9-12-14

MADRAS RECORD OFFICE.

Government Records.

Pub. Works Department.

G. O. (Mis).

Dated 15-9-1885.

No. 2148 W

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

From Messrs. PARRY AND COMPANY, Madras, to the Secretary to Government, Public Works Department, dated 22nd January 1885.

During the late heavy rains in South Arcot, the diversion bund at Veeramudy, which takes the overflow from the Ponniár and is situated near the Triukoilúr anicut, gave way, diverting an immense body of water into the Malatar river, and causing that river to change its usual bed and take a new course, which swept through our Tiruvennanallúr factory, carrying away a portion of our buildings and entailing on us a loss of some Rs. 11,000; and, as the bed of the river is still in its new position, the safety of the whole of our factory is imperilled.

2. We believe that we have stated correctly the cause that led to the disaster, but we have the honor to request that you will order an inquiry to be made, such inquiry also to ascertain whether or not this diversion bund had been injured some-time before, and, if it is correct, that no steps had been taken either to repair it or protect the country which would be injured should it give way.

3. The repair to the diversion bund and groynes in the river to keep it in its original course are of such grave importance, that we trust you will give the necessary orders for the work to be taken in hand at once.

4. We enclose copy of a letter, No. 337, dated 14th instant, from the Local Fund Engineer, South Arcot Circle, which may be of interest to you.

From Messrs. PARRY AND COMPANY, Madras, to the Secretary to Government, Public Works Department, dated 31st January 1885.

We beg to enclose, for your information, copy of a letter, No. 52, dated 23rd January 1885, which our agent at our Tiruvennanallúr sugar factory, in South Arcot, has received from Mr. Walch, the Executive Engineer, on the subject of the recent severe damage the factory has sustained owing to the collapse of the Koriar embankment.

2. As to the feasibility or otherwise of this embankment being replaced, we are not in a position to offer an opinion; but we beg to take the very strongest exception to his assertion that the position of our factory is naturally an unsafe one, and to his suggestion that it is for us to take steps to obviate a recurrence of the disaster of last month.

3. The factory has been in existence for fifty years and has never before sustained any damage whatever, though there have been, in that period, several severe floods in South Arcot; nor has the writer of this, in an eighteen years' experience, ever seen any heavy flush of water in the Malatar, such having been diverted since the construction of the Tirukoilúr anicut.

4. These facts do not point to the likelihood of any traditions of former troubles, to which the Executive Engineer, an officer of a few months' residence in South Arcot, refers.

5. We would point out that both above and below the factory and situated on the river banks are two villages, and between the river and the factory runs the high road to Tirukoilúr, a situation for a road which, presumably, would not have been selected had the traditions referred to had any existence. Tiruvennanallúr village is situated at some little distance from the river, near the wet cultivation which depends on two tanks, and is, we should say, on a lower level than the factory.

6. The Malatar has ceased to be a river in the ordinary sense since Government constructed the anicut and other diversion works at Tirukoilúr; these works concentrated the floods into the Ponniár and diversion channels.

7. Light might possibly be thrown on the disaster if inquiry was made as to whether or not the nanal grass on the Koriar embankment was burnt by an incendiary, supposed to have been a dismissed watcher; whether an estimate for the replacement of the nanal was submitted, but sanction delayed, leaving the bank unprotected.

8. We therefore request that a prompt inquiry may be held, and we think we do not ask too much if we require of Government that either the Koriar embankment be replaced or that such works be undertaken as will make the factory as safe as it was before the embankment was swept away.

No. 291 C., Public Works.

Referred to the Superintending Engineer, V Circle, in continuation of the endorsement, No. 150 C., dated 26th January 1885.

CHEPÂK,
12th February 1885.

(Signed) A. S. RUSSELL,
Under Secy. to Govt., P.W.D.,
Irrigation Branch.

From Messrs. PARRY AND COMPANY, Madras, to the Secretary to Government, Public Works Department, dated 27th February 1885.

We would crave attention to our letter of the 31st January, and would beg to urge on Government the extreme necessity of prompt action being taken in the matter of the erosion of our Tiruvennanallúr factory by the Malatar.

2. As already advised, the river, during the December floods, carried away a large portion of the compound, and has made for itself a bed 10 feet below the level of the factory.

