M.R.O. 1—27.904-4-8-37.

(1) Number of pages 90

(2) Date of repair 7- 11- 42

(3) Initials of the Reference

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Irrigation Branch

G.O. No. 1456 Irrigation Press Mis.

Dated 30th April 1877.

Not to be folded or roughly handled

IRRIGATION.

Government of Madras.

PUBLIC WORKS DEPARTMENT.

Recd. } 1877. *Enclosures*

Reyd. } *Spare copies*

G.O., No. 1456 I., 30th April 1877.

Combining Local Fund Roads with river or flood embankments

Prescribing rules for the regulation of charges for —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—the following papers:—

No. 670.	From the District Engineer,	Tanjore,	dated	2nd Sept.	1876,	No.	1685.
„ 670-A.	From „ „	South Arcot	„	6th „	„	„	102.
„ 670-B.	From „ „	Tinnevelly	„	6th „	„	„	86.
„ 670-C.	From „ „	Kistna	„	8th „	„	„	71.
„ 670-D.	From „ „	Nellore	„	23rd „	„	„	104.
„ 670-E.	Endorsement of the Financial Department		„	3rd Oct.	„	„	1524.
„ 670-F.	„ „	„	„	9th „	„	„	1552.
„ 670-G.	„ „	„	„	16th „	„	„	1619.
„ 670-H.	From Offg. Suptg. Engr.,	Godavery	„	17th „	„	„	1973.
„ 670-I.	Endorsement of the Financial Department		„	16th Nov.	„	„	1855.
„ 670-J.	„ „	„	„	20th „	„	„	1883.
„ 670-K.	Proceedings	„	„	20th Feb.	1877	„	624.
„ 670-L.	Endorsement of the	„	„	1st Mar.	„	„	494.

No. 671. Order thereon, No. 1456, 30th April 1877.

IRRIGATION No. 66.

The replies of the several Collectors and District Engineers to the questions put to them in G.O., No. 1998 of the 4th August 1876, on the subject of combining Local Fund Roads with river and flood embankments indicate that the circumstances of such embankments vary so considerably as to make it desirable, and indeed necessary, that each particular proposal to make the combination should be considered on its merits.

2. With regard to the other question—the contribution to be required from Local Funds when a road is allowed to be combined with an embankment—the replies show considerable differences of opinion as to the charges which should be borne by Local Funds. Observing therefore that it will be optional with Local Fund Boards, after the approval by Government in the Irrigation Department of a proposal to combine a local road with an imperial embankment, to adopt or abandon the arrangement after the charges to Local Funds have been ascertained, the following rules will regulate the charges to Local Funds for the future:—

Charges to be provided for from Local Funds.

(1) The cost of widening an existing or adding to the width of a proposed embankment to enable it to carry a road.

(2) The cost of all ramps required to allow traffic to reach or leave the roadway on an embankment.

(3) The cost of maintenance of the top surface of the embankment and of maintaining all ramps leading to, or from the roadway in connection with, made or unmade roads carrying wheeled traffic. This excludes ramps for village crossings, which would have to be made and maintained were the embankment not used as a road.

3. New embankments constructed at the cost of Government, whether river, flood or canal, will not be available for wheeled traffic without the express permission of Government, unless and until the maintenance of the top surface and of ramps has been provided for by Local Fund Boards. Where there is no prescriptive right of way other traffic will be admitted to or excluded from embankments not combined with roads at the discretion of the District Engineer or Executive Engineer in charge.

(True Extract.)

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

To District Engineers.
To the Revenue Department.
„ Financial „
„ Chief Engineer for Irrigation.
„ Examiner, Public Works Accounts.

No. 1685

District Engineer's Office
Taiyone 2nd September 1876.

From
Captain R.R.E. Brockman R.E.
District Engineer, Taiyone

To
Major General G.W. Walker R.E.
Secretary to Government
Pub. Department.

Sir,

In reference to G.O. No. 1998 dated 4 August 1876, relative to the desirability or otherwise of combining Local Fund Roads with River flood Embankments, I have the honor to report that I am of opinion that the Combination is desirable from an irrigation point of view, as the consolidation of the Road Embankment and greater certainty of upkeep are thereby ensured. The objections stated in the first part of

of para 4 of the G.O. under reference hold good as regards difficulty of access from neighbouring villages owing to the height of embankment and from the latter being obliged to follow the course of the river.

Under these circumstances I consider therefore that the determination as to whether in any particular case a road should be located on an embankment may well be left to the decision of the local District Officials, who will judge and dispose of each case on its own merits.

I do not think that if proper supervision is exercised, and, thorn fences are judiciously placed on the sides of the roadway that the damage done by stray cattle will be of importance,

or

or call for extra maintenance charge from Local Funds. The area of the slopes, whether the embankment be wide or narrow, exposed to the action of the weather, is the same in both cases, and its upkeep is primarily debitable to Agricultural repair funds.

I have the honor to be
Sir
Your most obedient Servant
R. Mallesonhurst Captain R.E.
District Engineer

4-8-76 No 1998.

P.W.D.
4-SEP76
No 1225

From
The Superintendent
Pauyine
To The Secretary to
Govt Pub. D.

No 1055
Dated 2nd September 1876
Rec. 3rd

Referring his Pro.
No. on the subject
of Constructing Local
Fund Roads & with
River Flood Embankments.

G.O. 30 April/77 No 670

17.4.77

Ack to Dist 4-9-76.

