

(1) Number of pages 52
 (2) Date of repair 4.8.86, 5.8.86
 (3) Initials of the Referencer lwg

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Public Works DEPARTMENT

G.O. No.	2034-V	Press.
B.P. No.		Mis.
Dated	3.5.1878	197.

Not to be folded or roughly handled

20341
1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

3rd May 1878, No. 2,034 W.

Buildings and Roads.

Civil Works.

Read the following papers:—

No. 29. From Lieutenant-Colonel R. B. KENNEDY, District Engineer, Malabar, to the Chief Engineer, Buildings and Roads, dated Sultan's Battery, 22nd April 1878, No. 6.

I HAVE the honor to inform you that from appearances now presented I fear that very serious encroachment from the sea is to be apprehended along the whole beach at Calicut, commencing considerably north of the Pier and new Custom House and extending to below the offices of Messrs. Andrew and Co., which are not far from the old Customs Establishment.

2. The reasons that lead me to mention this are the entire removal of the mud bank that last year protected the beach, and the extent of the latter covered by the last neap tides, which have almost equalled some of the highest springs within my knowledge.

3. Estimates were some time ago submitted by me for the protection of the beach, which if carried out would, I believe, remove all danger; the season is now rather advanced to carry out the entire scheme, but sufficient may be done to protect the new Custom House and approaches to Pier if funds are provided at once. Every day is, however, of importance.

No. 29-A. From the same Officer, dated Calicut, 4th March 1878, No. 174.

[Reference.—Letter No. 144, dated 15th January 1878.]

With reference to above, I have the honor to forward a plan and estimate* for building eight additional wooden groynes to protect the beach at Calicut; in the plan are also shown the two others that have already been constructed for Rs. 1,751; these latter are 80 feet apart and those now proposed are 144 feet apart.

2. I have also the honor to forward alternative plan and estimate† for permanent groynes of rough stones recommended by the Deputy Chief Engineer in Section iii. paragraph 5 of his report embodied in G.O., No. 3,157, dated 24th November 1876.

* Rupees 6,700.

3. The plan and estimate‡ for repairing the Pier received with memorandum under reference are returned.

now 12x4 x 8 made on

No. 30.

ORDER THEREON, 3rd May 1878, No. 2,034 W.

THE estimates for groynes to protect the beach would no doubt, as the District Engineer says, remove all present danger, but it is not considered that it is the duty of Government to go to a large expenditure to guard the whole of the threatened line of beach.

2. The following telegram will be sent to Colonel Kennedy:—

“Carry out such protective measures as will ensure the safety of the new Customs House. Government cannot undertake to do more. Report result of action taken.”

(True Extract.)

(Signed) E. A. FOORD, Colonel, R.E.,
Secretary to Govt., P.W.D.

(True Copy.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the District Engineer, Malabar.
„ Marine Department.

Exd. A. F. Goodall.
Spare Copies

2034
2

BUILDINGS AND ROADS.
CIVIL WORKS.

Gobt. of (1878) Madras.
PUBLIC WORKS.

THE DISTRICT ENGINEER,
MALABAR.
Sd. &c. - &c.

Dated May 3rd.

Issued

Recd.

Encl.

G. O., 3rd May 1878, No. 2031 W.

MAY.
Nos. 29-30.

Culicut Beach.—The District Engineer,
Malabar, ordered by telegram to carry
out only such protective works as will
secure the —

Specification to Accompany the Estimate
for repairing the Pier at Culicut. 2034
Amount of Estimate Rs. 6700-3

The Beach having been scoured out by the
Sea, the parapet wall abutment & 1st Pile
of Pier having fallen, while the 2nd, 3rd, and
4th rows of piles are such a short distance
in the sand that it is dangerous to leave
them as they are, it is therefore proposed to
add 4 inland Bays to the Pier and to use
for the seaward end of these bays the old
1st, 2nd, 3rd & 4th rows of piles, new piles 22.
23-24 and 25 feet long being given in their
places, these new piles will be 10 feet below
the greatest depth to which the beach has
been scoured out.

To take out the old and put in the new
Piles, the three first bays of the Pier as it
now stands will have to be dismantled.

The wood work of these bays and of the
two already taken down being all more
or less decayed will not be used for the
new work, but will be stored in the Car-
ton House and used for repairing the
Old part of the pier whenever required.