3. For purposes of irrigation, the authorities continue to let water down to supply lands whose ordinary channels were damaged, so that the eating away of the compound is continuing slowly and surely, and when the freshes come down from the hills, as they do in a few months, the work of destruction will continue more rapidly, until the very foundations of the factory are sapped.

4. We understand that an Assistant Engineer has been preparing plans and estimates of groynes to be thrown out for the purpose of throwing the water away from the factory and into its original channel.

5. We trust that this work will be pushed forward as rapidly as possible, but meantime we would point out that till now, so far as we can gather, no Engineer of higher rank than an Assistant has visited the place, and we think the matter is one of sufficient importance to justify our bringing the fact to your notice.

No. 428 C., Public Works.

Forwarded to the Superintending Engineer, V Circle, in continuation of this office endorsement, No. 291 C., dated 12th ultimo.

CHEPÂK,
4th March 1885.

(Signed) A. S. RUSSELL,
Under Secy. to Govt., P.W.D.,
Irrigation Branch.

From Colonel H. L. PRENDERGAST, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 11th March 1885, No. 4597.

I have the honor to return your endorsement No. 150, of the 26th January 1885, and subsequent papers, as per margin, relating to the injury sustained by Messrs. Parry and Company at their factory at Tiruvennanallúr.

1 Original endorsement, No. 150 C., dated 26th January 1885, on letter from Messrs. Parry and Company, dated 22nd idem.
1 Letter of Local Fund Engineer, No. 337, of 14th January 1885.
1 Report from Executive Engineer, No. 67, of 5th February 1885, with one enclosure.
1 Endorsement, No. 291 C., dated 12th February 1885.
1 Endorsement, No. 428, dated 4th March 1885.
1 Report from Executive Engineer, No. 106, dated 6th March 1885.
1 Rough sketch.

2. Messrs. Parry and Company wrote on the 22nd January that the diversion bund near the Tirukoilúr anicut gave way and caused the Malatar to change its bed, taking a new course through their factory; that the diversion bund had been injured some time before, and no steps had been taken to repair it or to protect the country which would be injured should it give way. The Local Fund Engineer was of opinion (given in his letter of the 14th January) that a proper alignment of the Ponniár south bank must be fixed upon, and flood-banks erected to prevent the Ponniár running into the Malatar, while the Malatar should be turned, if possible, into its old course by an embankment above the factory.

3. On the 31st January Messrs. Parry and Company write again, taking exception to the Executive Engineer's assertion that the position of the factory is unsafe and that they should take steps to protect the factory. They say, the factory has never before been injured and for eighteen years there has been no flood in the Malatar, as the water has been diverted elsewhere since the construction of the anicut. Messrs. Parry and Company point out that the high road to Tirukoilúr ran between the river and the factory; they infer, therefore, that this line would not have been selected for the road if there had been traditions of former troubles from floods. They believe the village of Tiruvennanallúr is on a lower level than the factory.

Messrs. Parry and Company say the Malatar has ceased to be a river since the anicut and other works were constructed, whereby the floods were concentrated into the Ponniár proper. They ask whether the nanal grass on the Koriar embankment was burnt by an incendiary and no steps taken to have the bank protected. Finally, they desire that the Koriar embankment may be replaced or other works undertaken to make the factory as safe as it was before the embankment was swept away.

4. On the 27th February Messrs. Parry and Company urge that prompt action may be taken; for water is still let down which is slowly and surely eating away the factory compound, while freshes will sap the very foundations of the buildings. They understand that an Assistant Engineer has proposed to throw out groynes to divert the water into its original channels, but they point out that no Engineer of higher rank has visited the place.

5. Mr. Walch mentions in his letter No. 67, of the 5th February, that on the 22nd December he visited the factory to see if he could do any thing to help the employés, but the agent was not there at the time. On the 4th, 5th and 6th instant, I went along the river with Mr. Walch from Arasur (where the Malatar takes a turn to the south and runs into the Gadilam river) to the Koriar embankment, and the Tirukoilúr anicut. In the November flood, the Koriar embankment was breached for about 150 yards, at its left end, the water there passing down the Malatar went along the Koriar channel in a north-east direction back into the Ponniár. This Koriar channel is shown on the atlas sheet. Scarcely any water went down the Malatar to the factory and no damage was done by this flood.

Nothing could be done at that season in the way of restoring the Koriar embankment; but in December a much higher flood came down, which went over the top of the Koriar embankment, and on this occasion the scour of the stream was all on the right end of the embankment and the right bank of the river below.

