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MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	897	Press
B.P. No.		Mis.
Dated	5-4-1875	195

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
5th April 1875.*

Read the following papers:—

No. 94. From Major J. BEATTY, R.E., District Engineer, Godavery, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Godavery District, 23rd January 1875, No. 3,290.

In his Memorandum, No. 321,* of 4th February 1871, on which Government

1 Plan
1 Estimate
1 Report

*Paragraph 3, clauses 3 and 4, *vide* also paragraph 8 of G. O., No. 236, of 2nd February 1874.

†*Vide* also my letter No. 2,176, of 9th October 1874, paragraph 8.

passed orders in G. O., No. 744, of 13th March 1871, the Chief Engineer for Irrigation suggested that there should be a fresh water dock at Cocanada for the harbour plant when not in use, and a further report on the subject was called for in paragraph 3 of G. O., No. 2,271,† of 17th August 1874.

2 The construction of such a dock at Cocanada has hitherto been regarded as an impossibility, or at least likely to prove so costly as to make it unlikely that Government would sanction so large an outlay. It was, I believe, assumed that it would cost a lakh of Rupees at least. On further examination, however, the project is found to be perfectly feasible, and at a moderate cost. The present harbour plant must, however, be largely increased if the dredging of Coringa river is undertaken, as proposed by Mr. Robertson. This makes it somewhat doubtful what should be the size of the dock.

3 Before preparing detailed plans and an estimate of the works required, I have the honor now to submit a sketch map showing where it is proposed to place the dock, together with an approximate estimate of its cost, and a brief report from the Executive Engineer, Eastern Delta Range.

4. The surface of the ground at the site is at about the level of spring tides, and there will be no difficulty in keeping the dock filled with fresh water at a level of one foot or more above spring tides, or two feet above ordinary high water. It is proposed to have the floor of the dock at 3 feet below spring tides, but it may of course be excavated to a greater depth if considered necessary.

5. The size of the dock has been made sufficient for it to contain conveniently one steamer, two dredges, and nine punts.

The dimensions of the plant as given in Captain Brockman's letter are as follows.—

A Steamer	95' x 22'
A Dredge	90' x 24'
A Dredge Punt	50' x 12'

6. The dock would be approached by a lock 105 feet long and 25 feet broad, having its lower sill 3½ feet below ordinary high water, and its upper sill the same level as the floor of the dock, or about 2 feet below ordinary high water.

7. The town of Cocanada is at present supplied with fresh water from the lower reach of the Samulcottah canal, and an extension of the channel which now supplies the drinking water tanks of the town would convey the needful supply to the dock.

8. The site selected is the very best for such a work in the Cocanada river, and if a dock is likely to be constructed the land should be taken up for it at once.

40. 93.

10-11-67

1. 凡在本行开立存款账户的客户，均可向本行申请开立支票。

The proposal of the District Engineer, to construct the front wharf dock for the harbour plant of the Fisheries Board in connection with the wharf at Oceanada and Messrs. Hall & Co. to construct a pier on the ground owned by Captain Brockman to leading to the wharf at Oceanada, if it can be carried out at less cost than at a point near the low end of the canal, is a proposal which is not sufficient to afford. It is not sufficient to complete the canal.

2. The cost of constructing a work with riprap or concrete at upper end of the soil. If that be estimated there will be no expense incurred what can be calculated, but it is of putting a preliminary estimate as to what would be right and so firm as to make a definite plan for the work.

3. It has not been

3. It has not been mentioned at what level the fresh water can be readily kept supplied to the dock, though it is well that there will be no difficulty in keeping the water therein up to 1 foot above high water springs, or at least in ordinary high water. It being desirable to have a somewhat great relief, it will be advisable to state what the highest level at which the fresh dock supply can be maintained is.

4. In order to have the means of stopping the entrance canal, some work should be available for discharge in the place either at each tide or at other such intervals as may be necessary, and it should be mentioned, therefore, what is the capacity of the channel which supplies the canal with fresh water from the Simlenottah canal, and what quantity, in excess of the requirements of the lock, this channel can supply to the dock.

5. The District Engineer's proposals for the dock are that it should be made 150 feet square, with its floor 3 feet above H. W. S., its water surface 1 foot above that level, and that the entrance should be by a lock 165 x 23 with lower sill at H. W. S. - 31 and upper sill H. W. S. - 29.

