

(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.	360-(9)	Press	<i>Original</i>
B.P. No.		Mis.	
Dated	16 - 2 - 1954		

Not to be folded or roughly handled

Read the following papers:—

No. 565. From Major R. F. OAKES, R.E., District Engineer, Tanjore, to Colonel G. W. WALKER, Secretary to Government, Public Works Department, dated Tanjore, 22d August 1873, No. 547.

With reference to G. O., No. 1,852, of 1st August 1872, I have the honour to inform you that after a careful examination of the fish-ladder at the Lower Anicut and consideration of the subject of extending the ladder, I have come to the conclusion that it is useless to attempt to extend the ladder, for even with one foot of water over the anicut the

1 Plan.
1 Estimate.

Has a fall of 1 foot 3 inches in every 10 feet.

	On Gauge over dam.		On Gauge below dam.		Difference of level.	
	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
July 1872.	0	6	1	7	5	8
	1	0	2	5	5	4
	2	0	4	1	4	8
	3	0	6	10	2	11
	4	0	8	11	1	10
	4	6	9	8	1	7
	6	8	12	4	0	8
	6	6	12	9	0	6

at 7 feet and above difference almost imperceptible.

water sweeps over the ladder with such a velocity that no fish could, it is believed, make way against it; with 1 foot of water over the anicut the water below is 2 feet 5 inches deep, or there is a difference of level of 5 feet 4 inches above and below and the entries in the margin, taken at hap-hazard from the water registers, give the differences of water level at various states and conditions of the floods.

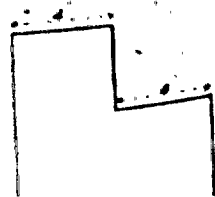
2. With between 3 and 4 feet of water over the dam the back-water submerges the fish-ladder and with 4 feet 6 inches over the dam—the maximum height last year in the south-west monsoon—the difference of level of the upper and lower water was only 1 foot 7 inches, but the hilsa do not then appear to have been able to pass above the anicut. In higher floods the difference of water level is still less, but even when the difference of level is only a few inches the hilsa do not appear to be able to surmount the anicut.

3. It is probable that it is only when 4 or 6 inches of water were passing over the ladder that the fish could make use of it, and then not as a run but by jumping from pool to pool, and as far as I can gather the fish do not appear to have a jump in them, or to be capable of the exertion required to jump when heavy with roe. With 6 inches over the crown the water below would be 3 feet 7 inches at the lowest step of the ladder, or 4 inches above the crest of the step.

4. The hilsa come up from the sea during high floods against the stream and long before the water falls to 6 inches over the anicut after the high floods, and when only, it is believed, the present ladder could be used not a hilsa would probably be left in the pool below the anicut, hence it appears useless to attempt to extend the existing ladder so as to give it a gentler gradient; any extension would extend the ladder beyond the present permanent apron, and as any excavation would carry below the apron would tend to draw away soil from below the apron and thus endanger its safety, the foundations of the extension of the ladder would have to be formed of rough stone, and would be costly as rough stone cannot be delivered at the anicut under about Rupees 10 per cubic yard, and there would always be risk of settlement in such a foundation.

In paragraph 6 of Major Hasted's report he proposes the formation of a chamber with lock gates at the end opposite to one of the sluices. The side walls

of these locks could not, I think, be built on the existing apron, and any attempt to give them deep foundations would draw away material from the adjacent apron, and perhaps from the anicut itself, and thus endanger the stability of the work, and he proposes or suggests the substitution of a single shutter in lieu of the baulks in the upper sluices; as however the platform from which the baulks are worked is 14 feet above the floor of the sluice, and the water sometimes rises above this platform, the shutter would have to be 14½ feet high, and to render the sluices effective for scouring purposes the shutter would frequently have to be raised 10 or 12 feet, and hence a standard through which to work the shutter would have to be placed some 26 or 27 feet above the floor of the sluice or 3½ to 4½ feet above the roadway, and would disfigure the bridge. I would therefore propose to leave the baulk shutters as they are and to extend the piers of the sluice arch over the anicut, which is 8 feet broad and is already provided with foundations, to build a pier on the apron intermediately as shown in the enclosed plan, to form two vents of 6 feet span with the platform for working the shutters on the same level as the front platform, and to provide the vents with baulk shutters. These vents would always remain open except when it was desired to let the fish pass up the river. When the fish had made their way up to the existing vents the shutters of which would be down the new vents, or those in rear would be closed and the water in the chamber would be raised to the level of the water above the anicut by opening one or more shutters partially, and when the water in the chamber was on the same level as the water above the anicut the upper vents would be opened and the fish would pass at once into the river above the anicut, and as soon as the fish had passed from the chamber the upper vents would be closed and the lower opened to afford an opportunity for a fresh batch of fish to seek shelter in rear of the sluice shutters up to which it appears they swarm.



