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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

PUBLIC WORKS DEPARTMENT

G.O. No. ~~B.P. No.~~ 698 W Press. ~~Mis.~~

Dated 17. 3. 1882 ~~197~~.

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Erosion

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698
1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

17th March 1882, No. 698 W.

Buildings and Roads.
Civil Works.

Read the following papers:—

No. 115-A. From W. PARKES, Esq., M. Inst. C.E., Engineer-in-Chief, Madras Harbour Works, to the Secretary to Government, Public Works Department, dated Madras, 4th February 1882, No. 4 W.

Since I reported to you on the subject of the erosion of the beach north of the Madras Harbour on the 25th January 1881, I have received from the office of the Collector of Madras detailed valuations of the whole of the lands which have been already washed away by the sea and a considerable area in addition which is more or less threatened with a similar fate. This information enables me now to submit to you what I hope may be a final recommendation as to the course to be adopted in respect of these erosions.

2. In my former report I pointed out that the question of the limits of the liability of the Government was one which would be likely to be extremely difficult of solution if attempted in the form of giving compensation to each individual claimant, and that it must be solved either by a complete protection of the coast line so far as the erosive action extended, or was likely to extend, or by purchasing the threatened land so that Government would take upon itself the liability of loss, or of protection against loss, whether due to the action of the Harbour Works or to independent causes.

3. I ventured to deprecate the immediate extension of the revetment (more than was necessary for some local protection) on the ground that the data for determining its proper position and extent were very incomplete. My immediate recommendation was that the land in question should be as soon as possible acquired by the Port authorities, whether the Government or the intended Port Trust.

4. A valuation of a portion of the land was at that time in course of being prepared (on a recommendation made by Mr. Thorowgood on the 7th December 1880, see G.O., No. 2823 W.) in the Collector's office, but the results have reached me only since my recent arrival in Madras. This valuation extended only to lands which have since been almost entirely washed away, but the Collector has since furnished me with a valuation of a further area which gives the full materials required.

5. There is no doubt that in the immediate vicinity of the town the coast line must be maintained on grounds of public utility irrespective of the actual value of the land. On the other hand, at some distance from the town, where the land is mostly agricultural, its value is very small compared with the cost of protecting it. Thus at the point at which erosion is now commencing a strip of land nearly three-quarters of a mile wide might be washed away before the loss would be equal to the cost of the revetment.

6. The question for determination therefore is the point at which the system of physical protection should cease, and the sea should be allowed to form its own boundary. This can only be done by a careful consideration of the circumstances of each successive plot of ground which has a sea frontage, whether present or future.

7. It will be understood that there are elements of very great uncertainty in the data upon which this question has to be determined. On the one hand there is no reliable basis for assuming any probable limit to the erosion, and on the other hand there is great uncertainty as to the cost of maintaining a revetment. But to a great extent these two elements of uncertainty neutralize one another. An estimate of Rs. 30 per lineal foot of revetment is a very fair one for its first cost and maintenance for the first two or three years, but as to what may be required after that time we can form no safe opinion. If the action which would cause erosion on an unprotected shore ceases at the end of that time the revetment would require little more attention. But if it continues the result will be a deepening of the foreshore up to the face of the revetment, which will render necessary an addition to the quantity of stone, and that in greater proportion than the increase of depth, for the increase of depth will bring heavier seas upon it, and the heavier seas will form flatter slopes.

8. Thus it would be a great mistake to assume that a revetment once made would be a safeguard against any amount of erosive action. If the erosive force is such as would have cut away 200 feet of land, a revetment of Rs. 30 per foot might answer well, but if it were such as would have cut away 500 feet, the same force will bring a depth of 2 fathoms against the foot of the slope, and a heavy further expenditure upon it would be required. In such case the cost may be taken at 50 to 55 rupees.

