, Railway.*

CHIEF ENGINEER'S OFFICE,
16th June 1882

Consulting Engineer to Government.

Secretary to Government.

S.W. Est.
4128/

Revenue

85/31

500—11-10-81.

MADRAS RAILWAY.

South West Line.

Estimate of the cost of proposed laterite Groyne to prevent encroachment of the sea from $\frac{405}{10}$ to $\frac{405}{19}$ ms at Beypore Station as per Plan No.

DESCRIPTION.	Quantity.	Rate.	To be expended Departmentally.	To be drawn from Stores.	Total.
Cost of one groyne					
Forming Groyne with laterite Blocks — Cyds	168	3/-	504 . .		
Contingencies			50 . .		
Cost of one Groyne Rs.			554 . .		
Cost of Ten Groynes Rs.			5540 . .		5,540 . .

Rupees Five thousand, five hundred and forty

Chief Engineer's Office
16th June 1882

H. R. P. Carter
Actg. Chief Engineer

Arthur McSaunders
Agent & Manager

The sanction will lapse at the end of the second quarter after the receipt of sanction in this Office

DESCRIPTION.	Quantity	Rate.	To be expended Departmentally.	To be drawn from Stores.	Total.

P.W.E. 2/4128 /81

1805 W

1805 W. 15/3/81

15/3/81

808/30

Beypore Erosion

1. At the request of the Agent of the Madras Railway Company, I inspected on Saturday, the 9th, the protective works along the foreshore at Beypore.

2. The Railway Company's Engineers attribute the erosion now going on, to the sea wall connecting the mainland with the island; principally, as I understand, because, up to the time of the construction of this wall, no erosion has been recorded.

3. As far as I have seen the records, I think there is reason to doubt whether this is the case; but setting this aside, as well as the absence of all evidence that during the last ten years any great volume of the river has passed between the island and the mainland, there stands the fact that at this moment erosion is proceeding at a part of the coast

miles or more to the South of the sea wall, and far beyond the reach of its influence or of that of the river.

4. I have myself in bygone years walked along the ~~same spit~~ sand spit connecting the island with the shore, and I did not gather from Mr Wilkinson that he had at any time seen the whole or any large proportion of the river passing between the island and the mainland; but that, in his time, it was generally breached in bad weather, and a considerable body of water passed through.

At the time of my inspection, the difference of level of water north and south of the groyne was not more than a few inches, and small rollers broke through the unfinished portion in such direction

5. The delay in commencing the groyne sanctioned in No. 708 W dd 17 March 1882, would have proved fatal to the Railway Company's Staff quarters, had not the Company's Engineers constructed a sand bag and timber groyne; This had the required effect; and now that it has been wrecked by the waves, the permanent groyne of stone will maintain the foreshore thus saved.

6. The erosion to the south of this groyne meanwhile proceeds, and I have authorised the Chief Engineer to protect the coast as far as necessary by further groynes, as there is every probability of the line itself being attacked.

7. The success of the groynes hitherto built affords good reason to conclude that the others will be effective in arresting the erosion. It is greatly to be regretted that a work, sanctioned with a view to completion by the 15th May, should have only recently been commenced –

The Railway Company did not own the foreshore, and the Local Fund Board declined to protect it. The Government in the Public Works Department undertook the protection, and failed to commence it

The Railway Company have therefore been obliged to spend over 1000 Rs in temporary work; and now have to carry out, what, had they been allowed to do it, they would have finished in time to save their property.

Sigd/ C. J. Smith
Lt. Colonel R.E.
Dy Con Engr for Railways

Madras
13 June 1882.

Copy of above Note forwarded to the Chief Engineer, P.W.D. for consideration, with advertence to Proceedings of Government dated 17th March 1882, No 708 W.

2. From long acquaintance with the locality, I am of opinion that the existence of the causeway connecting the rocky islets with the shore, has no connection with the erosion to the south, which has threatened the Madras Railway Company's property.

