Archives I—10,006—16-8 77.

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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W. DEPARTMENT

G.O. No. / B.P. No. 132 W Press. / Mis.

Dated 18.1.1881 ~~197~~.

Not to be folded or roughly handled

132/1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

18th January 1881, No. 132 W.

Buildings and Roads.
Civil Works.

Read the following papers :—

No. 110. From the Chief Engr. for Irrigation, dated 3rd July 1880, No. 22 E.W.

No. 110-A. From the Supt. of Works, Kistna, dated 8th Jan. 1881, No. 2,259.

No. 111. ORDER THEREON, 18th January 1881, No. 132 W.

THE estimates for—

	RS.	
(1) Inlet and Outlet for Pedda Ganjam and Ooppukondur drainages	1,900,	Register No. 73-1 B. of 1880-81,
(2) Cut from Ooppukondur Vagu to Pedda Ganjam creek	3,200	„ „ 73-2 „
(3) Culvert under Commanur Canal Extension	9,300	„ „ 73-3 „

are sanctioned for execution from the general allotments for the Buckingham Canal.

2. No funds can at present be given for expenditure during the current year, but the full amount required will be made available from the grant for 1881-82; should it hereafter be found practicable to make any allotment for expenditure before the 31st March next, early intimation will be given to the Superintendent of Works.

3. This sanction has been registered as Provincial No. $\frac{73}{1, 2, 3}$ B. of 1880-81, and classified as Irrigation and Navigation—Communications (Navigable Canal,) Original Works.

(True Extract.)

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

To the Superintendent of Works, Kistna.
„ „ „ Buckingham Canal.
„ Chief Engineer for Irrigation.
„ Examiner of Public Works Accounts.

Exd. S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1881) Madras.

PUBLIC WORKS.

To

The SUPERINTENDENT of WORKS,
KISTNA,
&c., &c., &c.

Dated January, 18

Issued

Recd. *Encl.*

G. O., 18th January 1881, No. 132 W.

JANUARY.
Nos. 110-111.

Junction cut between the Buckingham and Commamur Canals.—Estimates for works in connection with the — sanctioned for execution from the general allotments for the Buckingham Canal with remarks as to the provision of funds.

132/2

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

14th November 1878, No. 924 I.

Irrigation.

Read the following papers :—

No. 76. From J. O'SHAUGHNESSY, Esq., District Engineer, Nellore, *to* the Chief Engineer for Irrigation, dated Nellore, 2nd July 1878, No. 810.

In reference to your memorandum No. 18 NL, dated the 21st June last, I have the honor to inform you that the map of the Bapatla taluk, received from the Deputy Chief Engineer for Irrigation on the 4th May 1878, was returned to that officer on the 14th instant.

2. I enclose a tracing of that portion of the map of the locality in question, which shows the navigable route from the present terminus of the Buckingham Canal to the salt-pans at Chinna Ganjam. The depth of water along this line was no where less than 3 feet, and it was as much as 7 feet deep inside the bar when I inspected it on the 22nd May last. The tide was very low at the time, and from the register kept by Colonel Hasted's orders near the mouth of the Commamoor Canal, the range of the tides in May 1878 was from 3 feet in spring to 1 foot 5 inches in neap tides, so that the estuary was then (about the most unfavorable season of the year) navigable for boats drawing from 3 feet to 4 feet of water.

3. I now venture to state my objections more fully to the arrangements sanctioned in G.O., No. 239 I, of the 21st March 1878, for such consideration as may be considered necessary. It is, in my opinion, a question of very great importance, involving a large and heavy expenditure and creating great delay in the completion of a project so long and so anxiously looked for by Government.

4. I wish to mention before stating my objections to the arrangements referred to that, by the present arrangement, the drainage of the Pedda Ganjam creek will be shut out of the canal and turned into the Romperu in the direction of the Upperkundur Vagu bringing its silt into the Romperu to be carried off at the time or afterwards by the Romperu floods.

5. By the present arrangements the communication with the estuary to the vicinity of the Chinna Ganjam salt-pans as well as to the terminus of the Commamoor Canal is already complete.

6. My first objection to the proposed arrangement is that the drainage of the Upperkundur Vaga as well as of the Pedda Ganjam creek is turned into the canal, and to prevent the canal south of the creek being completely choked by silt the construction of a lock at C. on the sketch will be immediately necessary.

My second objection is that the communication with the estuary will be choked up also, and, if it is found necessary to keep this open for navigation, it will be a constant source of expense.

7. The proposed removal of the junction lock from the site originally proposed to the left margin of the Peddaganjam creek involves therefore an extra expenditure of—

	RS.
1st.—Extending the Commamoor Canal	11,750
2nd.—A lock to keep out the drainage of the Pedda Ganjam creek, say, and	25,000
3rd.—The probable clearance of the channel between the canal and the estuary 2,500 Rupees a year capitalized at 5 per cent. ...	50,000
Total ...	86,750

8. It is said on the other hand that even if the junction lock is built on the original site a lock would be necessary at the present junction of the Buckingham Canal with the estuary, in order to keep out the Romperu floods and to keep the water at a convenient level in the canal. In this case the difference between the two schemes would be—

	RS.
The extension of the Commamoor Canal	11,750
And the probable cost of having to keep communication with the estuary open	50,000
Total ...	61,750

which is a considerable amount in favor of the original design.

9. I have already reported that I do not consider a lock at the junction of the Buckingham Canal necessary or desirable; I am still of this opinion for the following reasons:—The Romperu floods cannot at a point so near the sea rise more than 2 or 3 feet above tide level. The influx of water to this extent can do no harm in the canal. The nearest point of exit by the canal would be the Gundlakamma river which is about 9 miles south of the Romperu, and a rise of even 3 feet in the canal at the Romperu would be only about 4 inches a mile in this distance causing a velocity of about 1½ miles an hour. This velocity would no doubt retard, but it would not by any means stop, navigation while the flood continued, and it would act most beneficially on the bed of the canal.

