Archives I - 10,006—16-8 77.

(1) Number of pages 44.

H. (2) Date of repair 11.9.87

(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W.D. DEPARTMENT

G.O. No. / B.P. No. 13.73 W. Press. / Mis.

Dated 2 6 1884 197 .

Not to be folded or roughly handled

22

1373

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following papers :—

From C. A. GALTON, Esq., President of the Local Fund Board, Malabar, to the Chief Engineer, Public Works Department, dated Calicut, 18th April 1884, No. 105—Through the Superintending Engineer, IV Circle :—

I have the honor to submit, herewith, the plans and estimates (according to the list annexed) for the iron girder bridges which it is proposed to erect over the Iritty and Merumpoya rivers at the 27th and 13th miles, respectively, on the trunk road from Tellicherry to Coorg. This road is one of the most important lines of communication in the district, and carries a very heavy traffic during the coffee season. It is estimated that from four to five hundred carts pass along the road daily at this time of the year, and the absence of bridges over these rivers causes very great hindrance to the traffic. It is desirable, therefore, that sanction be obtained at the earliest possible date to admit of the materials being landed as soon as the next monsoon is over, in which case the bridges might be erected before the rainy season of 1885. Copy of the Local Fund Board's resolution passed at their meeting held on the 16th instant is submitted herewith.

2. As the Local Fund Engineer, Mr. Anderson, has dealt very fully with the circumstances of each case in his general reports accompanying the estimates, it is unnecessary for me to go over the same ground, and a few words of explanation will suffice.

3. The Iritty river probably presents greater difficulties than any other river in the district owing to its great breadth, depth, the rapidity of its current and the unhealthy nature of the locality. The amount of the present estimate is Rs. 78,000, and provides for an iron superstructure on the Whipple-Murphy single trellis system. The reasons for adopting this system in preference to others are fully explained in the report. It is proposed to have seven spans of 72 feet each, and the roadway will be 14 feet broad. The previous history of this bridge is given in Mr. Anderson's report, but the dates of construction of the original bridge, of its destruction and of its restoration cannot be ascertained. The records are possibly in the Public Works Department. No papers bearing on the subject have been discovered in the records of the Local Fund department. In 1878 the second superstructure was dismantled as it was in an advanced stage of decay; in the following year an estimate, amounting to Rs. 63,330, for a Warren girder bridge was sanctioned (*vide* G.O., dated 21st April 1879, No. 1190 W.) but further inquiry showed that alteration was required and a revised estimate, amounting to Rs. 47,700, was submitted for sanction (*vide* Board's proceedings, dated 5th August 1882, Mis. No. 5900). It does not appear that sanction was ever accorded.

4. Owing to the occurrence of very heavy floods in 1882, a re-investigation of the waterway was deemed desirable, and the searching inquiries which have been instituted by the Local Fund Engineer show that provision must be made for a much heavier flood-discharge than was considered necessary when the former estimates were prepared. This accounts for the increase in the estimate. The investigation has been very thorough, and Mr. Anderson has visited the locality time after time to ensure the accuracy of his calculations, which are clearly set forth in the papers. I am sure they may be accepted with confidence. As to the designs it will be patent that very great care and labor have been bestowed upon them, and Mr. Anderson's

thorough knowledge of this branch of his profession is a guarantee that his designs are the best suited for such a work as that under consideration.

The specifications contain very full instructions explanatory of the designs and there will, I imagine, be no difficulty in supplying materials with such detailed information as to what is required.

5. The old Merumpoya bridge was destroyed by a high flood in 1882. This is a comparatively small river, but it runs between lofty banks and provision has to be made for a much greater flood-discharge than was allowed for by the former structure. It is proposed to have three spans of 72 feet and the width of the roadway will be 14 feet. Owing to the nature of the bottom it will be necessary to construct wells, which involves extra expenditure on account of plant, &c., and the piers cannot be utilised as in the case of the Iritty bridge, where five piers are standing and in good condition; consequently the cost of this bridge is higher than that of the Iritty bridge in proportion to its length. The fullest information regarding the proposed structure is afforded in the report and accompanying papers, and it is unnecessary to enter into greater detail.