3. As the Company did not own the foreshore, they were not able to take any measures for the protection of their property, until the sea had actually made inroads onto it.

4. Lieut: Colonel Smith now states that there is every probability of the line of railway being attacked by the sea. The matter is urgent, and appears to call for concerted action between the Public Works Department and the Railway Officials.

15-6-82.

Colonel R.E.
Con. Engr for Railways

To W.

P.W.O.L.W. 24.6.82.

P.W.C. No 4725

Rec 15th Jul 82

Cir 1/6 - 11-19-6.

O.L.S. 3/6.

(No. II.)

No. 434

3,000-1-1-78.

85

5/36

MADRAS RAILWAY.

AGENT AND MANAGER'S OFFICE,

Madras. 20th June 1882.

From

Arthur M. Saunders Esqr

Agent and Manager, M.R. Co.y

To

Coll J. Hmshaw Stewart R.E.

Consulting Engineer for Railways.

SIR,

I have the honour to forward herewith Copy of a letter No. R 200/457 dated the 16 Instant which I have received from the Acting Chief Engineer as to the remedial measures which he considers necessary to Check the encroachment of the Sea along the Coast at Beypore and in submitting herewith an approximate estimate I have the honour to recommend that immediate sanction may be accorded thereto and that the Acting Chief Engineer be authorized to proceed with the work forthwith at an outlay of Rupees 5,540.

I have the honour to be
Sir
Your most obedient Servant

Arthur M Saunders
Agent & Manager.

3029

36

S. R. E. 5 / 4128 / 82

MADRAS RAILWAY.

Pro The Agent and Manager

To The Consulting Engineer for Railways

Dated 20 June 1882

Recd.

No. 434

Forwarding for sanction an esti-
-mate of the Cost
of proposed sea side
groynes to prevent sea
encroachment of the Sea at
Beypore

Sanctioned No 432
21-6-82

A 6

Madras Railway Company,
Chief Engineer's Office,
Madras 16th June 1882

$\frac{A.R.\ 201}{457}$

S/3

The Agent & Manager,

Dear Sir,

Encroachment of the Sea at Beypore

After due consideration I am of opinion that we should no longer postpone the remedial measures necessary to check the encroachment of the sea along the Coast at Beypore from $\frac{405}{10}$ to $\frac{405}{20}$ Telegraph posts as the sea is now within 200 feet of the railway, and any sudden erosion confined to one spot would endanger its safety.

I propose to construct at once ten small groynes 50 feet long at intervals of 250 feet commencing South of the Government groyne now in progress and if these fail to arrest the action of the sea I intend to fill up the intervening spaces with a breast wall so as to form one continuous line of protection, but this latter scheme will not be carried out until the action of the groynes are first ascertained.

Accordingly I enclose an approximate estimate for Rs. 5,540 and shall feel obliged if you will obtain immediate sanction for this expenditure and further authorise me to proceed with the work forthwith.

Yours faithfully
(Sd) H. R. P. Carter
Ag. Chief Engineer

True Copy
Arthur M. Saunders
Agent & Manager

P.W.C.C. 4128/82

Telegram 19th June 1882

To
Agent & Manager
Madras Railway

From
Consulting Engineer
Ootacamund

S/38

Erosion near Beypore, Public works Department cannot provide special staff immediately to supervise necessary works. Can Madras Railway undertake to devise and execute measures necessary for protection of their property Leaving incidence of cost to be determined hereafter. Wire reply soon.

Reply. 20 June 1882.

Beypore Erosion. Your telegram am forwarding today estimate 5540 Rupees for sanction construct Ten groynes on Beypore Beach to protect our property. We can undertake work if sanction is accorded

True Copy

Arthur M Saunders
Agent & Manager.

To
The Consulting Engineer for information
20/6/82.

P.W. E.4 / 82
4138

V 8

Form No. 9.

Public Works Department,
Railway Branch.

