

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No. 2347	<u>Press</u> <u>Mis.</u>
590.591	
Dated 28-9-1865.	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
23th September 1865.*

No. 590. . . Read the following letter from Captain R. F. OAKES, R. E., Acting
Superintending Engineer, 6th Division, to Colonel C. A. ORR, R. E.,
Secretary to Government, Public Works Department, dated Tanjore, 5th
September 1865, No. 960 :—

SIR,

1. With reference to the Orders of
Government noted marginally, I have
the honor to report upon the canal
between Negapatam and Vedarniem.

No. 919, dated 5th April.
,, 1,074, ,, 22nd ,, 1865.

2. The original line of communication proposed by Mr. W. Fraser, C. E.,
is marked on the plan by a broad red line. It commenced at A. in the Cuddavi-
yaur Basin at Negapatam, and followed the straight cut from A. to B., where a
bridge on Road No. 36 spans it. This cut, which was made in 1848, has silted up
very much, and at L. W. on the 13th June, some portions of it were dry, the greatest
depth of water was 1 foot, and that at Z Z Z in a portion of the old course of the
river; to the north of this spot the bed is sandy, to its south the channel has become
filled with alluvial deposit to a depth of from 1 to 3 feet, its consistency is about
that of treacle, and it may appropriately be termed "liquid mud." The breadth
of the cutting is 11 yards.

3. From B to C the canal was to follow the tortuous course of the Velliyaur
Calagum, and thence by the cut C D of 1854 was to join the Velliyaur at D. The
Calagum has become much silted up, its depth at L. W. varies from $\frac{1}{2}$ to $2\frac{1}{4}$ feet, except
in its last reach from Y to X, where the depth is from $2\frac{3}{4}$ to $3\frac{3}{4}$ feet. These are the
depths at the sets or deep portions of the bed; much of the bed is almost dry at
L. W. The bottom consists chiefly of liquid mud. The straight cut of 1854 from
C to D is for the most part dry at L. W. It is 6 yards broad.

4. The whole of this line I propose to abandon :—

1st.—Because there would be great difficulty in clearing out these channels to
a proper depth, viz., 3 feet, below L. W.

2nd.—Because shoals would constantly be formed in a course so tortuous as
that of the Calagum.

3rd.—Because the new line could probably, with care, be cut to its full
depth through dry land with a proper section throughout.

Miles.	Furlong.	Yards.
7	1	193

4th.—Because while the whole of the
line originally proposed would require a
constant annual expenditure for mainte-

nance, nearly half the line now proposed is already navigable at all times, and only
 $3\frac{3}{4}$ miles would have to be maintained, and the latter line being the straighter would
be less apt to shoal than the former.

5th.—Because while a dredge can pass under the Cuddaviyaur bridge at
V. on the new line, it cannot pass under the bridge at B. on the line originally
proposed.

Estimate.	Distance.		
Rs.	M.	F.	Yds.
17,000	7	1	193
24,760	6	7	185
7,760	0	2	8.

5. The difference in the length of the two lines is only 448 yards, and is in favor of the line now proposed; not so however the prime cost of their construction, in which there is a difference of Rupees 7,760. The excess in the new

line is chiefly attributable to the value of land to be taken up, and the cost of two syphon sluices.

6. The average depth of water at L. W. in the Cuddaviyaur straight cut from the bridge at Y to the basin at Negapatam is from 3 to 5 feet except at T, where it enters the basin, and here there is a shoal which would form annually during the monsoon, and would have to be removed by means of a dredge.

7. South of the point D, where the line originally proposed meets the Velliya-aur, no change is proposed, the line follows the Velliya-aur for rather more than a mile and a half to the new cut at E, and with the exception of shoals at the points at which two surplus channels meet the river, the Velliya-aur may be said to be navigable at all seasons by such boats as it is proposed to make use of on the canal. The shoals will have to be removed as they form, by means of a dredge through the agency of the Conservancy Establishment.

8. The new cut from E to F was in good order except where three surplus streams meet it, and there shoals had formed. No sluices have yet been supplied for these surplus streams though two are provided for in the original estimate, and the bank has been cut open by the villagers to admit of their surplus waters escaping; a catch drain will be provided on the west side of this portion of the canal to discharge the surplus waters into the Chundranuddee and Velliya-aur.