6. As regards the method of obtaining the materials, I think it will lead to economy and expedition if the Local Fund Board are permitted to procure them by private contract instead of through the store department of the India Office. When the original estimate for Rs. 63,330 was sanctioned there was some idea of procuring the materials through Mr. Maylor, of Messrs. Peirce, Leslie and Company, and perhaps some firm here or in Bombay may be willing to tender for the supply of the iron work. An alternative plan would be to employ a qualified Consulting Engineer, like Mr. G. B. Bruce of Westminster, who, I understand, has had large experience in the supply of iron girder bridges for Indian railways, to procure the materials in the cheapest market and pass them before despatch. His charges would probably add some £100 to the estimate, but as Mr. Anderson's rates are based on the highest quotations of recent date, it is probable that there will be savings on the iron work and, in any case, it will be worthwhile to pay a little more to ensure prompt delivery of the materials to admit of the erection of the bridges with the least possible delay. Even if the contract be given to a local firm, it will be necessary to employ an experienced engineer at Home to inspect and pass the materials to ensure their being in accordance with the specification, and properly tested. Owing to the very unhealthy and inaccessible nature of the locality it is not likely that any firm will undertake to *erect* the bridges by contract, and the Local Fund Board must make their own arrangements The estimates provide for a special staff for the purpose and a standing camp, as labor will have to be brought from a distance. It will be necessary also to provide medical aid. Mr. Anderson will himself direct operations, but his other duties will not admit of his devoting his whole time to the work, and a qualified Assistant Engineer must be entertained during the erection of the two bridges.

7. The excess over the budget provision can be met from the allotments for other new works. The total grant is Rs. 1,67,000, but it is impossible to undertake all the works which have been entered in the budget and several must be deferred for some time to come.

From Colonel J. BEATTY, R.E., Superintending Engineer, IV Circle, to the Chief Engineer, Public Works Department, dated Coimbatore, 1st May 1884, No. 210 E.W.

I have the honor to forward, herewith, a letter from the President, Local Fund Board, Malabar district, accompanied by plans, estimates, &c., prepared by the Local Fund Engineer, Mr. Anderson, for two bridges which it is proposed to erect on the Iritty and Merumpoya rivers at the 27th and 13th miles of the trunk road from Tellicherry to Coorg.

1 Original letter, No. 105, of 18th April 1884, from the President, Local Fund Board, Malabar.
2 Lists showing 80 enclosures of plans, estimates, &c., sent by banghy parcel.

1373

2. The Iritty bridge, which is estimated to cost Rs. 78,000, is to take the place of one which consisted of four spans of 70 feet and two end spans of 15 feet, with masonry piers and abutments founded on rock and a superstructure of teak, which was so decayed in 1878 that it had to be pulled down.

3. The old masonry is to be utilised as far as possible, one new pier and two new abutments being required, and the proposed bridge is to consist of seven openings of 72 feet each, spanned by iron pony trusses on the Whipple-Murphy single trellis system, each 72 feet in clear and 76 feet effective, bearing a 14-feet roadway of wrought-iron plate cross-girders, stringer beams and timber platform. The special feature of the main girders is the connections by means of steel pins of 3¾ inch diameter, to which the designer, no doubt, justly attaches importance as greatly preferable to the ordinary system of rivetted connections.

4. The piers are 12 feet thick at bottom, 7 feet at top, and 22 feet long, exclusive of semi-circular cutwaters. M.F.L. is assumed to be 54·72 feet above the deep bed of the river, and there is to be a clear headway of 3 feet between that line and the underside of the cross-girders, so that the roadway will be about 59 feet above the deep bed.

5. The water-way provides for "a discharge of 250,000 cubic feet per second; due to 90 per cent. of an 18-inch down-pour" flowing off the catchment basin "in addition to the ordinary monsoon discharge of 80,000 cubic feet."

