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M.R.O. 1—82400—22-11-50

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

C2021/5 12.5

G.O. No. 2389 Press Mis.

45 46

Dated 11—12—1857.

Not to be folded or roughly handled

No. 45. Read the following letter from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 24th October 1857, No. 4703.

SIR,

In conformity with the orders of Government in the Public Department No. 1413, of the 3rd Instant, and in Company with Captain Rawlins the Executive Officer, specially entrusted with the construction of the defences of the coast at the Presidency, the Superintending Engineer in charge of the Central Circle Public Work having personally inspected the North Beach Groins and the coast at Royapooram also, I now do myself the honor to forward a report containing the opinions at which Major Lawford has arrived after a careful examination of the whole of the localities implicated in the Municipal Commissioner's letter of 25th Ultimo.

Copy of Extract Proceedings No. 4552, of 19th October 1857.
Do. do. No. 4704, of 24th October 1857.

2. In transmitting this paper, I greatly regret to find that I am called on to renew the observations contained in para 5 of my despatch No. 520, of the 20th May last. I am indeed concerned to notice that the precaution and expedient suggested by Captain Collyer on the 23rd May last for arresting the injurious action of the surf and current on the North Beach between the Custom House and Clives Battery, and which on my own recommendation of the 25th Idem, the Government were pleased to authorize at an outly of Rupees 3,500, is now in the 2nd 3rd and 4th paras of Major Lawfords letter of the 9th Instant condemned as inoperative, if not indeed denounced as a useless incurrence of expenditure.

3. On my own part also, I have similarly to regret that the Superintending Engineer in charge of the Central Circle represents to the Government in the 3rd para of his report, that the only means of permanently maintaining the plateau to be reclaimed from the sea north of Clives Battery is by the establishment of that very outer bulwork wall of masonry which in the 10th para of my despatch of the 3rd March last No. 10619, I myself had so earnertly deprecated the construction of being fortified in my demurrer by the opinion of the Commandant of Engineers; to whose practical experience at Vizagapatam, and elsewhere, as well as to whose professional pre-eminence even a passing tribute might savour of supererogation.

4. But whilst this dissonance of professional opinion between the two Superintending Engineers may at first sight seem likely to embarrass the Government, and to prevent that confidence in the measures suggested for adoption which is so desirable I must ask leave to offer a few observations which I hope will tend to explain away much of the discrepancy which in itself looks sufficiently perplexing.

5. It is to be observed then that Major Lawfords late inspection of the North Beach was made under the very great disadvantage of not having visited the place for many months past: and thus all means of separating between cause and effect, and of forming any correct judgment of the practical action of the new dwarf groin, were altogether wanting, I am led to suppose also that the Major has not perused the correspondence of May and June last with the final order of Government No. 1345, of 13th July 1857.

6. In the former matter I fortunately possess the advantage it is so much to be regretted that the Superintending Engineer is without, and I have the greatest pleasure in offering my own counter testimony as to the benefit of the small work suggested by Captain Collyer, and which has been carried into execution to the full extent, (or nearly so,) that is necessary.

7. I entertain no doubt whatever in my own mind that if Major Lawford had beheld the erosive action on the North Beach in the month of May last when in full operation, he not only would have eagerly had recourse to the same inexpensive expedients as Captain Collyer, and which I was compelled by the urgency of the case to support (although opposed to the opinious I placed before Government on the 3rd March last) but he also would have been the first to acknowledge how well the dwarf groin had fulfilled its object of arresting further injury, and even of partially gaining a deposit.

8. It may not be irrelevant to remind the Government that whilst it must be admitted the distances between the groins are too great for a system of perfect defence North of the Light House, yet that out of consideration for the traffic of the Port and the plying of the Masoolah

boats in safety, it has been absolutely necessary to abandon the obvious and otherwise most desirable measure of constructing secondary intermediate groins at such distances as should prevent the exposure which now unavoidably occurs of any portion of DeHavillands Bulwark. So that in applying groins for protecting or reclaiming the Madras Coast, the systematic extension of the protective principle to its legitimate limits is prevented by the compromise or concession not less urgently demanded by the Master Attendant.