9. There is thus a certain relation existing between the width of land saved from erosion and the ultimate cost of saving it, and the limits of uncertainty in our ultimate conclusion are narrowed. We may take as approximately correct the assumption that where a belt of land 200 feet wide is worth 30 rupees per lineal foot, it is worth protecting, but if we assume a belt of 300, 400, or 500 feet wide as liable to erosion, we must assume a higher cost of the revetment to compare with it.

10. The accompanying plan will show the present state of the coast line and the properties now threatened with erosion. The alteration which has taken place to the south of the Harbour is also shown, in order that an idea may be presented of the general nature of the changes going on.

11. The revetment has now been carried as far as the Police Tannah, and it may be taken as an accepted fact that up to this point at least the existing coast line must be maintained in the public interest irrespective of the value of the land protected.

12. The present termination of the revetment is very abrupt, and it should in any case be continued with a slight bend towards the westward, so as to meet the present shore line at A. This is a distance of 1,200 feet, and the cost may be taken at Rs. 36,000. The termination is fixed at A rather with the view of giving a proper form to the end of the protective system than with reference to the value of the property protected, but from this point onwards for some distance we come upon land where a minimum of local inconvenience will be produced by allowing the sea full scope for its erosive action.

13. The plot having the frontage A B, 420 feet in length and a width of 500 feet, is valued, with two small buildings upon it, at Rs. 6,438. The cost of revetting it to save 200 out of the 500 feet in depth would be Rs. 12,600, or to save the whole 500 feet Rs. 21,000.

14. There then follow five plots having an aggregate frontage B C D E F G of 1,035 feet, and the same width as the last, 500 feet. Each of these consists of a compound and garden ground with a small bungalow upon it. The aggregate value of land and houses is estimated at Rs. 46,662. The cost of the revetment to save 200 out of the 500 feet would be Rs. 31,050, and if the erosive action continued so as to require protection against a force capable of encroaching 500 feet, the cost would be Rs. 51,750.

15. Next follows a native village consisting mainly of huts, but with a few small brick houses, a mosque, and other buildings. By far the most valuable buildings are situated in the half of the plot further from the sea, so that it would be many years before they would be attacked. The length of frontage G H is 390 feet and its width 500 feet. Its estimated value is Rs. 24,275, and the cost of revetting from 11,700 to 19,500 rupees according to the strength of revetment required.

16. The next plot H I includes Flagstaff Street and a small area on the other side of it, of similar character to the last. Its frontage is 175 feet, its estimated value Rs. 8,686 (of which Rs. 4,000 is for a bazaar at the extreme landward side) and the cost of revetment from 5,250 to 8,750 rupees.

17. In the next plot I K the valuable buildings are more scarce, and the greater portion of such as there are, are again at the landward side. The frontage is 765 feet, the estimated value Rs. 23,784, and the cost of revetment from 22,950 to 38,250 rupees.

18. We now come upon properties the character of which is this. Those which are simply agricultural have a value of 20 rupees per ground of 2,400 square feet. But those which have a sea frontage command a value of from 75 to 100 rupees per ground as timber depôts. This value of course depends upon their being adjacent to a free sandy beach where timber can be landed. It will follow the changes of the coast line, the land of which for the time being has the frontage commanding the enhanced value, so that the actual loss by erosion is at the agricultural rate and not at the timber yard rate.

19. At the northern end of the timber yards is the village of Tondiarpetta Cuppum. This village has changed its site since the survey was made from which the present place was copied. The huts have been re-erected on the plot of land immediately to the north of those on which the village is shown, and there is an ample area of land of small value for its further extension if necessary. The ground on which the huts formerly stood is Government property, and is now waste. The land to which they have been removed is now valued at 75 rupees per ground as "hutting land," while that immediately adjoining and equally available for hutting is valued at 20 rupees. It seems likely there is an eye to possible future compensation in these movements.