10. If there was a flood in the Gundlakamma at the same time as in the Romperu the water would be banked up in the canal and there would probably be some slight deposit of silt, but it is seldom that even adjacent rivers are in flood at the same time and for the same exact period, and the instant the level of one flood falls below the level of the other a current will be generated in the canal proportional to the difference of level in the two rivers and sufficient to remove the silt previously deposited when the water was at a dead level.

11. The consideration of the question thus far, not only shows that a lock at the junction with the Romperu estuary is unnecessary, but that it would be positively of great injury or entail much heavier expense, a flood in the Gundlakamma for instance would be banked up in the canal by such a lock depositing its silt in still water during the duration of the flood, and to avoid this evil the construction of another lock would be indispensably necessary on the left bank of the Gundlakamma.

12. It may be said that similar arguments may be used to show that the diversion of local drainage into the canal by the Peddaganjam creek would be equally harmless or even beneficial and that the construction of a lock at C to keep this drainage out of the canal would be equally unnecessary and injurious.

13. But the cases are quite different. The Romperu brings down a large volume of water which will cause such an effectual current in the canal as to prevent the deposit of silt. The Peddaganjam creek will throw in a comparatively small quantity of water from an adjacent drainage more heavily laden with silt and insufficient in volume to create but a most feeble current which would be checked even by the tides of the Gundlakamma and be merely sufficient to extend its injurious effect along a length of perhaps 4 or 5 miles of the canal.

14. My opinion then is and for the reasons given above—

1st.—That even if the junction of the canal with the Romperu is not necessary through navigation would not be more easily nor so cheaply maintained by the proposed direct junction, but as a matter of fact communication with the estuary *must* be maintained even in the proposed scheme for the purpose of letting off the drainage of the Peddaganjam creek.

2nd.—If communication be made by the estuary, that is to say if the original design is adhered to, a lock at the junction of the Buckingham Canal with the estuary is not necessary, and it would be ineffectual to maintain any particular level of water in the canal without another lock at the Gundlakamma river.

3rd.—The surplus of the Commamoor Canal could be of no utility in a tidal canal which has a rise and fall of about 4 feet by the action of the tides alone.

4th.—The lower sill of the junction lock should be at the same level whether it is built at the original or at the proposed site, and this level should not in my opinion be less than 7·50 below high tide level.

15. The practical necessity for locks at the junction of the canal with rivers was discussed 24 years ago; and Colonel Chambers, R.E., who was then Superintendent of the canal, considered them, so far as his experience then went, unnecessary; he preferred leaving the canal to be acted on by the flux and reflux of the tides and to be scoured where opportunity offered by the action of the river floods; so far as my experience goes, I am also of the same opinion, more especially in reference to the section of the canal from Kristnapatam to the Romperu, 108 miles in length, which is crossed by 15 rivers and large streams, and which, if the construction of locks was decided upon, would require 28 locks at a cost of about 7 lakhs of Rupees and an annual expenditure for establishment and maintenance of about Rupees 14,000, that is to say Rupees 500 for each lock.

16. I am very reluctant to offer unsolicited and unbidden opinions on this subject; but, considering its great importance and my connection with the work, I feel that no excuse is necessary for doing so.

No. 76-A. From Lieutenant-Colonel J. O. HASTED, R.E., Superintending Engineer, Kistna, to the Chief Engineer for Irrigation, dated Masulipatam, 8th July 1878, No. 75.

WITH reference to your memorandum No. 56 KS, dated 21st June 1878, I have the honor to observe that there is apparently some misconception as to the proposed junction canal between Feringhidibba and the Buckingham Canal.

2. The estimate sanctioned by Government provides for an inlet and outlet on the junction canal to pass the drainage, which at present falls into the Romperu below Feringhidibba, and which, I conclude, is that referred to, as the Upperkundur Vagu, and it will therefore make no difference as regards the drainage water that will be discharged into the Buckingham Canal, whether the lock is built at Feringhidibba or near Peddaganjam.

3. In my opinion, the navigation will be improved by making a direct junction between the canals, and the improvement is well worth the extra cost. The position of the tidal lock is altogether independent of the connection between the Buckingham Canal and the Romperu; if a lock is necessary at this point, it must be built, irrespective of the position of the tidal lock.

4. I am not acquainted with the design of the Buckingham Canal lately excavated, but I was under the impression that the connection with the Romperu was desirable as a means of supplying the canal with tidal water. I see no reason why a lock should be needed at the entrance of the canal to the creek more at this place, than at any other connection of the canal, with the estuaries, it crosses, though,

if the canal is to be enlarged to the dimensions of a first-class canal, I think it probable that a lock will be necessary at every junction with an estuary.

5. The question of excavating a channel from the Romperu to the salt-pans at Chinnaganjam can best be decided by the salt department. At present the only salt platforms in direct connection with the canals are those at Nizampatam, the salt from which place is taken to Bezamada and Muktiala, 40 miles above Bezamada by boat. I understand that here the supply is much in excess of the demand, and therefore it appears that, so far as the Kistna Canals are concerned, there is no necessity for further connecting links with salt platforms.

No. 207 I.

No. 76 B. *Note by the Chief Engineer for Irrigation.*

THE correspondence now submitted is in continuation of that* printed in Proceedings of the Madras Government, No. 2,650 W, of the 26th June 1878, and refers to the arrangements approved in G.O., No. 239 I, of the 21st March 1878, for connecting the Commamoor and Buckingham Canals.

* From District Engineer, Nellore, 14th June 1878, No. 648.
To do. do. 21st June 1878, No. 18 NL.

2. Mr. O'Shaughnessy is mistaken in supposing, paragraph 5, that under what he terms present arrangements the connection between the two canals is complete. Not only has a tidal lock to be built, but a sufficiently deep channel, between the formerly intended entrance of the Commamoor Canal into the estuary of the Romperu and the end of the Buckingham Canal, has to be obtained.