The Landward end of the beams for
1st Bay will be supported on wooden
piles 12 feet long by 1' x 1' let 10 1/2 feet
into the beach over which a cross piece
19' x 1' x 1' will be fixed and fastened
to the Piles by tenons 12 x 4" x 8" made on
the

the top of the Piles and morticed into the cross piece to a depth of 8 inches, two Iron nails 1" dia. being given through each tenon to prevent the cross beams getting displaced.

Instead of the former parapet wall and Abutment, a revetment of rough stone will be given, as in case of any further scour taking place the rough stones will act as a sea wall and at the worst can only sink a little, whereas a wall of masonry would fall by the foundations were scoured out and be no protection to the Beach.

The wood and Iron work of the new bays to be of exactly the same pattern and put together in the same manner as that of the old part of the Pier.

The timbers used to be either Eucalyptus, Kauri or Ironbark and to be perfectly sound and free from sap, knots, cracks or shakes.

The wrought iron to be best Staffordshire throughout, cast iron strong grey metal without flaws or cracks.

When the woodwork is being put up the upper surface of it will be covered with a coat about $\frac{1}{4}$ inch thick of equal parts of asphaltum and tar melted together. After which it will be left for about 2 or 3 years to season and get thoroughly dried and will then have

Coats of coal tar given
The iron work to have a coat of Red
and paint.

Malabar Distt: Engrs' Office
Calicut 13th January 1878

Wt. B. Kurney Lt. Col.,
District Engineer, Malabar.

Col's and Division

"Port Head"

"Howe Report"

to labor bill

"Repairs"

Abstract Estimate of the probable expense of repairing the Calicut Pier and adding on four additional sand bags.

Quantities	Particulars of work.	Rate.	Amount.	Remarks.
------------	----------------------	-------	---------	----------

639 1/2 Cwt of dismantling the wooden work of Nos 3, 4, and 5 Bays & starting in Custom House at 3. Cwt 11913. x

639 1/2 Cwt of dismantling the wooden work of Nos 3, 4, and 5 Bays & starting in Custom House at 3. Cwt 11913. x

Screwing down Old 1 1/2, 2 1/2, 3 1/2 and 4 1/2 power of Pils. as new 1 1/2, 2 1/2, 3 1/2 and 4 1/2 power and joining cross ties 30. x 120. x

2,082 1/2 Cwt of Wood work wrought and put up at 14. Cwt 26023. x

110.8 Cwt of wrought iron at 15. Cwt 1662. x

3817.8 lbs of wrought iron complete at 4. lbs 93472. x

49 1/2 Cwt of Cast iron at 12. Cwt 594. x

Screwing down new sets of Pils for 6 1/2, 7 1/2, 8 1/2 bays at 40. Cwt 120. x

2 Driving two wooden piles at 10. Cwt 20. x

Laying and painting wood and iron work 100. x

Total Repairs. 638312

Andreas and Superintendence at 5. Cwt 316410

Amount of Estimate Repairs. 6700. x

Malabar Dist: Engr's Office
Calicut 13th January 1878

Central Office
Sd/-

22-1-78

W. H. Kennell
District Engineer, Malabar.

2034
6

Estimate of the probable expenses of repairing the East Pier and adding new additional wood
Masts.

By Henry H. H. Measurements. Contract. Particulars of Work. Date. Amount. Remarks.

L B D

Repairing the broken pier and adding
 on additional mast bays.

639 Loff of dismantling the Wood waste of 183, 4
 and 5 Masts and storing in Custom House at 0.3. Sept 1190.5
 Taking up 2nd 3rd and 4th Rows of Piles, dis-
 dismantling ties 92 at 30.00 each 90.00
 Screwing down old 181, 2nd, 3rd & 4th rows of
 Piles as new 181, 2nd, 3rd & 4th rows and piling
 cross ties 92 at 30.00 22 120.00

New Wood work.

2 10 1 1 24 Piles to support wall plates until permanent
 abutment is built.

1 19 1 1 19 Wall plate.
 43

Carried Over. 329.50

2034

Estimate of the probable expenses of repairing the East Pier and adding new additional wood
Masts.

By Henry H. H. Measurements. Contract. Particulars of Work. Date. Amount. Remarks.

L B D

Repairing the broken pier and adding
 on additional mast bays.