20. From the above first approximate comparison it will thus be seen that the real question is as to the propriety of protecting or of leaving to the free action of the sea the portion between A and I. The portion A B (paragraph 13) is clearly not worth protection. G H would probably be deemed worth it if it could be done without protecting all the intervening portion; but as this cannot be done, the whole length must be treated as one, and subjected to a further step in the process of comparison. The cost of revetting this whole length would be certainly Rs. 60,600, and might rise, if the erosive action were such as would encroach to the full extent of the area, to Rs. 1,01,000. The value of the land which would be saved by the expenditure of Rs. 60,600 would be Rs. 35,000, and of the whole area which could be saved by the expenditure of Rs. 1,01,000 would be (as per estimate) Rs. 85,971.

21. On behalf of the proposal to purchase the land credit must also be taken for the fact that the expenditure will be reproductive so long as the land is not attacked.

22. I think, therefore, there can be no doubt that from a strictly economical point of view the conclusion must be in favor of purchasing this land rather than protecting it. Whether there are any other considerations tending in the opposite direction is a question that I must leave to those of more local knowledge of the wants of the class of people affected than myself. But from the inquiries I have made I do not think the gradual removal of the block of native habitations between G and I to a narrower but longer frontage, extending over the compounds of the two neighbouring bungalows, would be so great a hardship as interposing a stone bank between them and the sea—a change which would materially interfere with their daily avocations. Of the two bungalows in question, one is at present vacant, and the owner makes a monthly application to Mr. Thorowgood for rent; the other has been recently offered for sale at a price much below the value estimated by the Collector. The tenants of the remaining three will certainly not be incommoded by the encroachments of the sea for some years to come, as the houses are placed further from the shore.

23. My recommendation therefore is that the revetment be forthwith completed as far as the point A, but that northwards of that point no further attempt be made to control the action of the sea on the ground that the cost of doing so would be greater than the value of the land to be saved. To indicate this point, and to give

my reasons for determining upon it, is perhaps the limit of my duty in the matter. But as the natural result of the adoption of my recommendation would be for the Government to purchase the properties next threatened with erosion, so as to anticipate the claims of the owners, I have shown on the plan by a green border the area which I would suggest as desirable to be purchased, although of course it is only those portions immediately abutting on the sea for which the arrangements are urgent.

24. The valuation of this area made in the Collector's office is Rs. 2,08,149, and as the Committee charged with the consideration of the claims made for the land already washed away have entered into provisional agreements with the owners for their satisfaction by the payment of a sum very closely approximating to the valuation formed on the same basis as this, it is clear that it may be taken as a sufficiently close one for the present purpose of determining the proper limit of protective works.

Estimate of Revetment for 1,200 *feet north of Police Tannah.*

	RS.
9,600 Tons Rubble Stone at Rs. 2¼	21,600
4,800 „ „ „ for subsequent maintenance at Rs. 2¼ ...	10,800
	32,400
Contingencies at 5 per cent.	1,600
Establishment at 5 per cent.	1,600
Total ...	35,600

(Signed) W. PARKES, M. INST. C.E.,
Engineer-in-Chief, Madras Harbour Works.

No. 314 C.

MEMORANDUM.

REFERRED, through the Financial Department, to the President, Madras Municipal Commission, for consideration and report with advertence to the marked passage at paragraph 22.

2. The question is whether the Government have only to take into account the present value of the land as compared with the cost of protection, or whether there are considerations other than those urged by Mr. Parkes for incurring the cost of protecting the whole by a longitudinal revetment.

(By Order.)

(Signed) ROSS THOMPSON, Lt.-Col., R.E.,
Ag. Under Secy. to Govt., P.W.D.

CHEPAUK,
6th February 1882.

To the Financial Department.

No. 115-B. Proceedings of the Madras Government, Financial Department, dated 2nd March, 1882, No. 295, Routine.

From A. T. ARUNDEL, Esq., President, Municipal Commission, to the Chief Secretary to Government, dated Madras, 16th February 1882, No. 263.

IN returning the enclosures which accompanied G.O., No. 230, dated 13th February, I have the honor to inform you that I know of no reason why Government should not purchase the land marked in the plan and allow the erosion of the sea to progress, if this be a more economical course than a longitudinal revetment.

From a sanitary point of view the eventual destruction of a crowded hamlet which would be rebuilt elsewhere under proper restrictions and supervision would be an advantage.