D.

D. P. W.
SOUTH ARCOT.

No. 102

DISTRICT ENGINEER'S OFFICE

Camp Cuddalore
Dated 6th September 1876.

From
The District Engineer,
South Arcot.

To
The Secretary to Government
D. P. W.

Enclosures.

Sir,

With reference to G. O. No. 1998 dated 4th August 76 para 3. I have the honor to report the following as my opinion with regard to the combination of river embankments and roads.

Such combination is I believe highly desirable and advantageous both to Imperial and Local interests and as a rule rivers and channel embankments are the most convenient lines for the traffic, this is not so much so in the case of very large rivers that are unbridged but in ordinary rivers and channels that are bridged at intervals the

the land on both sides is as acces
= sible as if another line were taken.
In delta districts generally the
rivers or channel embankments pass
through the richest portions of it.
The extra cost of steep inclines
or ramps is but small and may
I think be not considered.

2. I consider that, in repairs
= ing existing banks or making
new banks so that they may be
used for roads, the cost of making
the bank the full height and a top
width, say 3 yds for ordinary first
class embankments should be borne
from Imperial funds that the
additional cost of widening it and
lengthening masonry works in it, to say
7 yds to form a road should be
borne by Local funds the latter
also should bare the whole cost
of forming the road surface and
the

the necessary ramps &c— but the
the additional cost of the land
taken up for forming the road
which is but small may be fairly
borne by Imperial funds. For the
ordinary maintenance of the road
and bank the Local funds
should provide funds. It will
be slightly in excess of an ordinary
road after a year or so, but that
Imperial funds should pay for
any necessary repairs to the outer
slope or river protective works that
may be required.

3 I wish to point out that a
breach in an embankment used
as a road although it may stop
traffic for a time is, if the em
= bankment is of a proper height,
most improbable, and that it
would probably be only in one place
but that the water through this
breach

breach would damage miles of low level road and the damage done would be far greater in the miles of low level roads than in the one or more serious breaches in the high level road.

Again that the additional security in having roads on the principal embankments affects the Local fund works as much as the Imperial works and the loss to Local funds in a delta district by floods breaking the river embankments would be enormous and in proportions much more than to the Imperial works.

4 To summarize

1st I consider the combination highly desirable.

2nd The total cost of maintenance of both surface and slopes with the exception of necessary repairs to outer slope rendered necessary by the action of water or river protective works should be borne by Local funds.

5. It must be left I ~~think~~ to the Local fund boards to decide whether they will or will not take up a bank as a road but all Government servants should encourage them to do so Should however they decline doing so Government should have the right to prohibit any traffic whatever from going on the bank this is necessary, as I know of a case in which occasionally a bandy struggled along a bank (the same as it might have across paddy fields) and it was decided by the Collector of the district after the bank had been repaired and made 3 yds wide at top to make it

it safe, that there was a right of way over it and the bank was seriously injured by being used as a regular road. The work done to make the river bank safe was therefore nearly useless and the Local Fund Board declined for a time at any rate to take it up as a road.

I have the honor to be
Sir
your most obedient servant
W. M. Reed Major R. E.
District Engineer

4-8-76 to 1958

P.W.D.
7SEP76
No. 3454

SOUTH ARCOT D. P. W.

From

The District Engineer
South Arcot.

To

The Secretary to Govt P.W.D.

Dated 6th
Despatched 6th
Received 7th Sept 1876

No. 192
Enclosures

Yesterday we called for opinion Messrs the Contractors of Vellaikaleven Kanmoi and Pallikaleven Kanmoi and now I

Ry. 30 Sept 77 1382 670 A

Passed to Dft 2-10-76 KS

No 86

District Engineers Office
Palamcottah 6th September 1876

From

J. (P) Grant Esqre
Offg District Engineer

To

Major General G. T. Walker R.E.
Secretary to Government
P.W.D.

Sir,

In reference to G. O. No 1998 dated 4th Ultimo I have the honor to give my opinion as follows on the question of carrying Roads along river and flood embankments:

1st. Whether such combination is desirable.

Looking at this question from the point of view of an Irrigation officer, I am of opinion that a road along an embankment most materially strengthens it and that the wear & tear from traffic and cattle is not such as to counterbalance these advantages.

Looking at the question as Member of a Local Fund Board, I think that as a rule, a road along an embankment is more expensive

to

to make and maintain, and besides those use than a road carried through the centre of the area it is intended to serve.

The additional expenses of construction and maintenance is obvious: and generally a more direct line can be found across country than along an embankment.

2 Dec

I am not of opinion that any additional Contribution should be required from Local Fund Boards, beyond the Cost of maintaining the road surfaces and ramps. The slopes are the same whether a road passes along the embankment or not and I do not think that the existence of a road on the embankments causes any extra damage to the slopes, indeed I am inclined to think that the slopes of a road would suffer less from the fact of their being more space on the top for cattle and passengers, and from their being constantly labourers employed who could pound any cattle trespassing.

19

I have the honor to be
Sir
Your most obedient Servt
J. W. Grant
Offg Asst Engineer

4-8-76 No 1998.

P.W.D.
11 SEP 76
No.

No. 71 Office of the Superintending Engineer, Kistna
8th September 1876.