A great deal of this water turned off through the Koriar channel into the Ponniár, but a large volume went along the Malatar, shown on the atlas sheet, as a southern branch of the Ponniár; at Arasur a wide river ran southwards to the Gadilam, and the rest of the flood went on in the old bed, till it met the South Indian Railway at Poondy.

6. The first bursting of the Koriar embankment did not cause the Malatar to change its bed, and the second destructive breaching of that embankment was effected by a flood of such magnitude that the water would not have been arrested if the embankment had been previously restored, for the flood went over the island on which the embankment abutted, it filled the Koriar channel, and also took a course through Messrs. Parry and Company's factory, a course that they consider new, but which, in reality, is the old southern branch of the Ponniár as seen clearly on the atlas sheet.

7. The Koriar embankment has answered the purpose for which it was constructed for several years. Messrs. Parry and Company say there has been no flood in the Malatar for eighteen years, and no injury to their factory in that time. The Koriar embankment was first thrown up ten years ago, and thus for eight years, when there was no embankment, the floods went off by the Koriar channel without coming down to Tiruvennanallúr, and afterwards, when the embankment turned all ordinary floods back into the Ponniár, even the breaching of the embankment did no harm to the factory. The position of the factory is and always has been unsafe with regard to an exceptionally high flood. The road to Tirukoilúr was made near the river bank, and the factory was built because there was most likely no apprehension felt that the river would rise to a height that would cause damage. But when Colonel Foord designed the bridge over the Malatar, on the road from Panruti to Ulundurpet, he showed that the waterway was calculated on the chance that the Ponniár might again resume its old bed, and pour a flood down the Malatar into the Gadilam. Unfortunately there was no record of a flood of great magnitude, though there was a tradition of troubles in former days, and the bridge has been destroyed by the flood of December, which at the Tirukoilúr anicut rose $4\frac{1}{4}$ feet above the previous highest recorded flood.

Part of the village of Tiruvennanallúr may be below the factory, but the whole of the village is thrown back from the river bank: and the bungalow, where the agent now lives, in the village is on high ground, quite above flood level.

8. The Malatar ceased for many years to be a river; but, as already explained, the Malatar had left off being a river, both before the Koriar embankment was thrown up and before the anicut was built.

Whether the embankment was protected by nanal or otherwise, whether the nanal was burnt or destroyed in any other way, is of no consequence; protective measures by the restoration of the embankment would have been of no avail, for the flood went over the embankment and the country beyond, and the Malatar has again run in its original course, being so forced to become a river again by the excess of water in the Ponniár.

But the site of the factory is no more liable now to be damaged by a high flood than it was before the embankment was swept away. It is, of course, in much greater danger from moderate floods.

9. There is certainly a little water coming down the scoured-out bed of the Malatar along the factory, but this will soon cease to flow. It seems doubtful whether groynes could be of much value, and they would have no effect for a long time to come in arresting the destructive force of another great flood.

Mr. Walch was quite right in saying that Messrs. Parry and Company should put up banks round their property, that they should slope off the eroded edge of the river, face with nanal and maintain a plantation of nanal.

10. There is no difference of opinion as regards the best course that should be given to the Ponniár floods in future. The Local Fund Engineer writes that the Malatar should be turned into its old course by an embankment above the factory.

I enclose a very rough hand sketch illustrating the course of the Ponniár.

About 4 miles below the anicut, the Koriar embankment was constructed to keep flood water out of the Malatar; and for several years moderate freshes have been retained in the northern bed of the Ponniár, which is in a lower level than the Malatar. But it is impossible that a high flood could be sent through the narrow neck

at the left end of the Koriar embankment. This work was breached, and the flood went by two passages into the Koriar channel, an original set of the river, as shown on the old atlas. Again, a very high flood sent another stream past Attiyur village and the factory, as well as down the Koriar channel, while, if the Koriar embankment had stood, the water would have gone over it, and it did go over the island beyond the end of the embankment to a distance, I was told, of 5 furlongs.

It now appears that the better line for an embankment is that dotted blue, whereby the Koriar channel will be always available to carry off flood water. The length of the breached embankment was 900 yards. From the extremity of the point of land to the village of Attiyur the distance was measured the other morning as just the same length, 900 yards; but to let the Attiyur village have protection, the embankment would be a good deal longer when taken to a point above and clear of the village.

