Public Works (1896) Department.

G.O., No. 1065 - 3

DATED 17. December

19/11/96

[Despatch Abstract.]

Expenditure: Re Examiner of P. W. Accts. authorized to pass the — of Rs. 6,387 incurred without a sanctioned estimate on the tramway & waggons transferred from the Rushikulya to the Kistna Western Dn.

100/6

T.C. 17/12

19/12

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

IRRIGATION.
ACCOUNT.

Government {1896} of Madras.
PUBLIC WORKS.

Recd. } 1896. *Enclosures*
Regd. } *Spare copies*

G.O., No. 1065 I., 17th December 1896.

DECEMBER.

Expenditure

The Examiner of Public Works Accounts authorized to pass the — of Rs. 6,387 incurred without a sanctioned estimate on the tramway and wagons transferred from the Rushikulya to the Kistna Western division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

No. 228 I.

Note by the Chief Engineer for Irrigation.

With his letter, No 2294 K.S., dated 4th January 1895, the Superintending Engineer, II Circle, submitted an estimate, amounting to Rs. 10,000, for one mile of portable tramway and twelve wagons for the Commamur canal, in the Kistna Western division, the plant being required for the removal of spoil heaps and subsequent silt clearances as specified in the appended report of the Executive Engineer.

2. In this office memo., No. 6 K.S., dated 23rd January 1895, the above estimate was returned to the Superintending Engineer, with intimation that a tramway with wagons of the kind required was available from the Rushikulya project, and he was requested to put himself in communication with the Superintending Engineer, I Circle, regarding the transfer of the same to the II Circle.

3. Under the above instructions, the Rushikulya plant was transferred to the Kistna Western division and some correspondence ensued regarding the proper amount to be debited to that division.

4. In the Examiner's statement of objectionable items, a sum of Rs. 6,387 is shown as the expenditure incurred without a sanctioned estimate on the tramway and wagons transferred from the Rushikulya to the Kistna Western division ; the details of this sum are shown below :—

		RS.
Cost of plant		8,254
Deduct depreciation as per instructions from this office		2,454
	Net cost ...	5,800
Add cost of conveyance		587
	Total ...	6,387

It is recommended that the Examiner of Public Works Accounts may be authorized to pass the above expenditure from the balance of the provision for tools and plant required for the Kistna delta system.

7th December 1896.

(Signed) W. HUGHES,
Chief Engineer for Irrigation.

Enclosure.

Report to accompany estimate for one mile of portable tramway complete and wagons for use in Kistna Western division.

On the Commamur canal from Nallamada old outlet at 28¾ miles to Santaravur at 47½ miles, there are a great number of outlets with crests at or a few inches above F.S.L. in the canal.

These outlets pass the upland flood waters which bring down a large volume of silt, some of which is deposited in the canal.

When the canal was widened in the course of the last few years the earth obtatined from the widening was deposited in regular heaps on these outlets. When silt clearing is carried out either annually or periodically the silt removed is deposited on the existing spoil heaps at the outlets.

These spoil heaps have reduced the waterway provided by these outlets, the reduction in some cases being more than one-half of the total length of the outlet.

The outlets are designed to pass the maximum flood discharge with a water level of F.S.L. + 2 feet. The flood waters do not wash away the spoil heaps, and unless they are removed and the full waterway provided, the canal runs a great risk of being breached with consequent serious loss to Government and the ryots and interruption of navigation.

It is proposed to remove these spoil heaps and subsequent silt clearances by means of a portable tramway and to deposit the spoil so removed at suitable places at the ends of the outlets.

(Signed) A. A. G. MALET,
Ex. Engr., Kistna Western Division.

20th December 1894.

Order—No. 1065 I., dated 17th December 1896.

The Examiner of Public Works Accounts is authorized to pass the expenditure of Rs. 6,387 incurred without a sanctioned estimate on the tramway and wagons transferred from the Rushikulya to the Kistna Western division, the amount being met from the balance of the lump sum provision made for tools and plant required for the Kistna delta system, which will then be reduced to Rs. 7,417.

2. This sanction is registered as No. 150 I. of 1896-97.

(True Extract.)

(Signed) W. HUGHES,
Joint Secy. to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, II Circle, with two enclosures.
„ Superintending Engineer, I Circle.
„ Examiner, Public Works Accounts.

Exd. Shaik Karim.

Public Works (1896) Department
Current No: 11436

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

Portable Tramway
In the Kistna Delta

X No. 1065 dd 17.12.96

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Recd: 16.12.96

Enclos: 16

9th Asst

UNDER date the

No. 228 READ the following

Note by the Chief Engr.
for Irrigation

With his letter, No. 2294 K.S., dd 4th Jan/95, the Supdg Engr, V Circle, submitted an estimate amtg. to Rs 10,000 for one mile of portable tramway & twelve waggons for the Commamur canal, in the Kistna estern Dn, the plant being required for the removal of spoil heaps & subsequent silt clearances as s cified in the appended report of the Ext. Engr.

