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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue

DEPARTMENT

G.O. No. 2302

B.P. No.

Press

Mis.

Dated 27. 10. 1875 196 .

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
1st October 1875.*

No. 29. Read the following endorsement of the Chief Engineer for Irrigation,
dated Ootacamund, 22nd September 1875.

From A. J. DODSON, Esq., Manager and Acting Chief Engineer of the Madras
Irrigation and Canal Company, to Lieutenant-Colonel T. MULLINS, R.E.,
Chief Engineer for Irrigation, dated Kurnool, 11th September 1875,
No. 100.

I HAVE the honor to inform you that the delay in replying to your letter, No. 14-B,
of 18th March last, has been caused by
the difficulty in ascertaining the amount
of the balance left of the Company's
"Loan Account" available for works of
construction:

3 Estimates.	} Per Book Post.
6 Tracings.	
9	

2. I now forward you, herewith, a statement which shows a balance of Rupees
39,533-8-10 still available for that purpose, and have therefore the pleasure, in
accordance with the wishes of Government as expressed in your letter, to give the
following list of the works I propose to alter or construct so as to improve the means
of traffic across the canal:—

- 1.—A second-class bridge at Gopalsingaram.
- 2.—Third-class bridges at Nidjood, Mangalapad, and Massamaseed to be made
into second-class bridges.
- 3.—The second-class bridge at Muddigutla to be repaired and the approaches
improved.
- 4.—Second-class bridge to be built at Moochmurry.
- 5.—Third-class bridge at Bolarum to be altered into a second-class bridge.

3. The four second-class bridges named above will be altered according to the
drawings and sections which accompany this letter, which plan has already been
submitted to you and received your approval. Their approaches will all be now made
25 feet roadway, and with a gradient of 1 in 16.

4. The second-class bridges at Gopalsingaram and Moochmurry will be
constructed according to the plans named at the head of their estimates, and their
approaches will also be 25 feet wide with gradients of 1 in 16.

5. In paragraph 5 of your letter under reply some discrepancies are pointed out
between the statements made by the Acting Collector of Kurnool in his letter quoted
in G. O., No. 2,615, of 15th September 1874, and Mr. Latham's letter of 23rd October
1874, No. 128. I now forward you in explanation a tracing showing the canal from
Soonkesala to Kurnool, with all the existing and proposed bridges marked thereon,
also the principal villages on either side of the Toombuddra; from this you will see that
the Acting Collector is mistaken in stating that the village of Kondalapad is between
the 4th and 5th miles, as it is in the 2nd mile (1 mile 20 chains), and is only
1 mile 27 chains from Doodyala bridge on the lower side, and 1 mile 20 chains from
the crossing over the head sluices at Soonkesala. During, therefore, the seven months
of dry weather the villagers of Kondalapad can cross with their bandies either by way
of the head sluices and the ford below the anicut or by Doodyala bridge, and back
to the ford and ferry opposite their village, and in neither case would they have to go

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more than two miles. A good road shall be made from Doodyala bridge to this ferry including crossing over culvert No. 6. The Acting Collector also states that this ferry at Kondalapad is the only one above Kurnool; this may have been the case, but at present there are ferry boats at Kondalapad, Yedurur, Gopalasingaram, Nidjood, and Mangalapad which deprives this village of the privilege of being the only point of communication between the British and Nizam's Dominions.

Kondalapad, while the canal was constructing, was a populous and flourishing village, owing to the money spent there by the contractors and their followers; but of late years it has dwindled down to its original insignificance, and the traffic to or from it is therefore very small.

6. Ulloor bridge is completed and will be shortly opened to general traffic. Men and cattle with their ploughs, &c., pass over it now.

7. In reply to your paragraph 7, I have the honor to submit herewith an estimate for a second-class bridge to be built at Moochumry, a few chains below the present sub-way.

The proposed position of this bridge is shown in the plan No. 824 which accompanies this letter, on which plan I also show the second-class bridge built in 1868, which, when writing your letter under reply, seems to have escaped your memory. It is built at 49 miles 68 chains, and is exactly 1 mile 22 chains above the proposed bridge which will be built at 51 miles 10 chains. This bridge was sanctioned in G.O., No. 1,826, of 18th June 1867, and referred to in paragraph 8 of your letter printed in that Government Order.

8. I submit a plan, section, and estimate of the proposed alterations of the third-class bridge at Bolarum into a second-class bridge, similar in all respects to those above Kurnool, except that its western approach having to cross a water-spread makes it more extensive and expensive.