9. The Chundranuddee is passed under the canal by a syphon sluice at F, but is allowed to join the canal again near E: the course of the tail of the river will be altered as marked in yellow, so as to give it a separate discharge into the Velliya-aur. This may be done from a small balance on the original estimate.

Dated 1st April 1865.

10. It is anticipated that the syphon sluice will burst as reported in letter No. 2,855, from this Office.

11. Proceeding southwards from F the canal follows the drainage streams, the Ramanaden and Paupan Voicals, and the Koodrichittiyaur. At the point at which the canal is to enter the Ramanaden Voical the bed of that channel is 6½ feet above the floor of the bridge across the canal at F, the level of which is fixed at 3 feet below L. W. A line of levels down these streams shews their Section and the excavation required to reduce their beds to the level of the bed of the canal, the excavations vary from about 1½ to 6 feet in depth, the average being from 2½ to 3 feet. A few cross sections are forwarded to give an idea of the nature of these streams. The estimate has been prepared from cross sections taken at intervals of 400 feet. In 1847 and 1848 an attempt was made to divert the drainage of the country eastward at H, but without success. The line of the canal follows the main drainage streams of the portion of the country through which it passes from F to K, and with few exceptions it is not proposed to supply sluices at the points where the minor streams meet it.

12. The Ramanaden Voical from F to G runs, for the most part, through cultivated land, and sluices must be provided where the minor drainage streams meet the canal; the larger are to be left open; they are embanked to prevent the land from being submerged by backwater during inland freshes. From G to H the Paupan Voical passes through the Karapadagay village lands, which are very low, and are now but little cultivated. A catch-drain for a distance of 3,000 yards on the west side will concentrate some of the minor drainage streams, and discharge the waters at S. The larger streams will be left open.

From F to H.

13. The Ramanaden and Paupan Voicals have been much injured by dams thrown across them for the purpose of irrigation and of fishing and are very much shoaled in particular localities in consequence. Their bed consists of a liquid mud from 2 to 3 feet in depth; they are embanked on both sides.

14. The Koodrichittiyaur from H to K runs through low waste ground of a sandy nature, and receives the drainage of the land from both sides. It is embanked on its eastern side only, but the drainage has breached the bank in several places, and owing to the sandy and shifting nature of the soil and the unevenness of the ground, it is not possible to concentrate the drainage by means of catch drains. On its western side there is no bank, here its waters, and those of the Hurrichundranuddee meet, during the prevalence of inland floods, over a plateau of ground varying from 200 to 2,000 yards in breadth and from 1 foot to 2 feet above the level of L. W. The bed of the stream is consequently much shoaled.

15. From K to L the canal follows the line of the Adapaur river, which has a depth of from 9 to 12 feet of water at all seasons and states of the tide.

16. The new portion of the canal from the Adapaur to the Salt pans at Vedarniem is shoaled where pathways cross it, and where deep ruts have been formed in the Padugay, this is being remedied by a temporary Establishment sanctioned by the local authorities.

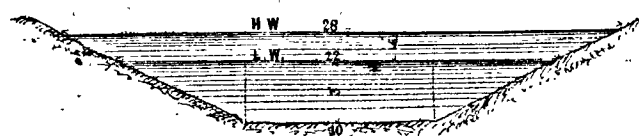
17. The estimate for opening out a complete line of communication by water between Vedarniem and the Cuddaviyaur Basin at Negapatam by the line now proposed is Rupees 64,000, and is made up as follows:—

Length in			Name of river or channel.	Amount.	Remarks.
Miles.	Furlongs.	Yards.			
2	2	173½	Cuddaviyaur straight cut from T. to W.	000	Shoal at entrance of Basin to be removed by dredge, by Conservancy Establishment. Do. do.
3	4	156	New cut from W to Y	24,760	
...	2	96	Velliya-ur Calagum from Y to X	000	
2	2	104	In Velliya-ur river from X to E	000	Compensation for land already taken up and not yet paid.—Vide G. O. No. 3,669, dated 22nd December 1864.
1	5	100	New cut lately completed from E to F	1,716	
10	...	140	Ramanaden and Paupan Voicals and Koodrichittiyaur from F to K	39,240	
8	6	66½	Along the Adapaur river from K to L	000	
3	4	44	Canal to Salt Pans completed from L to M	000	
32	5	0		65,716	

18. An item of Rupees 2,230 in the estimate provides for an under-tunnel at O for the supply of 200 Vaylies of land on the eastern side of the canal in the Karapadagay limits, this, properly speaking, should not be a charge on the canal, but it must be constructed while the canal is being cut, or it will be necessary hereafter to close the canal for a season for the purpose of providing the means of irrigation for these lands, from which an annual return of Rupees 5,000 is expected.