698
3

TRANSFERRED to the Public Works Department.

(True Extract.)

(Signed) C. D. MACLEAN,
Under Secretary.

To the Public Works Department, with five original papers.

No. 115-C. ORDER THEREON, 17th March 1882, No. 698 W.

IN this letter the Engineer-in-Chief of the Madras Harbour Works submits proposals for dealing with the erosion of the beach north of the harbour.

2. He proposes that the revetment be forthwith completed as far as the point marked A on the plan which accompanies his letter, leaving the coast to the northward of this point unprotected; Government however to acquire possession of the land northward and westward of A as marked by a green border on the plan.

	RS.
3. The cost of the revetment is estimated at	35,600
while the value of the land to be acquired is put down at ...	2,08,149
To this must be added the amount recently adjudged as compensation to land-holders for damage already caused	50,000
Making a total in round numbers of	2,94,000

to be added to the supplemental estimate of the Harbour Works.

4. That the completion of the sea-wall to A should be carried out there can, the Government think, be little or no question, and on grounds of economy purchase rather than further protection seems in every way advisable.

5. The erosion being admittedly due in the main to the check interposed by the harbour groynes to the movement of the sand along the coast from south to north and the recuperative action resulting therefrom, it is not at present clear to the Government where, as a consequence of the new form which the shore line north of the harbour will assume, this erosive action may be supposed to cease.

6. In reference to this point it seems desirable to ascertain whether the extent defined by the green line on Mr. Parkes's plan affords a reasonable assumption of the limitation of the action in question, and the Government would be glad to be furnished with a further report on this subject by the Engineer-in-Chief.

(True Extract.)

Lieut.-Col., R.E.,
Ag. Under Secy. to Govt., P.W.D.

To the Engineer-in-Chief, Madras Harbour Works.
„ Superintendent, Madras Harbour Works.
„ Marine Department.
„ Revenue Department.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of 1882 Madras.

PUBLIC WORKS.

To

The ENGINEER-IN-CHIEF,
MADRAS HARBOUR WORKS,
&c., &c., &c.

Dated March, 17th

Issued

Regd. Encl.

G.O., 17th March 1882, No. 698 W.

MARCH.
Nos. 115A–115C.

Proposals for dealing with the erosion of the beach, north of the Harbour.—Passing orders on—

No 4 W.

698/4

From,
The Engineer in Chief
Madras Harbour Works.

To
The Secretary to Government,
Public Works Department.

Madras
4th February 1882.

Sir,

Since I reported to you on the subject of the erosion of the Beach North of the Madras Harbour on the 25th January 1881 I have received from the Office of the Collector of Madras detailed valuations of the whole of the lands which have been already washed away by the sea and a considerable area in addition which is more or less threatened with a similar fate. This information enables me now to submit to you what I hope *may* be a final recommendation as to the course to be adopted in respect of these erosions.—

2. In my former report I pointed out that the question of the limits of the liability of the Government was one which would be likely to be extremely difficult of solution if attempted in the form of giving compensation to each

individual claimant, and that it must be solved either by a complete protection of the coast line so far as the erosive action extended, or was likely to extend, or by purchasing the threatened land so that Government would take upon itself the liability of loss, or of protection against loss, whether due to the action of the Harbour Works or to independent causes.

3 I ventured to deprecate the immediate extension of the revetment (more than was necessary for some local protection) on the ground that the data for determining its proper position and extent were very incomplete - My immediate recommendation was that the land in question should be as soon as possible acquired by the Port Authorities, whether the Government or the intended Port Trust -

4 A valuation of a portion of the land was at that time in course of being prepared on a recommendation made by Mr Thorowgood on the 15th November 1880 - (see G.O. No 2822 W) in the Collector's office, but the results have reached me only since my recent arrival in Madras - This valuation extended only to lands which have since been almost entirely washed away, but the Collector has since furnished me with a valuation of a further area which gives the full materials required.