9. Unable then to adopt the expedient of a first class or even a full sized secondary groin between Clive's Battery No. 26 and the Custom House groin No. 15 the advisability of which has been shewn by the unexpected and extensive in roads upon the spacious pleateau so rapidly reclaimed by the agency of the very works now proved to be defective Captain Collyer suggested a groin of less dimensions than any yet established, and I assure the Government that I had repeated occasion to admire the rapidity with which whilst nascent in point of size it arrested the erosive process which was creating so much alarm, and I reckon that it has already more than re-paid the cost of its Establishment.

10. It would be very satisfactory if the causes could be revealed of an action directly in opposition to that which prevailed under the self same agency in 1855, and 1856,but whilst deposit and accumulation proceeded with wonderful rapidity in the S. W. Monsoons of those two years, so much so indeed that the reclaimed plateau is reported to have defied the storms of November and December last, the only injury having been done (see para 6 letter from Chief Engineer 3rd March 1857, No. 10619) by the " channels formed by inland surface drainage" yet in the prevalence of the south winds and strong currents to the northward during the whole of 1857, the erosion and destruction of the plateau have been even more expeditious than the formation in 1855-56.

11. It is not to be wondered at, that the professional Officer beholding the loss of so much and such valuable reclaimed land in a situation of all others the most convenient for the trade of the port should seek its permanent maintenance by the construction of a second and external bulwark of a pattern which has the success of more than half a century in its favor. But as yet I do not myself support the proposition any more than I did when reviewing a similar proposal in my despatch of the 3rd of last March, my continued opposition being founded on the reasons then assigned.

12. It is quite true that by the steam apparatus now at command the process and cost of getting in a foundation are surprisingly reduced, but with the proofs we now have of the uncertain actions liable to be developed and in directions we cannot as yet foresee I cannot but believe that by giving a permanent defence to the deposit between Clive's Battery and the Custom House groin, we may very possibly invite erosive attack on the no less valuable space immediately to the *South* of the Custom House.

13. I have on so many occasions obtruded my views and opinions on the Government at considerable length, that I should simply re-produce earlier statements already before you if I were to prolong the present address.

14. I would add only therefore that I have seen no cause to alter what is stated in my despatch of the 3rd of March as to the rationale of action of coast groins generally, I allude to their uncertainty their irregularity liability to erosion or increment, and above all to their tardy effect in gaining the final general outline belonging to the causes which their agency calls into activity, thus making as before stated, simple lapse of time an essential element of their final results.

15. I entirely concur with Major Lawfords remarks on North Royapooram, and join with him in the necessity of connecting the heels of the groins with the Beach from which they have been separated by the hardly venial neglect of the Executive Officer, who has doubtless amidst his other numerous and laborious duties, omitted to pay recent periodcal visits to the Royapooram groins, so as to detect the threatened mischief.

16. In conclusion, I beg leave to solicit the attention of Government to the order passed upon the Superintending Engineer's letter, for though I continue to be supported by the professional opinion of the Commandant of Engineers as to the principles of groin treatment yet

should the Government be of opinion that the questions at issue is chiefly one of *expence*, it will be desirable that we should known at what cost we can establish the external bulwark which Major Lawford believes, probably quite truly, will permanently retain the North Beach plateau once reclaimed, but now again recovered by the sea.

17. I have omitted to request the attention of Government to the circumstance that Major Lawford's inspection has taken place just as the periodical change of season has thoroughly declared itself ; the wind and current being now from the North East instead of from the South, it seems only reasonable to suppose not only that all dangerous action to the North Beach road will now be suspended, but that amidst the counter influences which now prevail deposits will be formed so as to supply at least in part, the space destroyed during the long continuance of the other monsoon.

Extract from the Proceedings of the Chief Engineer, dated 19th October 1857, No. 4552.

Read the following letter from Major E. LAWFORD, Superintending Engineer in charge of Central Circle ; to Colonel C. E. FABER, Chief Engineer, dated 9th October 1857, No. $\frac{2}{2\frac{2}{4}}$.

SIR,

With reference to Extract Minutes of Consultation No. 1413 dated 3rd October 1857, I have the honor to report, that I have inspected the North Beach from the Custom House to the new Tannah at Royapooram accompanied by Captain Rawlins the Garrison Engineer.

2. The space between the Custom House and Clive's Battery has been very much encroached upon by the sea during the past nine months, and the road formed in advance of the bulwark, has been greatly destroyed. There is not much action in this part at present, but I do not think it possible to prevent the total loss of the road up to the bulwark even by the completion of the dwarf groyne lately sanctioned and already partly constructed.