19. In the estimate a large amount, viz., 5 Annas per cubic yard, is allowed for clearing the beds of the Ramanaden, Paupan, and Koodrichittiyaur Channels, as it may be necessary to clear them by means of a dredge; but if the season were a dry one an attempt would be made to render these channels dry by draining off as much water as possible at L. W., and by dividing them into sections, and by evaporation assisted by baling and by drainage from section to section, the upper portions of the excavation at least, and perhaps the excavation to the full depth may be carried out dry, and the proper section secured. If this can be done a considerable saving on the estimate may be effected.

20. The section given to the portion of the canal already carried out from



E to F, and which has been adopted in the estimates enclosed, is as per margin, the bottom breadth being 10 feet and the side slopes 2 feet to 1 foot. At L. W., therefore, the surface of water would measure 22 feet, while the boats which when laden would draw 2½ feet of water and are

only 7½ in beam could not pass each other with less than a surface width of 24 feet, and then would have only six inches to spare between the boats. In the portion of the canal to be newly excavated from W to Y, three recesses have been provided to enable boats to pass each other at L. W. Were a breadth at bottom of 15 feet given to this portion of the canal, the estimate would be augmented by only Rupees 3,000. Where the canal passes through existing streams no such recesses are required, as the boats in passing at L. W., might run into the soft mud of which the sides of the canals will there consist.

21. A plan and section of the boat it is proposed to make use of on the canal, is enclosed. It will be 31 feet long, with a breadth of beam of 7½ feet, will be flat-bottomed, will be formed alike at bow and stern, so as to go either way foremost and will when laden with six tons draw 2½ feet of water.

From T to E.

22. Situated as the northern section of the canal is between rivers which are influenced by the tide, and therefore receiving its supply from several points at once, there will be much slack water in the canal, and during the monsoon, flooded as these rivers are and laden as their waters are with deposit, there will necessarily be much silting in the canal especially at the extremities in the neighbourhood of the

From E to K.

rivers. The southern portion of the canal, as already stated, receives the drainage of a large area of country by numerous channels, and shoals will be formed where these channels enter the canal. It is clear, therefore, that a large sum will

be required annually to maintain the canal in an efficient state; it is estimated at Rupees 10,000, this may perhaps be reduced hereafter, but a large outlay will be required for some years probably, in the southern section of the canal, where the alluvial deposit of which the bed chiefly consists will constantly be slipping into the deeper cut made for the canal until the side slopes are reduced to 3 feet or 4 feet to 1 foot, and assume the natural section at which the soft mud will stand. Under these circumstances it will be no easy matter to keep the canal in an efficient state for the passage at L. W. of laden boats which draw 2½ feet of water, especially from February to June, when the canal will receive no water from inland floods, I would therefore deprecate an idea which has been suggested, that the canal should be rendered navigable only at half tide. The Collector is also of opinion that the canal to be of real use for the transport of salt should be navigable at all times and seasons.

23. If the season is a dry one it may be possible to carry out the work provided for in the enclosed estimates in

one season, but nothing certain can be said on this point, the more so as labor is scarce in the portion of the District through which the canal is to run, and the work is not such as is popular among the coolies as a portion of it may have to be carried out in water; a Special Executive Agent will be required to superintend the work: when completed the canal will be navigable at all times and seasons, but a dredge must be constantly at work removing obstructions where they may have been formed. Without a dredge the canal cannot be kept in an efficient state. A small dredge for the conservation of the canal is therefore a *sine qua non*.

24. With reference to paragraphs 1 and 2 of G. O. No. 919 of the 5th of April 1865, I have the honor to enclose

* Dated 22nd August 1863.

† Dated 14th November 1863.

marginal remark (to paragraph 5), which is in Captain Mullins' hand writing, the

‡ No. 314, 3rd February 1865.

statement is made which is adverted to in Mr. Roberts' letter‡ to Mr. Cadell that an outlay of one lac of Rupees would probably be required to complete the canal. This remark does not appear in the Office copy of Captain Mullins' report, and may possibly have been made after the report was returned from the Government Office.