5 There is no doubt that in the immediate vicinity of the town the coast line must be maintained on grounds of public utility irrespective of the actual value of the land -

On the other hand at some distance from the town, where the land is mostly agricultural, its value is very small compared with the cost of protecting it - Thus at the point at which erosion is now commencing a strip of land nearly three quarters of a mile wide might be washed away before the loss would be equal to the cost of the revetment.

6 The question for determination therefore is the point at which the system of physical protection should cease, and the sea should be allowed to form its own boundary - This can only be done by a careful consideration of the circumstances of each successive plot of ground which has a sea frontage, whether present or future -

5 7 It will be understood that there are elements of very great uncertainty in the data upon which this question has to be determined - On the one hand there is no reliable basis for assuming any probable limit to the erosion, and on the other hand (there is great uncertainty as to the cost of maintaining a revetment - But to a great extent these two elements of uncertainty neutralize one another - An Estimate of Rupees 30 per lineal foot of revetment is a very fair one for its first cost and maintenance for the first two or three years, but as to what may be required after that time we can form no safe opinion - If the action which would cause erosion on an unprotected shore ceases at the end of that time the revetment would require

little more attention - But if it continues the result will be a deepening of the foreshore up to the face of the revetment, which will render necessary an addition to the quantity of stone, and that in greater proportion than the increase of depth, for the increase of depth will bring heavier seas upon it, and the heavier seas will form flatter slopes -

8. Thus it would be a great mistake to assume that a revetment once made would be a safeguard against any amount of erosive action - If the erosive force is such as would have cut away 200 feet of land a revetment of Rupees 30 per foot might answer well, but if it were such as would have cut away 500 feet the same force will bring a depth of 2 fathoms against the foot of the slope and a heavy further expenditure upon it would be required - In such case the cost may be taken at 50 to 55 rupees.

9. There is thus a certain relation existing between the width of land saved from erosion and the ultimate cost of saving it, and the limits of uncertainty in our ultimate conclusion are narrowed - We may take as approximately correct the assumption that where a belt of land 200 feet wide is worth 30 rupees per lineal foot, it is worth protecting, but if we assume a belt of 300, 400 or 500 feet wide as liable to erosion we must assume a higher cost of the revetment to compare with it -

10 The accompanying plan will shew the present state of the coast line, and the properties now threatened with erosion. The alteration which has taken place to the South of the Harbour is also shewn in order that an idea may be presented of the general nature of the changes going on.

11 The revetment has now been carried as far as the Police Tannah, and it may be taken as an accepted fact that up to this point at least the existing coast line must be maintained in the public interest irrespective of the value of the land protected.

12 The present termination of the revetment is very abrupt, and it should in any case be continued with a slight bend towards the westward, so as to meet the present shore line at A. This is a distance of 1200 feet and the cost may be taken at Rs 36,000 - The termination is fixed at A rather with the view of giving a proper form to the end of the protective system than with reference to the value of the property protected, but from this point onwards for some distance we come upon land where a minimum of local inconvenience will be produced by allowing the sea full scope for its erosive action

13 The plot having the frontage AB, 420 feet in length, and a width of 500 feet, is valued, with two small buildings upon it, at Rupees 6438. The cost of revetting it to save 200 out of the 500 feet in depth would be Rs 12,600 or to save the

whole 500 feet Rs 21,000

14 There then follow 5 plots having an aggregate frontage BCDEFG of 1035 feet, and the same width as the last, 500 feet. Each of these consists of a compound and garden ground with a small bungalow upon it. The aggregate value of land and houses is estimated at Rupees 46,662. The cost of the revetment to save 200 out of the 500 feet would be Rupees 31,050, and if the erosive action continued so as to require protection against a force capable of encroaching 500 feet, the cost would be Rupees 51,750.

15. Next follows a native village consisting mainly of huts, but with a few small brick houses, a mosque and other buildings. By far the most valuable buildings are situated in the half of the plot further from the sea, so that it would be many years before they would be attacked. The length of frontage GH is 390 feet and its width 500 feet. Its estimated value is Rupees 24,275 and the cost of revetting from 11,700 to 19,500 rupees according to the strength of revetment required.

