

(1) Number of pages _____

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	8 (W)	Press ~~Mis.~~
Dated	1-5-	1877.

Not to be folded or roughly handled

13

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

1st May 1877, No. 8 W.

Buildings and Roads.

Civil Works.

Read the following papers:—

No. 15. From Major J. BEATTY, R.E., Officiating Superintending Engineer, Godavery, to the Chief Engineer, Public Works Department, dated Dowlaishweram, 6th February 1877, No. 3,176.

I HAVE the honor to submit herewith a plan, sections, and estimate for a groyne

- 1 Sketch map.
- 1 Plan and sections.
- 1 Revised sections of groyne.
- 1 Estimate and specification.

with which Mr. Vanstavern has proposed to protect the river's margin a short distance above the Dumagoodiem scouring sluices, where it now undergoes erosion in the freshes, and consequently the flood

embankment which guards the approach to the head lock of the Dumagoodiem canal and the scouring sluices is endangered. A sketch map on which I have marked the position of the proposed groyne will help to explain the necessity for the work.

2. You will observe that it is of the utmost importance that the present line of flood embankment above the scouring sluices should be maintained, and that the question to be decided is how this should be done. The river's margin at the place must either be strongly revetted or Mr. Vanstavern's groyne may be tried. Nanel does not grow there, and there is no description of quickly-growing shrub or weed that could be used to protect the earthen slope of the river's margin, but there is plenty of sandstone in the river's bed.

3. Mr. Vanstavern has estimated for a groyne as the least expensive remedy, and he thinks it would have the desired effect. He proposes to construct it of stone quarried close at hand; and his dimensions are 6 feet broad at top, side slopes 1 to 1, length 610 feet, with an average surface slope of 1 in 25, the foot of the groyne resting on the sandstone rock in the river's bed. He estimated the cost at Rupees 3,016, but I have had to correct some errors of calculation, and this increases the cost to Rupees 5,000.

4. If you approve of the groyne you will probably desire to alter the details of construction in order to reduce the cost, but it must be noted that the velocity there in high freshes is very great. I have estimated, however, for an earthen* core with

* *Vide* accompanying sections.

a stone covering 2 feet thick (6 inches of which may be of gravel or quarry rubbish), up stream slope to be 2 to 1, and

down stream 1 to 1. The cost of such a groyne I estimate would come to Rupees 3,200.

5. I have also requested Mr. Vanstavern to estimate for revetting the whole face of the river's margin where erosion now takes place. This I roughly calculate it at Rupees 15,000.

MEMORANDUM.

No. 429.

THE Chief Engineer, Public Works Department, through whom these papers were received, remarks the following as the best mode of obviating the action as reported evidently due to the metamorphic rock shelving from the river towards the bank.

2. That a dry-stone groyne with gravel core covered 3 feet thick with heavy stone be constructed from the embankment on the berm across the sand, as shown in pencil, to the rock, on which a masonry wall should be built to the highest point in the direction shown in pencil on the large scale survey; this he anticipates will stop all erosion and promote re-silting again.

3. With these suggestions the papers are returned to the Superintending Engineer for reconsideration and notes as to where funds are likely to be obtained from the orders to carry out the work for which a regular estimate will have to be submitted for the sanction of Government.

20th February 1877.

(Signed) W. FAREWELL, Colonel,
Acting Chief Engineer to Govt., P.W.D.,
Buildings and Roads Branch.

No. 15-A. From Major J. BEATTY, R.E., Officiating Superintending Engineer, Godavery, to the Chief Engineer, Buildings and Roads, dated Dowlaish-weram, 10th April 1877, No. 82.

With reference to your memorandum, No. 429, of 20th February 1877, I have

- 2 Estimates.
2 Plans of groyne.
1 Sketch map.
1 Executive Engineer's letter, No. 80.
- the honor to submit a revised estimate for the groyne required for the protection of the river's margin near the Dumagoodiem scouring sluices, where erosion has occurred and the embankment is endangered.

2. There is no gravel to be had anywhere near Dumagoodiem, nor anything that would do as a substitute for it, so that it is necessary to construct the groyne entirely of stone, with a toe of masonry as suggested by the Chief Engineer, Public Works Department.