6. The Merumpoya bridge is to take the place of one of masonry, three spans of 36 feet, which was totally destroyed by a high flood on the 13th July 1882, and an entirely new structure is required.

7. The new Merumpoya bridge, which is estimated to cost Rs. 49,000, is to have three openings of 72 feet each, spanned by iron trusses and roadway exactly similar to those of the Iritty bridge.

8. The piers and abutments are to be carried up to a height of 30 feet above the deep bed so as to give a clear headway of 3 feet above M.F.L. The two piers, which are 6 feet thick, are to rest on wells sunk to 18 feet below the deep bed of the river at site; and the foundations of abutments are to be carried down through and rest on a bed of detrital laterite at 11 feet below the proposed new slope of river-bed and bank.

9. The proposed waterway provides for "a discharge of 47,000 cubic feet per second; due to 90 per cent. of an 18-inch down-pour, in addition to the ordinary monsoon flood-discharge of 10,500 cubic feet due to downpours of 3 to 5 inches lasting for three or four days."

10. The estimates have evidently been prepared with the greatest care by Mr. Anderson, and the papers sent give full information regarding the designs and method of construction, as well as reasons for the amount of waterway proposed, details of the rates, &c., and I see no reason to question the correctness of his figures or the suitability of his designs.

11. The estimates have apparently been submitted under one covering letter because it is proposed to carry them out at the same time by means of a special temporary establishment, which has been provided for, and because it is proposed to order from England at one time the iron work of the ten spans of 72 feet.

12. It will be observed that the Local Fund Board desire the earliest possible sanction in order that materials may be prepared and the works carried out without delay; funds being available in the budget of the present year.

13. In the examination of the estimates in this office no mistakes of any importance have been discovered.

Note by the Chief Engineer, Public Works Department.

These projects provide for bridges over two large streams, the Iritty and the Merumpoya, on the main line of road leading from Tellicherry to Coorg. The designs and estimates have evidently been prepared with unusual care, and are worked out in elaborate detail.

2. The Iritty bridge is designed with seven openings of 72 feet each in the clear, to be spanned by iron girders of the Whipple-Murphy type. The old bridge had four openings of 70 feet and two of 15 feet.

3. The Merumpoya bridge is designed with three openings of 72 feet each, spanned by girders similar in all respects to those proposed for the Iritty bridge. The old bridge had three openings of 36 feet.

4. The reasons for this large increase of waterway are stated by Mr. Anderson in his reports, and have been more fully explained to me in person. I am satisfied as to the accuracy of his calculations.

5. Since the estimates reached me, Mr. Anderson has slightly altered one of the formulæ for calculating the dimensions of the iron work, with the result that the weight of each complete 72-feet girder is reduced from 21·17 tons to 19·93 tons. He has thus been able to reduce the cost of the Iritty bridge from Rs. 78,000 to Rs. 76,600, and the cost of the Merumpoya bridge from Rs. 49,000 to Rs. 48,000.

6. These alterations have my full concurrence, and the estimates are recommended for sanction.

Ootacamund, (Signed) J. SHAW-STEWART, Col., R.E.,
27th May 1884. Chief Engineer, P.W.D.

Order—dated 2nd June 1884, No. 1373 W., Public Works.

The estimates as shown below are sanctioned for execution by the Malabar Local Fund Board :—

	RS.
Bridge over the Iritty river	76,600
Do. do. Merumpoya river	48,000

2. This sanction has been registered as Local No. 10 W. of 1884-85, and classified as Communications, Original Works.

(True Extract.)

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

To the Superintending Engineer, IV Circle.
" Board of Revenue, with eighty-two enclosures.
" Financial Department.

Exd. E. Fernandez.
Spare Copies

1373

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1884) Madras.

PUBLIC WORKS.

Dated June 2nd

Recd. Encl.

G.O., 2nd June 1884, No. 1373 W.

JUNE.

Bridges

Estimates, amounting to Rs. 1,24,600, *for constructing* — over the Iritty and the Merumpoya rivers, Malabar district, sanctioned for execution by the Local Fund Board.