3. The only means in my opinion of permanently retaining a sufficient breadth of road along this very crowded thoroughfare, would be either by constructing a bulwark of similar section to DeHavilland's, or driving a row of piles on the proposed new line of road. The piling which should be at least 20 feet below low water mark, would appear to be the best and perhaps the cheapest plan, considering the existing facilities for pile driving, and I have desired Captain Rawlins to estimate for it accordingly.

4. I do not think, that any permanent good will be derived from the dwarf groyne, and its cost would be more efficiently laid out in piling.

5. To the north of Clive's Battery, the beach is not at present much endangered for some distance, but a serious encroachment has taken place at the new Tannah groyne, which is threatened with complete separation from the beach, as has already happened to the groyne a little further northward. The heels of these works should be immediately extended and secured, or the village of Royapooram will be exposed to great danger.

6. It is remarkable, that the soil along this part of the shore, appears at 3 feet below the surface, to be only sea sand, and is therefore rapidly washed away when any action takes effect on it.

7. Captain Rawlins will take all possible precaution against danger but it is impossible to foresee the effects of the monsoon.

Resolved that the Garrison Engineer be called upon to expedite the preparation of the estimate for piling for a revetment wall or outer bulwark to secure the Platform of the North Beach road between the Custom House and Clive's Battery ordered by the Superintending Engineer in charge of the Central Circle. Resolved also that Major Lawford be instructed to have the goodness to fix the precise alignment for the outer bulwark now projected, and to assign its definite dimensions for the better guidance of the Executive Officer, now absent on privilege leave but for the benefit of his health.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

Extract from the Proceedings of the Chief Engineer, dated 24th October 1857, No. 4704.

Read the following Minute by Major E. LAWFORD, Superintending Engineer, Southern Circle, in charge of Central Circle of Public Works ; to Colonel C. E. FABER, Chief Engineer, dated 22nd October 1857.

Referring to my letter to the Chief Engineer No. $\frac{8}{12}$ dated 9th Instant, reporting on the state of the Beach and groynes to the north of the Custom House, I feel it necessary to offer a few remarks to accompany Colonel Faber's report to Government on the subject.

Having been absent from Madras from January to July last, I was entirely ignorant of the correspondence that took place regarding the groynes in that internal; and when the recent reference from the Municipal Commissioners and a private one from Colonel Boulderson were referred to me for disposal, I proceeded to inspect the Beach, without even the advantage of knowing that the Chief Engineer, and Captain Collyer, has carefully considered its previous state.

My belief in the precarious nature of any breach formed by groynes, is founded on actual observation of results at Madras and Tranquebar; for at both places I have seen sand once accumulated, entirely swept away, not during storms, but by the gradual action of the current, which has appeared more erosive under the lee of a groyne than on the open beach.

Hence I conclude, that no road such as that lately existing to the north of the Custom House, can be considered permanently secure, without the protection of a revetment of some kind, and although I admit that appearances on the beach at Arbuthnot's groyne are against my views I still do not feel confident of the stability of the formation there.

I do not, and no one can question the efficacy of groynes, in arresting sand and forming beach, it is their power of permanent retention I have been driven to doubt.

No. 4704, dated 24th October 1857.

Resolved with reference to the foregoing Supplemental notice of the North Beach groynes, by the Superintending Engineer in charge of the Central Circle that a transcript of that document be also appended to the Chief Engineer's despatch to Government.

2. It is observed that Major Lawford has now officially admitted that which had been imputed as to omission of making himself acquainted with the previous history of the North Beach groynes and the dwarf groyn. The Chief Engineer cannot but regret that the usual and almost invariable practice of calling for a complete file of all previous correspondence before proceeding to report officially on the subject has not been pursued on the prsent occasion, as an acquaintance with the state of affairs, when Captain Collyer proposed reducing the height of the two windward groynes in their stalk and establishing a small intermediate rudimentary groyne, might and probably would have prevented that apparent professional dissenance of view, which Colonel Faber has regretted the existence of. It was however impossible to forsee that Major Lawford would neglect so obvious a procedure as consulting antecedent correspondence and the Government will perhaps concur in the opinion that such an omission, on so important and interesting an occasion, is altogether unaccountable.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

No. 46. ORDER THEREON, No. 2309; dated 11th December 1857.