3. Mr. O'Shaughnessy goes on to state that he has two objections to the arrangement—

First that by it the drainage of the Upperkundur Vagu and of the Peddaganjam creek would be turned into the (Buckingham) Canal, and that to prevent the canal south of the creek being completely choked by silt a lock at C, a little south of the mouth of the creek, would be necessary.

He is mistaken as shown by the Superintending Engineer's Kistna letter in supposing that the drainage of the Upperkundur Vagu will be turned into the Buckingham Canal, the sanctioned arrangement providing for discharging it across the lower reach of the Commamoor Canal. The telegram from the Superintending Engineer, Kistna, states that the area drained by the vagu is 24 square miles, and the maximum flood discharge may be taken as 3,744 cubic feet a second. It will be desirable therefore to make the inlet and outlet longer than the 180 feet mentioned in the Superintending Engineer's letter printed in Proceedings, Madras Government, No. 239 I, of the 21st March 1878, and 400 feet would be the proper length. Or it may be found to be desirable to construct a small culvert† under the Commamoor Canal to discharge, say, 750 cubic feet a second, and prevent any obstruction of drainage of lands above the canal, and then the inlet and outlet would be 320 feet long. It will be necessary for the Superintending Engineer to examine fully into the requirements, so that the details of the cross drainage works may be efficient. The position of the Buckingham Canal as regards drainage will be entirely unaffected by the approved arrangements for a direct junction, and the first objection is therefore groundless.

450 × 8·32 = 3,744 cubic feet a second.

† About 2 vents of 7½ feet span each.

The second objection, viz., that the communication with the estuary will be choked up also, is necessarily groundless, as the circumstances will remain unchanged.

4. The only modification of arrangement recommended is the placing of the lower sill of the Commamoor Canal tidal lock at 7·50 instead of 6·50 below datum, so that no inconvenience may result should it be found unobjectionable to leave the communication of the Buckingham Canal with the estuary open as at present. The

Superintending Engineer has been requested to design and estimate for the lock accordingly.

5. The question as to whether it will be found desirable hereafter to lock the Buckingham Canal into and out of the several estuaries with which it is connected, is a separate matter altogether, and must necessarily be determined after some practical experience of the results of freshes in those estuaries. The manner of connecting the Commamoor and Buckingham Canals is in no way affected thereby.

6. The undersigned entertains no doubt whatever as to the arrangement for a direct junction of the Commamoor and Buckingham Canals, as already approved, being substantially better than the superseded communication *viâ* the estuary of the Romperu, and he recommends therefore that no alteration should be made.

OOTACAMUND, (Signed) JOHN MULLINS, Lt.-Col., R.E.,
16th July 1878. Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

No. 77. ORDER THEREON, 14th November 1878, No. 924 I.

THE arrangements approved in G.O., No. 239 I, of the 21st March 1878, will be carried out with as little delay as possible.

2. The Superintending Engineer, First Circle, will give attention to the remarks of the Chief Engineer for Irrigation as regards the level of the lower sill of the tail or tidal lock, and he will further consider the subject of the disposal of cross drainage, and submit for sanction as soon as practicable such modifications of this part of the arrangements as may be found requisite, arranging in the mean time for the construction of the cross drainage works directly the estimate has been approved.

(True Extract.)

(Signed) J. O. HASTED, Lt.-Col., R.E.,
Ag. Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, First Circle.
" " " Second Circle.
" " " Third Circle.
" Chief Engineer for Irrigation.
" Examiner of Public Works Accounts.
" Revenue Department.

[illegible]
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IRRIGATION.

Govt. of [1878] Madras

PUBLIC WORKS.

NOVEMBER

Nos. 76-77.

132/5

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

21st March 1878, No. 239 I.

Irrigation.

Read the following papers :—

No. 80. From Major J. O. HASTED, R.E., Superintending Engineer, Kistna, to the Chief Engineer for Irrigation, dated Masulipatam, 22nd January 1878, No. 1—201.

*3 { 1 Survey of termination of Commamur Canal.
1 Survey and levels of salt creek at Chinna-Ganjam.
1 Section of levels of junction of Kistna and Buckingham Canal.
3 Estimates.

* 3 Plans by banghy.

I have the honor to forward sketch showing the proposed termination of the Commamur Canal in the Romperu Creek, together with cross sections of the creek up to the point the Buckingham Canal enters it, and longitudinal levels with estimates for extending the Commamur Canal to join the Buckingham Canal without entering the creek, 1st, with the terminal lock at Phiringhidibha, and 2nd, near the point where the Pedda-Ganjam Creek crosses the Buckingham Canal.

2. I enclose on a separate sheet a section showing the upper sill of the proposed tidal lock, agreeing with the bed of the canal as at present cut below Santaravur Lock, the average high and low water taken from the gauge in the Romperu, the sill of the Buckingham Canal, and the originally proposed lower sill of the tidal lock. I am afraid the gauge shows but little, as during the months it has been observed more or less fresh water was coming down, though in calculating the average the readings during floods have not been taken account of, but it seems to me to be certain that our ordinary high water level brought down from the anicut is very little lower than it should be.

3. The lower sill of tidal lock as proposed is 18 inches below the bed of the Buckingham Canal, and as the depth of this is not, I conclude, sufficiently low for complete navigation, I think the lock may be built as originally proposed.

4. The sections of the creek show that some deepening would be necessary to keep $3\frac{1}{2}$ feet of water at low tide, but the bed of the Romperu will have to be deepened to $6\frac{1}{2}$ feet below high water at junction with Commamur Canal and 6·95 feet at junction with Buckingham Canal to complete the drainage, and there will then be but little to be done. As far as I can gather the bar is not sufficiently open in dry weather to allow the water in the Romperu to fall to low water level, though it is not quite closed and admits water during high tide.