6. I would propose that the chamber for the fish should be formed opposite to the third sluice from the north end of the south branch, and that only one chamber should be formed next season as an experiment. To admit however of the work being executed next season the cut stone should be collected at once, and as the long stones must be brought from Trichinopoly and can be conveyed by water in October and November far more cheaply than they can be conveyed by any other means, I would solicit the early sanction of the estimate which amounts to only Rupees 1,370.

No. 265A. From Captain H. R. MEAD, R.E., District Engineer, Tanjore, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Tanjore, 30th December 1873, No. 969.

As directed by your memorandum, No. 798C, dated 12th November 1873, I

2 Tracings.
1 Estimate.

have the honour to forward the revised plan and estimate drawn up according to your proposed design for making a

second set of shutters in rear of the present one to one of the under-sluices of the Lower Anicut; it amounts to Rupees 1,570.

2. I think it right to say that I fear the work will not answer, and I prefer Major Oakes' proposition to build on the present apron a masonry pier. My reason is that I do not think we shall be able to screw the piles in without shaking the

adjacent work, as there is sure to be debris of bricks, cubes, &c. and I fully believe there are wells and foundations similar to that under the anicut across the rear of the sluices; if this is the case we shall not be able to get the screw piles down. I would remark that in the plan forwarded, the foundations are shown as 10 feet solid as the portion re-built is founded; the sluice it is proposed to alter is the third from the south, and we do not know what the foundations are, but they are believed to be 3 feet solid on 6 feet wells.

No. 15.

No. 265B.

Note by the Chief Engineer for Irrigation.

In paragraph 8 of G. O., No. 1,822, of the 1st August 1872, the Superintending Engineer, 6th Division, was instructed to submit estimates and designs for (1) improving the fish-ladder at the Lower Coleroon Anicut, and (2) constructing a fish lock, and in his letter No. 547 of the 22nd August 1873, Major Oakes gives reasons against the continued use of a fish-ladder which, on a gradient adapted to the use of the hilsa, would be unsuited to the design of the anicut, and these reasons appear to me to have considerable weight. At the same time Major Oakes transmitted an estimate, amounting to Rupees 1,370, for the construction of a fish chamber to supersede the ladder. The design of this arrangement is shown on the tracing, dated 22nd August, and it appeared to me not advisable to construct a pier 14 feet high on an apron 2½ feet thick, from beneath which the sand might at any time be liable to be washed out; and on consideration it seemed that a more efficient and less hazardous arrangement might be made by the use of cast-iron screw piles to sustain the shutters needed for the regulation of the chamber. A design was therefore prepared by the General Superintendent, Public Works Workshops and Stores, and the District Engineer has now submitted an estimate, amounting to Rupees 1,570, for constructing the chamber in this way. It will be noticed however that Captain Mead prefers Major Oakes' arrangement of a pier instead of screw piles, on the ground that the latter may shake the adjacent work in screwing them down, a result which it would, I think, be very difficult to produce; and also because he believes that the foundations of the anicut are continuous across the under-sluices, and that consequently while, on the one hand, the pier would be founded on ample foundations instead of on an apron, on the other hand, screw piles could not be inserted.

2. The first objection to the screw piles is unimportant, but the second, if existent, renders their use unnecessary. Under these circumstances, as the arrangements cannot be determined until the nature of the foundations is known, it will be better to sanction the necessary expenditure within the amount of the larger estimate, and to authorize the District Engineer to carry out the screw pile design if there be no masonry below the 2½ feet of apron, or to build a pier if there be any suitable foundations on which to construct it. In the latter case angle iron bearings should be inserted for gate shutters, which, as explained in this office memorandum, No. 798C, of the 12th November last, need have only a moderate lift, and the vents can be arched, which will save the much greater cost of a number of cross stones. The shutters should be regulated by screw gearing.

(Signed) J. MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

FORT ST. GEORGE,
8th January 1874.

Proceedings of the Madras Government, Public Works Department,
14th February 1874.

No. 266.

ORDER THEREON, 14th February 1874, No. 360.

IRRIGATION, No. 18.

UPON the recommendation of the Chief Engineer for Irrigation the Government sanction an outlay, not exceeding Rupees 1,570, for the construction of a fish chamber at the Lower Coleroon Anicut in supersession of the fish-ladder which has been found to be useless and which cannot conveniently be altered so as to be serviceable. The District Engineer will, after ascertaining the exact nature of the substructure in rear of the under sluices which are to be converted into a fish chamber, carry out the design for screw piles or for a masonry pier as may be requisite with reference to the absence or presence of foundations in this locality, and in the latter case the Chief Engineer's remarks as to the description of shutters to be used should receive the District Engineer's attention. Funds to the extent necessary for expenditure up to the end of the current year are placed at Major Mead's disposal from the Reserve under Agricultural, and Major Mead should report the amount required as soon as circumstances will permit.

(True Extract.)

Lieut.-Colonel, R.E.,
Joint Secretary to Government.

To the District Engineer, Tanjore.
.. Chief Engineer for Irrigation.
.. Officiating Controller of Public Works Accounts.