11. The embankment would be costly, as it would have to be raised to 3 feet above the flood of December 1884. Its termination on the island would be on ground that on examination seemed to be as high as the flood-level; there was no indication or information by the people on the spot of the water having gone over the ground there. But on the Attiyur side, there appeared to be no high ground quite above flood-level. The water had been through the topes and over the road.

The Executive Engineer will have levels taken across the river and village in order that the cost of an embankment may be calculated and to show how the Malatar irrigating channel may be carried on below the embankment. The Malatar channel at present comes from a head-sluice at the anicut, and runs between banks till just below the breached Koriar embankment, where it falls into the wide sandy bed of the Malatar river.

Past experience shows that the ruined Koriar embankment might be restored and stand for several years; but there would now be no confidence that the river might not come over the bank and damage villages below.

No. 70 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer's report shows clearly that the damage done to Messrs. Parry and Company's factory was not due to any neglect to maintain the "diversion bund at Veeramudy," otherwise called the Koriar embankment. This embankment was first constructed in 1874, the object being to confine the Ponniár to its present bed. In low floods the embankment has apparently answered its purpose, but in high floods, the bed of the river at a short distance below the embankment being rocky, the water is piled up and forced to find another channel. In May 1874 the embankment was carried away, and in November 1884 it was again carried away; but on neither of these occasions does it appear that the water passed down the Malatar and endangered the factory, it passed down the Koriar channel into the Ponniár lower down. The sketch map submitted by the Superintending Engineer explains this. In December 1884, while the Koriar embankment was yet in a ruined state, a flood of such magnitude occurred that the Ponniár river and the Koriar channel together were unable to carry off the water, it spread far and wide over the country and rushed down the Malatar, eroding the banks and doing considerable damage to property; the fact that the embankment was in a ruined state did not intensify the mischief, as the water rose high above the embankment and flowed over the island between the Ponniár and the Koriar channel on which the embankment abutted.

2. Messrs. Parry and Company's factory is said to have been built eighteen years ago, or seven years before the Koriar embankment was constructed; the destruction of the embankment therefore only restores the state of affairs which existed when the factory was constructed. Messrs. Parry and Company are settlers on the banks of the river who have no claim on the Government for special protection. The fact that the village was constructed, previous to the existence of the factory, on higher ground at some distance from the margin of the river, shows that the river was considered a dangerous neighbour, whom it was necessary to keep at a distance.

3. In noting on the damages done by the recent floods in Cuddalore, it has been stated that the Ponniár in extreme floods spreads all over the country towards the Gadilam river, which is on a lower level, and the question has yet to be considered whether it is feasible to embank the Ponniár on the south side and to prevent its spilling into the Gadilam; it is further shown that in extreme floods the Gadilam is unable even to carry its own water without any afflux from the Ponniár, and a reference to the sketch map forwarded by the Superintending Engineer will show that if the Ponniár is allowed to spill at will into the Malatar, an old river bed, the water must find its way into the Gadilam. The Koriar embankment was first constructed in the interest of the irrigation from the Malatar, and it is an object to keep flood-water from damaging the spring channels in the river; the higher up therefore that the water can be turned into the Ponniár, the better. The attempt to turn the water into the Ponniár by means of the Koriar embankment must now be allowed to be a failure, and it is believed that the proposal of the Superintending Engineer to construct an embankment across the Malatar below the Koriar channel should be adopted. Such an embankment might probably be maintained even in an extreme flood, and it would be a better protection to the factory than the Koriar embankment could possibly be. The estimates for this work will be prepared as soon as possible.

4. It is further to be noticed that construction of the anicut at Tirukoilúr has had no effect whatever in increasing the flood in the Malatar or rendering the position of the factory more precarious.

CHEPÂK,
26th March 1885. (Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

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

ORDER—dated 9th April 1885, No. 352 I., Public Works.

After careful perusal of the papers submitted, the Right Honorable the Governor in Council, while unable to acknowledge that any obligation attaches to the Government to protect the factory belonging to Messrs. Parry and Company at Tiruvennallúr, is of opinion that the proposal to abandon the ruined Koriar embankment and to construct an embankment across the Malatar below the head of the Koriar channel is based on good grounds; and that the embankment will prove an efficient protection to Messrs. Parry and Company's property. It is, however, beyond doubt that the factory buildings have been constructed on a site which is liable to damage on the occurrence of such an extraordinary flood as that of December last, and any risk that may consequently be incurred must be accepted by the owners of the property.