It is of course of importance to ascertain that the lock will, and floor of dock should be kept as high as possible; and it is questionable whether a maximum depth of 34 feet of water on the lower sill of the lock, except for a few days in the month, would be sufficient. The draught of the tug steamers has not been mentioned, but even if the depth of water were 10, all vessels with a draught hardly to be assumed that in the course of the next 10 or 20 years vessels with a greater draught will not want to use the lock, and 3 feet at half tide or about 5 feet at ordinary high water would seem to be as little as should be provided. The level of the upper sill will depend partly upon the water level to the dock which need not be higher than about 3 feet above H. W. S. as a maximum. The upper sill might then be placed 3 feet higher than the lower sill. Making the lock 120 feet long instead of 103 feet will add but little to the cost, and the greater length is therefore suggested.

7. The principal object of the dock is to allow of the harbour plant being kept in fresh water when not in use, but it will be necessary to be arranged as to admit of repairs being carried out therein, and it is on this account

that a higher level of the water in the dock will be wanted. The fresh water should never be allowed to fall below that of the tidal water at its highest, and the dock water should be capable of being raised high enough, therefore, to float the vessels over berths placed at H. W. S. level. This would seem to be a cheaper arrangement than constructing a dry dock at the side of the main dock, and as there will be a maximum head of about 7 feet of water against the gates from the inside and no head at any time in the other direction, except perhaps occasionally when the river is in heavy fresh and the water in the dock at about H. W. S. these conditions will not necessitate any expensive masonry work.

8 In the dock, then it would be well to construct two berths on which to place a steamer and a punt, the larger* should be 120 x 30 and the other 60 x 21.

* For steamer or dredge.

to allow room for the workmen employed in painting and repairing the hulls. These berths may most conveniently occupy the two corners of the dock furthest from the entrance, and in order conveniently to place the steamer on its berth it would be well to make the dock $120 + 100 = 220$ feet long. A width of 120 feet will give the same amount of room, exclusive of the space occupied by the berths as in the square dock proposed by the District Engineer. To retain the 150 feet width would cost 500 to 750 Rupees more, and it may be better, therefore, to keep to this.

9. It is to be remarked that by these arrangements the dock walls will be much higher than with those suggested by Major Beatty, viz, $3 + 4 + 1^* = 8$ feet, instead of $1 + 3 + 1^* = 5$ feet; but a part of the difference will be got rid of in the foundations, which will not need to be so deep probably when placed at so much lower a level, and it is believed that the much greater usefulness will compensate for the increased cost.

10. The foregoing suggestions may be thus summarized. Taking II W.S. as the datum—

Dock maximum water level	+ 3 00
Do. minimum do.	+ 0 00
Lock upper sill	- 4 00
Do lower sill	- 6 00
Minimum depth on upper sill	4 feet.
Do. do. on lower do. about	1 foot.

11. The dry berths in the dock may consist of retaining walls with a surface of 18 inches of concrete,* and wooden
 • Top at H. W. S. bars at 4 feet intervals projecting 3
 feet thereabove, on which the vessels would rest, the bars being kept in position
 bolts and holding down plates 4 feet below the surface.

12. In the sketch the lock is shown at 55 feet from the road; the estimate refers to a swing bridge over lock, and it would seem to be best to place the latter if possible on the line of the road.

13. "A sluice for the regulation of the dock supply-channel will be needed.

14. Allowing the dock walls to be $2\frac{1}{2}$ feet thick at top and $3\frac{1}{2}$ feet at base with a face batter of 1 in 8, and masonry foundations 3 feet on 2 feet of concrete, their cost will be somewhat less than double the sum of Rupees 3,500 entered in

Proceedings of the Irrigation and P. W. Dept. at
24 April 1873.

the approximate estimate of, say, extra	2,000
The two berths will cost	1,700
" earthworks, extra	400
" entrance lock 20 per cent. extra	400
" supply-channel sluice	400
" baling 50 per cent. extra, extra	1,500
	10,500

which added to Captain Brockman's estimate will make a total of \$12,500.
Probably if the desired accommodation can be completed in a thorough
satisfactory manner for anything as the Chief Engineer, the saving in wear and
tear of plant and the facilities for its repair will very fully compensate for a year's
charge of—

For interest
And maintenance

CAMP, SURABAYA,
20th February 1873.

(Signed) JOHN MULLINS, Lt. Col. R.E.
(Chief Engineer for Irrigation)

No. 96.