5. The estimates enclosed show that if it is considered advisable to prolong the Cammamur Canal to the Buckingham Canal, it will be considerably cheaper to

construct the lock near the Buckingham Canal than at Phiringhidibba, the cost in the first case being—

	RS.
Excavation	11,390
Inlet 180 feet	360
Total ...	11,750

and in the second—

Excavation	22,870
Turning drainage	1,125
Total ...	23,995

The construction of the lock, however, would be rather more expensive, the site being a mile and a half further from the quarries.

6. Very little saving on the original estimate can be reckoned on, as the canal has been tailed into the Romperu already to enable boats to pass into the Buckingham Canal.

7. There can be no doubt, I think, that the navigation will be improved by the canals being joined, and leaving the Romperu out of the line, but the extra expenditure that will be entailed should not, I think, be a charge against the delta works. So far as the delta is concerned, we have a sufficiently good outlet into the Romperu into which the Buckingham Canal is connected, and I believe the navigation of the Romperu will not be so difficult as that of some of the other streams which the Buckingham Canal crosses.

No. 51 I.

No. 80-A. *Note by the Chief Engineer for Irrigation.*

IN the Note on the Commamur Canal estimates, paragraph 20, it was noticed that further information was necessary to determine the proper position and level of the tidal lock and the connection with the Buckingham Canal. The Superintending Engineer's letter now submitted for consideration, and the papers accompanying it, show the circumstances.

Proceedings, Madras Government, No. 343 I, 30th September 1877.

2. There are two ways of connecting the Delta and Coast Canals—

1st.—Commamur Canal may drop into the Romperu estuary, and the navigation may follow this for about 5,600 feet to the present head of the Buckingham Canal on this estuary. This is the arrangement that was originally intended, and though the depth of water is at present too small for efficient navigation there would probably be no difficulty whatever in maintaining a deep channel with a bottom width of, say, 30 feet along the right bank of the estuary as the set of the current will always be to that side. The Romperu main drain will discharge into this estuary, and the level of its bed here will be about 6·50,* and the level could be lowered to 7·50. This arrangement is, as regards the Commamur Canal, the cheaper.

* H.W. datum.

2ndly.—The Commamur Canal can be carried across clear of the Romperu estuary so as to drop into the Buckingham Canal about 2,500 feet from its present head, in which case the proper position for the tail or tidal lock of the former would be just above the junction.

3. The reasons which have made it necessary to consider which of these two plans will be preferable are—

132/6

1st.—That, if no navigable communication with the estuary be of importance, and it would be of no value without a canal on the opposite or north side of the creek to the Chinna-Ganjam Salt Pans, the through navigation will be better and more easily maintained, if the junction between the Commamur and Buckingham Canals be made direct.

2ndly.—If the communication be made by means of the estuary it will be necessary to construct a lock at the head of the Buckingham Canal to exclude flood water and to maintain a convenient water level in the canal; by the alternative plan only a supply sluice would be needed, which could be used also as a surplus sluice.

3rdly.—A direct junction would allow of the surplus of the Commamur Channel passing into the Buckingham Canal, thus improving the water-supply of the latter.

4thly.—If the direct junction be adopted the level of the lower sill of the tail lock of the Commamur Canal may be fixed at 6·50 as formerly intended, whereas if the communication be by the estuary it would not be safe to place it higher than 7·50, for at two locks not dissimilarly circumstanced, viz., the Masulipatam and Nizamapatam tidal locks the minimum depth with sills at 7·82 and 8·00 respectively has been $3\frac{1}{2}$ feet, and a minimum of three feet is essential to an important through communication. Moreover as good navigation will be secured in the Buckingham Canal with a direct junction, as would be obtained with the other arrangement by building a head lock and cutting out the bed to 6·50, or by leaving the head open and cutting the bed down to 7·50.

Vide telegram dated, 18th February 1878, from Superintending Engineer, Kistna.

Practically the head lock would be a necessity for the damage to the canal were flood waters admitted would make the cost of maintenance great, and be very prejudicial to the navigation. The value of this navigation will depend upon its being maintained perfectly efficient.

4. On the whole the undersigned considers it desirable that a direct junction should be made between the fresh and salt water canals, avoiding the estuary. It will be seen that Major Hasted estimates the increased cost of this arrangement as regards the lower part of the Commamur Canal to be—

	RS.
Excavation or earthwork	11,390
Inlet 180 feet	360
	11,750

on the other hand the saving to the Buckingham Canal would be a

head lock, say	25,000
Deduct cost of a supply (and surplus) sluice, say	2,500
	22,500

so, considering the two canals together, the direct junction will be the cheaper arrangement.

Major Hasted deprecates the charge to the Commamur Canal of the cost of prolonging it to meet the Buckingham Canal, and as the greater part of this cost is for earthwork perhaps this could be executed by a working party from the latter canal, if Government decide to adopt the arrangement for the direct junction. The amount is not of very serious importance, and the Kistna Delta will benefit by having the communication made as good as possible, but if the cost be charged to the Commamur Canal, the estimate for the latter will have to be revised.

will be required.

5. The plans sent in by the Superintending Engineer do not show the Chinna-Ganjam Salt Pans, but a plan* showing their position accompanies this Note, and the alternative arrangements for the canals have been marked thereon.

*Revenue Survey.

FORT ST. GEORGE,
21st February 1878.

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

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

No. 81. ORDER THEREON, 21st March 1878, No. 239 I.

His GRACE the Governor in Council is of opinion that the Commamur and Buckingham Canals should be connected on the direct line, and this arrangement is accordingly approved.

2. The tail or tidal lock has already been provided for in the estimate for the Commamur Canal, and the extra cost, estimated at Rupees 11,750, of carrying this canal on to the Buckingham Canal, instead of dropping it into the estuary of the Romperu, will be charged to the Buckingham Canal.

3. It is considered that it will be advisable to provide middle gates for the tail lock so as to save water when only small boats are passing, and the Superintending Engineer, Kistna, will accordingly prepare a revised design for the lock.