9. The second-class bridge at Muddigutla I propose to repair by rebuilding the arch which is dangerously cracked, and by forming the approaches to gradients of 1 in 16.

10. Your paragraph 8.—The bridge at Beempaud in the 9th section is constructed and was opened for general traffic on the 30th of August last.

11. Your paragraph 9.—The bridge at Byup Gudur was widened and re-opened for traffic in 1873.

12. I hope the above-named improvements and additions to the means of traffic across the canal will meet with the approval of Government, and that you will recommend their sanction to the expenditure on them of Rupees 20,880 to be charged to Capital Account, and of Rupees 1,060 to be chargeable to Revenue.

SUBMITTED for the consideration and orders of Government.

The Chief Engineer and Manager, Madras Irrigation and Canal Company, having ascertained that funds are available, has forwarded for sanction the following estimates for adding to the number of bridges on the canal and for improving certain third-class bridges, which as originally constructed have been found to be inconvenient or in some cases dangerous.

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2. Commencing with the upper part of the canal, the first point at which the Collector deemed a bridge to be necessary was at Kondalapad in the 5th mile. The position of the village is at 1 1/4 miles. Paragraph 6 of letter in Proceedings of Madras Government, 15th September 1874, No. 2,615. the Collector appears to have been mistaken in supposing the ferry opposite thereto to be the only one above Kurnool. The bridge over the head sluice is situated 1 1/4 miles to the westward and the Doodyala bridge 1 mile 27 chains to the eastward. No information as to the traffic actually existing either formerly or now at the Kondalapad ferry has been adduced, and for such local traffic as may be connected with this village it would seem that a ferry boat (basket) on the canal would be sufficient. It will be seen from the plan of the canal above Kurnool that the canal runs here at but a very short distance from the river, and it is thought that with a road from the Doodyala bridge to the ferry which Mr. Dodson states shall be made, there could be nothing but a very small amount of local traffic for a bridge were one built; for all traffic from a distance can manifestly with but little, if any, detour reach the ferry by either the head sluice or the Doodyala crossing. Paragraph 7 of Mr. Latham's No. 128 of the 23rd October 1874, gives additional particulars of the circumstances of this village, which appears to be but very little worse off as regards communication with the surrounding country since the canal was cut than it was before. No estimate has been submitted for a bridge.

3. There is no reason to doubt that the culvert in the 9th mile has, except for short intervals, been a very inconvenient crossing, and an estimate has accordingly been prepared for a second-class bridge for the benefit of Gopalasingaram which is near the canal at this point.

4. Estimates have likewise been submitted for altering the third-class bridges at Nidjood, Mangalapad, and Massamaseed into second-class bridges, and these alterations will meet the complaints made in paragraph 7 of the Collector's letter.

5. The estimates further provide for reconstructing the arch of the second-class bridge at Muddigutla 3rd section, for building a bridge of the same class for Collector's letter, paragraph 4. Moochumry, and for altering the third-class bridge at Bolarum to adapt it for cart traffic.

6. Of the seven bridges mentioned as necessary in the papers recorded in Proceedings, Madras Government, No. 2,047, of the 19th July last, two* are provided for in these estimates. Regarding the

other five nothing has been said by Mr. Dodson, and, indeed, were every rupee of the balance left devoted to bridge construction, there would not be enough money for all. The five are—

	Miles.	Chains.
Padidampad at about	24	30
Pagadial "	54	40
Parlapalli between	97.51	and 100.25
Kanalapalli "	114	" 115 miles,
Chintakunta "	130	" 131 "

The tank formed by the canal below Kadarabah makes the aqueduct near this village useless for cattle going from Padidampad to pasture lands east of the tank.

The Kurnool shepherds have, it is thought, no ground of complaint, they can get to the pastures referred to without a detour of any consequence.

If runs can be found, this bridge should be provided.

7. The Pagadial culvert is less convenient than a bridge. It is doubtless true that for an hour or two after unusually heavy rainfall there may be 4 or 5 feet of water in it, but such occurrences must be extremely rare, and probably there is not more than a foot of water passing through on one day out of 100. The construction of a bridge may very well wait until there is money to spare.