Order No. 100, 24 April 1873, No. 96.

IRRIGATION, No. 11.

Order that the subject of the
foregoing paper lie over for the present.

(True Extract)

(Signed) G. W. WALKER, Col. R.E.
Secretary to Government.

To the Chief Engineer for Irrigation
District Engineer, G. W. Walker.

Ed. S. T. Austin
Spare Copies

Approximate Estimate for Constructing a freshwater Dock at
Boeanada for harbour Steamers, Bridges and
ponto.

Particulars of work. Price per Amount Total

Digging Freshwater channel say one mile	500
Excavating Dock 150' x 150' x 2'	300
Constructing Dock wall	2500
Do Lock into River	8000
Do Swing Bridge over Lock	1000
	14300
Baling & contingencies	2000

Total Rupees — 16,300

W. Rangsoffier
Dowlat's surname }
21st December 1873 }
W. Rangsoffier }
7 Executive Engineer, W. Rangsoffier
L. Beatty, Major R.E.
District Engineer

N^o 461

Camp Dowlaishweram

From,

The Officer in charge N^o 101 Eastern D.
Range, Godavery Dist.

To,

The District Engineer

Godavery District.

Dated 21st

Despatched 22^d

Received 22^d

} December 1874.

Sir,

With reference to your Memo N^o 2299 dated
23rd October last, I have the honor to forward here-
with a site plan shewing the position of the pro-
posed fresh water dock for receiving the harbour
steamers, dredges, and punts at Cocanada, during
the months they are out of work. I have made
the capacity of the dock double the superficial
area of one steamer, 95' x 22';
Two dredges, each 90' x 22'; and
Nine punts each 50' x 12'.

The fresh water channel will be dug
in continuation of the channel taking off from
above Cocanada Lock for the supply of the town.

The

(Copy to Mr. N^o 101 Eastern D.
Range, Godavery Dist.)
21/12/74
J. H. 651/75

The other items of the estimate were for work
mark beyond stating that the works were in-
tended to, substantially built throughout with
coursed rubble in mortar, and that the ground
to be occupied by them belongs to Government.

It is the duty to be done
By R.E.E. Macdonald Esq.
Executive Engineer

(True Copy)

J. Beatty Esq.
District Engineer Godavery

1875-6/5/15

No 3290

District Engineer's Office, Godavery
Camp 23 January 1875

From,

Major J. Beatty R.E.

District Engineer Godavery.

To,

Colonel G. W. Walker R.E.

Secretary to Government P.W. D.

Sir,

*Para 3 Clauses

3 and 4 - vide

also para 8 of

G.O. No. 236 of

2nd February/74. No. 744 of 13th March C. 1871, the Chief Engineer

for Irrigation suggested, that there should be a

fresh-water dock at Cocanada for the harbour

plant when not in use, and a further report, on

the subject, was called for in para 3 of G.O. No. 2271

of 17th August 1874.

*Vide also my

letter No. 2476

of 9th October 1874.

para 8

2 The construction of such a dock at Cocanada

has hitherto been regarded as an impossibility,

or at least likely to prove so costly as to make

it unlikely that Government would sanction

so large an outlay. It was, I believe, assumed

that it would cost a lac of rupees, at least.

On further examination however the project is

found

found to be perfectly feasible, and at a moderate cost. The present Indian plant must never be largely increased if the dredging of the Coaga river is undertaken, as proposed by Sir Robert. This makes it somewhat doubtful what should be the size of the dock.

3. Before preparing detailed plans, and an estimate of the works required, I have the honor now to submit a sketch of a plan, and a rough estimate of its cost, and a brief report from the Executive Engineer, British Columbia Range.

4. The surface of the ground at the site is about the level of spring tides, and there will be no difficulty in keeping the dock filled with water at a level of one foot or more above spring tides, or 2 feet above ordinary high water. It is proposed to have the floor of the dock at a foot below spring tides, but it may of course be excavated to a greater depth if considered necessary.

5. The size of the dock has been made sufficient for it to contain conveniently one steam tug, two dredges, and three punts.

The dimensions of the plant as given in Capt. Brochman's letter are as follows -

A steamer — 95' x 22'

A dredge — 90' x 22'

A dredge punt — 50' x 12'

6. The dock would be approached by a lock 135 feet long, and 25 feet broad, having its lower sill $3\frac{1}{2}$ feet below ordinary high water, and its upper sill the same level as the floor of the dock, or about 2 feet below ordinary high water.