3. Mr. Vanstavern's estimate, which includes a foundation of about $4\frac{1}{2}$ feet, amounts to Rupees 3,790 as checked in this office.

4. I am not sure that a foundation is requisite for such a structure—at any rate so great a depth as Mr. Vanstavern has allowed seems unnecessary. I have, therefore, estimated separately for a groyne without foundation, but with an apron on the lower side. The cost of this would be Rupees 2,530.

5. Mr. Vanstavern thinks a revetment would be better than a groyne to stop the erosion; but, as there is no hard material, such as gravel, to back it with, the revetment to stand at all would have to be very thick and therefore very expensive.

6. I propose that the work should be commenced at once and the cost met, as far as possible, from the annual grant of Rupees 8,000 provided for the maintenance of the Dumagoodiem works.

No. 16. ORDER THEREON, 1st May 1877, No. 8 W.

THE estimate of Rupees 3,190 as corrected in the Chief Engineer's Office for constructing a groyne for the protection of the scouring sluices at Dumagoodiem in the Godavery District is sanctioned, funds being appropriated for the work from the sum of Rupees 8,000 provided in the Provincial Budget of 1877-78 for the maintenance of the Dumagoodiem works.

Head of Service.—Provincial.

Fund.—Ordinary.

Class.—Repairs.

Main-head.—Communications.

Sub-head.—iii, Canals.

Work.—Constructing a groyne to protect scouring sluices

at Dumagoodiem.

Amount.—Rupees 3,190.

To be carried out by the Public Works Department.

2. This sanction is registered as Provincial No. 42 W of 1877-78.

(True Extract.)

Colonel, R.E.,
Secretary to Government, P.W.D.

Head of Service Provincial
Fund. Ordinary

Class. Repairs

Main-head. Communications

Sub-Head. iii Canals

~~Sub-head.~~

Project of which the works form part

Work. Constructing a groyne to protect scouring
sluices at Dumagoodiem -

Amount. Rs 3190

To be carried out by the Public Works Department.

Print with G. O. No. 8 W of 1877 -

No. 429 of 20 Feb 1877

Letter Number 3170
dated the 6 Feb 1877
from the District Engineer of Godavery

The C. Eng. P. W. Dept. for the
through whom the papers
have received recommends
the following as the best
mode of obtaining the
action as reported & which
due to the use of the
North Channel from the
river towards the Bank.
That a dry stone groyne
with a small core of cement
about 3 feet thick with
heavy stones be laid out
from the bank into the
river across the bed as shown
in plan to the rock
on the which a masonry
wall should be built
to the highest point
in the direction shown
in plan as the large
scale survey - this he
anticipates will stop the
erosion and prevent
it settling again -
with these suggestions
the papers are returned
to the Supt. Engr. for
reconsideration and
order as to whose funds
are likely to be obtained
from the Order of Council
for work for which a
regular estimate will
be made by the
Supt. Engr. for the
Commissioner of Works

DISTRICT ENGINEER'S OFFICE GODAVERY.
DOWLAISHWERAM, 6 February 1877.
Sd/-

No. 3176

From

Major J. Bratty R.E.
Offr. Supr Engineer Godavery.

Enclosures
4.

To

Lieutenant Colonel J. Mullins R.E.
Chief Engineer and Secretary to Govt.
Public Works Dept.

Sir,

I have the honor to submit here
with a plan, sections and estimate for
a groyne with which Mr. Vanstaenen has
proposed to protect the river's margin a
short distance above the Dumagudem
scouring sluices; where it now undergoes
erosion in the freshes, and consequently
the flood embankment, which guards the
approach to the Head Lock of the Dumagu-
dem canal and the scouring sluices, is
endangered. A sketch map, on which
I have marked the position of the pro-
posed groyne, will help to explain the
necessity for the work.

2. You will observe that it is of the utmost importance that the present line of flood embankment above the scouring sluices should be maintained, and that the question to be decided is how this should be done. The river's margin at the place must either be strongly revetted or Mr. Vaustaverni's groyne may be tried. Kaniel does not grow there, and there is no description of quickly growing shrub or weed that could be used to protect the earthen slope of the River's margin, but there is plenty of sandstone in the river's bed.