From,

Major J. A. Hasted R.E.
Superintending Engineer, Kistna

To,

Major-General G. H. Walker R.E.
Secretary to Government
Public Works Department

Sir,

With reference to G. O. No. 1998 dated 4th August 1876, I have the honor to report that in my opinion, it is very desirable to combine flood embankments and roads, because such combination gives a sufficient width of embankment, tends to consolidate the bank, and ensures frequent inspection and immediate repairs of damage. The combination of canal embankments and roads is a question

question of expediency; in the case of a canal that is not navigable, it would ensure the upkeep of the bank, and for purposes of inspection would be very convenient, and the road might be a valuable line of communication, but in the case of a navigable canal, the banks can be inspected from a boat, and their maintenance easily ensured, and there is, to say the least, no necessity for a line of land communication running parallel to a line of water communication.

2. In this Delta, the river embankments will be eventually, for the most part, spoil banks to navigable canals, and I have already recommended in my letter no. 54 dated 17 August '16 that to prevent the embankments breaching, they should be

To the Chief Engineer for Irrigation.

(181)

be considerably widened out and made into Roads. I should propose only to sand the surface and the upkeep would not then be very expensive. I do not think that the Local fund Board can be required to contribute towards the cost of construction of these roads; they are certainly not roads on which it is likely the Board would propose to spend money for many years to come - that is, there are many others lines of much greater importance; but they would be of value as village roads, and in this view, I think the Board would consent to maintain the surface (the road being sanded only) and to provide ramps to enable traffic to get on and off the road. More than this, I do not think, should be

be expected.

3. As regards rivers embankments in the District above the Delta, we have only one length of 9 miles, and there being a made road parallel to the bank at a little distance from it, the Local fund Board have no inducement to contribute towards a road on the bank. I think however for the reasons given above that it would be well to carry the road on this embankment, if once made, the Board would as double pay for the maintenance as they do in the case of the existing road.

4. My view of the matter is that Local fund Boards cannot be expected to contribute any portion of the cost of construction of a road on a rivers or canal embankment, unless the line of communication is of such value that they would be compelled to construct a road of some sort, and that then their proper contribution would be only the cost of the road they are prepared to construct; but that as village roads, it will be worth the while of the Boards to maintain the roads, if they are constructed of such material that the cost of maintenance shall not be too heavy for the class of road.

I have the honorable
Sir,
Your most Obedt Servt
Jh. Strut. Major R.E.
Superintending Engineer
Western

4-8-76 to 1998

P.W.D.
16SEP76
No. 6707

From
The Chief Engineer
&c.
To
The Secretary to Govt
Public Works Dept

Dated 8th September 1876
Received
No. 71.

Subject Lu Land Reclamation and Flood Protection Works

I have the honor to report that the construction of ——— and repair of ——— is desirable, and I recommend that the work be undertaken forthwith, execute for the sum of Rupees ——— the Civil Engineer and Executive Engineer to be employed being ———

G.O. 30 April 77 PWR. 670 C.

Despd to Collr 2-10-76.

No. 1045
From

District Engineers Office
Nellore, 23rd September 187

L. B. Shaughnessy Esquire,
District Engineer of
Nellore

To,

Major-General G.W. Walker R.E.
Secretary to Government
P.W.D.
Fort St George.

Sir,

In reply to G.O. dated the 4th August 1876, No. 1998, I have the honor to report that the desirability of forming roads on river or channel embankments, should I think depend on the circumstances of each case separately.

2 In Deltas where every road is probably more or less a "raised" road and where land is very valuable, there should be a great saving in the cost of converting a river or channel bank into a road, when compared with the cost of a distinct road across country, and in such cases, I should

think, the combination highly desirable.

3. In other respects, and looking at the matter from a Local Fund point of view, the combination is, as pointed out by Government, disadvantageous in many respects, and it is only when the difference in cost to Local Funds is very considerably in favor of the combined road and embankment that the combination should be adopted.

4. In regard to maintenance - the damage done to an embankment (as such) by ordinary road traffic, is very trifling, and need not I think be taken into account, the contribution from Imperial Funds for the upkeep of a road embankment should be therefore, the amount which would be required to keep the embankment in repair, if it had not been converted into a roadway; an allowance of Rs 10 per mile per annum is generally quite sufficient for this purpose after the bank is once properly formed, and this is the amount which should I think be contributed from Imperial Funds for the upkeep of the road. Local Funds should pay whatever more is required and in the case of an unmetalled road. 40 Rs per mile in addition to the Imperial contribution of 10 Rs per mile, will be found generally sufficient.

5. The contribution from Imperial Funds in the case disposed of by the S.D. under reference seems very high. I have never seen a well formed bank, which required $33\frac{1}{3}$ Rs per mile for its upkeep, and if there is nothing special to account for it, in this case the contribution is excessive.

6. In regard to breaches, it is a mistake I think to suppose that

they are more readily closed in an ordinary road than in a river or chan=nel embankment. No doubt it is generally easier to close a breach in an ordinary road, but the occasion for closing it is not so urgent as for closing a breach in an embankment, and the extent to which traffic is stopped by a breach in an embankment, is likely to be much less than by a breach in an ordinary road, in this respect therefore there is an advantage in having the roadway on the embankment.

7. If the breach is caused by an encroachment of the river or Channel which should be prevented by the Irrigation Department, the whole cost should I think be charged to Imperial. If it is caused by an overflow of the embankment, the cost should be divided in the same proportion as the original cost of the work was divided between the respective funds, or say 2/3rds to Imperial and 1/3rd to Local Funds, which is about the average between this & the original est. exclusive of metalling.