7. The town of Cocanada is at present supplied with fresh water from the lower reach of the Samucottah Canal, and an extension of the channel which now supplies the drinking water tanks of the town would convey the needful supply to the dock.

8. The site selected is the very best for such a work in the Cocanada river, and if a dock is likely to be constructed the land should be taken up for it at once.

I have the honor to be,
Sir,

Your most obedient servant,
L. Peatty, Major &c.
District Engineer Godavery.

No. 201

Memorandum

The proposal of the District Engi-
-neer, Godavery, to construct the fresh
water dock for the Harbour plant of
the Godavery District between the
Custom House at Cocanda and Nepe-
-Hall Syne & Co's premises on ground
reported by Captain Brockman to
belong to Government is, if it can be
carried out at a less cost than at a
point near the lower end of the Cocanda
-da or of the Samulcottah Canal, a
good one. There are however several
points on which the information af-
-forded is not sufficiently complete.

2 The cost of constructing a dock
will depend a great deal upon the
nature of the soil. If that be stiff
clay, there will be no expense beyond
what

1894
C. L. No. 899. 5.4.95
estimating a dock
near and adjoining
estimates for construction
at Cocanda.

what can at once be calculated, but it is of perhaps primary importance that the soil shall be water-tight and so firm as to make an adequate foundation for the dock walls and piers.

3 It has not been mentioned at what level the fresh water can be conveniently supplied to the dock, though it is said that there will be no difficulty in keeping the water therein up to 1 foot above H.W. if a pump or 2 feet above ordinary high water. It being desirable to have a somewhat greater head, it will be advisable to state what the highest level at which the fresh dock supply can be maintained.

4 In order to have the means of flushing the entrance canal, some water should be available for discharge from the dock either at each tide or at other suit. intervals as may be necessary, and it should be mentioned

15-73 4
therefore what is the capacity of the channel which supplies Cocanada with fresh water from the Gamulcottah canal, and what quantity, in excess of the requirements of the town this channel can supply to the dock.

5 The District Engineer's proposals for the dock are that it should be made 150 feet square with its floor 3 feet below H.W.S., its water surface 1 foot above that level, and that the entrance should be by a lock 105 x 25 with lower sill at H.W.S. - 3½ and upper sill H.W.S. - 3 or the same as the floor of the dock.

6 It is of course of importance economically that the lock sills and floor of dock should be kept as high as possible, still it is questionable whether a maximum depth of 3½ feet of water on the lower sill of the lock, except for a few days in the month, would be sufficient. The draught of the tug steamers has not

C.O. No. 899. 5.4.95

not been mentioned, but even if the depth of water named would suffice for them it should hardly be assumed that in the course of the next 10 or 20 years vessels with a greater draught will not want to use the dock, and a just utility to or about 5 feet at ordinary high water would seem to be as little as should be provided. The level of the upper sill will depend partly upon the water level in the dock, which need not be higher than about 3 feet above H.W.S. as a maximum. The upper sill might then be placed 2 feet higher than the lower sill. Making the dock 120 feet long instead of 105 feet will add but little to the cost and the greater length is better suggested.

7 The principal object of the dock is to allow of the harbour plant being kept in fresh water when not in use, but it will be necessary so to arrange it as to admit of repairs being carried out therein, and it is on this account

that a higher level of the water in the dock will be wanted. The fresh water should never be allowed to fall below that of the tidal water at its highest, and the dock water should be capable of being raised high enough therefore to float the vessels over berths placed at H.W.S. level. This would seem to be a cheaper arrangement than constructing a dry dock at the side of the main dock, and as there will be a maximum head of about 7 feet of water against the gates from the inside and no head at any time in the other direction, except perhaps occasionally when the river is in heavy fresh and the water in the dock at about H.W.S.; these conditions will not necessitate any expensive masonry work.