16 The next plot HI includes Flag Staff Street and a small area on the other side of it, of similar character to the last. Its frontage is 175 feet, its estimated value Rupees 8686 (of which 4000 is for a Bazaar at the extreme landward side) and the cost of revetment from 5250 to 8750 rupees

17 In the next plot IK, the valuable buildings are more scarce and the greater portion of such as there are, are again at the landward side. The frontage is 765 feet, the estimated value Rs 23784 and the cost of revetment from 22950 to 38250 rupees.

18 We now come upon properties the character of which is this. Those which are simply agricultural have a value of 20 rupees per ground of 2400 square feet. But those which have a sea frontage command a value of from 75 to 100 rupees per ground as timber depôts. This value of course depends upon their being adjacent to a free sandy beach where timber can be landed. It will follow the changes of the coast line, the land of which for the time being has the frontage commanding the enhanced value, so that the actual loss by erosion is at the agricultural rate and not at the timber yard rate.

19 At the Northern end of the Timber yards is the village of Tondiarpetta Cuppum. This village has changed its site since the the survey was made from which the present plan was copied. The huts have been re-erected on the plot of land immediately to the North of those on which the village is shown, and there is an ample area of land of small value for its further extension if necessary. The ground on which the huts formerly stood is Government property and is now waste. The land to which they have been removed is now valued at 75 Rupees per ground

as "hutting land" while that immediately adjoining and equally available for hutting is valued at 20 rupees - It seems likely there is an eye to possible future compensation in these movements.

20. From the above first approximate comparison it will thus be seen that the real question is as to the propriety of protecting or of leaving to the free action of the sea the portion between A and I - The portion AB (para 13) is clearly not worth protection - GH would probably be deemed worth it if it could be done without protecting all the intervening portion, but as this cannot be done, the whole length must be treated as one, and subjected to a further step in the process of comparison - The cost of revetting this whole length would be certainly Rupees 60,600 and might rise, if the erosive action were such as would encroach to the full extent of the area, to Rupees 101,000 - The value of the land which would be saved by the expenditure of Rupees 60,600, would be Rupees 35,000, and of the whole area which could be saved by the expenditure of Rupees 101,000 would be (as per estimate Rupees 85,971 -

21 On behalf of the proposal to purchase the land credit must also be taken for the fact that the expenditure will be reproductive so long as the land is not attacked.

22 I think therefore there can be no doubt that from a strictly economical point of view

the conclusion must be in favor of purchasing this land rather than protecting it - Whether there are any other considerations tending in the opposite direction is a question that I must leave to those of more local knowledge of the wants of the class of people affected than myself - But from the enquiries I have made I do not think the gradual removal of the block of native habitations between G & I to a narrower but longer frontage, extending over the compounds of the two neighboring bungalows, would be so great a hardship as interposing a stone bank between them and the sea - a change which would materially interfere with their daily avocations. Of the two bungalows in question one is at present vacant, and the owner makes a monthly application to Mr Thorowgood for rent, the other has been recently offered for sale, at a price much below the value estimated by the Collector. The tenants of the remaining three will certainly not be incommoded by the encroachments of the sea for some years to come, as the houses are placed further from the shore.

23 My recommendation therefore is that the revetment be forthwith completed as far as the point A, but that Northwards of that point no further attempt be made to control the action of the sea on the ground that the cost of doing so would be greater than the value of the land

to be saved. To indicate this point, and to give my reasons for determining upon it, is perhaps the limit of my duty in the matter - But as the natural result of the adoption of my recommendation would be for the Government to purchase the properties next threatened with erosion, so as to anticipate the claims of the owners, I have shown on the plan by a green border the area which I would suggest as desirable to be purchased, although of course it is only those portions immediately abutting on the sea for which the arrangements are urgent.