639 Cost of dismantling the Wood waste of 183, 4
 and 5 Masts and storing in Custom House at 0.3. Sept 1190.5
 Taking up 2nd 3rd and 4th Rows of Piles, dis-
 dismantling ties 92 at 30.00 each 90.00
 Screwing down old 181, 2nd, 3rd & 4th rows of
 Piles as new 181, 2nd, 3rd & 4th rows and piling
 cross ties 92 at 30.00 22 120.00

New Wood work.

2 10 1 1 24 Piles to support wall plates until permanent
 abutment is built.

1 19 1 1 19 Wall plate.

43 Carried Over. 329.50

2034

32913.

Brought Forward.

- 2 20 1' 1' 40 Beams for Land Bay.
- 16 17 1/2 1' 1' 280 Beams for Right Bay.
- 8 18 1/2 1' 3/4 111 Cross beams over iron piles.
- 135 18 1/2 3/4 3/4 702 7/8 Joist for 9 bays.
- 1 15 7 1/2 15 1/2 3/4 610 5/8 Planking Ordinary for Deck.
- 1 15 7 1/2 3 1/2 15 7 1/2 Planking under rails of Railway.
- 136 5 3/4 3 1/2 23 Rail posts.
- 172 10 3 1/2 80 Cross pieces for Hand rails.
- 2 15 7 1/2 3 1/2 35 Top rails of Deck.

Total. 2082 1/2 lbs of Wood work wrought and put up — at 14. 6 p 12602 13. 5

2 20 5" Dia 10364 Pile

- 2 23 5" Dia 10838 Deck
- 2 24 5" Dia 11310 Deck
- 2 25 5" Dia 11781 Deck

Total. 64296 lbs. = 12602.8 lbs = 110.8 cwt of wrought iron

at 15. 00 p 1662. 0. 8

- 6 18 1/2 Dia 2290 Tie rods, new 5th Bay
- 6 19 1/2 Dia 2417 Deck 6th Bay
- 12 20 1/2 Dia 5089 Deck 7th & 8th Bays

48 3 1/2 24 x 1 1/2 x 1 1/2 565 Ends of tie rods.

- 24 9" 3 Dia 1145 Screws for lightning tie rods.
- 24 9" 1 1/2 Dia 212 Bolts for tie rods at top.
- 24 5" 1 1/2 Dia 186 Heads for Deck
- 24 2 5/8 2 5/8 1 5/8 269 Nuts for Deck
- 16 6 1/2 1 1/2 Dia 184 Bolts for ends of clips for Pile
- 8 5" 1 1/2 Dia 711 Deck Sides Deck
- 24 2 5/8 2 5/8 1 1/2 186 Heads for Deck
- 24 2 5/8 2 5/8 1 1/2 269 Nuts for Deck
- 8 5" 1 1/2 Dia 8 Bolts to fasten brackets for hand rails to joint
- 6 9" 1 1/2 Dia 281 Deck 6th Bay to beams
- 48 1" 1" 1/2 24 Heads and nuts for Deck
- 16 14 1/2 4" 1/2 232 Clips to fasten top rail of hand rails to rail posts.
- 16 1" 3" 1/2 72
- 16 4 1/2 1 1/2 Dia 14 Bolts for Deck
- 32 1" 1 1/2 16 Heads and nuts for Deck
- 8 4 1/2 x 1 1/2 x 1 1/2 358 Rings for top of Cast iron Screws.

Total. 13635 lbs = 3817.8 lbs = 34 cwt of wrought iron

at 14. 00 p 954 1/2

- 8 3" 8 1/2 216 Overlap of flange of screws.

216 Carried Over.

5549 1/2

2034/8

Brought Howard, ————— 55912

8 16 x 14 1/2 }
x 8 x 14 1/2 }

3619 ^{1/2} Range of screws. —

$$\left\{ \begin{array}{l} 8 \times 10 \times 8 \times 8 \times 8 \\ 8 \times 8 \times 8 \times 8 \times 8 \end{array} \right\} \text{ } \left\{ \begin{array}{l} 296 \\ 296 \end{array} \right\} \text{ } \left\{ \begin{array}{l} 13.5\% \\ 13.5\% \end{array} \right\} \text{ } \left\{ \begin{array}{l} 8 \times 8 \times 8 \times 8 \times 8 \\ 8 \times 8 \times 8 \times 8 \times 8 \end{array} \right\}$$