4. Under the arrangements approved regular through water connection between the Chinna-Ganjam Salt Pans and the Buckingham Canal will not be practicable without a lock at the point where the canal meets the estuary, but a channel from the estuary to the Salt Pans will facilitate transport of salt, and should be surveyed and estimated for in connection with the Buckingham Canal.

(True Extract.)

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the District Engineer, Kistna.
" do. Nellore.
" do. Chingleput.
" Chief Engineer for Irrigation.
" Revenue Department.

Exd. T. D. Ryan.
Spare Copies

IRRIGATION.

Govt. of [1878] Madras.
PUBLIC WORKS.

To

The DISTRICT ENGINEER,
KISTNA,
&c. &c. &c.

Dated March 21st.

Issued

Recd Encd

G. O. 21st March 1878, No. 289 I.

MARCH.

Nos. 80-81

Commamur and [illegible] Canal.—The proposal to conduct the —, approved with remarks.

No. 1860

Supdt of Works Office Kistna
Camp Bezwada 15/8
22nd November 1880.
recd 24th — 80 —

From
The Superintendent of Works
Kistna

To
The Chief Engineer
P. W. Department
Madras

Sir

I have the honor to bring to your notice that, if any progress is to be made next working season, during the closure of the Commamur Canal, with the Culvert to be constructed under its extension at the Uppukondu Vagu, it is necessary that we should at once proceed with the collection of materials.

2 The Estimate for this Culvert, together with the 3 other Estimates for works in connection with the Uppukondu and Pedda Ganjam Vagus were forwarded to the Chief Engineer for Irrigation and transferred by that Officer to you, with his No. 22 E. W. of the 3rd July 1880. Up to date no orders regarding any of these works have been received. If it is intended to proceed with the works next year, materials must be collected before the closing of the Canal.

3 In this case, an allotment of funds say Rs 2,500 for the Uppukondu Vagu Culvert will be required.

Please give me orders on the subject.

I have the honor to be

Sir

Your most obedient servant

F. W. Rundall

Superintendent of Works

Kistna

I.W. C. No 7712

From

The Superintendent
of Works
Kistna

To

The Chief Engineer
for P. W. D.
Madras

Dated 22d
despd 24th } November
Recd 6/12 } 1880

No 1860

Oppukunder Vagu

Culvert to be constructed at. Reports that an allotment of Rs: 2500 will be required for the execution of – if intended to be carried during the Closure of Commamur Canal –

C. Kista R. 71.

No $\frac{C}{27}$

From,

The Ag. Superintending Engineer
1st Circle

To

The Chief Engineer
For Irrigation

Commamur Canal Extension 22d/1/79
Despd 25/1/79

Sir,

1. With reference to Para 2 of G.O. No 924 I of 14th November 1878 I have the honor after personal inspection of the ground to report –

2. Two drainages have to be dealt with – One is known as the Uppu-×Kondur Vagu and this is the one which has chiefly occupied attention in the discussion which has taken place with reference to the direct Junction of the Commamur and Buckingham Canals – The other is the drainage which used to find its way to the sea by the "Pedda Ganjam Creek" and is locally known above the Canal as the Buchikondur "Parra" or swamp –

× See –
Para 2 to 75. 8/7/78 from Col. Hasted R.E. & Para 3 of Note No 207 I of Ch. Engr. for Irrigation both with G.O. No 924 I —

3. The first, is said to drain× 24 Square miles, as it approaches the Sea it has no well defined Channel but spreads out into a swamp the lowest part of which crosses the new Junction line about 7/16 mile from its commencement, and at that place it was intended to build the works to pass this drainage –

× See Para 3 of Note 2071 of Ch Engineer for Irrigation –

* [illegible]

4. The Second, drains a smaller extent of country. What is the area has not yet been decided. Its natural course is across the Buckingham Canal between 195 miles and 195 miles 1 furlong and thence north of the Village of Pedda Ganjam. Its diversion was in the past season attempted by means of a drain along the left bank of that Canal to the Romperu but it breached into its old Natural course –

5. These two drainages as they approach the Canals are separated by a slight sandy elevation rising scarcely any where to above level + 4 (Kistna Datum. Ordinary H. T. L) and for a considerable distance lower than this. how much lower levels which I have ordered will show, – and I think there can be no doubt that though at most times these drainages find their way separately to the sea, when the floods are considerable their waters mingle and a considerable portion of those of the Uppukondur Vagu flow away by the Pedda Ganjam Creek, or did so till the Canal blocked it –

6. The F. S. L of the Commamur Canal above the terminal lock is to be + 5.5 and any inlets and outlets to pass the Uppukondur Vagu there must have their crests at that level and (2) two feet would probably have to pass over them to discharge floods, the level of which waters would therefore be + 7.5 –

7. The level of the F. S. L of the

Buckingham Canal is I suppose H W Spring tides or say about + 1.5 (Kistna datum) and inlets and Outlets could be provided with Crests at that level. To pass the "Pedda Gaiyam Creek" drainage such works must be provided and it is therefore very evident that the Uppukondur Vagu waters or a large portion of them will rush that way even if the inlet & outlet proposed specially for that stream be built, unless a long "division" or "stop" bank be run inland between the two drainages -

8. There might be some reason for such a bank were the Canals rivals and belonging to different interests, but as they are parts of one system with identical interests such an arrangement would be senseless, and the cheapest and most efficient means of passing the whole drainage no matter where it crosses either

of

of the canals must be sought. This I am convinced is to be found in the provision of inlets and outlets of sufficient length, say 500 feet, at the place where the Gaiyam Creek has been blocked by the Buckingham Canal. Where the works will be inexpensive, will cause but slight backing up of flood waters on the country, and where there is a naturally provided course for them to the sea.