In this letter, the Chief Engineer forwards a report from the Superintending Engineer in charge of Centre Circle on the encroachments of the Sea on the North Beach between the Custom House and Clive's Battery. Major Lawford states, that the space between these two places has been very much encroached upon during the past nine months, and that the road formed in advance of the bulwark has been greatly destroyed; he does not think that the dwarf groyne, the construction of which was sanctioned by Government in Extract Minutes Consultation 13th

July last, at an estimated cost of Rupees 3,600, and now in progress, will, on completion, prevent the total loss of the road up to the bulwark, nor does he believe that any permanent good will eventually be derived from it. He is of opinion that the only means of permanently retaining a sufficient breadth of road in that locality is either by the construction of bulwark of similar section to DeHavillands, or driving a row of piles on the new line of road.

2. Major Lawford also notices the encroachments at two other groynes north of Clive's Battery, and recommends that the heels of these works should be immediately extended and secured, as he fears that otherwise the village at Royapoorum will be endangered.

3. In regard to the first point, the Chief Engineer takes a different view of the matter, and maintains that groynes afford the best protective means. He has nevertheless directed the Garrison Engineer to expedite the estimate for a revetment wall, or outer bulwark, ordered by the Superintending Engineer for the protection of the North Beach road, between the places mentioned above.

4. In respect to the second point, the Chief Engineer concurs with Major Lawford in the necessity of connecting the heels of the groynes at North Royapooram, with the beach, but it does not appear that he has given any definite instructions on the subject.

5. The Government observe that, in his letter of the 1st February last, Captain Rawlins submitted an estimate for constructing "a bulwark stone revetment" along the face of the beach, of about $\frac{1}{3}$ the sectional area of that of DeHavillands, and calculated the cost at Rupees 45,360, if constructed entirely of new stone at Rupees 11,340, if all the stone were taken from DeHavillands' bulwark; and Rupees 28,350 if half were taken therefrom and the other half obtained from the quarries. The Chief Engineer considered such a bulwark undesirable, and the Government were not disposed to allow DeHavillands' bulwark to be interfered with. The Governor in Council now desires to be informed to what distance northward DeHavillands' wall was originally carried, whether any portion of it ever extended beyond the Custom House towards Clive's Battery, and if so whether it was left in position, when the road was widened in that locality. A plan elucidating the points above indicated should also be submitted.

6. As regards the question now before them, the Government are disposed to adopt the view taken by Major Lawford that a retaining wall is necessary to secure the road between the Sea Custom House and Clive's Battery, and they therefore approve the instructions issued by the Chief Engineer for the preparation of an estimate, and desire that the same may be laid before them on an early date.

(Signed) H. FORBES,
Acting Secretary to Government.

No. 4552

Extract from the Proceedings of the Chief Engineer
in the Department of Public Works.

Under date the 19th October 1857

Read the following

No. 2/324

From

The Superintending Engineer
in charge of Central Circle

To

The Chief Engineer D & W

Sir

With reference to Extract Minutes
of Consultation No. 1413 dated 3rd October 1857
I have the honor to report, that I have inspected the North Beach from the Custom House to the new Jamaah at Royapooram accompanied by Captain Rawlins the Garrison Engineer

2 The Space between the Custom House and Olives Battery has been very much encroached upon by the sea during the past nine months, and the road formed in advance of the Bulwark has been greatly destroyed. There is not much action on this part at present, but I do not think it

it possible to prevent the total loss of the road up to the bulwork even by the completion of the dwarf groynes lately sanctioned and already partly Constructed.

3 The only means in my opinion of permanently retaining a sufficient breadth of road along this very crowded thoroughfare, would be either by Constructing a bulwork of similar section to Dr. Havillands, or driving a row of piles on the proposed new line of road. The piling which should be at least 20 feet below low water mark, would appear to be the best and perhaps the cheapest plan, Considering the existing facilities for pile driving, and I have desired Captain Rawlins to estimate for it accordingly.

4 I do not think, that any permanent good will be derived from the dwarf groyne, and its Cost would be more efficiently laid out in piling.

5 To the north of Olives Battery, the Beach is not at present much endangered for some distance, but a serious encroachment has taken place at the new Jannah Groyne, which is threatened in the Complete Separation from the Beach, as has already happened to the Groyne a little further northward. The heads of these works should be immediately extended and Secured, or the Village of Royapooram will be exposed to great danger.