2. The Superintending Engineer will submit, without delay, the estimates for the proposed embankments and subsidiary works.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, V Circle.
" Chief Engineer for Irrigation.
" Revenue Department.
To Messrs. Parry and Company.

Exd. E. Fernandez.
Spare Copies

IRRIGATION.

Govt. of {1885} Madras.

PUBLIC WORKS.

Dated April, 9th.

Recd. *Encl.*

G.O., 9th April 1885, No. 352 I.

APRIL.

Embankments across the Malatar below the head of Koriar Channel

Superintending Engineer to submit estimates for —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

From Colonel H. L. PRENDERGAST, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 13th July 1885, No. 1549.

I have the honor to submit, for your consideration, two estimates prepared by the Executive Engineer of South Arcot for an embankment to keep the Gadilam river from over-flowing its right bank above the railway bridge and flooding the town of Tirupápuliyúr.

2. The larger estimate of Rs. 2,800 is for a bank to be raised 3 feet above the highest flood, *i.e.*, that of December 1884. The alternative estimate of Rs. 470 is for the bank to be 3 feet below the maximum flood level. I agree with Mr. Larminie in considering that the lower bank will be sufficient because the Government have called for an estimate for an embankment to keep the Ponniár river in its northern bed, so that the Gadilam river may not in future be swollen by water coming down the Malatar.

G.O., No. 352 I., dated 9th April 1885.

3. The Executive Engineer shows the height of this proposed bank to be 148·0, or 4 feet above ordinary flood level. It is recorded in paragraph 6 of your notes in G.O., No. 259 I., dated 12th March 1885, that the great flood of December 1884 stood 13·75 feet above the crest of the Tiruvendipuram anicut, while the highest recorded flood of previous years was 8·75 feet above the crest. There was thus a height of 5 feet above the previous maximum flood level.

Lower down the river, towards the railway bridge, where the flood was not confined, as between the anicut wing-walls, there was probably less than 5 feet difference of level between 151·0, the flood level of December 1884, and the previous highest flood level, which may have been 147, or somewhat higher; but as the road to Cuddalore is on a level of about 147, there is no need of raising the embankment higher than 148·0, and this level is above that of the highest flood in the Gadilam for many years, when the Malatar never brought down a flood from the Ponniár.

4. If the embankment at head of the Koriyár channel in the Ponniár could be thrown up before the next monsoon, the small embankment above Tirupápuliyúr should be also constructed in this year; but as the former work is of some magnitude and will cost upwards of Rs. 15,000, I expect both must be put off to another year, when there will not be the same difficulty in the provision of funds.

The Executive Engineer brings the estimate of Rs. 470 under the financial head "Irrigation and Navigation," but I think this should rather be "Miscellaneous Public Improvement."

No. 140. I.

Note by the Chief Engineer for Irrigation.

The estimates now submitted were prepared in consequence of instructions issued after inspection, by the undersigned, of the damage done to Tirupápuliyúr during the high floods of last December. There is an awkward bend in the Gadilam river immediately below the railway bridge, and the river has a tendency to desert its

present channel and set into an old branch, plainly shown on the sections submitted, which would lead it directly into the town. So low is the bed of this old branch at present, after being scoured by the late floods, that any ordinary flood must, under present conditions, spill towards the town, and it is absolutely necessary, if life and property is to be protected, that before the north-east monsoon, which is the season of floods, a substantial embankment should be raised across the low ground.

2. Examination of the ground after the December flood showed that water had been 8 feet deep after leaving the river bed proper, and the sections now submitted, on which the flood level is marked at 151, which is said to be taken from "railway levels," gives 8·37 as the maximum depth of flood. The Executive Engineer says that the effect of a high embankment which would prevent the flood water from spilling on the south of the river on the railway bridge should not be lost sight of; but it is understood that the railway embankment to the north of the bridge is being lowered, and that, after allowing for a moderate gradient from the bridge, the line will be laid generally on the level of the country, so that a flood spilling beyond the river margin will pass off without obstruction towards the sea. Under these circumstances, there will not, in an extreme flood in future, be such a head of water against the bridge as there was at one time during the last flood, and there is also no necessity for allowing any spill of the river to the south below the Capper Hill, which, the Executive Engineer thinks, should be permitted as a safety valve.