[illegible]

9 It will, I consider, be well to construct the Under Tunnel of 2 Vents ordered in Para 3 of the Note No. 207 I of the Chief Engineer for Irrigation to pass ordinary drainage from the Uppukondur Vagu and of course such an under tunnel could be built of a size to pass also the highest floods of that Vagu but such a structure would be much more expensive to build and would

be

be the source of much greater anxiety than the inlet and outlet suggested in the last Para-

10. Were not the excavation of the "Junction cut" so far advanced that it would cost a large sum to move the banks back sufficiently to allow of the bed of the Cut being made to level of that of the Buckingham Canal I would recommend that the Lock should be placed before the Uppukondur Vagu is reached when flush inlets and outlets would let that Vagu cross at its accustomed place without backing it up over the Country and into the Pedda Ganjam Creek.

11. To summarize. It is expedient to build the 2 Vent under tunnel recommended by the Chief Engineer for Irrigation at the crossing of the Uppukondur Vagu in order to prevent a nearly constant flooding of a considerable area above

the

132/13

the Canal — It is not expedient to build the inlet and outlet proposed at the same place, for they would be practically useless as the levels of their crests would have to be such that before discharge could take place over them, the Water of the Vagu which they would be intended to serve would be turned into the "Pedda Ganjam Creek" and rush through the inlet and outlet which will have to be built to pass the drainage of that Creek in the banks of the Buckingham Canal — It is advisable to build a flush inlet and outlet of (say) 500 feet long in the banks of the Buckingham Canal where it blocks the "Pedda Ganjam Creek," where much of the water of the Uppukondur Vagu has undoubtedly in high floods always gone, and where even when the new Junction Cut

was

was not in existence and even though a diversion cut (which will no longer possible) had been provided, the banks were extensively breached owing to the want of an inlet and outlet—

12. A tracing accompanies this taken from a plan prepared I believe last June and on it is shown "proposed drainage Cut" from the Uppukondur Vagu to the Peddaganjam Creek from which it would appear that the diversion now recommended has at one time under consideration, as is also clear from Clause 2 of 2d Para of Note 18 N I of 21th June 1878 of Chief Engineer for Irrigation with G.O. No 924 I dated 14th November 1878; from No 75 of 8th July 1878 from Colonel Hasted R.E. printed with the same G.O. it is evident that the idea was not long entertained. I have not with me the records amongst which I might possibly trace the history of

× and to have been added in August—

[illegible]

[illegible]

132/14

of the proposal and its abandonment. and I am so far from my head Quarters that I think it inadvisable to delay this till I get there and look up the records, especially as you are personally conversant with all the facts—

13. As no materials whatever have been collected for any of the works proposed for the Uppukondur Vagu crossing, as all the available punts and boats are now and will be for some time engaged in conveying materials for the Lock— and as the Channel to that Lock will have to be kept open nearly all the working season it will, if the Lock is to be pushed on with, be impossible to build the under Tunnel recommended, or any larger one, in this season. Therefore for the passage of drainage water in this year at all events there is only the choice between the inlets and outlets proposed at the Uppukondur Vagu plus a smaller one in the

196th mile Buckingham Canal, and one large one, say 500 feet in the latter place only. That the latter arrangement is the most advisable in my opinion I have stated above and I trust that the Officer in charge of the Buckingham Canal or myself may receive early authority for carrying it out.

14 This work should I consider take precedence of even the Lock work because by means of a temporary Lock into the Komperu boats can frequently be passed from one Canal to the other whereas the extensive damage that would result from the total blocking of the drainage would probably stop through traffic for a very considerable time —

15 Before I had arrived at the conclusion that the building of the inlet and Outlet proposed at the Uppukondur Vagu was not advisable

advisable I had ordered that the banks at the place should be so thrown as not to interfere with the construction of those works and directed that they should be built as soon as possible.

As their construction cannot by any possibility be commenced for some weeks I will not countermand any orders for the present. —

I have the honor to be
Sir
Your Most Obedt. Servant
C. Lewick
Ag. Superintending Engineer 1st Circle

Irrigation

P.W.D.
7 JUL 80

From
The Ag. Supdg Engineer
1st Circle

To,
The Chief Engineer
For Irrigation
Madras

Dated 22nd }
Despd 25th } Jany 1879

No $\frac{C}{27}$

Report on cross drainage at end of Commamur Canal ordered in G.O. No 924 I dated 14th November 1878

---

3 plans, plotted, one of Undertunnel, one of inlet & outlet, one of levels of drainages & estimates [illegible]

1 Estimate for excavating a drainage cut from Uppukondur-vagu to Pedaganjam creek. Rs 3200-

1 Do for constructing an inlet at the crossing of Pedaganjam creek between the 195th and 196th mile stones of the Buckingham Canal near Pedaganjam } " 3600

1 Do for constructing an outlet at — Do — Do — Do — " 5000

1 Do for constructing an under tunnel at the crossing of Uppukondur vagu in the 35th chain of the Commamur canal junction cut near [illegible] } " 7460

1/7

No. 694

Kistna Western Division Office
Station Duggirala.
23rd March 1880.

From

G. D. Wylson Esqr
Executive Engineer Kistna

To

The Chief Engineer
for Irrigation

Sir

In obedience to your verbal orders I have the honor to forward direct to you for disposal the plans and estimates marginally noted.

2. With regard to the proposed cut between Uppukondur-vagu and the Pedda Ganjam creek through the sand ridge dividing these two drainages, although it is alluded to in the correspondence regarding these drainages, no definite width had been laid down for the cut, I have however allowed a bed width of 9' as suggested by you.

3. During high floods the waters of both these drainages unite and fall into the

the Buckingham Canal just below the junction — of the Commamur Canal with the Buckingham Canal, but to more effectually drain the Uppukondur-vagu Swamp where the water in the Uppukondur-vagu is between + 1.88 and + 4.16 which otherwise would back up against the right bank of the junction cut, the proposed cut will carry off about 1015 cubic feet per second and the lower portion of the Swamp will be drained by an under tunnel of 2 vents of 7½ feet which has been calculated to discharge about 750 cubic feet per second.