$8 \times 0.6 \times 0.7 / 100 = 100\%$
 $5 \times 20'' \times 14'' = 2800$
 $8 \times 8'' \times 8'' \times 1/8 \times 1/4 = 100$

Plates of Capro for piles

[illegible]

8	6"	3 1/4"	180	Plates of cap. per Pile	
8	46"	1"	2"	436	Sides per Pile

8 x 8" x 8" = 512 = 2614 (Wavy Cap for Pile)

18	4 1/2"	4 1/2"	12	1458	} to inspect the rods to
19	4 1/2"	4 1/2"	"	"	
20	4 1/2"	4 1/2"	"	"	
21	4 1/2"	4 1/2"	"	"	

8	5	$\frac{1}{2}$	$\frac{1}{2}$	90	1	156	Brackets for rail posts on beams.
---	---	---------------	---------------	----	---	-----	-----------------------------------

116	6 1/2	11 1/2	158	Brackets for rail posts on beams.	
117	"	"	"	"	80
118	"	"	"	"	80

11	4	2	1/2	1/2	1/2
11	4	3	1/2	1/2	1/2

4	3 1/2	1/2	1/2
3 1/2	1 1/2	1/2	1/2

32	12	42	82
62	4	104	82

$202 \frac{1}{2}$ $203 \frac{1}{2}$

821 2 128

32	1"	$\frac{1}{2}$ "	16	Bracket for Rail port to on joints.
31	1"	$\frac{1}{2}$ "	16	
30	1"	$\frac{1}{2}$ "	16	

16	4"	$\frac{1}{2}$ "	48
16	4"	$\frac{1}{2}$ "	48

16 4 12 1/2 48
16 6 4 1/2 208

1802 2. 7 39 11

1858/6 x 36/36 x 7

2291	Centre of Cliffs
2292	End of Cliffs

$6 \frac{1}{2} \times 3 \frac{1}{2} \times 3 \frac{1}{2}$ 10/14, Studio of Clapton
 $6 \frac{1}{2} \times 3 \frac{1}{2} \times 3 \frac{1}{2}$ 324

6	2 1/2	324	} sides of helioprojection to fix dies to
"	"	339	
6	3 x 7/8	339	

3345
18" 1 1/2" 180° Projection top and bottom of sides of 8.2

— *Quercus* *macrocarpa* *Mill.*

Total, 21352 cubic inches $\times .26 = 5551.5 \frac{\text{ft}^3}{\text{cu ft}} = 49 \frac{1}{2}$
Cords of hard wood 48

Costs of last year 1 at

Securing down new sets of Pils for 6 $\frac{1}{2}$ yds, at
and 8 $\frac{1}{2}$ Wags _____ as

made 8th May 1895

Driving two wooden poles — at

Carriage and Painting wood & Iron
work.

carrying and painting wood & iron
work.

Carried Over —

$$\frac{2034}{9}$$

Wrought Iron Rods, ————— 63837.2

Total. Pipes. ————— ¹¹³⁷ 63837.2
Lundries and Superintendence 500. De 316 140

Amount of Estimate of Pipes. ————— 6400.00

Malabar District Engineer's Office
Calicut 13th January 1878

Central Office
Sd/-
22-1-78

W. H. Kennedy
District Engineer, Malabar.

2034
10

Roads and Buildings.

Estimate & Specification for
Repairing the Pier and Add-
ing on (4) Additional Landing
Ways

Amount of Estimate \$6700.00

267

Specification to accompany
the Estimate for Constructing
Wooden groynes to protect the
Sea Beach at Calcut.

Amount of Estimate No. 7020.

By letter No 445 A from
the Deputy Chief Engineer publish-
ed with G.O. No 3157 dated
12th November 1876, Twelve hun-
dred feet of the Beach is to
be protected, for this Eight
groynes will be required in
addition to the two already con-
structed, five north and three
South of those already put
up. These groynes to be 144ft apart.
These groynes will be 72 feet
long from high water mark
and will be 3 feet above the
Beach at the inner end and
Carried at that level throughout.
They will consist of wooden piles
1 $\frac{1}{2}$ feet diameter, 13 feet long

long at inner end and 18 feet at outer end driven to a depth of 10 feet into the Beach in gun-course order at distances of 6 feet from centre to centre of piles.