8. The bridge stated to be required for Parlapalli would, it is thought, be a luxury. The Deputy Collector's description of the route which the Parlapalli ryots

Paragraph 8 of Collector's No. 444. have to take to get to their fields may be quite correct; but if it be so, the sooner the requisite communications are opened by taking up the land necessary for a few convenient paths or cattle tracks the better. Parlapalli is nearly $1\frac{3}{4}$ miles from the canal, and the bridge No. 7 A at 97 miles 51 chains is but a few yards more distant from the village than the nearest point of the canal which is some 29 chains lower down, viz., at the 98th mile. Again, at 100 miles 25 chains there is another bridge which is $2\frac{1}{8}$ miles from the village in a south-east direction. The demand that the Company should build another bridge appears therefore to be altogether unreasonable.

9. Kanalapalli being rather close to the canal in the 115th mile has been inconvenienced by the latter. The nearest bridge is at Dipaguntla about five-eighths or a little more of a mile to the north. Whether the inconvenience of making this detour be a sufficient reason for building another bridge must be a good deal a matter of opinion. In a country like India in which so much really important work remains to be done, a Kanalapalli bridge would seem to involve a waste of money.

10. Chintakunta.—The sketch map shows that this village is $1\frac{3}{8}$ th miles from the bridge in the 131st mile at lock No. 10 A; that the nearest point of the canal is a mile lower down near where the old track to Kondapally crosses and the distance there is $1\frac{1}{8}$ mile. The distance by this track between the two villages is $3\frac{1}{2}$ miles, that by the existing bridge less than $\frac{1}{4}$ mile more. The bitter complaints of the villagers that they can carry no manure to their fields for want of a bridge a mile below the present one are shown by the map to be without foundation.

11. There no doubt are some lands of every village near the canal to which the route from the latter is now somewhat longer than it was before, but this is an inevitable result of constructing a canal at all, and if the benefits of the canal to the people generally be not infinitely greater than is necessary to counterbalance such inconveniences, its construction at all must have been a great mistake. The mere spending of so much money in the district has been a great advantage to the villagers, and Kurnool is now a very different district, owing mainly to this circumstance, to what it was fifteen or sixteen years ago.

12. Again, it might be imagined that when roads between villages are spoken of as having been closed by the canal, that there were or are any roads worth mentioning.

Take this country near Chintakunta for instance: there is a wide black cotton soil plain over which such traffic as there is, and it is principally the transport of field produce is carried in any and every direction. A good shower of rain brings all wheeled traffic to a full stop until the ground dries again. Even riding on such a shower is a slow and difficult matter. Diverting traffic from such tracks as custom has established to others which will for years to come be just of the same kind and a few yards longer or shorter is not the grievance which interfering with made roads would be, and if the Local Fund Board or other district authorities were to set to work and lay out convenient tracks from the existing bridges or those admitted to be required in addition, there would be little ground for complaint left, while the old tracks no longer needed might with very little trouble be made available for cultivation in lieu of the ground set apart for the new tracks.

13. It will be seen that the Chief Engineer and Manager reports that the Ulloor bridge in the 37th mile has been so far completed as to be in partial use, and

Paragraph 5.

that it will shortly be opened for general traffic; that the Byup Gudur bridge* was widened and re-opened in 1873, and that the Beempaud bridge in the 9th section, 166th mile, has been opened for use.

* 100th mile.

Paragraph 9.

14. The following are the estimates which are now submitted for sanction:—

Position.		Capital.	
Miles.	Chains		RS.
8	25	Constructing second-class bridge, Gopalasingaram	7,160
11	20	Altering third-class bridge at Nidjood second-class	1,610
13	36	Do. do. at Mangalapad	1,115
15	22	Do. do. at Macsamaseed	1,540
49	68	Constructing second-class bridge at Moochmurry	6,670
59	13	Altering second-class bridge to third-class for Bollavaram	2,785
Total			20,880

Revenue.

Repairing Muddigutla bridge and widening the roadway for bandy traffic ... 1,060

15. The letters, No. 128, of the 23rd October 1874, from Mr. Latham, and No. 14-B, of the 18th March 1875, to that Officer, contain information on the subject of the canal crossings, &c.

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

From J. LATHAM, Esq., Chief Engineer and Manager of the Madras Irrigation and Canal Company, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, and Joint Secretary to Government, Public Works Department, dated Kurnool, 23rd October 1874, No. 128.

I HAVE the honor to offer the following reply to the order of the Madras Government, No. 2,615, of 15th ultimo.