6 It is remarkable, that the soil along this part of the shore, appears at 3 feet below the surface, to be oily sea sand, and is therefore rapidly washed away when any action takes effect on it.

7 Captain Rawlins will take all possible precaution against danger but it is impossible to foresee the effects of the monsoon.

I have the honor to be
Sir
Your most obt Servt
Signed C Lawford Major
In Charge of Ft. Circle

Central office of P.W.
Fort St. George
9th October 1857

To
The Chief Engineer D. P. W.

Resolved that the Garrison Engineer be called upon to expedite the preparation of the Estimate for piling for a revetment wall or outer Bulwork to secure the platform of the North Beach Road between the

Malta 3

Enclosure No 1 to Colonel Officer's Letter
Fort Saint George
24 October 1857

From
The Chief Engineer

To
The Secretary to Government Fort

Sir,

In continuity with the order of Government, in the Public Department, No 413 of the 3d instant, and in conformity with Captain Rawlins the Executive Engineer's proceedings of the 17th instant, I have the honor to forward a report, and to request the sanction of Government for the Master Gunner of the Fort to be allowed the indulgence of a Bungalow on the Esplanade, during the absence of the Officer, now on furlough to Europe.

2. I have the honor to transmit this letter of application from Captain Rawlins, the Executive Officer, specially entrusted with the duties of Master Attendant, and Superintending Engineer in charge of the Harbour and Roads, and to request that the Government will be pleased to direct the Public Department to issue the necessary orders on the subject.

I have &c

(Signed) C.E. Faber Colonel
Chief Engineer

1857 Sept 9

Enclosure No 1 to Colonel Faber's Letter dated 24 October 1857

From
The Chief Engineer

To
The Secretary to Government

Dated 24 October 1857
Rec'd 26 October 1857
Pub 2 Nov 1857

Copy of a Proceedings on the report of Major Lawford, Superintending Engineer & Coriale reporting on the North Beach Groynes.

I have &c

(Signed) C.E. Faber Colonel
Chief Engineer

to renew the observation contained in paras of my despatch No 220 of the 20th May last. I am indeed concerned to notice that the precaution and expedient suggested by Captain Collyer on the 23rd May last for arresting the injurious action of the surf and current on the North Beach between the Custom House and Clive Battery, and which on my own recommendation of the 23rd were the Government were pleased to authorize at an outlay of Rupees 3000, is alluded to in the 2nd & 3rd paras of Major Crawford's letter of the 9th instant condemned as inoperative if not indeed denounced as useless incurrence of the expenditure.

3 On my own part also I have similarly to regret that the Superintending Engineer in charge of the Central Circle represents to the Government in the 5th para of his report, that the only means of permanently maintaining the plateau to be reclaimed from the sea north of Clive's Battery is by the establishment of that very outer bulwark wall of masonry which in the 10th Para of my despatch of the 3rd March last No 106 I myself had so earnestly deprecated the construction

being fortified in my demurrer by the opinion of the Commandant of Engineers; to whose practical experience at Vizagapatam, and elsewhere, as well as to whose professional pre-eminence even a passing tribute ought savour of supererogation.-

But whilst the dissonance of professional opinion between the two Supt. Engineers may at first sight seem likely to embarass the Government, and to prevent that confidence in the measures suggested for adoption which is so desirable I must ask leave to offer a few observations which I hope will tend to explain away much of the discrepancy which in itself looks sufficiently perplexing.

It is to be observed then that Major Crawfords late inspection of the North Beach was made under the very great disadvantage of not having visited the place for many months past, and thus all means of separating between cause and effect, and of forming any correct judgment of the practical action of the new dwerf groin were altogether wanting I am led to suppose also that the Major has not perused the correspondence of May and June last with the final order of

Government No 1345 of 13 July 1853.-

6. In the former matter I fortunately possess the advantage it is so much to be regretted that the Superintending Engineer is without, and I have the greatest pleasure in offering my own corroborative testimony as to the benefit of the small work suggested by Captain Collyer, and which has been carried into execution to the full extent, (or nearly so that is necessary.-

7. I entertain no doubt whatever in my own mind that if Major Lawford had beheld the erosive action on the North Beach in the month of May last when in full operation he not only would have eagerly had recourse to the same inexpensive expedient as Captain Collyer, and which I was compelled by the urgency of the case to support (although opposed to the opinion I placed before Government on the 3d March last) but he also would have been the first to acknowledge how well the Outward groin had fulfilled its object of arresting further injury and even of partially gaining a deposit.-