Malabar Local Fund Board's
Office, Calicut, 18th April

No. 905

1373

From

C. A. Galton Esquire,
President, Local Fund Board,
Malabar

To

The Chief Engineer to Government
through the Superintending Engineer
4th Division,
Coimbatore

Sir,

I have the honor to submit herewith the plans and Estimates (according to the list annexed) for the iron-girder bridges which it is proposed to erect over the Iritty and Merumpoya rivers at the 27th and 13th miles respectively on the trunk road from Tellichery to Coorg. This road is one of the most important lines of communication in the District and carries a very heavy traffic during the coffee season. It is estimated that from four to five hundreds carts pass along the road daily at this time of the year and the absence of bridge over the river causes very great hindrance to the traffic. It is desirable therefore that sanction be obtained at the earliest possible date to admit of the materials being landed as soon as the next monsoon is over, in which case the bridge might be erected before the rainy season of 1885. Copy of the Local Fund Board's Resolution passed at their meeting held on the 16th Instant is submitted herewith.

2. As the Local Fund Engineer, Mr Anderson has dealt

very

very fully with the circumstances of each case in his general report accompanying the Estimates, it is unnecessary for me to go over the same ground and a few words of explanation will suffice.

3. The Itty river probably presents greater difficulties than any other river in the District owing to its great breadth, depth, the rapidity of its current and the unhealthy nature of the locality. The amount of the present Estimate is Rs. 78000 and provides for an iron superstructure on the Whipple-Murphy single trellis system. The reasons for adopting this system in preference to

other

other are fully explained in the
report. It is proposed to have
7 spans of 72 feet each and the
roadway will be 14 feet broad.
The previous history of the bridge is
given in the condensed report, but the
dates of construction of the original
bridge, of its destruction & of its
restoration cannot be ascertained.
The records are possibly in the
Department of Public Works. No
papers bearing on the subject have
been discovered in the records of
the Local Fund Department. In
1878 the second superstructure
was dismantled as it was in an
advanced stage of decay; in the
following year an Estimate amounting
to Rs. 63330 for a warren girder

[illegible]

1373/ f2

bridge was sanctioned (vide G.
dated 21st April 1879, No. 1190 W
but further enquiry showed that
alteration was required and a revi
estimate amounting to Rs. 47700 a
submitted for sanction (vide Boar
Proceedings dated 5 August 82,
5900 Miscellaneous). It does no
appear that sanction was ever
accorded.

4 Owing to the occurrence
very heavy floods in 1882, a remi
of the waterway was deemed desira
and the searching enquiries which
have been instituted by the Loca
Fund Engineer show that provi
must be made for a much heav
flood discharge than was Conte

6 [illegible]

necessary when the former estimates were prepared. This accounts for the increase in the Estimate. The investigation has been very thorough and Mr Anderson has visited the locality time after time to ensure the accuracy of his calculations which are clearly set forth in the paper. I am sure they may be accepted with confidence. As to the designs it will be noticed that very great care and labor have been bestowed upon them and Mr Anderson's thorough knowledge of this branch of his profession is a guarantee that his designs are the best suited for such a work as that under consideration.

The Specifications contain very full instructions explanatory of the designs and there will, I imagine, be no difficulty in supplying with such detailed information as to what is required.

4. The old Merrimpoya Bridge was destroyed by a high flood in 1882. This is a comparatively small river, but it runs between lofty banks & provision has to be made for a much greater flood discharge than was allowed for by the former structure. It is proposed to have 3 spans of 72 feet and the width of the roadway will be 14 feet. Owing to the nature

of

of the bottom it will be necessary to construct cells which involve extra expenditure on account plant &c. and the piers cannot be utilized as in the case of the Trithy bridge where 5 piers are standing and in good condition. Consequently the cost of this bridge is higher than that of the Trithy bridge in proportion to its length. The fullest information regarding the proposed structure is afforded in the report & accompanying papers and it is unnecessary to enter into greater detail.