2. Suitable provision of roads for the local and general benefit of the country, thereby making enterprise and security possible, is as essential, as the economy of such provision in

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mitigation of the immense cost of famines is unquestionable. Still, such provision is not a definite work which can be completed once for ever. Progress, more than perfection, must always necessarily be the tangible and present aim to be kept in view.

3. The means first proposed to be afforded for intercommunication amongst villages under the canal were certain *bridges* and *ferries* to be made by the Company, and *roads* proposed to be raised at least 2 feet and to be constructed by Government from village to village. The Company completed their part of the bargain and more; for bridges were substituted for the ferries, and many bridges were added; so that your predecessor writes (see G. O., No. 987, of 23rd March 1869):—"Five years ago there were to have been only twelve over and under bridges in the upper 114 miles, now there will be thirty-one over and eight under bridges, most of which are more convenient than ~~the~~ *bridges*." In a previous letter he reported (see G. O., No. 3,586, of 17th November 1868):—"I observed that several new roads in connection with the bridges and other crossings of the canal have been started." The Government may see with regret, though hardly on account of the continual information they obtain with surprise, how abortive has been this "start"—this experimental road-making, for the success of which all further progress waited.

4. The Plan A appended shows the whole of the roads made under the first 100 miles of canal during the last nine years. The chief of these is part of the main road which has advanced as many miles; four of which from *D* to *G* are under the canal. The only other road at all complete, near the point *B*, is 3 furlongs long, and connects the "difficult and dangerous" culvert with the vagoo which runs into Moochmurry. Lastly, a curious "start" exceeding a mile in length connects the Pagidala culvert at *C* with a vagoo in the fields two miles from any village. There is an unconnected piece of road in Yerragudur at *H* on high ground above the cultivation, and below Tarigopula near *F* some operations have been conducted but without result.

5. Want of funds has prevented the Company from making as many bridges as they would wish. But surely I am justified in saying that regret should not wisely be felt for this in itself. The Company have spent much money in elaborately increasing their bridge accommodation as proposed for trial; and it had become desirable, if not essential, to pause in order that the Revenue Department, including subsequently the Local Fund Boards, might have time to develop the roads also proposed, or intended to be proposed, for trial in connection with these bridges; and without which no public advantage could be expected from the bridges equivalent to the cost of making them. I do not suggest that the Company should pause in the work of improvement so far as their means will extend; but in the interests of the Government and Company, and in justice to the villagers, I point out how the means hitherto available for extending roads so as to make intercommunication possible are insufficient.

6. With this object I will review in some detail the condition of the roads in Toombuddra basin above Metacondal cutting, with reference to progress which to me seems most to be desired—

I. Plan B, Fig. 1, shows the strip of land under the canal above Kurnool. It contains ten hamlets situated in eight villages*. The first eight hamlets lie each between the river at back, the canal in front, and the nearest vagoos right and left, each in a little quadrangle, inaccessible to a cart except across the canal. Each village has its particular bridge or culvert crossing (see

- * 1. Doodyala.
- 2. Yedurur.
- 3. Gopalasingaram and Barapuram.
- 4. Niduzur.
- 5. Mangalapad.
- 6. Mamidyapad and Masahcomasid.
- 7. Roza.
- 8. Kurnool.

G. O., No. 511, of 20th February 1871). Three of these bridges require to be altered in conformity with paragraph 3 of the Government Order under reply, and I enclose a Plan D for so altering them at a cost of under Rs. 700 each, omitting approaches, which will vary in cost in each bridge. When this alteration is complete, each village will have one crossing accessible to it, by which alone carts can leave the village. Carts must then follow the village track if there be one, as it winds southward to clear the vagoos. Thus from Niduzur the cart track to Kurnool over the bridge will have to go S. S. W. for 2½ miles, and the way to Kurnool by it will be 9½ miles, the old direct track under the canal being only 5½ miles E. S. E. It would obviously be a great boon to

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this and other villages to have the choice of more than one canal bridge; and so to be able to choose the track from which leads to their object most directly. To complete the road between Soonkesala and Kurnool below the canal would confer this boon, and would also become an artery of trade between Kurnool and the west. The line is a very favorable one. All the vagoos which cross it instead of being liable to indefinite floods are subject only to moderate discharges from the calingulahs and culvert of the canal—discharges which are definite and calculable. The beds of these vagoos are, I think, universally rock, though now, owing to the stoppage by the canal of the accustomed scour, blocked up with reeds and deep in mud. The Company would bridge the outlet from the regulating sluices of No. 9 calingulah. Of this road one mile with its milestone was long ago made, but not in a suitable direction, now that the canal has been constructed.