8. It may not be irrelevant here to remind the Government that whilst it

must be admitted the distance between the groins are too great for a system of perfect defence north of the Light House, yet that out of consideration for the traffic of the Port and the plying of the masoolah boats in safety, it was deemed absolutely necessary to abandon the obvious and otherwise most desirable measure of constructing secondary intermediate groins at such distances as should prevent the exposure which now unavoidably occurs of any portion of Dr Hamilton's Bulwark. So that in applying groins for protecting or reclaiming the Madras Coast, the systematic extension of the protective principle to its legitimate limits is prevented by the compromises or concessions not less urgently demanded by the Master Attendant.

9. Unable then to adopt the expedient of a first class or even a full sized secondary groin between Flues Battery No 26 and the Custom House groin No 15, the advisability of which has been shewn by the unexpected and extensive inroads upon the spacious plateau so rapidly reclaimed by the agency of the

of the very works now proved to be defective Captain Collyer suggested a groin of less dimensions than any yet established and I assure the Govt that I had repeated occasion to admire the rapidity with which whilst nascent in point of size it arrested the erosive process which was creating so much alarm, and I reckon that it has already more than repaid the cost of its establishment.

10th Dr It would be very satisfactory if the causes could be revealed of an action directly in opposition to that which prevailed under the self same agency in 1855 and 1856 but whilst deposit and accumulation proceeded with wonderful rapidity in the S.W. Monsoons of those two years to such so indeed that the reclaimed plateau is reported to have defied the storms of November and December last the only injury having been done (see para 6 Letter from Chief Engineer 5th March/57 No 1069) by the "channels" formed by inland surface drainage yet in the prevalence of the south winds & strong currents to the northward during the whole of 1857, the erosion and destruction of the plateau have been even more expeditious

than the formation in 1855/56.

11 It is not to be wondered at, that the professional officer beholding the loss of so much and such valuable reclaimed land in a situation of all others the most convenient for the trade of the port should seek its permanent maintenance by the construction of a second and external bulwark of a pattern which has the success of more than half a century in its favor. But as yet I do not myself support the proposition any more than I did when receiving a similar proposal in my despatch of the 3d of last March my continued opposition being founded on the reasons then assigned

12 It is quite true that by the steam apparatus now at command the process & cost of getting in a foundation are surprisingly reduced, but with the proofs we now have of the uncertain actions liable to be developed and in directions we cannot as yet foresee I cannot but believe that by giving a permanent defence to the deposit between Clive Battery and the Custom House groin, we may very possibly invite erosive attack on the no-

less valuable space immediately to the South of the Custom House!

13 I have on so many occasions obtruded my views and opinions on the Government at considerable length, that I should simply reproduce earlier statement already before you if I were to prolong the present address

14 I would add only therefore that I have seen no cause to alter what is stated in my despatch of the 3rd of March as to the rationale of action of coast groins generally. I allude to their uncertainity, their irregularity, liability to erosion or increment, and above all to their tardy effect in gaining the final general outline belonging to the causes which their agency calls into activity, thus making as before stated, simple lapse of time an essential element of their final results.

15 I entirely concur with Major Lawfords remarks on North Royapooram, and join with him in the necessity of connecting the heels of the groins with the Beach from which they have been separated by the barely venial neglect of the Executive Officer, who has doubtless amidst his other

numerous and laborious duties, omitted to pay recent periodical visits to the Royapooram groins, so as to detect the threatened mischief

16 In conclusion, I beg leave to solicit the attention of Government to the order passed upon the Superintending Engineers letter, for though I continue to be supported by the professional opinion of the Comdt of Engrs as to the principles of groin treatment yet should the Govt be of opinion that the questions at issue are wholly of expence, it will be desirable that we should know at what cost we can establish the external bulwark which Major Lawford believes, probably quite truly, will permanently retain the North Beach plateau once reclaimed, but now again recovered by the sea

17 I have omitted to request the attention of Government to the circumstance that Major Lawford's inspection has taken place just as the periodical change of season has thoroughly declared itself; the wind and current being now from the north east instead of from the South, it seems only reasonable to suppose not only that all dangerous action to the North Beach road will now be suspended, but that amidst the counter influences which now prevail deposits will be formed so as to supply

at least in part, the space destroyed during the long continuance of the other monsoon.