3. Mr. Vaustaverni has estimated for a groyne as the least expensive remedy, and he thinks it would have the desired effect. He proposes to construct it of stone quarried close at hand; and his dimensions are 6 feet broad at top, side slopes one to one, length 640 feet, with an average surface slope of 1 in 25, the foot of the groyne resting on the sandstone rock in the river's bed.

He

He estimated the cost at Rs 3016, but I have had to correct some errors of calculation, and this increases the cost to Rs 5000.

4. If you approve of the groyne you will probably desire to alter the details of construction in order to reduce the cost, but it must be noted that the velocity there in high freshes is very great. I have estimated, however, for an earthen core with a stone panying sec- covering 2 feet thick (6 inches of which - tions - may be of gravel or quarry rubbish) upstream slope to be 2 to 1, and downstream 1 to 1. The cost of such a groyne I estimate would come to Rs 3200.

5. I have also requested Mr. Vaustaverni to estimate for revetting the whole face of the river's margin where erosion now takes place. This I roughly calculate^{it} at Rupees 15,000.

I have the honor to be,
Your Most obedient Serv^t
J. Beatty. Major R.E.

Offr Supr Engineer Godavery D.

P.W.D.
15 FEB 77
1602

Group alone down
ing pieces, down
-green - I don't
-ing for his approval
or instructions as
estimate for a -

to
The Office of the
Secretary to the
P.W.D.
Dated 6 Feb 1977
Recd

Ch. 429 of 20 Feb 1977

R.D.

19/2

4012 May 77 30 hr 15

hr 23/4/77

70. Ching R.D.

113

This paper belongs to the R.D. Board

The erosion appears due to the lie of
the rocks and especially of the black
metamorphic rock. It shelves from
the river and towards the bank
is what might be anticipated

the line marked in pencil
what seems to be reasonable alignment
for bank ^{army in} flood bank

I should be inclined to observe the
action by ~~building a wall~~ constructing
a dry stone fence as far as the rock
in the first line shown in pencil on the
large scale survey - after getting to the
rock ~~at the~~ I would build a masonry
wall on the latter to the highest point

If water cannot fit between the rock
& the present bank I think there will
be no more erosion but silting up again
Probably the best plan will be to ask the
D.C. to consider these suggestions -
He says nothing about funds.

The group may have a pipe with a covering of
heavy stone 3 ft thick - between bank & rock

4. 19/2

at 80
from

Dunagadiam 13th
20th March 1877

to the Executive Engineer
Dunagadiam Division
in the Superintending Engineer
Godavari District

As instructed in your
Memo No 3520 dated 7th last I have
the honor to forward a plan of
a grove on the site selected by
the Chief Engineer Road & Buildings
2. There is no gravel available
in this Division nor get any material
to substitute to that necessity
has compelled me to estimate
for rough stone for the grove
3. Regarding the site chosen
by the Chief Engineer, I take the
liberty to offer a few remarks.

2 Plans of grove
1 Sketch map
1 Estimate
Memo No 29

4/ Looking at the plan the site chosen, would appear the best but on inspection of the ground, I think the view would be altered.

5/ The whole of this division is simply a coating of river deposit from one to 30 feet in thickness, this overlies a continuation of rock, some metamorphic and some sand stone - this deposit is, in some places hard bordering on stiff clay, at others soft in layers of soft clay and sand, these at the river banks during the freshets get very soft and a deal of erosion takes place.

6/ The site near the point chosen for the grove, is composed of bad ground extending for some four or five hundred feet up

up river, and it is a question that requires to be considered whether if the grove was constructed then the ground there would not be cut out and the river cut through the bank and turn the grove.

7/ At the point chosen I think, that the revetment proposed by you, would be a better protection.

8/ Should the revetment be chosen then the amount would be available out of the yearly allowance for the maintenance of works that is to say if the same sum Rs 8000. is allowed.