7. In reference to the village of Kondalapad in this section, and to "the absence of a crossing in connection with a ferry across the Toombuddra," I enclose the views of the village Curnum, an enterprising shrewd man, who has rented the canal fishing, tolls, &c., at various times. He estimates the present passengers, including cultivators, as under thirty a day, and five head of cattle. He declines to take the right of ferrying there, even at a nominal rent, on the ground that the mere mention of a toll would make the people prefer crossing at Soonkesala and Doodyala, which, in fact, they would generally do now were there any road; for the village of Kondalapad leads nowhere, and is shut in by a vagoo and by stoney tracks. I think the road would be preferred to a bridge.

8. Of Gopalasingaram, which is also in this section, I enclose a Sketch Plan C reduced from the village plan. The land south of the canal in that village is divided into four principal portions by vagoos. The parts *A* of 266 acres gross and *B* of 740 acres have always been inaccessible to the village when the vagoo is in flood. The parts *C* and *D* of 1,458 acres used to be accessible during floods, but are not so.*

I suppose it is to this last piece that the bridge is desired, though this would oblige carts to

pass through Utehalu to get to Kurnool, a distance of thirteen miles, against the direct way of 8½ miles. Now, though the present culvert makes neither the vagoo nor the roads passable in floods, yet in ordinary showery weather it is a safe passage, pleasant enough to walk or ride through. Were there a bridge, the villagers would hardly care to draw into the village any produce, except for their own consumption, and it seems not a heavy tax to have to take that during fine weather through the culvert. Admitting the inconvenience to the cultivators of the 1,400 or 1,500 acres during actual floods, during which they must go from three to four miles round by Yedurur bridge in order to get from their fields to the village, my impression remains that this bridge may be fairly postponed until more pressing wants have been met elsewhere. I may add that here as at Allur the bridge cannot properly be built without expensive and complicated drainage works.

9. Kurnool.—About 1865 the Company built a first-class bridge in Joharapuram in Kurnool Municipality, in order to shorten the road to Gadidemadugu (towards Nandikotkur.) It was understood that Government would make the roads. Figure 2 of Plan B shows the present state of this bridge. It shows at *H* the bridge over the Hindry leading into the town of Kurnool. *HCB* is the old Gadidemadugu road, interrupted by the canal. *ADB* is the diversion made by the Company before they built the bridge at *C*. *CD* is the road made by Government since the bridge at *C* in Joharapuram was built. The road to Gadidemadugu is 3 furlongs 2½ chains longer by this new road by *HCD* than by *HAD*, and that to Cuddapah ½ mile longer. The old dry weather track from Kurnool across the Hindry ford to *C* and thence through the culvert to *B*, a pleasant drive, and much used by carts, is now destroyed and ploughed up; but the new substitute *CDB* is nearly a mile longer. I recommend that either the road from *C* through the culvert to *B* be made good, or that a new road be made as direct as possible from *C* to the south of the canal to *B*. The bridge at *C* is perhaps unnecessary, but at least it seems now thrown away.

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10. *Amur*.—This bridge has been built about five years, and a road $4\frac{1}{2}$ miles has been made over a very easy country, from Bapanakotapur to the bridge, for the nearly benefit of Pudur. But the bridge still needs connecting with the village. The old track hollow swamp, full of boulders, and water during eleven months in the year. I urge village be made accessible from its bridge. See Plan B, Figure 3.

11. *Allur*.—A similar road has been made from Nandikotkur nearly to Allur, I urge its being carried on through the village to the canal bridge now being completed. Between the village and the road is now a stinking green pond, full of mud and boulders.

12. *Nagatur*.—Here is a fine first-class canal bridge. I urge that it be made accessible the two important villages of Nagatur and Konidela. The present track varies from a deep mud—dangerous to ride through to a surface like a magnified nutmeg grater of silt, dabbled by the buffalo herds laboriously up to the last moist morning, and very unfenced on each side by the landowners.

13. *Moochmurry*.—Next to Allur this village needs a bridge. Yet here again I urge it is premature to build a bridge until the existing bridge, a mile distant, shall have been accessible.

14. *Bollavaram*.—This third-class bridge should be widened by a railing; it will be to Pratakota.