4. The Plans and Estimates for the Peda-Ganjam Creek inlet and outlet and Uppukondur-vagu under tunnel were submitted to the Superintending Engineer on 13th April /79 for sanction, but no orders were passed

5. If it is decided to build a permanent inlet and outlet for the Peda-Ganjam Creek the design by Mr Harris might be modified and cheapened by lessening the width of the

apron

apron from 43' to a width of from 9' to 12'

I have the honor to be
Sir
Your most Obdt. Servt.

Executive Engineer
Western Divn. Kistna

M
Dd

From,

The Executive Engineer
Kistna Western Div.

P.W.D.
7.IV.80

To,

The Chief Engineer
for Irrigation

Dated 23 March 1880.
Received. 29 "

No 694.

Commamur Canal
Works. Forwards
plans & estimates
of —

132/13

From Ex. Engineer, Kistna W.D. Division No 694 - 23 March 1880
also - Supg Engr 1st Circle No C/37 - 22nd January 1879.
No 22 E.W.

Transferred to the Chief Engineer W.D. with the following remarks.

ala 12

At the time that G.O. No 9244 of the 14th November 1878 was passed it was supposed that the Ooppukundur vagu and Pedda Ganjam drainages were distinct, and that the latter was a swamp receiving but little upland drainage. The then Superintendent of the Buckingham Canal wished to keep these drainages entirely out of that Canal and it was therefore proposed to pass the whole of the Ooppukundur drainage across the extension of the Commamur Canal, for the junction of this with the Buckingham Canal, instead of as had been suggested by Major Hasted diverting this drainage into the Peddaganjam creek.

2. When the circumstances came to be investigated it was found that the waters of the two drainages must mingle after considerable falls of rain, and that with a comparatively high level extension of the Commamur Canal, it would be impracticable to prevent the Ooppukundu

vagu drainage running into the Peddaganjam swamp, or to take the bulk of the drainage across the Extension except by the very undesirable arrangement of effecting an artificial separation. Subsequently the floods of 1879 showed that no artificial separation could have been maintained, seeing that the water level rose to + 7.54 or 4.80 feet higher than the previously supposed maximum, and several square miles of country hereabouts were then completely submerged.

+ 2.74 on plan of Peddaganjam inlet and outlet

3. What is now proposed is to allow ample waterway across the Buckingham Canal near Peddaganjam village for the drainage of the Peddaganjam and Oppukundur vagues by forming an inlet and outlet 500 feet in length on the banks of that Canal; 2ndly to unite the swamps at the lower end of the two vagues by a cut which in the first instance may be made 90 feet wide at bottom; 3rdly to construct a small Culvert under the Commamur Canal Extension on the line of the lowest part of the Oppukundur vagu swamp to allow the ordinary small drainage to pass under the Canal and so prevent any obstruction to the drainage of the lands bordering on the swamps.

4. The Estimates for these works are

(1) Inlet	500 feet	Rupees 3600
(2) Outlet	do	" 5,000
(3) Cut from Oppukundur vagu to Peddaganjam Creek		" 3200
(4) Culvert under Commamur Canal Extension		" 7460
		19,260

5. It is considered that for the present at any rate the openings for the inlet and outlet may be cut down to 0.00, and that to prevent scour a pavement of dry stone 12 feet in width and one and a half feet deep may be laid down in a trench cut for the purpose, the pavement being carried on, up the banks at either end, to form a revetment. It seems very probable that this arrangement will suffice permanently at a cost of about Rupees 1850; and if so some Rupees 6750 will be saved, while at most Rupees 100 may be spent in packing stone which may ultimately have to be taken up again for the construction of more substantial works.

The drainage area named on the plan of the Inlet and Outlet is 60 square mil

The limits of the basin of the Peddaganjam vagu are very undefined, but it seems probable that some 15 to 18 square miles drain into it, and then the total area would be 60 square miles. On the other hand the quantity of drainage, viz 8608 cubic feet a second estimated, is not likely to be excessive as it was made before the recent floods. There are no data for calculating the discharge of inlets and outlets circumstanced as these will be, but up to the flood level of 1879 they will afford a waterway of 3770 square feet, and with the moderate velocity of 2½ feet a second they will discharge C. feet 9425 a second, so that at any rate as soon as a free outfall may be obtainable the land floods will rapidly be discharged into the Romperu.

6. The Cut (3) will, if made 90 feet in width, probably enlarge itself. It will occupy a line along which a great part of the spill last year occurred, and there are evidences of a considerable velocity. With from 1½ to 2½ feet increase of depth the scour will be much increased. When the Cut becomes gorged, water will flow over the ground on both sides as at present.

7. As the F.L. of November 1879 at the Peddaganjam lock was 7.54 the design for the Culvert should be modified so as to make the ends of the wings 9.50, to correspond with the normal level of the top of the Canal banks here.

8. The extent of the floods in the vicinity of Peddaganjam were not fully ascertainable until recently, but much more accurate information as to the circumstances than that given in Mly. No. 239 I. 21st March 79 should have been obtained in the first instance.

9. A copy of the reply No. 4 Kh. 4th February 79 to the Superintending Engineer's letter $\frac{C}{27}$ was sent to the Chief Engineer, P.W.D. with No. 9 E.W. of the same date.

10. The papers were sent from the Kistna Western Delta to the Superintending Engineer, late 1st Circle, some time in 1879, but for some unexplained cause were not disposed of by him. They were obtained from the Supdg. Engineer early in 1880 by the Executive Engineer in order that the undersigned might see what had been proposed, and the Estimate for the Cut was afterwards added.

Ootacamund }
3rd July 1880 }
Regd 7 July 80.

To
The Chief Engineer
P.W.D.

[illegible] Colonel R.E.
Chief Engineer for Irrig:

P.W.D.
7 JA 80
No.