These Piles will be driven so as to leave a longitudinal space between them of about 6 inches. After they have been driven, the inner faces of the piles will be flattened for a depth of about 2 feet from the top and for the same depth at 4 ft from the top at the inner & 6 feet at the outer end of the groynes.

When flattening these faces care will be taken that they are only cut so as to leave room for the two waling pieces & sheet piling (say 12 $\frac{1}{2}$ inches between the faces).

To these flattened parts waling

pieces 12 $\frac{1}{2}$ " x 4" will be fastened with 8 inch spike nails, after which the sheet piling will be driven to a depth of 5 feet below the surface of the Beach.

After the sheet piling has been driven, the piles, waling pieces and sheet piling will be fastened together with $\frac{3}{4}$ inch iron bolts.

Under the heads and into iron washers 3 inches square & $\frac{1}{2}$ inch thick will be put to get a broader bearing on the timber. From the inner end of the groynes & in continuation of them inland rough laterite boulders will be given for a length of 25 feet. These boulders will be 3 feet broad at top with side slopes of 1 to 1 and will be 3 feet above the surface of the Beach and laid with the same slope longitudinally as the Beach has.

For detailed measurements of
See accompanying plan.

W. Bailey, Captain
Executive Engineer

Calicut Range Office
26th February 1878

Wm. B. Kinnel
Leicutt: Coll.,
Dist. Engineer, Malabar.

Provincial

CALICUT DIVISION

Associações Públicas Improvement

MALABAR DISTRICT:

Providence the Commons Public Improvement Marine Department
 Estimate of the probable expense of Constructing 8 wooden wharves to protect the Beach
at Cohasset.

Truck.	Name of work.	Number.	Measures :			Sap : Cords :	Cub : Cords :	PARTICULARS OF WORK.	Rate.	AMOUNT.		
			Length.	Breadth.	Depth.					Article.	Work.	
	Constructing Wooden Scaffolds.	13	152	13	diam.			2012 cft of piles including forming (Round timber) @ " 10. cft. 1255 "				
		16	72	1 1/4	" 96 "			Walrus pieces				
		172	10 1/2	4	" 252 "			Planing				
		Total					348	cft of sawn timber in				
		26	22	3/4	diam.			Constructing carpenters for fitting @ 11. cft. 3692 "				
		26	2	2	1/2			252 Bolt.				
		52	3	3	1/4			156 Heads & nuts to do.				
								117 Washers under Heads & nuts.				
							525	Carried over.				

525 Bought forward 1755.10
 Total 525 cub. inches $\times .28 = 147$ lbs
 of wrought iron — @ $\frac{1}{2}$ lb. lb. 36 lb.

Rough Stone.
 24 12.3 " 864 Dwt. end of propeller.
 25 349 3 " 450. Between inner & d. head.

Total 1314 cub. ft. or 48 $\frac{23}{27}$ c. yds
 of rough stone. Boulders @ 3 " 34 146 71
 52 2 ft. ke nails 8" long @ " 1 " and 3 4 "
 Drains 13 ft. @ 10 " 5. 130 "
 Scaffolding for pile
 Engine @ 100 "

Total Prices \$1221.
 Superintendence @ 5 ft. c 47 13 11

Total Amount of Estimate for Propeller
 by for Engineer 1755.10
 5072

Cable Range Office
 Cable 26th February 1878

M. R. Gaulty Capt.
 Executive Engineer.
 Cable & Division.

M. R. Gaulty Capt.
 Executive Engineer.
 Cable & Division.

M. R. Gaulty Capt.
 Executive Engineer.
 Cable & Division.

2034
 14

2034

Cable 26th February 1878

M. R. Gaulty Capt.
 Executive Engineer.
 Cable & Division.

D. P. W.
Calicut Division
MALABAR DISTRICT.

Dated 26th February 1878
Received.....

Estimate and Specification for Constructing 8 wooden groynes to protect the beach at Calicut.

Amount of Estimate Rs. 7130

32

CALICUT DIVISION

Haricall

MALABAR DISTRICT.

Marine Deptt.

Miscellaneous Public

Estimate of the probable expense of Constructing groynes on the beach opposite the new sea custom house at Calicut.