Central Office of PW.
Fort Saint Louis
24 October 1857

I have the honor to be
Sir
Your most Obed. Sv.
Col. Porter Colonel
Chief Engineer.

Cond. 13th Octr 1857, R. 257-55
" 11th Augt " " 97-62
" 7th April " " 5-6
" 14th July " " 76-77

P.W. Cons. 1857 15th Decr No 2116

From The Chief Engineer
To The Secy to Govt P.W.D.

Dated 24th October 1857
Recd 24th

[illegible]

No 4704 23

Extract from the Proceedings of the Chief Engineer in the Department of Public Works.

Under date the 24 October 1857

Read the following

Minute by Major E. Lawford Superintending Engineer Southern Circle. In charge of Central Circle of Public Works.

Referring to my letter to the Chief Engineer No $\frac{2}{224}$ dated 4 Instant, reporting on the state of the Beach and groynes to the north of the Custom House, I feel it necessary to offer a few remarks to accompany Colonel Faber's report to Government on the subject.

Having been absent from Madras from January to July last, I was entirely ignorant of the correspondence that took place regarding the groynes in that interval; and when the recent reference from the Municipal Commissioners and a private one from Colonel Boulderson were referred to me for disposal, I proceeded to inspect the Beach without even the advantage of knowing that the Chief Engineer, and Captain Collyer, has carefully considered its previous state.—

state.

My belief in the precarious nature of any beach formed by Groynes, is founded on actual observation of results at Madras and Tranquebar; for at both places I have seen sand once accumulated, entirely swept away, not during storms, but by the gradual action of the current, which has appeared more erosive under the lee of a groyne than on the open beach.

Hence I conclude, that no naval work such as that lately existing to the North of the Custom House, can be considered permanently secure, without the protection of a revetment of some kind; and although I admit that appearances in the Beach at Arbuthnot's groyne are against my views I still do not feel confident of the stability of the formation there.—

I do not, and no one can question the efficacy of groynes, in arresting sand and forming beach, it is their power of permanent retention I have been driven to doubt.

Fort St George
22nd Oct 1857

(Signed) F. Lawford. Major
Supg Engr in Cycle Mch
Central Circle of PW

To
Colonel C.E. Faber
Chief Engineer D.P.W
Fort St George.

Resolved with reference to the foregoing supplemental notice of the North Beach groins by the Superintending Engineer in charge of the Central Circle that a transcript of that document be also appended to the Chief Engineer's despatch to Govt.

No 4703 dated 24th Octr/57

2. It is observed that Major Lawford has now officially admitted that which had been imputed as to omission of making himself acquainted with the previous history of the North Beach Groins and the Dwarf groin.— The Chief Engineer cannot but regret that the usual and almost invariable practice of calling for a complete file of all previous correspondence before proceeding to report officially on the subject has not been pursued on the present occasion, as an acquaintance with the state of affairs, when Capt. Collyer proposed reducing the height of the two windward groins in their stalk and establishing a small intermediate rudimentary groin, might and probably would have prevented that apparent inconsistency of view, which Colonel Faber has regretted the existence of. It was however impossible to foresee that Major Lawford would neglect so obvious a procedure as consulting antecedent correspondence and

the Government will perhaps concur in the opinion that such an omission on so important and interesting an occasion, is altogether unaccountable.

(True Extract)
T. E. Colebr Colonel
Chief Engineer

1857 Rec'd
No
Extract from the Proceedings of the Chief Engineer dated 24th October 1857
Relative to Ornamental Railings

Rec'd 29 Oct 57
3 Encls
Public Works Department
Transmits Extracts from the Proceedings of the Chief Engineer in the Public Works Department relative to Ornamental Railings
Referred 29 Oct 57

The Secretary to Govern.t P.W.D.

For Orders. 27

Public Works Department No 2110.

From the Chief Engineer 24th October 1857.

I cannot write Major Laughton that a retaining wall is necessary between the roadway

I think this was one the affording a very narrow little foot-path but I do not see any

Inmates of it. When I was last in the fort the Engr. wished to construct the retaining wall

the road was widened -

H.

G

I fully concur in the impolicy of removing the old bulwark when it was proposed & it is fortunate it has been retained.