24 The valuation of this area made in the Collector's Office is Rs 2,08,149 and as the Committee charged with the consideration of the claims made for the land already washed away have entered into provisional agreements with the owners for their satisfaction by the payment of a sum very closely approximating to the valuation formed on the same basis as this, it is clear that it may be taken as a sufficiently close one for the present purpose of determining the proper limit of protective works.

I have the honor to be,
Sir,
Your most Obedient Servant
W Parkes M. Inst. C.E.
Engineer in Chief
M. Harbour Works

Ind No 491/8

696/9

Estimate of Revetment for 1200 feet North of Police Tannah.

9600 tons Rubble stone at $\overset{\text{Rs}}{2\frac{1}{4}}$	21,600
4800 " " " for subsequent maintenance $\overset{\text{Rs}}{2\frac{1}{4}}$	10,800
	32,400
Contingencies 5 per cent	1,600
Establishment 5 per cent	1,600
Rupees	35,600

W Parkes M. Inst. C.E.
Engineer in Chief
M. Harbour Works

Buildings & Roads

P. W. C. No 728

From

W. Parkes Esqre
Engineer in Chief
M. Harbour Work

No 4 W.

dated 4th February 1882.

No of accompaniment one

Purchase of land

Recommends — ero
by the sea North of Harb

In Finl No 357/82

Finl No 491/82

CHEPAUK,
6 Feby 1882

No. 314 C

MEMORANDUM

CURRENT No. 351

Letter from Mr W. Parkes, Engineer in Chief, M. H. Works, No 4 W d/ 4th February 1882.

Referred, through the Financial Department, to the President Madras Municipal Commission, for consideration and report with advertence to the marked passage at para 22.

2. The question is whether the Govt. ought to take into account the present value of the land as compared with the cost of protection, or whether there are considerations other than those urged by Mr Parkes for incurring the cost of protecting the whole by a longitudinal revetment.

(By Order.)

Colonel
~~Major~~, R.E.,
~~Depy. Chief Engineer~~, P.W.D.
Ag under Secy to Govt.

To
The Financial Department, with letter in original (return requested

From

The Chief Engineer,

P. W. D.

To

The Financial Dy

Dated 6th Feby

Despd.
Recd. } 1882

No. 314 C

ENCLOSURES.

698/11

READ the following :—

From the Engineer-in-Chief M.H.W., No. 4 W d/ 4th Feby 1882.

Pro: in the Financial Dept No 295 Routine d/ 2d March

FOR ORDERS.

I doubt whether the recent proposals for compensation concerning portion of the area included in Mr. P's Estimate. This must be ascertained as it materially affects the consideration.

That the completion of the sea wall to A. should be carried out there can I presume be little or no question. & vide green border.

And on grounds of economy purchase rather than further protection seems unquestionably advisable.

But how we get in a position to decide the point within which reformation of the beach by natural action will certainly not take place

The whole mischief is

Mr. Parkes sums up his recommendations in para 23 of his Report. They are to the effect that the revetment be forthwith completed as far as A on the plan — leaving the coast to the northward of this point unprotected; the land & however northward of A being acquired by Government.

The value of this land is Estimated at Rupees 2,08,149

This sum added to Rs 35,600 on account of the new revetment will raise the cost of the present proposals to Rupees 2,43,749

The compensation

recently proposed by the Special Committee will, it is understood, come out of the sum of Rs 2,08,149 above referred to.

A. W. Hemsley

— Colonel R.E.

Secretary to Govt P.W.D.

The Hon. W. Sh [illegible]

FOR ORDERS.

× papers in circulation

H.S.W.

R.S.

Clearly due to the check interposed by the Harbour groynes to the natural recuperative action of the current from the south. & we are banking up south of the south groyne the material wh. wd. naturally have reformed the beach north of the North groyne when eroded by the ~~northern~~ current from the north - At least this I take it is the position. & if so can we get from a reliable theory as to the most Northern point up to wh. this check will operate. I presume there is evidence that somewhere it ceases to have effect. Is Mr. F.'s most Northern groyne line a reasonable assumption of this point? I observe that as far erosion is [illegible] information wd. seem to have proceeded - & if this may be accepted as the future conditions we must make up our minds to the adoption of the most economical course for settling claims on Govt. & purchase seems to be unquestionably this course. The cost will have to be added to the Harbour works supplemental estimate. [illegible] 21/2/..8

P. W. C. No. 263

89

Municipal Office.