Ed. S. T. Austin.
Spare Copies

No. 15
Note by the Chief Engineer for Irrigation
In para 8 of G.O. No. 7822 of the
1st August 1872, the Superintending
Engineer C. Division was instructed
to submit estimates and designs
for (1) improving the fish ladder at
the Lower Coleroon anicut and
(2) constructing a fish lock, and
in his letter, No. 547 of the 22nd
August 1873, Major Oakes gives
reasons against the continued
use of a fish ladder which,
on a gradient adapted to the
use of the Wilsa, would be un-
suited to the design of the
anicut, and these reasons ap-
pear to me to have considerable
weight. At the same time
Major Oakes transmitted an
estimate, amounting to Rupees
1370, for the construction of
a fish chamber to supersede
the ladder. The design of this
arrangement is shown on the
tracing dated 22nd August and
it appeared to me not advisable
to construct a pier 14 feet high.

on an apron $2\frac{1}{2}$ feet thick, from beneath which the sand might at any time be liable to be washed out; and on consideration it seemed that a more efficient and less hazardous arrangement might be made by the use of cast iron screw piles. To sustain the shutters needed for the regulation of the chamber. A design was therefore prepared by the General Superintendent P. W. Workshops & Stores, and the District Engineer has now submitted an estimate amounting to Rupees 1570 for constructing the chamber in this way. It will be noticed however that Captain's second paper Major Oakes' arrangement of a pier instead of screw piles, on the ground that the latter may shake the adjacent work in screwing them down, a result which it would, I think, be very difficult to produce; and also because he thinks that

that the foundations of the ancient are continuous across the under sluices, and that consequently while on the one hand the pier would be founded on ample foundations instead of on an apron, on the other hand screw piles could not be inserted.

2. The first objection to the screw piles is unimportant, but the second, if existent, renders their use unnecessary. Under these circumstances, as the arrangements cannot be determined until the nature of the foundations is known it will be better to sanction the necessary expenditure within the amount of the larger estimate, and to authorize the District Engineer to carry out the screw pile design if there be no masonry below the $2\frac{1}{2}$ feet of apron or to build a pier if there be any suitable foundations

on

in which to construct it. In
the latter case angle iron bear-
ings should be ^{inserted} ~~inserted~~
for gate shutters, which, as
explained in this office memo
N-798C of the 12th November
last, need have only a mo-
derate lift, and the vents
can be arched, which will
save the much greater cost
of a number of cross stones.
The shutters should be re-
gulated by screw gearing.

Fort St George. Wunduleniis D.H.M.
8 January 1874
Chief Engineer for Navigation.

To The Secretary to Govt P.M.D.

P. W. 1874 Report
No. 288.

The Chief Eng^r
for Irrigation

To The Secretary
Govt. P.W.D.

No. 15

Dated 8th Jan'y 1874
Recd 17th
Encl^d 4

Recommends for
the sanction of Govt.
est Rs 1570 for the
construction of a
fish chamber at
the Lower Coleroon
amunt

No 26573

17th Jan'y 1874

No 360-14th Feb'y 74

No 360 Mr D

P.W. of the Indras fort

Read the following

From the Chief Engineer (H.E. No 527 of 22 Aug/73)
Change for fish (— 15-7-8 Jan/74)

Upon the recom-
mendation of the Chief
Engineer for Irrigation
the Government sanction
an outlay not exceeding
Rupees 1570, for the construc-
tion of a fish Chamber
at the Lower Coleroon
Ancut in supervision
of the Fish ladder which
has been found to be useless
and which cannot conveniently
be

M. D.

be altered so as to be serviceable.
 The District Engineer will,
 after ascertaining the exact
 nature of the substructure,
 in rear of the under sluices
 which are to be converted
 into a fish Chamber, carry
 out the design for screw
 pile or a masonry pier as
 may be requisite with reference
 to the absence or presence of
 foundations in this locality,
 and in the latter case the
 Chief Engineer's remarks
 as to the description of shutters
 to be used should receive the
 District Engineer's attention.
 Funds to the extent necessary
 for expenditure up to the end
 of the current year are placed

*with a view to the
 of the work.*

at Major Mead's disposal
 from the Reserve under
 Agricultural and
 Major Mead should
 report the amount required
 as soon as circumstances
 will permit.

W. 10/1/24

W. 10/1/24

35-
 4

The District Engineer
 Bangalore
 Chief Engineer for
 Irrigation with five encls.
 Controller of P.W. Dept.
 Disps. into P.C. 19/2/24

CP. 288. 04685
Govt. of 1874 Madras.
PUBLIC WORKS.

1. The District Engineer
Tanjore

Dated.

Recd.

Incl.

360

G. O. 14th Feb. No. 360

2657 266

Fish Chamber at the Corner

Colonel Amcotts - Paper
orders on note by this office
for Migration recommending
for sanction an estimate for
the construction of a fish
chamber at the corner.
Colonel Amcotts.