15. I beg here to urge the making of a road from A in Plan A at Nandikotkur Nagatur, Moochmurry, Palamani, &c., to Pagadial. The line I have sketched encounters any drainage, and that would be local and easy to bridge. I think that more than half subsoil would be favorable also. The part B to C should be made first, then A to B. road would actually supply Moravakonda, Virapuram, and Vellala the tracks to which it are very good tracks except during actual rain.

16. *Jupad, first-class bridge*.—The road from Kurnool towards Atmakur ends shortly passing over this bridge at Chetta Jutur. Many of the bridges in it are underarched perhaps need culverts under their approaches. Any severe rain like that of this year or carries away the road and drives the traffic for a time into abominable and circuitous tracks agree with an opinion expressed, I understand, by the District Engineer, that this road should not be taken across the Bowanassy river and back again as at first intended, but be carried Pamalapad. The Bowanassy is a very large river, much larger than its mere apparent bed indicate, and economy and convenience would be gained by avoiding it.

17. *Terrigopully*.—The south end of this bridge is for several months inaccessible from east, yet it needs little to make a good road over a good natural ford near Terrigopully Jutur, which would give Tudicherla and Parmanchala a good access to the Government road Jutur at the least possible cost.

18. *Rudraveram*.—This uncomplaining village is inconvenienced for want of a bridge I do not propose anything yet. The new road if brought via Pamalapad will pass through village and give it access to neighbouring villages.

19. If I may venture to give an opinion, based on my experience of tracks and roads in weathers and states of progress in this part of the country extending over fourteen years, the following:—

(1.) *The Road*.—Sufficient roads for village traffic would be 9 inches of coarse metal 9 feet broad, protected at the surface by a little fine metal, and supported, where in bank of soil, by a raised bank made up 2 feet 6 inches high in the centre and 2 feet at the sides 15 feet broad at top. This would sink 6 inches. Near and through the villages, and where tracks join, the metal should extend the whole 15 feet over the bank.

(2.) *A bridge, culvert, or road dam* should be made amply sufficient for 1 inch of drain per hour for small areas and for $50,000 \times$ the cubic root of the square of the area drained

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square miles for larger areas, but double this drainage should be passable without destroying the road.

(3.) To bring a road "to" a village should always mean to carry on the road through the chief street of the village, with efficient works, to the far end of the hamlet.

(4.) In no season should it be arranged for the earthwork of the road to anticipate the drainage works. If the bridges and culverts be first completed, they are at once useful; but a bank of unfinished road is a great inconvenience, especially where it destroys the old track, nor is any advantage gained by it.

I believe that greater width of metal is not wanted, and that less thickness must always prove a failure. The wear of metal in a dry country I believe to be much faster than in a moist one. I am speaking of local roads only. At all events these data will now give an approximate idea of the cost of the roads with a view to providing means.

20. For a rough estimate I will first give the roads in the order I would suggest for their being made.

1. B to C in Plan A, $9\frac{1}{2}$ miles, which we will suppose all on bank—

	rs.
Bank per mile, 7 yards $\times \frac{3}{4}$ yard $\times 1,760 = 9,240$ at Rs. $\frac{1}{16}$.	580
Metal dressed, 3 yards $\times \frac{1}{4}$ " $\times 1,760 = 1,320$ at " $\frac{1}{4}$.	440
Total ...	1,020

Say 10 miles road as above ...	10,200
Drainage works... ..	9,000
	19,200

2. Nagatur bridge to the village of Nagatur and Koridela, 1 mile.	1,200
3. Padur, $\frac{1}{4}$ mile, with culvert ...	1,000
4. Allur, $\frac{1}{4}$ mile ...	300
5. Head sluice, Soonkesala, to Kurnool, 16 miles ..	25,000
6. A to B, Plan A, $9\frac{1}{2}$ miles, half in bank...	7,300
7. F to G, Terrigopully to Jutur, $4\frac{1}{2}$ miles, do. ...	3,600
8. G to H, Jutur to Yerragudur (main road), 5 miles ...	15,000 (?)
9. K to L, Pratakota through Pagadial to road, $7\frac{1}{2}$ miles ...	8,000
10. D to E, Jupad bridge to Ganapavaram, $5\frac{1}{2}$ miles, with bridges.	16,000
Total ...	96,000

Say one lakh.