8. I am of opinion however that a distinct ruling on the subject is not necessary. If the obligations on both sides are fairly stated and considered the District Officers will I think have no difficulty in settling the conditions upon which combined Local and Imperial works are carried out.

I have the honor to be,
Sir
Your most obedient Servant
P. Thompson
District Engineer.

RK

804-8-76 No 1998

P.W.D.
27SEP76
No 6285

From
The District Engineer
Godd

To
The Secretary to Government
P.W.D. Department
Madras

Dated 25th September 1876
Rec'd 28th do
Regd 29th do
No 104
25

Combined roads &
River embankments
Report upon —

G.O. 30 April 75 No 670 &
1030 April 76 No 670

Del'd to Ch. 2-10-76.

No. 10

GODAVERY DISTRICT, 33

Local Funds Office,

Cocanada, 25 September 1876.

From

James Hope Esqre.

President L. F. Boards.

To

The Honorable W. Hudleston

Chief Secretary to Government

Madras

Sir,

With reference to G. O of the 29th Ultimo No 1551 P. D. calling for my opinion on the desirability of combining roads with flood or Canal Embankments, I have the honor to inform you that I am in favor of the proposition so far as Canal banks are concerned.

2. There can be no doubt that embankments are greatly strengthened by the roads on their top and that the roads so made are less expensive than when they are separately made. On the other hand however it must be admitted that roads on the top of embankments raised to a great height above the level of the adjacent

adjacent country as is often the case with river embankments, are dangerous & should therefore be discouraged. I do not see how any hard and fast rule can be laid down. There are objections to the combination and there are often counterbalancing advantages. The objections (e.g. dangerousness) may be considered to exist always in a greater or less degree sometimes so great as to overweigh all advantages on the other side - sometimes again so small as to be of little account. Each case must necessarily be considered by itself, the general principle being laid down that where the element of danger enters, the combination is not desirable.

3 As regards the contribution payable by the Local Funds, I am of opinion that the L. F. Boards should be asked only to maintain the road surface and provide ramps and do nothing

nothing else. If it does not suit Government in any particular case to have the embankment sufficiently wide at top for a road, the projected combination must collapse, for it would not be reasonable to require L. F. Boards to undertake the expenditure unless the embankment happened to be along a line which would on other grounds of public convenience be selected as a Road. It is not likely that the embankments will be injured to any appreciable extent if they are used as Communications.

I have the honor to be
Sir
Your most obedient Servant
Lansdowne
President

C.D.
P.W.D.
L.G.B.

No. 1524.

P.W.D.
6 OCT 76
7140

Forwarded to the Public Works Department with reference to para 2 of the letter in that department dated 4th August 1876. No. 1998.

Dated Rajahmundry
3rd October 1876.

L. Bowlers
Chief Secretary

To the Public Works Department

Dated 1876. Department
GODAVERY DISTRICT,
LOCAL FUNDS

From Thomas Cowley

To The President.

The Chief Secretary to Government

Dated 2nd September 1876.

Received 2nd October 1876.

No. 2195

Encl: 1 Letter

No. 10

SUBJECT.

Submitting his opinion on the desirability of constructing roads with flood or Canal Embankments as recommended by Thomas

G 30 April 77 I Bk. 670 E

No. 670 E

37

Kistna District Collector's Office.

No: 319

Masulipatam 4th October 1876.
Dep.d 6th

From, The President, Local Fund Boards,
Kistna District,

To, The Chief Secretary to Government,
Financial Department,
Ootacamund

Sir,

In reply to G.O No 1998 dated 4th August 1876 P.W.D, I have the honor to state that I find myself unable to give any answer to the questions asked. They are too general; and the answers I should give would, in each case proposed to me, be governed entirely by the circumstances of it.

2. Taking my own District, I would not recommend the Local Fund Board to offer to contribute anything to a Road on the River embankment between Bezwada and Vallur; for, there is no need for one there; but if the proposal were to make the bank between

Médur

Médúr and had a kinduru into a road, it would have any support for the reason that the Road at present (a bandy track) runs close beside the river; and, if improved, it would have to be raised. Looking at the bank that now keeps out the river there would be less fear of a bank wide enough to carry a road breaching & of the stoppage of traffic suggested.

3. I would, in this case, if the Local Fund Board had the funds to spare, propose to contribute the cost of the road that otherwise would have to be made.

4 The road from Bezwada to Ibrahimpatam runs always within 1/2 a mile of and sometimes close to the river embankment; it requires metalling. I would advise the Board in this case to put the road on the bank only, if Government would pay for the necessary increase to its width.

5. The Local Fund Board rules restrict the use of the Funds, of which the Board have charge; and it seems clear to me that they are

are not justified in offering to the Government a contribution larger than the cost of the road they would otherwise undertake.

6. This is my view as Local Fund Board President. Looking at it as Collector I think in every case it would be worth the while of the Government to spend an extra sum of money when necessary to induce the Local Fund Board to put the road above the bank. There seems to me no doubt that the making of the road and the continual traffic and repairs would help to consolidate the bank. While the extra width would still further protect the Government works and cultivation outside the bank. With a road on the top no such thing could, I imagine, occur as has happened in this District this year, when the bank, not having properly settled, and from the pattern absence of local rain being still full of the cracks which the hot weather causes, melted away, and was destroyed by the percolation of the flood-water that came down the river. With a metalled road cracks,

such

Such as these, could not exist.