3. The undersigned is therefore decidedly of opinion, as reported after his inspection of the ground, that an embankment should be formed from the south abutment of the railway bridge up the river to the Tiruvendipuram anicut, and that such an embankment is necessary for the protection of Tirupápuliyúr. If the bank were formed, as suggested by the Superintending Engineer, only up to the road, the level of which is below 145, a similar flood to that of last year would pass round the end of the bank 6 feet deep and would inevitably flood Tirupápuliyúr, the waters rushing through the town and escaping to the sea over another portion of the lowered railway line—there would not be the enormous rush through the town that there was last year, and the water might not be so deep, but there would be a considerable current and several feet depth of water, which might cause very great damage to property, if not to life. No spill should be allowed to the Gadilam between Tiruvendipuram and the railway bridge; below this the river is not embanked, and if water should, in an extreme flood, rise above the level of the country and, passing over the lowered railway line, back up with Tirupápuliyúr, it would be still water and would do little harm.

4. As regards the height to which the embankment should be raised, it is true that, as pointed out by the Superintending Engineer, if the Koriyár embankment is constructed and maintained and there were no spill from the Ponniár into the Gadilam, there would be no necessity for anything more than a bank to keep out ordinary floods, which do not spill over the margin of the river generally; but it is not a flood of this nature that would cause a serious damage to the town; only an extreme flood is to be dreaded, and though it is essential that there shall be a bank to keep out ordinary floods and check the tendency of the river to alter its course and run direct into the town, yet it is considered that this bank should be strong enough to keep out an extreme flood, which, though the lowering of the railway embankment will prevent the water heading up to the extent it did last year, may still rise to very near the same level as it did before. The top of the bank should therefore be 3 feet above the flood level of last year, or 154; the top width should be 6 feet and the side slopes 2 to 1; across the set of the river the front slope must be turfed or planted with grass, and the whole of the space between the toe of the bank and the existing river bed must be planted with grass; it will also be desirable to extend this planting so as eventually to secure a margin to the river, as shown in pencil on the plan.

5. The line which it is considered the new bank should take would follow the line ABD on the survey till about 1,600 feet from the point B, when the line might curve somewhat as shown in pencil and be carried generally parallel to the road up to the anicut. A survey and line of levels will be necessary to show the exact line the bank will take, and this should be prepared as soon as possible. The dimensions of the bank may be reduced from the point where it turns to nearly parallel to the road to

4½ feet top width, and side slopes 1½ to 1, the level being 3 feet above the flood of 1884 the whole length. The estimate should be revised in accordance with these instructions and submitted without delay.

6. The cost of the embankment should not, it is considered, be charged to "Irrigation," which has no concern with it. It would undoubtedly answer better, so far as "Irrigation" is concerned, to allow the river to spill in very high floods; but in the interests of the town of Tirupápuliyúr, a part of Cuddalore, the bank is necessary, and Government was strongly urged by the inhabitants, in a petition, to afford them this protection. The municipality, it is understood, are powerless, having suffered so severely in the late floods; but it is possible that, if Government would advance the necessary funds, some arrangement could be made as to its ultimate repayment. Meanwhile it is considered absolutely necessary that the bank should be constructed from the railway bridge up to a point about 1,600 feet east of B, on the sketch, before the north-east monsoon, and it is recommended that the Executive Engineer should be authorised to put this work in hand immediately, the question of funds being subsequently settled; all that is at present necessary can probably be done for Rs. 2,000.

OOTACAMUND,
23rd July 1885.

(Signed) J. O. HASTED, Colonel, R.E.,
Chief Engineer for Irrigation.

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

ORDER—dated 4th August 1885, No. 678 I., Public Works.

The Government authorise the immediate commencement of the embankment as recommended by the Chief Engineer for Irrigation, and trust that every endeavour will be made to complete it to the extent stated in the last paragraph of the above note to be necessary before the advent of the north-east monsoon; complete estimates for the embankment from the Tiruvendipuram anicut to the railway bridge being submitted as early as possible.

2. The question of incidence of charge will be considered in the Financial Department.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, V Circle, with six enclosures.
" Chief Engineer for Irrigation.
" Examiner Public Works Accounts.
" Revenue Department.
" Financial "
" Consulting Engineer for Railways.