25. A few marginal remarks have been made in Captain Mullins' original report, shewing in what respects his statements have been found to be erroneous from the more detailed and careful examination which has now been made of the line proposed for the canal.

26. Where H. W. and L. W. have been used in the report, tidal high and low water is referred to.

27. The report is forwarded through the Collector as his countersignature is required to the following papers which accompany it:—

Called for in paragraph 2 of G. O. No. 699, 30th March, Separate Revenue.

1 Sketch Map of the whole line of Canal from Vedarniem Salt Pans to Negapatam (on a large scale).

1 Line of levels along the Ramanaden and Paupan Voicals, and the Koorichittiyaur with nine cross sections.

2 Lines of levels along the course of the proposed new cut from W. to Y.
A Plan and Section of a boat.

4 Plans and Sections of syphon and ordinary sluices.

1 Abstract Estimate.

Captain Millins' original report on the Canal, dated 22nd August 1863.

MEMORANDUM.

1. In this letter the Superintending Engineer of the 6th Division reports upon the Negapatam and Vedarniem Canal, and submits the estimate for completing the line of water communication called for in the Order* marginally noted.

* No. 1,074, 22nd April 1865.

2. It will be seen that Captain Oakes proposes to abandon the first 7 miles of the original line leading southward from Negapatam; and the alternative line which he recommends follows the course of the Cuddavyaur for $2\frac{1}{4}$ miles, and is then taken, by a nearly straight cut, $3\frac{1}{2}$ miles in length, into the Vellyaur, which river it joins at a point $\frac{3}{4}$ mile below where the original line entered it.

3. From this point southwards to Vedarniem no change is proposed; the entire distance being 34 miles and 5 furlongs, or $\frac{1}{4}$ mile shorter than the original line.

4. The estimate now submitted for opening the canal throughout amounts to Rupees 64,000, and the annual cost of maintenance is calculated at Rupees 10,000.

5. The report of the Superintending Engineer seems conclusive as to the advantages which the line now proposed possesses over the original line; but it may be fairly doubted whether the sum entered in the estimate represents the full cost of the undertaking.

6. Taking into consideration the nature of the ground through which a great part of the canal will be carried, and which will probably necessitate an amount of excavation far in excess of the actual section proposed, and noting also, that no provision has been made for the cost of a dredge, which is an essential part of the scheme, it seems more than probable that the expense of completing the project will exceed a lac of Rupees; while the subsequent annual charges for maintenance will certainly not fall short of the sum named by the Superintending Engineer.

* Revenue Department, 30th March 1865, No. 699, and 11th April 1865, No. 790.

7. With these remarks the papers will be transferred, with reference to the Order* marginally noted, for consideration in the Revenue Department, as to whether the advantages likely to result from the opening of the canal are such as to justify so large an outlay.

FORT SAINT GEORGE,
18th September 1865.

(Signed) J. H. M. SHAW STEWART, Major, R. E.,
Under Secretary to Government, P. W. D.

No. 591.

ORDER THEREON, 28th September 1865, No. 2,347.

Separate Revenue, No. 35.

Salt.

1. The Government do not doubt that even at the increased cost this work will prove amply remunerative by inducing increased sales of salt.

2. Measures must be taken to meet the very large demand for salt which is certain to arise when the extension of the line of Rail to Errode is completed, and it is certain that only from Vedarniem can the necessary supply be obtained.

3. The Government therefore desire that the canal be pressed to completion as speedily as possible after the necessary preliminaries have been arranged, and that an intelligent Officer be specially appointed to superintend the work.

(True Extract.)

(Signed) W. HUDLESTON,

Acting Secretary to Government.

To the Public Works Department.
,, Board of Revenue.

Exd. S. T. Augustin.

Memo. for Mr. D.

Accompanying the
Memo. D. S. L. Traffic
Capt Baker. Report on
Hepburn & Virginia
Canal

The object of this canal
is to enable D. S. L.
to maintain at least
a sufficient supply of
salt to meet the demand
It already exists &
is certain to increase
largely with the
extension of the
Railway to Madison

It is difficult to
estimate what this
increase will be
but it may safely
be assumed that
much of the traffic
in salt from Madison
by the S. W. line will
be transferred to
the G. S. L. line to

During the year 1892
 Regapatam being considerably
 less than that of Madras.