I have the honourable,

Sir:

Your most obedient Servt

A Newman

President.

No. 1552

P.W.D.
13 OCT 76
7269

Transferred to the Public Works Department with reference to the order in that department of 4th August 1876. No. 1958.

Ootacamund
9th October 1876

Chief Secretary

This Petition to the Public Works Department.

From
The President
Local Fund Board
Kistna District.

To
The Chief Secretary
to Government
Financial Department
Ootacamund

No 2242
Dated 4th October 1876
Rec'd 9th
No 319
Encl: nine

Submitting the petition addressed him in G.O. No 1958 of 4th August 1876 in connexion with the Commission of Bund with Canal Embankments.

Transmitted

No 1571.

Rd 6301 April/77 Bk 670 1/4

Sent to P.W.D. 13-10-76
P.L. Shutt 4 Oct

No 63 Secretary's Office Ootacamund 9th October 1876

From, A. J. Stuart Esqr
President Local Fund Board

To The Honorable W. Huddleston
Chief Secretary to Government

Ootacamund.

Sir,

In reply to Government Order Financial Department No 1551 dated 29th August 1876, I beg to report as regards the 1st point that I think the propriety of combining an embankment and a roadway must depend on the circumstances of each particular case. As a general rule, I should object to it as roads on the top of high banks are costly to make, and keep up & are dangerous to traffic, but sometimes, as when the line crosses swampy ground, it may be an advantage to run the road on a high bank; and in other cases, the combination of the two objects may add so much to the strength of the Embankment, as to make this worthwhile for the sake of the Embankment. I do not think

any General rule applicable to all cases can be laid down.

2. As regards the 2d point, I do not think that any further charges would be fairly debitable to Local Funds than those mentioned. The upkeep of the slopes of the Embankment ought, I think, to be met from Agricultural funds. the Local Funds only keeping the surface up and in good order: any increase in cost of Repair from Agricultural Sources would be counterbalanced by the additional security given to the work.

3. As regards the original cost, I think it would have to be first considered whether it was chiefly for the benefit of the Embankment & to gain additional strength that Road & Embankment projects were put together. or whether it was chiefly for the good of the Road, as in order to carry it over swampy difficult ground; in the former case, I should think ½ or ⅔ of the Extra cost of making the Embankment available as a Road should be given by Local Funds, in the latter, the whole difference.

I have the honor to be
Your most obed Servt
[illegible]
President

Compared [illegible]

P.W.D.
2006T76
No. 7561

G.O. 30 April 77 P.R. 670 G.

No. 1641 District Engineer's Office, Govt.
Dowlaiswaram 9th September 1876.

From

Major J. Beatty R.E.
Offg. Superintending Engineer, Govt.

To:

Lieutenant Colonel J. Mullins R.E.
Chief Engineer for Irrigation

Sir,

With reference to G.O. No. 1998 of 4th August I have the honor to report that in my opinion the combination of river embankments with roads is desirable for the following reasons:-

2. Traffic is certain to take to these embankments wherever they exist; and as such traffic of men and cattle must damage an unprotected embankment greatly, I think the Local Fund Boards should be expected to gravel or metal the top surface and provide ramps, at the principal crossings.

3. Again if a road of 5 or 6 yards in width be made on the embankment, the bank will be greatly strengthened, and rendered perfectly secure

No. 1619. Dowlaiswaram 7th Sept. 1876.

From Thomas Hyde Esqr. Acting Secretary to Govt. P.W.D.

To Lieut. Colonel J. Mullins R.E. Chief Engineer for Irrigation.

Sir,

I am directed by Government to request that you will call for the opinion of the Superintending Engineer on the subject of Mr. Chief Secretary Cotton's D.O. No. 670 of 3rd August 1876 on the subject of combining a line of road with the embankments of the Eastern Delta Canals.

I have the honor to be Sir, Your most obedient Servant

Thomas Hyde Esqr.
Acting Secretary to Govt.

To Lieut. Colonel J. Mullins R.E.
Chief Engineer for Irrigation
Dowlaiswaram

No. 1619. Dated 7th Sept. 1876.

Forwarded to Major J. Beatty R.E. Offg. Superintending Engineer, Godavery Division for favor of report.

By order of the Chief Engineer for Irrigation

Lieut. Colonel
Secretary

secure against breaching, unless a fresh overtops it; which is unlikely as such banks are now raised to a height of 3 or 4 feet above the highest floods; whereas were the road not made, the bank would probably only have a width of 3 yards at top.

4. Moreover the gravelling of the top of the bank is a great protection to it, as its side slopes are much less likely to be cut into dangerous gullies by the rain falls.

5. There is only one objection that I know of to the construction of a road on a high embankment, and which I believe was urged by the native members of the Local Fund Board of the Ellore circle, that a road in such a position is a dangerous one for travellers; at night cattle or bearers may accidentally get off the road and fall down the steep and high side slopes, and by day cattle may frighten, and rush down the slope; in either case the travellers' limbs and neck are endangered. I presume that this is what the Vice President means in para 4 of his letter, by observing in regard to the road from Vijeshweram to Polaveram that it would have been better not to have raised it such a prodigious height above the level of the adjacent country.

6. As regards repairs, I consider that Local Funds should only be expected to maintain the road surface and the pumps; and that all repairs to earthwork and turfing should be done from Imperial Funds. The embankment would have to be maintained whether there was a road or not; and if the road surface be maintained and a sufficiency of pumps, the traffic will do very little harm to the embankment.