Name of work.	Number.	Measurets:			Sup : Conts :	Cub : Conts :	PARTICULARS OF WORK.	Rate.	AMOUNT.		Explanation of necessity of work.	By whom recommended.
		Length.	Breadth.	Depth.					Article.	Work.		
<u>Constructing 8 groynes for Calicut beach.</u>		25	20	7		3500						
		150	45	19		13479 3/4						
		372	42	10		16787 1/2						
		<u>Total 15508 1/4 Cft or 57434 cyds</u>										
		<u>rough latente boulders @ 4 " Cfd 27975 "</u>										
		<u>Superintendence @ 5 pc 1145 "</u>										
		<u>Total amount of Estimate Rupees 24120 "</u>										
		<u>for 8 groynes Rs. 12060 "</u>										

Calicut
Constructing 8 groynes for Calicut beach.

Calicut Range Office
Calicut 26th February 1878

Att. W. Kemm

Distt. Engineer, Malabar

P. Bailey

Executive Engineer

No. 3157 of 14th Nov 1876
Recommended by
By whom recommended.

26 Feb

Specification to accompany
Estimate for constructing Rough
Stone groynes to prevent the
encroachment of the sea at Cahuit.

Amount of Estimate \$120,600

Five Groynes to be constructed
on the Beach, three to the
north and two to the south
of the Pier.

Those on the north to be at 150,
450 & 750 feet from centre
of Pier, on the south 150 &
450 ft from it.

The groynes will be 175 feet long
at top, they will commence
25 feet inside High water mark
and for this distance will be
laid with the same slope as
the Beach has and 3 feet
above it. From High water mark
they will be carried level at
top for a distance of 150 ft
and will be 3 feet above H. W. M.

The groynes will be 6 feet
broad at top and laid with
side and outer end slopes
of 2 to 1. It will be seen that
the plan allows for the rough
stone of the groynes sinking
4 feet into the sand, this
it is considered necessary
to allow for, as the stone
put round the ends of the
wooden groynes last mon-
soon sank that depth into
it.

The Boulders for these groynes,
laterite or fuciss, will be
obtained from about the
5th mile of the Tambacherry
Road, from West Hill &
from the banks of the
Elathoor Backwater, if
sufficient cannot be got
from the two former places.
They will be the largest

procurable, none containing
less than $\frac{1}{4}$ th of a cubic yard
to be used except for filling
interstices.

The inner 25 feet which is to
be laid with the same slope as
the Beach has is intended to
prevent the sea passing round
the inner end of the groynes
during heavy weather and causing
a scour there.

M. Bailey, Captain
Executive Engineer.

Calicut Range Office

26th February 1878

M. W. Keever,
District Engineer, Malabar.

D. P. W.
Calicut Division
MALABAR DISTRICT.

Dated... 26th } February 1878.
Received..... }

G.O. No. 2031-F-3-5

Estimate and Specification for Constructing
Groynes on the Beach opposite
the New Sea Custom House
at Calicut.

Amount of Estimate Rs. 12,000/-

No. 6. Malabar District Engineer's Office.
Camp Sultan's Battray 22 April 1878.
From The District Engineer
Malabar.

To,
The Chief Engineer
Roads and Buildings
Madras.

Sir,

I have the honor to inform you that from appearances now presented, I fear that very serious encroachment from the sea is to be apprehended along the whole Beach at Calicut, commencing considerably north of the Pier and New Custom House and extending to below the Offices of Messrs. Andrew & Co. which are not far from the Old Customs establishment.

2 The reasons that lead me to mention this are, the entire removal of the mud bank that last year protected the beach, and the extent of the latter covered by the last neap tides which has almost equalled some of the highest springs within my knowledge.

3 Estimates were some time ago submitted by me for the protection of the beach which, if carried out, would I believe remove all danger; but the season is now rather advanced to carry out the entire scheme, but sufficient may be done to protect the

the new Custom House and approaches to Pier if
funds are provided at once. Every day is however of
importance.

I have the honor to be

Sir,

Your most Obedt. Servant

W^t. B. Neumeier Lt. Col.

District Engineer, Malabar.

9524/20

C. No 6850/4-7-78
 " 4462 - 14 Dec/77
 G.O. - 678W 8/1 Sept/77
 " 642W - 21 Aug - "
 " 569W - 9 - " - "
 " 467 - 21 July - "
 " 329W - 29 June - "
 " 85W - 16 May - "
 " 45W - 14 - " - "
 " 1208 - 7 April - "
 " 1100 - 4 - " - "
 " 825 - 10 March - "
 " 441 - 7 Feb - "
 " 3157 - 24 Nov/76

Roads and Buildings

From District Engineer
 Malabar

N^o 6

Dated 22nd April 1878.