The road-cess if raised to 1 Anna in the Rupee throughout the

district—it is now 9 Pies—gives ...	1,07,000
Government grants are about ...	25,000
Special funds available ...	5,000
	1,37,000

Road repairs throughout the district will require ...	60,000
New roads in progress ...	30,000
Establishment and supervision, &c. ...	30,000
Reserve fund ...	12,000
Total ...	1,32,000

so that at present the funds available for the above roads seem to be the balance in hand, which amounts to Rupees 30,000 and Rupees 5,000 a-year. I urge that this amount be assigned to the roads I have described until they be complete, the Government also assigning from the Imperial funds an amount yearly equal to that contributed by the Local Fund. This will enable all the above roads to be completed, including the supervision, in three or four years. Of course my estimate

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is very rough, but I believe it to be approximate and ample. I suppose all bridges and culverts to be second-class, viz., 10 feet clear between inside of parapets. In the meantime the Company should build Allur bridge and widen all the four third-class bridges, thus providing five more cart crossings over the canal.

21. The area below the canal for which this accommodation is needed is 8.06 square miles in Ramalakota taluk and 88.75 in Nandikotkur. Imagine a space ten miles square (measured on each side) to be pulled out, without altering its total area, into a straggling area fifty miles across. It will then be manifest that for the accommodation of this area and of the very large tract of surrounding country whose lines of communication cross this area, a road not half a mile long from an impassable culvert to a village, and another a mile long from a culvert into the centre of the open field, is not a fair progress to be made during nine years. The main road fortunately enters the area also; and above the canal three detached and, in connection with irrigation, unimportant villages have been imperfectly connected with this road.

22. In the consideration of the proposed roads I have had the careful assistance of Mr. Wilks who has for above ten years been intimately acquainted with much of the country and with the villages concerned, and I am indebted to him for some valuable suggestions.

From Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, to J. LATHAM, Esq., Chief Engineer and Manager of the Madras Irrigation and Canal Company, dated 18th March 1875, No. 14-B.

In reply to your letter, No. 128, of the 23rd October 1874, I have the honor to inform that valuable and useful as your remarks are on the subject of the improvement of the village communications of the tract of country traversed by the canal, that is not the subject of the order of Government, No. 2,615, of the 15th September 1874.

2. The Government have during the last four years had frequently before them complaints of the inconvenience suffered by the villagers in being cut off from their fields by the canal, and it has been in certain cases decided that bridges must be built. It appears to me therefore quite useless to show that for want of good roads many of the existing bridges are of much less use than they otherwise would be, and the only answers to request for bridges on the part of the villagers that can be accepted would appear to be either—

1st.—That the detour by the nearest bridge or other convenient crossing is small.

2nd.—That the traffic is so limited as to make it not worthwhile to save this little traffic a somewhat long detour, or that some simpler means, such as sangadies, would suffice.

3. With regard to the alteration of the third-class bridges of Nidjood, Mangalapad, and Mundialpad in the 1st section, the arrangement referred to in paragraph 6 of your letter is approved of so far as the bridges themselves are concerned, and may at once be carried out; but

No. 2,615, 15th September 1874, paragraph 3.

it is necessary to point out that the Government require the approaches to be made sufficiently easy, and that the gradient of these approaches is in each case to be shown on the plan. You have therefore to decide in each case what gradients can be obtained, and I shall feel obliged if you will as early as possible furnish this information, together with estimates of the whole cost of altering each bridge.

4. The next crossing is that for Gopalasingaram; this is no longer open to discussion, and a plan and estimate for a second-class bridge should be submitted as soon as possible.

5. Your observations regarding the application for an additional bridge at Kondalapad in the upper part of the 1st section will be duly brought under the notice of Government, but I think you have not shown how the case stands as clearly as might be, or fully answered paragraph 2 of the Government Order as per margin.

No. 2,615, 15th September 1874.

The tracing does not exhibit the circumstances of the traffic from the south towards the ferry, or the position of villages to the north of the river.

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The Collector in his letter says that the Doodyala bridge is in the 3rd mile and Kondalapad between the 4th and 5th miles, while on the tracing the latter village is shown about half-a-mile above Doodyala. The question is one which depends a good deal upon distances and the direction of traffic, and it is of importance that the Government should be enabled to understand exactly what the circumstances are. Again, the Government require that if a new bridge can be shown to be unnecessary as regards the direction of the traffic, a road should be provided from the Doodyala bridge to the ferry, and it has not been stated whether the passage along the canal bank over culvert No. 6 has been or can be made.