9/ The pencil mark on large plan goes further than actually required, the plan, now submitted, is the levels at every 25 feet which shows the ground correctly, the large plan was

Handwritten note in margin: The site chosen for the grove is in a bad place.

was at every 100 feet as it was
a mere outline plan and not
for constructing any works on.

1877
No 3996

I have the honor to be

your most Obedt Servant

Wm Vanstavern
Executive Engineer
Dumagadum District

attached to the District Engineer's Office

at Dumagadum

to the District Engineer's Office

at Dumagadum

for the purpose of

examining the

state of the

river and

the necessity of

constructing

works on the

Roads and Buildings

No 82

DISTRICT ENGINEER'S OFFICE GODAVERY.
DOWLAISHWERAM, 10 April 1877

From The Offg. Superintending Engineer
Godavery

To The Chief Engineer
Roads and Buildings

Madras.

Sir,

Enclos. 6

2 Estimates
2 Plans of Groyne
1 Sketch Map
1 Account of Groyne
1 Letter No 80

With reference to your Memo No 429
of 20 February 1877, I have the honor to submit
a revised Estimate for the groyne required for
the protection of the river's margin near the
Dumagadum scouring sluices, where erosion has
occurred and the Embankment endangered.

2. There is no gravel to be had any where
near Dumagadum, nor any thing that would do
as a substitute for it, so that it is necessary to
construct the groyne entirely of stone, with a
toe of masonry as suggested by the Chief Engineer
Public Works Department.

3. Mr Vanstavern's Estimate which includes

From the Executive Engineer
Dumagadum District

1877

6/1 May/77

a foundation of about $4\frac{1}{2}$ feet, amounts to Rs. 3790 as checked in this office.

4. I am not sure that a foundation is requisite for such a structure, at any rate so great a depth as Mr. Vanotawen has allowed seems unnecessary. I have therefore estimated separately for a groynes without foundation, but with an apron on the lower side. The cost of this would be Rs. 2,530.

5. Mr. Vanotawen thinks a revetment would be better than a groyne to stop the erosion, but as there is no hard material such as gravel to back it with, the revetment to stand at all would have to be very thick and therefore very expensive.

6. I propose that the work should be commenced at once and the cost met as far as possible from the annual grant of Rs. 8000 provided for the maintenance of the Damagudem Works.

I have the honor to be

Sir,

Yours Most Obedient Servant

L. Beatty Major R.E.

Off. Superintending Engineer B.D.

Works & Buildings Dept.

From

1877
No 3994

The Offg. Superintending Engineer
Godavery

To

The Chief Engineer
Roads & Buildings
Madras

Despd 10th }
Recd } April 1877

No 82 IV

Encls 6 +
One sketch with
Groyne at Duniagudem
scouring sluices. Submits
revised estimates for

Lt Col. May 11 1877 15A

No 8 ~~151~~ Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 1 May 77
Read the following:-

From

The Supg. Engr. Godavery (No. 3176 dt 5th Feb 1877)

Chief Engineer's Memorandum (No. 429 dt 20th April 1877)

From

The Supg. Engr. Godavery (No. 82 dt 10th April 1877)

✓

The Estimate of Rs 8000

for constructing a groyne for
the protection of the scouring
sluices at Duniagudem
in the Godavery District
is sanctioned, funds being
appropriated for the work
from the sum of Rs 8000
provided in the Provincial
Budget of 1877-78 for the
maintenance of the Duniagudem

works.

This sanction is register.
Provincial
ed as N. 42 W. 187278

cut 21/4/77
21.4.77

2 Plus of groynes ~~at side~~
2 Retainers

S. E. Gidaway MS Dept
L. B. W. A. x with 2 Plans
Re. Dept. 1. May 77

* Depd: 16. 5. 77

N. 42 W. 187278

Col 1076 Buildings & Roads

Exhibt. of 1877 *Illas.*

PUBLIC WORKS.

To *The S. E. Godavery*

Dated

Issued

Recd.

Encl.

G. O. *1st May* 1877, No. 8 *11*

Nos. 15-16

*Leaving Shires at Duma
vodein in the Godavery*

*The estimate of Rs 3190
for constructing a groynes
for the protection of the
sanctioned and
funds appropriated.*

Contd. in Page.