Exd. E. Fernandez.
Spare Copies

IRRIGATION.

Govt. of {1885} Madras.

PUBLIC WORKS.

Dated August, 4th.

Recd.

Encl.

G.O., 4th Aug. 1885, No. 678 I.

AUGUST.

Embankment for the Gadilam River

Immediate construction of an — to protect the town of Tirupápuliyúr (New Town, Cuddalore) from floods, ordered.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

~~Under date the~~

READ the following

Financial Department

Proceedings of the Madras Government

Read the following Proceedings of Government, Public Works Depart-
ment, dated 4th August 1885 No. 678,
ordering immediate construction
of an Embankment for the
Gadilam River to protect the
town of Tirupapuliyur from floods.

Order thereon 27th August 1885 No. 1231 Misc.

The work will be classified
under "Miscellaneous Public
Improvements" in the Public Works
Provincial Budget.

(True Extract)

(Signed) Walter Webster
Chief Secretary

Order thereon No 2148 dated 15th Septr 1885.

Communicated to
Officers Concerned.

2. The immediate Commencement of the embankment was authorised in G.O. No. 678 dated 4th August 1885, and the Superintending Engineer V Circle will report later in the year, what sum is required to cover expenditure during the current official year.

3. The complete estimates called for in the G.O. above quoted are awaited.

True Extract,

C. Anwen.
Major R.E.
Under Secy to Govt. P.W.D.

2.
The Suptg. Engr V Circle
" Chief Engineer for Irrigation
" Exam. P.W. Accts

Financial Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

Proceedings of Government, Public Works Department, dated 4th August 1885 No. 678, ordering immediate construction of an Embankment for the Gadilam River to protect the town of Tirupapuliyur from floods.

—

Order thereon dated 27th August 1885 No. 1231 this

The work will be classified under "Miscellaneous Public Improvement" in the Public Works Provincial Budget.

/ True Extract /
Junkinchuter
Chief Secretary.

To The Public Works Dept /
2/ 4/8.8 — " — Accountant General.

R Cases.

R No. 765R dated 13-8-85-
" " "
" " "

Receipt No. 872R
Dated 18-9-85-

Later Cases

R No. 685Rdy dated 24-9-85
J " 173.J " 30-9-85-
R " 960W "185
R 12 SA - 26.1.86
J - 15 SW - 4.2.86
R 179 MB 17-2-86

Sent to Government with No. 173 J. W. of
30-9- 1885.
Printed with G.O. No. dated
R 1158a 930-11-96

Reminders Received.

No. 1, dated 188
" 2, " "
" 3, " "
" 4, " "
" 5, " "

Keep-withs.

E. I. Form No. 29.

Receipt No. 872R

From The Govt-P.W.Dept.

No. 2148R
Dated 15-9-85-

Subject— Construction of an Embankment for the Gadilam River to protect the town of Tirupapuliyur.

Forms Financial Dept Order No 1231 this 27-8-85 directing the S.E. Circle to report later in the year, what sum is required to enable expenditure during the current official year for the ——.

Enclosures.

From to

" Record
" Govt
18-9-85 " Govt 19.9.85

Orders and Proceedings in File.

No.	Date.	No.	Date.

P.W. No 6781. 4. 8. 85

[6]

Rech 7725

Govt. of 188 Madras.

(1)

To

The P.W. Dept

No. 2148 W dy 15-9-85

Rec 3/9/85.

Proceedings, dated 27 Augt 188 5
No. 1231 Mis.

Subject.

Directing that the work of building a bank for the Gudalur river to protect from floods the town of Devarshola, be classified under "Public Improvements" in the P.W. Dept. Estimates

To W

Revised draft order on Current No 7725 submitted for approval.

The Ch. E. for Drgs reported in his note printed under No 678 I. that about Rs 2000 will cover the work needed at present, & it does not appear desirable to ask the Finl dept. to allot this small sum, which will probably be available later in the year. The Finl dept. moreover is not in a position to give the P.W.D. any additional grant now.

C
9-9-85

1014

No 2148 W

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 15th Sept 85

READ the following

Pros. Finl dept No 1231 Mis. dy 27.8.85

Communicated to officers concerned.

2. The immediate commencement of the embankment was authorized in G.O. No 678 I dy 4th August 1885, & the Supdg Engr V Circle will report what later in the year, what sum is required to cover expenditure during the current official year.

3. The complete estimates called for