5. As regards the method of obtaining the materials I think it will lead to economy and expedition if the Local Fund Board

are

are permitted to procure them by private contract instead of through the Store Department of the India Office. When the original Estimate for Rs 63,330 was sanctioned there was some idea of procuring the materials through Mr Maylor of Messrs Peirce Leslie & Co and perhaps some firm here or in Bombay may be willing to tender for the supply of the iron work. An alternative plan would be to employ a qualified Consulting Engineer like Mr. C. B. Bruce of Westminster who I understand has had large experience in the supply of iron-girder bridges for Indian railways to procure the materials.

the cheapest [illegible] [illegible]
than [illegible] [illegible] [illegible]
would probably [illegible] [illegible] [illegible]
the Estimate [illegible] [illegible] [illegible]
rates are based on the lowest quotations
of recent date. It is probable that
there will be [illegible] on the ironwork
and in any case it will be worth
while to pay a little more to ensure
prompt delivery of the materials to
admit of the erection of the bridge with
the least possible delay. Even if the
Contract be given to the Local firm,
it will be necessary to employ an
experienced Engineer at home to inspect
and pass the materials & ensure their
being in accordance with the specification
& properly tested. Owing to the
very unhealthy [illegible] [illegible]

1313

of the locality it is not likely
that any firm will undertake to
erect the bridge by contract &
the Local Fund Board must make
their own arrangements. The estimate
provides for a special staff for the
purpose and a standing camp, as labor
will have to be brought from a
distance. It will be necessary also to
provide medical aid. Mr Anderson
will himself direct operations, but his
other duties will not admit of his
devoting his whole time to the work
& a qualified Assistant Engineer
must be entertained during the erection
of the 2 bridges.

6 The excess over the Budget
provision can be met from the
[illegible] [illegible]

allowances for the above works

the total would be Rs. 169,000

that it is impracticable to undertake

all the works which have been

entered in the Budget & several

must be deferred for some time to

come.

I have the honor &c

Sir

Your most Obedient Servant

[illegible]

Regd
Cd

From

The President,
Local Fund Board
Malabar,

To

The Chief Engineer
& Government,
thro' the Supg Engr
4th Cr
Coimbatore

No 105
Dated. 18-4-84
Re
Plans

Submitting for sanction the Estimate for the Construction of the [illegible] & Approaches [illegible]

No 210
E.M.

Supg Engineer's Office 4th Circle
Coimbatore, 1st May 1884.

From,
The Superintending Engineer
1373 4th Circle.

To,
The Chief Engineer
P.W.D.

Enclosures. 3

1 Original Letter No 105 of 18th April 1884, from the President L. F. Board Malabar.
2. Lists shewing 80 Enclosures of Plans, ~~Estimates~~ &c sent by Banghy Parcel
3
Total enclosures [illegible]

Sir,

I have the honor to forward herewith a letter from the President Local Fund Board Malabar District, accompanied by plans, Estimates &c, prepared by the Local Fund Engineer Mr Anderson, for two bridges which it is proposed to erect on the Iritty and Merumpoya rivers at the 27th and 13th miles of the Trunk Road from Tellicherry to Coorg.

2. The Iritty bridge which is estimated to cost Rs 78,000 is to take the place of one which consisted of four spans of 70 feet and two end spans of 15 feet, with masonry

masonry piers and abutments founded on rock and a superstructure of teak, which was so decayed in 1873 that it had to be pulled down.

3. The old masonry is to be utilized as far as possible, one new pier and two new abutments being required, and the proposed bridge is to consist of seven openings of 72 feet each spanned by Iron Pony Trusses on the Whipple-Murphy single Trellis System each 72 feet in clear and 76 feet effective, bearing a 14 feet roadway of wrought iron plate cross girders, stringer beams and timber platform. The special feature of the main girders is the connections by means of steel pins of 3¾ inch diameter, to which the designer, no doubt justly, attaches importance as greatly preferable to the ordinary system of rivetted connections.

4 The piers are 12 feet thick at bottom, 7 feet at top, and 22

feet

feet long, exclusive of semicircular cutwaters. M.F.L. is assumed to be 54.72 feet above the deep bed of the river, and there is to be a clear headway of three feet between that line and the underside of the cross girders so that the roadway will be about 59 feet above the deep bed.