I have &c.

/Signed/ J. Beatty Major R.E
Offg: Superintending Engineer, G.D.

/True Copy/

J. Beatty Major R.E
Offg: Superintending Engineer, G.D.

Comps AS

P.W.D.
21 OCT 76
No. 7595

Engineers
1

No 1973 District Engineer's Office. Godavery
Dowlaishweram 17 October 1876

From.

Major J. Beatty. R. E.
Offg: Superintending Engineer, Godr.

To.

Major General. G. W. Walker R.E.
Secretary to Government P.W.D.

Sir,

With reference to your Memo: No. 7/1085 of the 5th Instant I have the honor to refer you to my letter No 1641 of 9th September copy of which is herewith sent lest the original should have been lost or mislaid.

I have the honor to be
Sir.
Your most Obedient Servant.
J. Beatty. Major R. E.
Offg: Superintending Engineer.
Godavery.

Compd Cpl.

G/C 30 April 77 I/D Lr. 670

P.W.D.
21 OCT 76
No 7585

To
The Offg. Superintending Engr
Godavery Division

From
The Secretary to Government
Public Works Dept.
Madras

Dated 17 September 1876.
Rec'd 19 Do
No. 1973

Subject Quays
Rejaishteraun to Bhavaram
Embankment and Road
Paper - Forwards copy
of Collr's letter already
Rec'd thro' subject of Quays
= Carried to the —

Ans @ 30 April 77 Sol. 679 ✓

Compiled

At a meeting of the Local Fund Board, Vridachellam Circle, held at Vridachellam, on the 22nd ~~23rd~~ September 1876.

* * * *

22. Read President's docket, No. 509. on the subject of Combination of river and flood embankments with roads.

The Board's opinion is that flood embankments and Communications should be conjoined only where they cannot be separated; as regards extra maintenance the Board holding the former opinion Consider themselves liable for the whole upkeep of the bund.

* * * *

(signed) J. Thomson
for Vice President.

(True copy)

H H Lawlie

Collector.

C.P.S.

P.W.D.
17NV76
No 2336

2d. a letter from the Collector of South Arcot dated 13th December 1876 No. 55

Letter 2 Dec 1876

G 630 4 April 77 BK. 670

No. 485. Collector's office
Cuddalore
4th October 1876.

From,
The Collector of South Arcot.

To,
The Secretary to the
Board of Revenue,
Madras.

Sir, With reference to the Revenue Board's Proceedings, dated 4th Instant, Miscellaneous No. 8467, communicating G.O. No. 1998 of the 4th August 1876, P.W.D. I have the honor to state that in my opinion the combination of canals with river and flood embankments does not appear desirable in this District

I have &c.
(signed) J. H. Garstin
Collector.

(True copy.)

J H Garstin
Collector.

P.W.D.
17NOV76
No. 8350

G.O. 30 April 77 No 670

In a letter from the Collector of South Arcot dated 13th January 1876. No. 55

L. Fin. C. 260 3 Feb 1876

SOUTH ARCOT.

COLLECTOR'S OFFICE,
Cuddalore
13th November 1876.

No. 55

From

J. H. Garstin Esquire,
Collector of South Arcot.

To

The Honorable W. Huddleston
Chief Secretary to Govern
= ment, Fort Saint George

Sir,

With reference to your
Official Memorandum date
10th Instant No. 1767, I have th
honor to inform you that my
report on the desirability o
otherwise of combining Loca
Fund roads with river and
flood embankments was d
= mitted to Government thro
the Revenue Board in my let
of the 14th Ultimo, No. 485 a
of which I now forward here
2. I take this opportunity of
= ing a copy of Resolution No 22
dated 22nd and 23rd Septem
1876 of the Local Fund Board
the Cuddalore Circle on the
subject which only reached m
the 10th Instant.

I have the honor to b
Your most obed't hum
J H Garstin
Collector

P.W.D.
17 1876
No. 3336

No. 3155

Selem,
Collector's Office,
16th November 1876.

From,

H. P. A. Sharp Esqre
Acting Collector of Selem.

To,

The Honble W. Hudleston
Chief Secretary to Government,
Financial Department,
Fort St. George.

Sir,

G. O. dated 29th August 1876, No. 1551.

With reference to the Proceedings noted in the margin, I have the honor to state that I should have preferred waiting until I could speak from more personal knowledge of the advantage of combining Canal & Rivers Roads with river embankments in this District.

2. But as far as I can offer an opinion, at present, I am not prepared to advocate such combination in this District. The only embankment on which a roadway could be constructed with any probable advantage is that on the South bank of the Pennair from Tiruvadi to Cuddalore, which would only afford communication for three or four Villages which can be met

From
The Collector of
South Arcot.

Dated 13th Decr. 1876.
Rec'd 14th " "

To
The Chief Secretary to Government
Madras

Subject.

Forwarding Rakhis representing the condition of the E. & W. Road with Rivers and Canal embankments &c.

Enclosures 2
No. 3155 & 3336

Answered 1876

Financial Department
Public Works

No. 3155

Fort St. George, 16th December 1876.

Sir,

I am directed to acknowledge the receipt of your letter No. 3155 of the 13th instant, forwarding Rakhis representing the condition of the East and West Road with Rivers and Canal embankments &c.

2. In reply I am to request that you will forward a copy of the Rakhis to the Board of Revenue.

I have &c.