Collector's letter, paragraph 6 and paragraph 3, 2nd mile.
Consulting Engineer's letter in Proceedings, Madras Government, 17th November 1868, No. 3,586.

6. Allur bridge is another of the crossings referred to in the order. In paragraph 11 of your letter, it is mentioned that it was "being commenced." The Government will be glad to know whether it is in progress, and whether it will be opened for traffic before water is again admitted to the canal.

7. There does not appear to have been any plan and estimate submitted for the Moomchurry bridge, which was in G. O., No. 1,304, of the 8th July 1871, decided to be necessary, and these should be forwarded with as little delay as possible. The remarks contained in paragraph 13 of your letter are beside the main reason for the construction of this bridge which is to restore the communication between the village and its lands, and this is entirely independent of the communications between villages. It is not moreover clear what is the "bridge, a mile distant." There is a bridge marked on the tracing A, Drawing No. 783, but in the list printed in Proceedings, Madras Government, dated 20th February 1871, No. 511, the crossing for Kondalapad is of the third-class by an 8 feet culvert, and I have no recollection of a bridge having been subsequently built. Apparently, the nearest bridge is that at Nagatur, some 3½ miles off.

8. Again, in G. O., No. 1,375, of the 3rd June 1872, it was decided that a bridge was necessary for Beempaud and Sunkettindipilly, but I am unable to find any record in this office of its construction. Information is requested, therefore, as to what has been done in the matter, and when it will be ready for traffic.

9. Information is also requested with reference to the alteration of the Byup Gudur bridge, ordered in G. O., No. 1,741, dated 30th June 1871. There was some correspondence about this bridge—

From Agent, No. 298, dated 10th July 1871.

To	"	"	81,	"	12th	"	"
From	"	"	323,	"	24th	"	"

and probably the alterations have been made.

No. 30. ORDER THEREON, 1st October 1875, No. 2,837.

IRRIGATION, No. 4.
Account.

The estimates, amounting to Rs. 20,880, submitted by the Chief Engineer and Manager, Madras Irrigation and Canal Company, for constructing two additional

second-class bridges on the Main Canal for Gopalasingaram and Moomchurry, and for altering four third-class bridges to second-class so as to adapt them for cart traffic are sanctioned under Capital, as is also the estimate of Rupees 1,060 under Revenue for repairing and improving the Muddigutla bridge in the 3rd Section, Main Canal.

2. It appears from the papers submitted that the balance of Capital remaining is about Rupees 39,533, which may be increased to some small extent by transfer from

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Revenue to Capital Account on account of stores. The estimates above sanctioned will absorb more than half the balance, and it is evident therefore that the five more bridges reported by the Collector to be required in the Kurnool District cannot all be constructed, while some of them appear from the remarks of the Chief Engineer for Irrigation to be not so necessary as to make it imperative to require their immediate construction. Possibly one or two more bridges might be constructed out of the available Capital balance, but as the Company is not likely to be able to raise additional funds for some time to come, unless the need of bridges in particular cases be shown to be more urgent than at present seems to be probable, the Government must postpone directing their construction.

3. The remarks of the Chief Engineer for Irrigation on the advisability of laying out convenient tracks to the bridges across the Main Canal should be considered by the Collector of Kurnool at an early date, in order that full advantage may be taken of existing means of intercommunication.

(True Extract.)

Ch. Muntho Major-General, R.E.,
Secretary to Government.

To the Revenue Department. ✓

- „ Collector of Kurnool.
- „ Chief Engineer for Irrigation.
- „ Chief Engineer and Manager of the Madras Irrigation and Canal Company.
- „ Examiner of Railway Accounts.

Erd. W. J. Lewis.

20 Spare Copies *will follow*

Revenue Depto
Govt. of 1875 Madras.

PUBLIC WORKS.

To *7005 No. 4186*

THE REVENUE DEPARTMENT,

&c., &c., &c.

Dated October 1st.

Issued

Recd. *25.*

Encl.

G. O., 1st October 1875, No. 2837.

Delivered
OCTOBER.

Nos. 29 30

Adding to the number of bridges on the Canal and improving certain third-class bridges.—Passing orders on endorsement of the Chief Engineer for Irrigation submitting, with remarks, letter of the Chief Engineer and Manager, Madras Irrigation and Canal Company, forwarding for sanction estimates for —

No. 2302
Commd to the
1st of Rev.

27. Oct/75 *Lo*

17 To the Boarding Pass No. 2901