Public Works and Conservancy Department.

Madras, 16th February 1882.

CURRENT No. 497.

698/12

From

A. T. Arundel Esqr
President, Municipal Commission.

To

The Hon'ble D. Davidson C.S.I.
Chief Secretary to Government
Fort Saint George.

Sir,

In returning the enclosure which accompanied G. O. No. 230 dated 13th February I have the honor to inform you that I know of no reason why Government should not purchase the land marked in the plan and allow the erosion of the sea to progress if this be a more economical course than a longitudinal revetment.

From a sanitary point of view the eventual destruction of a crowded hamlet which would be rebuilt elsewhere under proper restrictions and supervision would be an advantage.

I have the honor to be
Sir,
Your most obedt. Servt.

A. T. Arundel

President Munl Commn.

L.W.M.

Financial Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

READ the following letter

From the President of the Municipal Commission, Madras, dated 16th. February 1882 No. 263.

Order thereon 2d March 1882 No. 295 Finl.

Transferred to the Public Works Department.

(True Extract)

C. D. Maclean

Under Secretary

To
The Public Works Department.
with 5 original papers

P.J.T.

Govt. of {188 } Madrás.

P. W. C. No 130

Ch. 314. C. 6.2.82
" 203. 26.1.82
Orig! E.O. 3186. W. 24.12.82
E.O. 2130. W. 26.8.81
E.O 561. W. 1.3.81
E.O 2823. W. 7.12.80

No 698 W.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 17th March

Read the following ; 14

From

The Engineer-in-Chief, M. H. Works (H.E. No 4 W of 4th Feby 1882)

Proceedings, Financial Dept. (" " 295 Routine of 12th March

In this letter the

Engineer-in-Chief of the

Madras Harbour Works

submits proposals for deali

with the erosion of the

Beach north of the Harbou

2. He proposes that the

revetment be forthwith

completed as far as the

point marked A on

plan which accompanies

letter, leaving the coast

to the northward of this

point unprotected - Go

however to acquire possession of the land northward and westward of A as marked by a green border on the plan.

3. The cost of the revetment is estimated at Rs 35,600 while the value of the land to be acquired is put down at " 2,08,149. To this must be added the amount recently adjudged as compensation to land holders for damage already caused " 50,000 making a total in round numbers of Rs 2,94,000 to be added to the Supple-mental Estimate of the Harbour Works—

4. That the completion of the seawall to A should be carried out there can, the Government think, be little or no question—and on grounds of economy purchase rather than further protection seems in every way advisable—

5. The erosion being ad-mittedly due in the main to the check inter-posed by the Harbour groynes to the movement of the sand along the coast from south to north and the recuperative action resulting therefrom, it is not at present clear to the Government,

where as a consequence of the new form which the shore line north of the harbour will assume this erosive action may be supposed to cease.

6 In reference to this point it seems desirable to ascertain whether the extent defined by the green line on Mr. Parkes' plan affords a reasonable assumption of the limitation of the action in question ~~[illegible]~~ question and the Government would be glad to be furnished with a further report on this subject

by the Engineer-in-Chief.

698/16

16/3/82

Engineer-in-Chief M. H. Walls
Superintendent M. H. Walls
Marine Department.
Revenue Department.

24-3-96 ✓
1-2-05 ✓

1380.

Govt. of {1882} Madras.

PUBLIC WORKS.

7. fo 10-7-02 & 10159 W

To

Cir
18/3/82

Dated

Issued

Recd.

Encl.

G. O. 17th March 1882, No. 698 W.

Nos. 115A to 115C

Proposals for dealing with the Erosion of the Beach North of the Harbour.

Passing orders on