Encroachment from the sea
 towards the Beach near Custom
 House and Pier at Calicut.
 Requesting funds to carry out works
 for the protection of the Beach dang-
 erous by-

To Coly 26-4-78
 Cir. 27.4.78. Dtd 3.5.78-

N^o 174 Malabar Distt. Engrs. Office
 Calicut 4th March 1878

From The District Engineer
 Malabar.

To The Chief Engineer
 Roads and Buildings
 Madras.

Sir,
 Reference - Memo. N^o 144 dated
 15th January 1878.

With reference to above, I
 have the honor to forward a Plan and
 Estimate for building 8 additional wood-
 en groynes to protect the beach at
 Calicut; in the Plan are ^{also} shown the two
 others that have already been constructed
 for Rs. 1751-0-0, these latter are 80 feet a-
 part, and those now proposed are 144
 feet apart.

* No 7680

Rs. 120,600

I have also the honor
 to forward alternative Plan and Estimate
 for permanent groynes of rough stones,
 recommended by the Dy. Chief Engineer
 in

in Section iii para 5 of his report embodied in G. O. N^o 3157 dated 24th Nov^r 1876.

The Plan and Estimate for Rs 6,700 repairing the Pier received with Memo. under reference are returned.

I have the honor to be,

Sir

Your most Obedt^t Servant

M. B. Kennedy Esq^r Col^l

District Engineer,
Malabar.

2034
22

Roads and Buildings.

From the District Engineer
Malabar

N^o 174

Dated 4 March 1878.

1 perambulation of the beach
on 22/3/78

2 of Plans for the beach
this for reference
12-8-78

Enclosures 4

+ Sent to the District Engineer

Calicut Beach — Forwards

Plans and Estimates for
building additional groynes
to protect the —

To order 26-4-78
Cir 29-4-78. Rd. & B.

PUBLIC WORKS DEPARTMENT.

Malabar

Letter from the District Engineer, Malabar,
No 174 of 4 March 1878
No 6 dated 22nd April 1878.

FOR ORDERS.

The estimates
for groynes to protect the
beach would no doubt,
as the District Engineer
says, remove all present
danger, but it is not
considered that it is the
duty of Government to
go to a large expenditure
to guard the whole of the
threatened line of Beach.
It is recommended, —
therefore, that the following
telegram

Telegram sent to
Colonel Kennedy

Carry out such protec-
tive measures as will
ensure the safety of the
New Customs House. Govern-
ment cannot undertake
to do more at present.
Report result of action
taken.

Edw. Ford, Colonel R.E.
Secretary to Govt. P.W.D.

April 1878.

Edw. Ford

2034
94

18

30.4

FOR ORDERS.

Specimen
Mr. H. ...
...

Amc W. S.
3.5.78.

To 204-26-4-78
Cir 29-4-78. Pla 3-5-78.

B.R. works

Public Works Department.

No 2034 W

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the *3rd May 78.*
 Read the following -

*From the Officer Malabar (R.R. No 6 dated 22nd April 78
 in 174 of 4 May 78.*

The estimates for
 foraynes to protect the
 beach would no doubt,
 as the District Engineer
 says, remove all pre-
 sent danger but it is
 not considered that it
 is the duty of govern-
 ment to go to a large
 expenditure to guard
 the whole of the threatened
 line of Beach.

The following telegram
 will be sent to Colonel
 Kennedy

Carryout such pro-
 tective measures as
 will ensure the safety
 of

Telegram despatched 3/5/78.

the new Customs house.
Government cannot
undertake to do more.
Report result of action
taken.

W₂
3.5.70
907

2034
96

P. E. Malabar
Marine Dept
In S. dispd 3/5/78
Staff 14-5-78

3023
1851

of 1878

PUBLIC WORKS.

To

H. E. Malabar

Dated

Issued

Recd.

Encl.

G. O., 3rd May 1878, No. 2034/77

No.

Chief Branch

The Dyng Malabar, ordered
by telegram
to carry out, only, such protective
works as will secure the —

S. D. in Part