[illegible]

I have the honor to be,

Sir,

Your most obd.t Servant.

H Sharp

Acting Collector.

13

Financial Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

Proceedings of

READ the following letter

the Board of Revenue, dated 16th February 1877. Enclosure No. 2283.

Proceedings of Government Financial Department, dated 5th February 1877. requesting the Collector of Cuddapah to expedite the submission of the report relative to the desirability or otherwise of combining Local Fund Roads, with Lines of Road Embankments.

Reply from the Collectors of Godavary, Kistna, Nellore & Cuddapah are still due. The Presidents of the Local Fund Boards in these Districts will be invited to submit them to the Board at once.

(True Extract)
Signed H. E. Stokes
Ag. Secretary.

Order,

P.W.D.
21 NOV 76
No. 8434

No. 670 of

Read 30 Apl 1877 No. 670 of

Order thereon 20th February 1877. No. 624.

Communicated to
the Public Works Department.
(Supt. Contract)
Chief Secretary.

No.

The Public Works Department

P.W.D.
21 FEB 77
No. 1837

Financial Department

Dated 20th February 1877. 15th 624.

Subject 1877 Quarries.

To

Dated
Read. } 187 , No.

Nos.

Ag 620 Appl/11 SB 4-670 Fe

No 670 Fe

No 129

From

Collector's Residential office
Vellore 11th January 1877.

Lt. Col. Thomas Esquire
Collector &
President Local Fund
Board
Jaugeer District

To

F.E. Stokes Esquire
Secretary to the Board of
Revenue
Madras.

Sir,

With reference to the En-
closure of the Board of Re-
venue dated 4th October 1876
No. 8467 calling for report on para
3 of Government Order Depart-
ment Public works dated
4th August 1876 No. 1998. I am
the honor to report that I am
in very decided opinion but
am disposed to think that the

combination of the river Em-
-bankments and roads is
undesirable, 1st, because such
roads will be circuitous and
inconvenient to the people;
2d, because they are dangerous
and liable to be breached,
3d, because they are only fed from
one side;
4th, because their maintenance
will be more than ordinarily
costly and difficult.

2 The only advantage
that will be gained by the pro-
-posed Combination is a little
relief to the finances of Govern-
-ment and the Local Fund Board
and greater security to the river
embankments, but it is also
calculated to lead to levees being
— in accordance more with
the river line than with pr
requirements.

I have &c
(Signed) Sgd. Wd. Thomas
Collector
President

(True Copy)

Comp'd. W. Thomas
President

P.W.D.
2 MAR 77
No. 2271

77

Extract from the Proceedings of the Local Fund Board of the Tanjore Circle at their meeting held on the 27th January 1877.

Present.

H. S. Thomas Esqr. — President.
Revd. J. F. Kearns. — Vice President.
Dr. Lloyd Lillah Surgeon. — Members.
Dr. R. R. T. Gopalakrishna Pillai assyl. Surgeon. Shevistadar. — do —
" C. Sama Row. assyl. Dy. Inspector of Schools. Tanjore Circle — do —
" — P. Sundarappaiyar. assyl. — do —

× × × × ×

× Read G. O. dated 29th August 1876. No. 1551 L. D. Communicating to Presidents for report. G. O. P. W. D. on the subject of Combination of roads with the

Prop. No. 10 / 1877.

Enclosure No. 1

A letter

From. The President
L. F. Board.
Tanjore

To. The Chief Secretary to Government
Revenue Department.

Dated 27th January 1877
No. 179.

Copy of a letter to the Board of Revenue

L. Rd. A. 1939/77.

River embankments.

The Combination is undesirable

P.W.D.
2 MAR 77
No. 2271
2

× × ×

(Signed) M. Thomas
President.

(True Extract)

Comp[d] L. M. Thomas.
President

Enclosure No.
to a letter.
From. The President
L.F. Board
Negapatam
To. The Secretary
to Government
Madras
Dated 27th February 1877
No. 129.

An Extract from the Proceedings of the Local Fund Board of the Negapatam Circle dated 27th February 1877.

Present.

1. A. Cruickshank Esq[r] Vice President.
2. Captain R.R.C. Brockman R.E. District Engineer — } Members
3. Mr. R. Rg. R Venkatarayalu Naidu Ammyah — } — do —
4. do Venkatasami Raja Ammyah — do —
5. do Soppaya Pillai Ammyah — do —

× × × ×

3. Read President's foot note No 650 of the 21st December appended to Government Order 29th August No 1557. requesting to report on certain points regarding the utilization of Embankments of rivers as roads.

The Board are of opinion that the Combination is desirable - but that the advantage would be more on the side of the embankment than of the road in

Carried out its purpose, inasmuch as inspection would be rendered more easy and conservancy of embankment would be better looked after, and that the Local Fund Board should contribute an additional sum for the cost of maintaining the road surface and that they should contribute nothing for providing ramps as they are essentially a part of river embankments wherever they have been constructed. The Board also think that the up-keep of embankments will be ~~better~~ rather diminished than increased in as much as inspection will be more frequent

x x x x

[Signed] A. Cruickshank.
Vice. President

(True Extract)

Comptl. A. Turner.
President

particular proposal
to

Enclosure No. 3.

In a letter

From P.W.D. The President
2 MAR 77 Local Board
Salem
To NA 2271
The Chief Secretary
to Govt.