8 In the dock then it would be well to construct 2 berths on which to place a steamer and a punt, the larger should be 120 x 30 and the other

other 60x21, to allow room for the work-
men employed in painting and repair-
ing the hulls. These berths may most
conveniently occupy the two corners of
the dock furthest from the entrance
and in order conveniently to place the
steamer on its berth it would be well
to make the dock 120 x 150 or 20 feet
long. A width of 120 feet will give the
same amount of room, exclusive of the
space occupied by the berths, as in the
square dock proposed by the District
Engineer. To retain the 150 feet width
would cost 500 to 750 dollars more, and
it may be better therefore to keep to
this

9. It is to be remarked that by these
arrangements the dock walls will be
much higher than with those suggested
by Major Beatty viz. $3 + 4 + 1 = 8$ feet, in-
stead of $1 + 3 + 1 = 5$ feet; but in part of the
differences will be gained off on the founda-
tions, which will not need to be so deep
probably when placed at so much
lower

* 1 foot margin
above full
water level
in dock

1913 3
lower a level, and it is believed that the
much greater usefulness will compen-
-sate for the increased cost.
10 The foregoing suggestions may
be thus summarized -

Taking H.W.S. as the datum
Dock maximum water level — + 3.00
— " minimum — do — + 0.00
Lock upper sill — 4.00
— " — lower sill — 6.00
Minimum depth on upper sill — 4 feet
— " — " — on lower do about 1 foot

* top at HWS

11 The dry berths in the dock may
consist of retaining walls, with a sur-
face of 18 inches of concrete, and wooden
bars at 4 feet intervals projecting 3 in-
ches thereabove, on which the vessels
would rest, the bars being kept in
position by bolts and holding down
plates 1/2 feet below the surface.

12 In the sketch the lock is shown
as 55 feet from the road; the estimate
refers to a swing bridge over lock, and
it

it would seem to be best to place the latter if possible on the line of the road.

13 It sluice for the regulation of dock supply channel will be modest

14 Allowing the dock walls to be 2½ feet thick at top, and 3½ feet at base with a face batter of 1 in 8, and masonry foundations 3 feet, or 2 feet of concrete, their cost will be somewhat less than double the sum of Rupees 5500 entered in the approximate estimate or say -

the two berths will cost	3,000
" earth works	1,750
" entrance lock 50 per cent	1,500
" supply channel sluice	400
" railing 50 per cent extra	1,000
	<u>10,600</u>

which added to Captain Prockman's estimate will make a total of Rupees 26,900.-

Probably if the desired accommodation can be completed in a thoroughly satisfactory manner

manner for any thing under 30,000 Rupees the saving in wear and tear of plant and the facilities for its repair will more fully compensate for a yearly charge of

for interest	1500 Rupees
and maintenance	500
	<u>2000</u>

at
fully
sum
1375

Charles Wilson Lieut Col R.E.
Relief Engineer for Irrigation

To, The Secretary to Government
P.W.D.

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the

Read the following —

From the Chief Engineer (N.S. No. 3290 d/23 Jan/75)
To the Chief Engineer for Irrigation } (N.S. No. 201 d/20 Feb/75)
899

Ordered that the
subject of the foregoing
papers lie over for the
present.
W. H. S.

Chief Engineer for Irrigation
P. H. S. S. S.

Recd 6-6-75

For the Chief Engineer
for Irrigation
N.S. No. 3290 d/23 Jan/75

Mr. W. H. S. S. S.
N.S. No. 201 d/20 Feb/75
899
N.S. No. 3290 d/23 Jan/75

Copy sent to the
Chief Engineer for
Irrigation
N.S. No. 3290 d/23 Jan/75

P. B. Kept
Proceedings of the Madras Government
Read the following:

of District Godavery. - C.R. No. 2290 d/23 Jan'y 1875
from the Chief Engineer
for Irrigation } (C.R. No. 201 d/20 Feb'y 1875)

This Excellency the
Governor in Council thinks
that, with the review of
the requirements of the
fresh water dock pro-
posed to be built at
Coacanadu contained in
the foregoing memorandum
by the Chief Engineer for
Irrigation, the suggestions
made in which are

I would advise that the
matter be allowed to stand
over for a while.

1875 x 1875

I think the
District Engineer Godavery
will be able to mature
a
plan for the same

a design and estimate
which should be sub-
mitted as early as
possible.

(2)

MM

To Mr. District Superintending
Chief Engineer for Immigration
Revenue Dept.

1896/6

651 125
Sect. of 4570. 10000

PUBLIC WORKS,

Chief Engineer
Irrigation.

Sept. 8-93

94-95.

Carbon Point, Colorado
Diary - Papers regarding
the construction of a fresh
water dock at Carbonade
for the —, ordered to
be done for the present.

Q