Consulting Engineer's Office,
Madras, 21st June 1882

8/5

Letter from the Agent and Manage,
Madras Railway Company, No. 434 dated
the 20th June 1882 with Enclosures.

No. 1145

Submitted for the sanction of Government.

2. The coast line at and near Beypore was recently inspected by the Deputy Consulting Engineer and that officer is of opinion with the Officiating Chief Engineer of the Madras Railway, that unless protection by groynes is at once supplied, the line will be endangered in the event of there being further heavy weather.

3. Under these circumstances the commencement of the work

work has been authorized.

C. L. Smith Lieut Colonel R.E.

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for Consulting Engineers for Railways.

G.O. 708 W - 17 - 3 - 82 -
" 1002 W - 24 - 4 - "
" 495 W. 23 . 2 - 81
" 2722 . W. 26 . 11 . 80

Form No. 3.

P. W. C. No. 4128

RAILWAY DEPARTMENT, MADRAS.

From

THE CONSULTING ENGINEER
FOR RAILWAYS.

No.
Dated 21 } June 1882.
Received

No. of Enclosures. 5

Subject.

Estimate for the construction of laterite groyne to prevent encroachment of the Sea from $\frac{405}{10}$ to $\frac{405}{19}$ miles at Beypore Station.

Old. 59.6 Cir. 8/7 R 11/7
only 23/6 Re 18/7

No: 252

60/41

Notes of Inspection by Lieut. Colonel H. A. Mead R.E. Supg. Engineer, 4th Circle for June /82.

West Coast D.n

Malabar District

Calicut Sub D.n -

26th June /82.

Beypoor Sea wall and Groyne -

This was last inspected on the 19 January in Company with the Chief Engineer and orders were given for the preparation of an Estte for the thorough repair of the Sea wall and for putting up a groyne South of the wall -

2. The sea wall had been repaired last year on an Estimate for Rs 747, at an outlay of Rs 626- the stone having been obtained from Island, the wall however had been much damaged by heavy weather and required thorough repair-

3. In February the Estimate amounting to Rs 5340 was forwarded and knowing the importance of the work being completed before the South-west monsoon set in, orders were given to the Executive Engineer at once to collect material and he was informed that Rs 2000 had been applied for for this purpose-

4. It appears that Major Fraser passed this order on to Mr Nicholson, who early in March commenced the collection of stone for the repair of the sea wall- By the 8th April 500 C.yds were collected and 360 C.yds built in the work of the sea wall

and on the 10 April rough weather came on, which damaged the sea wall considerably and prevented stone from being broug from the Island, but by the 24th April 850 C. yards of stone were collected and by the 12 May upwards of 1400 y were collected.

On 18th May the weather was aga very rough some of the boats were swamped in bringing the stone down the river. By the 3rd June, 1733 C.c yds. of stone were collected and now on the 26th there are 1993 C. yards or 53,811 c.ft. against 54,128 estimated.

5. The East root of the wall has had to be extended 33 ft. the wall is good and strong with the exception of 140 ft which was breached (no depth only upper portion knocked off) by the heavy sea in May. There is 60 C. yards at site and 100 C. yards up the river, this

& is to be put down as soon as practicable and should make the sea wall safe for the season

6. There is Erosion at the South West Corner of the Sea wall a rough stone flooring and pitching is ordered to be put down to prevent further action -

7. With regard to the Groyne it appears that there was in ~~March~~, difficulties as regard labor and collection of stone and all available was used for the Sea wall

8. The rough weather on the 10 April prevented stone from the island being quarried or brought to the groyne & there was no way for carts to go to the place and the boatmen refused to take the stone by boat.

9. Mr Nicholson finding this to be the case Endeavored to get stone down by railroad from Pattipuram, the cost being Rs 2-4-0 against Rs 1-12-0, it was not until 4th May that this arrangement was settled & quarrying commenced.