Dated 27 February 1877
No. 129

An extract from the
Proc. of the Local
Fund Board of the
Nagapatam Circle —

Dated 1 March 1877.

President to office 77

No. 129. Vellore 27 February 1877

From

H. S. Thomas Esquire
President Local Fund
Board
Salem District.

To

The Honorable W. Huddleston
Chief Secretary to Government
Madras.

Sir,

With reference to Go-
vernment Order dated
29th August 1876 No. 1551 and
the reminder No. 464 of the
8th Instant I have the honor
to report that I have already
submitted the report called
for therein, to the Board of

particular proposal
to

Revenue on the 11th January 1877 with reference to their endorsement No. 8467 dated 4th October 1876 on Government Order ×No. 1998 of 4th August 1876 in the Public Works Department. I beg to enclose a copy of that report for the information of Government.

2. I beg also to forward Copies of the resolutions of the 2 Local Board on the subject, from which it will be seen that the Jaffna Board consider that Combination ~~Contribution~~ of road with river Embankments is not desirable while the Negapatam Board are of opinion that it is desirable

on the ground that the arrangements would not only tend to strengthen the embankment but also facilitate the Constant inspection of it by that Department; but that they should not be called upon to Contribute any additional sum towards the maintenance of the road surface. Whether they mean additional to the ordinary maintenance allowance or additional to the Construction, I do not know but I do not suppose it is essential to ask as a particular proposal to

guide to the Government

Conclusion.

P.W.D.
2 JAN 77
2271

I have the honorble
Sir
Your most obedt Servt

Compd A. Brunel.
President

Read the following :—

From

The District Engineer	Tanjore	✓	✓	No 1685	dy 2nd	Sept 76	✓
Do	Do	South Arcot	✓	102	6		✓
Do	Do	Timevelly	✓	86	6		✓
Do	Do	Kistna	✓	71	8		✓
Do	Do	Nellore	✓	104	23		✓
Sudt of the Financial	Dept		✓	1524	3rd	Octr 76	✓
Do	Do	Do	✓	1552	9		✓
Do	Do	Do	✓	1619	16		✓
Offg Superintg	Godavery		✓	1973	17		✓
Sudt of the Financial	Dept		✓	1855	16 hour		✓
Do	Do	Do	✓	1883	20		✓
Proceedings Financial	Dept		✓	624	20	Feby 77	✓
Sudt of the	Do		✓	494	1st Instt		✓

4 @ 30 April 1/1/3 Bk 6/70 ✓

11/3/77 £3 ✓

No 670 N.

Financial (18) Dept
Sudt Branch
A. 24 Branch
Calcutta

To the Chief Secretary
to Government
Madras.

Sir

I have the honor to transmit herewith, for the information of the Government of India, a Statement of the Establishments employed on the Survey and Settlement of the Districts of Tanjore, South Arcot, Timevelly, Kistna and Nellore, during the month of January 1877.

2. I have the honor to be Sir, Your most obedt Servt

Compd A. Brunel
President

E. I. Form No. 22.

Circulate to Districts.

1 Dec 77

No 1456 Public Works Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

UNDER date the 30 April 77

Read the following:—

The replies of the several Collectors & District Engineers to the questions put to them in G.O. No. 1998 of the 4th August 1876 on the subject of combining Local Fund Roads with river & flood embankments indicate that the circumstances of such embankments vary so considerably as to make it desirable, and indeed necessary, that each particular proposal

to

25/5
With modification suggested

to make the combination should be considered on its merits.

2. With regard to the other question, the contribution to be required from Local funds when a road is allowed to be combined with an embankment - the replies show considerable differences of opinion as to the charges which should be borne by Local Funds. Observing therefore that it will be optional with Local Fund Boards, after the approval by Government in the Irrigation Department of a proposal to combine a Local road with an Imperial embankment, to adopt or abandon the arrangement after

the charges to Local Funds have been ascertained, the following rules will regulate the charges to Local Funds for the future.

Charges to be provided for from Local Funds.

1. The cost of widening an existing or adding to the width of a proposed embankment to enable it to carry a road.
2. The cost of all ramps required to allow traffic to reach or leave the road-way on an embankment.
3. The cost of maintenance of the top surface of the embankment and of maintaining all ramps leading to or from the roadway in connection with made or unmade roads

roads carrying wheeled traffic. This excludes ramps for village crossings which would have to be made and maintained were the embankment not used as a road.

3. Embankments, whether river, flood or canal, will not be available for wheeled traffic without the express permission of Government unless and until the maintenance of the top surface and of the ramps has been provided for by Local Fund Boards. Other traffic will be admitted to or excluded from embankments not combined with roads at the discretion of the District Engineer or Executive Engineer in charge,

but cattle should not be allowed to make use of any embankments, which do not carry a road as they cause damage and add much to the cost of maintenance

Wy. 14/4

D.S. ✓
Rev. Dept. ✓
Fin. Dept. ✓
Ch. Engr. ✓
S.E.P.W.D. ✓

Desp - 15-5-77

Aug 1376 bis 1998.

16-2-91-
2-1-04.
7-9-26 B III
11-10-29 12 III
24-10-32 OB III
3-5-40 II

Copy of Letter Sent.

Dated

Issued

Recd. Encl.

G. O. 30th Aug 77 No. 1456. W

Nos. 670-671

Enclosing Local Funds
Funds with River or Flood
Embankments. Prescribing
Rules for the Appropriation &
Charges for —

Brd'r in Copy.