The wharf this year affords
 the Madras depot with be
 very acceptable as the opening
 of the Bangalore branch &
 the extension of the N.W. line
 are fixing its resources to
 the utmost degree. Do

The quantity of salt sent
 from Madras by rail in
 1892/93. was S. M. 10,00,200. | 1 lac of lbs.
 being S. M. 1,04,200. in excess = 367 1/2 tons.

of previous year - and | 1891/92 S. M. 1,00,000
 S. M. 3,46,838 beyond 1892/93 | 1891/92 S. M. 1,00,000
 10,60,200 x 1 1/2 = R

From Regapatam S. M. 1,58,000
 being taken by rail between May 03
 & Feb/04. = 10 months.

The London Salt Co. for 04/03
 & the total increase of R. 1,15,000
 arising mainly from the increased
 demand for salt for conveyance
 inland by the Railways
 S. M. 7,66,666

The P.W. observes with regard to the
 existing means of supply at Regapatam
 The manufacturers at Regapatam

15,90,300
 nearly 16 lacs
 1 1/3 lacs per month

possibly most dry thing
 in the way of improvement
 & in consequence of being
 engaged in Trade. can
 but little whether their
 plans are fully worked
 or not. This only object
 being to get most profit
 with least trouble. Regapatam

"If the canal to Veduram
 is finished we are to a
 certain extent in their
 hands & I can only hope
 that it will be long before
 it is completed for as
 soon as the S. S. P. R. is
 opened to Soda, there is
 no doubt of an enormous
 increasing demand
 arising for Regapatam
 & Veduram Salt."

Assuming that of the
 increase in the sales last
 year S. M. 70,000 appertains
 to the M. Traffic - the whole
 amt. carried in the year
 by rail could not have
 been much less than 2
 lacs of Maunds - With
 the line is open only to
 Dickinopolly. Do

may eventually estimate
 that the volume of sales
 under the franchise in the
 State is completed.
 - It seems to me that for
 the most part we assume
 that the work will be
 amply remunerative,
 regarding business
 sales.

October

the cost in the interim I cannot doubt that
 being reduced by cheaper work-remunerative work
 carriage & consumption the food could understate.
 proportionately stimulated. Something must be done
 to promote the sale for it, when
 the time comes to settle,
 we will certainly be a loser.

19.9.83

Demand, of from what other
 the ordinary supply of salt for
 that demand cannot possibly be
 from any other place than Baduria -
 I would have the usual paper to accompany
 after the usual preliminary measures have been
 taken and would appear as a letter in the
 prospectus to superintendent of the salt and
 construction.

I entirely agree
 to do it
 W.D.

[Faint handwritten notes at the bottom left of the page]

[Faint, mostly illegible handwritten notes on the right page, possibly bleed-through from the reverse side]

A black and white photograph of a rectangular object, possibly a piece of paper or a small box, with a small arrow pointing to its right side. The object is oriented vertically and has a slightly irregular, hand-drawn appearance. The background is dark and textured.

No 31 Ben / 63 Nov 3 mi 437
 31 March 1855 - 510 511
 28 Apr - " - 8 mi 232
 11 " " " " 164 55
 27 " " " " 312 312
 26 July " " 369 370
 20 Aug - " " 23-24
 13 Sept - " " 361-2
 Nov 22 Dec 22 / 64 " 419
 " - 22 Jan 1855 " 367-8

Paid 1865 Oct 10
 of Govt of ~~India~~ ~~to~~ ~~the~~ ~~Govt~~
 2612.
 Sumo:
 From the Under Secy
 to the Govt. of India
 Dated 18th 94/10/65
 Recd 18th 94/10/65

8.
212 Oct 10. 1891

Travelling, with
remarks, papers for edi-
cation as to whether the
advantages likely to result
from the opening of the
Navigation and Canal.
main Canal are such as
to justify so large an out-
lay as herein stated. —

082347-108891

With an order

10

Ms. 2347.
In Mr. Brewster's
room at the present cost
the work will prove amply
demonstrative by indicating
the correct value of shells.

measure into the letter &
 put the very large amount of
 salt &c. in within & raise them
 the solution of the line of salt & rise
 is completed, sit in carbon
 that only from the solution can
 the necessary supply be obtained

The Secretary has
 that the course he pursued in
 completion as quickly as
 possible after the necessary
 facilities were being
 arranged - that an intelligent
 opinion is especially of some
 of the kind that the Secretary
 has been able to do.

284-46m 1863