10 By the 6th June, 450c. yards were brought down by train and by the 18th June the groyne made 90 ft in length which it is now.

Railways

11 The tracing that accompanies this report that I obtained from the Railroad Engineer shows that the present line of beach and also on it are marked the lines of beach in 1871 and 1881. On it, are shewn the proposed groyne now being put up by the Railroad.

Do

The Extent of the Encroachments is much more than it was thought to be but perhaps the coast line in 1871 was further out than usual

Railways

12. I have requested the Consulting Engr for Railroads to obtain from the Railroads Engineer surveys of this line of coast for other years.

Do

13 The groyne put up is acting on the north the sea is depositing slowly sand and large quantities of mussel shells.

14 On the south the sea is encroaching but it is hoped

that the first groyne that the railway authorities are carrying out will stop this and protect this place.

Railway

15. I have no wish to comment on the railroad Engineer's proposal, but I am sure should the sea action on this shore continue, that it will be found necessary to either lengthen the groynes or to have a longitudinal revetment between them.

A groyne 50 ft. in length is not, I think, likely to protect 5 times its length 250 ft. of sea beach especially as the sea action is not very oblique to the shore.

16. The following is to be done by the Executive Engr. West Coast.

I Completion of the sea wall as far as the stone collected for the work will allow (this is in excess of the estimated quantity but can be done owing to savings for the amount) this addition of 160 yards ought to make the sea wall safe from serious damage this season.

II The groyne is now 90 ft in length the Estimated length is 210 ft; 50 to be added to it making total length 140 ft, it is hoped that this will be completed by the 20th July and the sea wall repairs also —

Coimbatore
3rd July /82

Lt. Col: R.E.
Supg. Engineer
4 Circle

To

The Chief Engineer
P. W. Departt. —

Enc: 1 Tracing

1805/47

From
The Supdg. Engineer
Fourth Circle.

Dated 3rd
Despd. do } July /82.

No. 252

Notes of Inspection by Lt. Coll. A. R. Mead R.E. Supdg. Engineer on the Beypore Sea Wall and Groyne

Rd 7.7 Cir: 8/7 R 11/7

No. 1805 W

B. F. A.

Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 15th July 1882.

1808/48

Read the following:—

Note by the Consulting Engineer for Railways … } (A.C. dated 13th June 1882)

Do. do (" No. 149 d/ 21st " ")

Letter from the Supdg. Engineer Fourth Circle } (" " 251 d/ 3rd July ")

Notes of Inspection by the do. — (" " 252 d/ 3rd " ")

The cost of the construction of groynes now being carried out by the Madras Railway Engineers to protect the beach at Beypore will be charged to advances by the Company pending a decision as to the incidence of the outlay, regarding which the Superintending Engineer will report further after communication with the Railway Authorities and the Master Attendant, Madras.

2. As to the utility of the work, a further report will be awaited after inspection of the locality and consultation by the Consulting Engineer for Railways, the Superintending Engineer and the Chief Engineer of the Madras Railway.

3. The execution of the work

P 12

sanctioned in G.O. 708 W dated 17th March 1882 has been reprehensibly delayed – and for this Major Fraser seems to be principally responsible. A copy of these orders will be communicated to that officer by the Supdg Engineer Sixth Circle

R.S.

12. 7. 82

S.E. Fourth Circle } Mess despd 15/7
S.E. Sixth Circle } Despd 21/7
C.E. for Railways } Mess despd 15/7
Examiner Railway Accts } Copy despd 21/7
Master Attendant, Madras } Extract para despd 21/7
Marine Dept } 1&2 Despd 21/7

D 472

Govt. of (1882) Ma

PUBLIC WORKS

Urgent

Dated

Recd.

G. O. 15th July 1882, N

Nos. 101-1

Bench at We

District the

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(2) Date of repair ____________

(3) Initials of the Referencer ____________

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

DEPARTMENT

G.O. No.
B.P. No.

Press.
Mis.

Dated 198 .