5. The waterway provides for "a discharge of 250,000 Cft. per second; due to 90 per cent of an 18 inch down-pour" flowing off the catchment basin" in addition to the ordinary monsoon discharge of 80,000 Cft.

6. The Merumpoya bridge is to take the place of one of masonry, 3 spans of 36 ft., which was totally destroyed by a high flood on the 13th July 1882, and an entirely new structure is required.

7. The new Merumpoya bridge which is estimated to cost Rs 49,000

is

12. It will be observed that the Local Fund Board desire the earliest possible sanction in order that materials may be prepared and and the works carried out without delay; funds being available in the Budgets of the present year.

3. In the examination of the Estimates in this Office no mistakes of any importance have been discovered.

I have the honor to be,
Sir,
Your Most Obt. Servant.

L. Beatty Col. R.E.
Supg. Engineer, 4th Circle

4580 w 30.11.78
1190 w 21.4.79
1527 w 4.6.79
1768 w 18.7.81
1299 C 27.6.82
1566 C 29.8.82
1810 C 7.10.82

(12)

From
The Superintending Engineer
IV Circle

Dated 1st May 1884

No. 210/E.W.

Enclosures 83

Iritty & Merumpoya rivers.

Forwards letter from the President Local Fund Board Malabar District with Plans & Estimates for the erection of bridges over the ——

O.L.S. 38/5.

C. 12-5-84 [illegible]

Public Works Department, 1884-85.

1373

Current No. 3847

Letter No. 210/E.W.

Dated the 1st May /84

From the S.E. IV Circle

NOTE OF REMARKS.

1. The accompanying plans and estimates provide for constructing two bridges on the Trunk Road from Tellicherry to Coorg - one bridge over the Iritty river at an estimated cost of Rs. 78,000; the other over the Merumpoya, at an estimated cost of Rs. 49,000.

2. An examination of the plans and estimates submitted leads to a full concurrence with S.E. when he writes:— "The Estimates have evidently been prepared with the greatest care by Mr. Anderson and the papers sent give

15
~~19~~
~~17~~

C. 12-5-84 [illegible]

full information regarding the designs and method of construction, as well as reasons for the amount of waterway proposed, details of the rates &c, and I see no reason to question the correctness of his figures or the suitability of his designs.

3. The estimates have been countersigned by the President of the L F Board.

12th May/84
BSK

No. D.

Ootacamund
10th May 1884

Dear Bowen

I sent you from Coimbatore last week Anderson's plans and estimates for the Pitty and Merumpoya bridges which he and the Local Fund Board are anxious should be disposed of as quickly as possible. Anderson is here now and would be glad if you could forward

1373

16

-ees. 17 T4 1313

the new bridge is [illegible] 7 spans

the plans &c to the Chief Engineer soon so that if Col. S. S. wants any information, he (Anderson) could give it personally. They want to order the iron work from England so as to have it ready for putting up as soon as the masonry has been carried up to proper height.

Yours sincerely

L. Beatty -

P.S. Dont trouble to reply, but if there is likely to be any delay send me a Post Card that I may let Anderson know what to expect. He is at present on leave and has come here specially to see Col. S. S. about those bridges. When that business is settled he would go on to the Pulneys where he has some property to look after -

17 18 1373

1377a No. D.

GOVT. OF MADRAS. 188 . P. W. DEPT.

SECRETARY.

Chepâk, 12th May 1884.

OFFICE NOTE.

1373.

To W.

Irvity and Mevumpoyan Bridges.

In a d/o received this morning Col: Hasty asks me to send on soon to you these Plans & Estimates, the L.F. Board and Mr Anderson being anxious that the projects should be disposed of as quickly as possible.

Further, Mr Anderson is at Ooty and if you require any information he can give it personally.

The papers came in by Banghy on the ~~6~~ 7th & have only come before me to-day. Not to delay I have only glanced over them very rapidly and send them on.