The question now appears to be whether another bulwark should be formed outside of the present groins or whether the principle of the groins should be extended by forming smaller groins between the larger ones which does not interfere with the Land? Slopes

There is quite a professional rivalry & opinions seem to differ greatly. Telford & Sir John Rennie & other Engineers advocate the latter - Mr Lawford the former plan

The subject is one of considerable importance

along the back beach. Whether the stones for repair in which case the part of the road & some of the houses will probably see this have been carried away -

East opened Branches this destruction of the work. Add the Breakwater - if there was not a portion of it from the Custom House to this Battery - & which it was left in position when

=tance both as regards the safety of the beach road & the bags & bends here involved in such works

Must not these be well to have a more carefully considered & matured professional opinion than like these that now a course to suggest we take in the matter

Col Colleton is state here but does not say if Bellary be here only his opinion at second hand) W.C.

W.C.

Public Works Department

No. 2309.

Extract from the Minutes of Council Station

Under date the 11th November 1857

Read the following letter from the Chief Engineer

(Recorded 25th Oct 57 No 2370)

In this letter the Chief Engineer forwards a report from the Superintending Engineer in charge of the Central circle on the encroachments of the sea on the North beach between the Custom House and Clive battery. Major Crawford states that the space between these

W.C.

these two places has been very much encroached upon during the past nine months, and that the road formed in advance of the Bulwark has been greatly destroyed; he does not think that the dwarf groyne, the construction of which was sanctioned by Government in Extract Minutes Consultation 13th July last, at an estimated cost of Rupees 3600, and now in progress, will on completion, prevent the total loss of the road & the bulwark, nor does he believe that any permanent good will eventually be derived from it. Their opinion

opinion that the only means of permanently retaining a sufficient breadth of road in that locality is either by the construction of a bulwark of similar section to De Havilland's, or driving a row of piles on the new line of road.

2 Major Sawford also notices the ~~flat~~ encroachments at two other groynes — & north of Cline's battery, and recommends that the heads of these works should be immediately extended and secured, as ~~else~~ likewise he fears that the Village at Royapooram will be endangered.

&c

3. In regard to the first point, the Chief Engineer takes a different view of the matter, and maintains that Groynes afford the best protective means. He has nevertheless directed the Garrison Engineer to expend the Estimate for a revetment wall or under bulwark, ordered by the Superintending Engineer for the protection of the North beach road, between the pilasters mentioned above.

4. In respect to the second point the Chief Engineer concurs with Major Sanford on the necessity of connecting the heads of the

the groynes at North Roy-apooram, with the Beach, but it does not appear that he has given any definite instructions on the subject.

5. The Government observe that in his letter of the 1st February last Captn Rawlins submitted an Estimate for constructing a bulwark stone revetment along the face of the heads, of about ⅓ the sectional area of that of De Havillands, and calculated the cost at Rs 75,360 if constructed entirely of new stone at Rupees 1,340 if all the stone were taken from De Havillands bulwark, and Rupees 28,350 if

if half was taken therefrom and the other half obtained from the quarries. The Chief Engineer considered such a bulwark undesirable, and the Government were not disposed to allow De Havillands bulwark to be interfered with. The Governor in Council now desires to be informed to what distance northward de Havillands wall was originally carried, whether any portion of it ever extended beyond the Custom House towards Clive battery, and if so whether it was left in its position, when the road was widened in that locality. Upon

elucidating the points above indicated should also be submitted.

b As regards the question now before them, the Government are disposed to adopt the view taken by Major Lawford that a retaining wall is necessary to secure the road between the Sea Customs House and Clive's Battery, and they therefore approve the instructions issued by the Chief Engineer for the preparation of an estimate, and desire that the same may be laid before them

on

on an early date.

E. E.

E. G. Copies to the Chief Engr.
Capt. 12th.

Public Works 1857 Deptt.
Dr to Cons 15th Decr.

No 2309.

Extract Mins of Cons:
Dy 11th Decr 57.
Ex Chief Engr 21st Dec 57 6th—
2495 — 6 Feb.

Observing that Govt are
disposed to adopt the views taken
by Major Lawford, that a re-
taining wall is necessary to de-
cure the road between the
Ce a Custom House & Clive's
Battery, the consequence of
proving the instructions issued
by the Chief Engr for the pre-
paration of an Estimate
for the said work. —

No 45 & 46.

C30 Mins 22 8th Dec.