Ch. Ey. 2740 of 7. Dec/80

No. 2259

Superintendent of Works Office Kistna
Masulipatam 8 January 1881
Decr 80 — Do

From
The Superintendent of Works
Kistna

To
The Chief Engineer
Public Works Department

Sir,

I have the honor, with reference to your memo. No. 2740, of the 7 ultimo, to return herewith the estimates for works in Connection with the Junction Cut between the Commamur and Buckingham Canals. These have been revised in accordance with the instructions of Colonel Mullins R.E in his memo of the 3rd July 1880 sent for my guidance.

2. The Cost of the appukonda [illegible] under [illegible] as now revised will be Rs 9,300. The original estimate which was prepared by Mr. Forrest late Executive Engineer allowed the use of appukonda stone for the arches. This stone which

is merely indurated Clay, is in no way suitable for a permanent work Mr. Norris must have been misled as to its suitability for work on this Canal. I saw at the Pedda Ganjam Lock, some stone voussoirs, Cut under Mr. Norris' orders, for use on this work but which had, from merely lying at the site, become so much weathered and deteriorated that they were never used I have therefore allowed for brick arches faced with Chebrole stone, which is a good sand stone used throughout the Commamur Canal.

3. The 500' Inlet and outlet in the 196th mile of the Buckingham Canal have been altered to pavements as suggested by Colonel Mullins.

4. The diversion Cut estimate has not been altered. The width of 90' allowed is Confessedly tentative.

5. Should it be found possible to allot funds for these works in next year, please arrange to place Rs 2500 at my Credit for the Collection of

Materials for the under Tunnel in the Current year as requested in my No 1860 of the 22nd November 1880. As there is but little time to make the necessary arrangements, if the above sum is given, please inform me by telegraph.

I have the honor to be
Sir
Your Most obedt Servt

J. W. Rundall
Superintendent of Works
Kistna

P.W.C. No. 204

C.E. No. 2740 - 7-12-80.

From

The Superintendent of Works
Kistna

To

The Chief Engineer
P.W. Dept.

Dated 8th
Despd. 10th
Recd. 13th
} January 1881

No. 2259

Encls 12

Commamur and
Buckingham Canals
Connection between the—

Resubmits the Estimates for the revised in accordance with the Chief Engr's instructions

C.M.-1. R.171

C.E. 254. C.14-1-81.

GOVT. OF MADRAS. } 188 . 132/23 {P.W. DEPT.

SECRETARY.

Chepauk, 14th Jan. 1881.

OFFICE NOTE.

To Mr

Works belonging to
the connexion between
the Buckingham and
Commamur Canals—
From S. of W. Kistna
No 2259 of 8th Instant

For orders—

The estimates as
originally submitted pro-
vided for—

(a) Inlet for Peddapingu
and Oppertunidu drainages
Rs 3,000
(b) Outlet for do - - 5,000
(c) Cut from Oppertunidu
~~drainage~~ ... to
Peddaganjam creek - - 3,200

(d) Culvert under
Commissariat Canal
estimated – – – 7,860
19,260

The estimates were returned for revision in accordance with suggestions made by Col. Scullin, & then they were refined, and as now submitted amount to

(a) } – – – – 1,900
(b) }
(c) unaltered – – 3,200
(d) – – – – 9,300
14,400

being a reduction of Rs 4,860 –

The increase in (d) is explained by the type of work, & due to the ~~sup~~ substitution of a superior quality of stone –

The estimates have been [illegible] [illegible] by Colonel

132/24

Scullin and may now be accepted as correct –

The S. of W. asks that now Rs 2,500 may be placed at his disposal for the Collection of materials so as to utilise the present working season as fully as possible, and if this could be done it would be well; but Capt. Cunliffe informs me that it is impossible to spare any portion of the existing grants for this purpose, and no additional allotment can be given –

It is therefore considered that the work must stand over till next year –

D. Sw

The estimates

[illegible] cannot (Colonel

Cr/x

No 132 W

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT. 132/25

UNDER date the 18th Jany 1881

Read the following :—

From

The Chief Engr for Irrign (No 22 E.W. d/5 July/80

" Supdt of Works Kistna (— 229 — 8th Jany 18

Mr

If this is charged to 2nd Class (canals & [illegible] Fund (viz Ellore & Buckingham canal works) add funds could probably be spared from current lines of expdr.

The estimates for

(1) Inlet & outlet for Pedda Ganja and Koppukondur drainages — Rs 1900 Regr No 73 B. of 1880/81.

(2) Cut from Koppukondur vagu to Peddaganjam creek — Rs 320 Regr No 73/2 B. of 1880/81

(3) Culvert under Commamur canal extension — Rs 9300 Regr No 73/3 B. of 1880/81.

are sanctioned for execution from the general allotments for the Buckingham Canal.

2. No funds can at present be given for expenditure during the current

[illegible]

year, but the full amount required will be made available from the grant for 1881-82; should it here after be found practicable to make any allotment for expenditure before the 31st March next, early intimation will be given to the Supdt of Works.

14-1-81

This sanction has been registered as Tool No $\frac{73}{1,2,3}$ B. of 1880/81 and classified as Irrigation and Navigation, Orgl Works.

C. [illegible] 18.1.81

S. Afo, K[illegible] with specification salary & crew [illegible]
" " B. Canal
C. E. for I.
Ex. B[illegible] with [illegible]
and [illegible]

[illegible]
28-1-81

132/[illegible] P.W. Dept.

G.O. No: 132 W dated 18th Jany: 1881.

With reference to the Note of the H. M. on the accompanying draft of G.O. which has now been issued, it is explained that works connected with the Buckingham Canal are not chargeable to the Canal Ferry Fund, but to Provincial.

[illegible] [illegible] 1878

Major R.E.
for Secy: to Govt. P.W. Dept.

R.S.

132/27

204

Govt. of Madras
PUBLIC WORKS.

18th July 81 1326

Nos.

Junction Cut between the Buckingham & Commamur Canals.

Estimates for works in connection with the —, sanctioned exception from general allotment the P. W. Dept with orders as to the provision of funds

C 31-1