They have been most elaborately and most carefully worked out.

I would invite particular attention to the great increase of waterway provided for each of these bridges over that of the old bridges.

The Irvity bridge had 4 spans of 70 ft, and 2 end spans of 15 ft. each. The Teak platform superstructure had to be removed from decay, and apparently some of the masonry had been cracked and shaken, but with the given waterway it has lasted very many years.

The new bridge is to have 7 spans

18
~~20~~

of 72 ft. each, and the piers are to be 6 ft. higher.

The discharge of the river and the waterway necessary appear to have been worked out with great care, but in the face of the fact that the old bridge stood well and with the knowledge that discharge calculations for such streams are purely empirical, it is difficult to accept the necessity for the large increase to waterway of bridge.

But as I said I have been compelled to glance most hastily over the papers.

The Mennumpoyle bridge is also to be very largely increased. That bridge was carried away, but 3 openings of 72 ft. each against 3 old semicircular arches of 36 ft. span seem an immense increase.

I rather think too the banks are well defined and will have to be heavily cut away.

Whipple. Murphy trusses are designed. I don't know what advantage this truss possesses over the Warren girder type with pin connections. I am inclined to think Warren girders could be more quickly procured.

I append Col: Hutty's d/o note for perusal.

C.S.
12-5-84

1373

Note

These projects provide for bridges over two large streams, the Iritty and the Mennumpoyle, on the main line of road leading from Tellicherry to Coorg. The designs and estimates have evidently been prepared with unusual care, and are worked out in elaborate detail.

The Iritty bridge is designed with seven openings of 72 feet each in the clear, to be spanned by iron girders of the Whipple-Murphy type. The old bridge had four openings of 70 feet and two of 15 feet.

The Merumpoya bridge is designed with three openings of 72 feet each, spanned by girders similar in all respects to those proposed for the Iritty bridge. The old bridge had three openings of 36 feet.

The reasons for this large increase of waterway are stated by Mr Anderson in his reports, and have been more fully explained to me in person. I am satisfied

as to the accuracy of his calculations.

Since the estimates reached me, Mr Anderson has slightly altered one of the formulae for calculating the dimensions of the iron work; with the result that the weight of each complete 72 feet girder is reduced from 21.17 tons to 19.93 tons. He has thus been able to reduce the cost of the Iritty bridge from Rs 78,000 to Rs 76,600; and the cost of the Merumpoya bridge from Rs 49,000 to Rs 48,000.

These alterations have my full con=currence, and the estimates are re=commended for sanction.

J. Max Stewart

27-5-84

Colonel R.E.
Chief Engineer
Public Works Dept.

No. 1873 W. a/ 3rd June

Ootacamund
27th May 1884

Ex. Ent. O.K.S. 38/5.

A

1873.

B & R
Circles

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following

From
The Presdt. L. F. Board Malabar (H.E. No. 105 d/ 18th April/84)
The Supdg. Engineer IV Circle (H.E. No. 210/2W d/ 1st May/84)

Note by the Chief Engr. P.W. Deptt. &c. (d/ 27th May/84)

14

The estimates as shown below are sanctioned for exe=cution by the Malabar Local Fund Board.

Bridge over the Irikky River Rs. 76,600

Bridge over the Perumpaya River Rs. 48,000

This sanction has been registered as Local No. 10 W of 1884-85.

21

and Classified as
Communications Ori-
ginal works

M
27.5.84

JW 28/5

27/5/84

S. C. IV Circle

Board of Revenue
intimated

Mil. Deptt.

Chief Secy for
Counter initials

(82)

15

1373

221

MGo 2929 W 38
6-11-86

Govt. of Fort St. George, Madras.

PUBLIC WORKS.

(22)

~~[illegible]~~

~~3/8/84~~

G.O. 2 June 188 No 1373 W

Bridges

Estimates amounting
to Rs. 124,600
for constructing
over the Iritty & the
Merumpoyal rivers,
Malabar District
Sanctioned for execution
by the L. F. Board

65/6

[illegible]

Sudder Rapt. Regr.