Issue
D.S

11.12.96

2. In this office memo, No. 6 K.S., d/ 23 Jan /95, the above estimate was returned to the Supg Eng with intimation that a tramway with waggons of the kind required was available from the Rushikulya project, & he was requested to put himself in communication with the Supg Eng, 1st Circle, regarding the transfer of the same to the II Circle.

3. Under the above instructions the Rushikulya plant was transferred to the Kistna Western Dn & some correspondence ensued regarding the proper amount to be debited to that divn.

4. In the Examiner's statement of objectionable items, a sum of Rs 6,387 is shown as the expenditure incurred without a sanctioned estimate on the tramway & waggons transferred from the Rushikulya to the Kistna Western Dn, the details of this sum are shown below:—

	Rs
Cost of plant ..	8,254
Deduct depreciation as per instructions from this office –	2,454
Net cost	5,800
Add cost of conveyance –	587
Total	6,387

It is recommended that the Examiner of P.W.A. may be authorized to pass the above expenditure from the [illegible] for tools & plant required for the Kistna Delta System.

Order thereon.

The Examiner of P.W. Accounts is authorized to pass the expenditure of Rs 6387 incurred without a sanctioned estimate on the tramway & waggons transferred from the Rushikulya to the Kistna Western Dn, the amount being met from the balance of the lump sum provision made for tools & plant required for the Kistna Delta System, which will then be reduced to Rs. 7417

2. This sanction is registered as No 150 I of 1896-97.

4/12

WH
7/12

ASH
12.12.96

+ Rs 13,804

F.E.J.
19/12

18/12

Regd 18/12

To
The Chief Engr for I
Supg Engr II with 2 encls.
Do I
Ex PWD

7/1

E. I. Form No. D-500—14-5-95

Public Works (1896) Department.

CURRENT No. R 3 96 Ks

Order

From
Major W. L. C. Baddeley RE
Supg Engr: II Circle

No. 2327 KW

Dated 19 November 1896
Received 21-11-96
Enclosures 1
Spare copies

SUBJECT.

Estimate for one mile of Portable Tramway Complete and 12 wagons for KWDn. Returns the — with remarks reg. the delay in the matter.

papers

ce of the

21-11-96

Nov 21-96

BACK PAPERS.

~~G.O.~~ G.O. Issue & Receipt	No.	Department.	Date.
I	167	Ks	19-10-95
R	396 KS	-	19.11-96
R	196	KS.	7-10.95
R	71.-	KS.	30.3.95
I	42-	KS.	22.3.95
R	105-	W	6-3.95
I	97-	M	4.2-95
R	42-	KS.	28-2.95
I	6-	KS. —	23.1.95
R	10-	KS	9.1.95
G.O.	344.I	(P.W.D) I.B.	15.4.93
G.O.	1040 I	-do	3.12.95

FURTHER PAPERS.

G.O.	No.	Department.	Date.

S.E. Engineer's Office No 2281 25 DEC. 94 Second Circle

S.E. Engineer's Office No 2462 26 JAN. 95 P.W.D. Second Circle

Report to accompany estimate for one mile of Portable Tramways complete and 12 Waggons for use in Kistna Western Division.

On the Commamur canal from Nallamada old outlet at 28 3/4 miles to Santaravur at 47 1/2 miles there are a great number of outlets with crests at or a few inches above F. S. L in the canal.

These outlets pass the upland flood waters which bring down a large volume of silt some of which is deposited in the canal.

When the canal was widened in the course of the last few years the earth obtained from the widening was deposited in regular heaps on these outlets. When silt clearing is carried out either annually or periodically the silt removed is deposited on the existing spoil heaps at the outlets.

These spoil heaps have reduced the waterway provided by these outlets; the reduction in some cases being more than one half of the total length of the outlet.

The outlets are designed to pass the maximum flood discharge with a water level of F. S. L + 2 ft. The flood waters do not wash away the spoil heaps and unless they are removed & the full water way provided the canal runs a great risk of being breached with consequent serious loss to Government & the ryots & interruption of navigation.

It is proposed to remove these spoil heaps & subsequent silt clearances by means of a Portable Tramway and to deposit the spoil so removed at suitable places at the ends of the outlets.

CHIEF ENGINEER
FOR IRRIGATION.
12 [illegible] 96
No. R 964

R 10K
2

Executive Engineer
Keistna Western Division.

20/12

Encl to No 2294 R.I
9.1.95

P.W. E.I / 1143/96

Superintending Engineer's Office.
Bezwada

No. 2327 RW

II CIRCLE,

Dated 19 November 1896.

From,

Major W. L. C. Baddeley ~~Esquire~~, R.E.
Superintending Engineer,
II Circle.

To,

The Chief Engineer,
For Irrigation,
Madras.

Encl Est:

Sir,

With reference to your Memo No. II/167 E.S. d/ 19.10.95, I have the honour to return herewith the estimate amounting to Rs 10,000 for one mile of Portable Tramway complete and 12 wagons for use in the Kistna Western Dn.

2. By some oversight in my office this estimate was detained and lost sight of, for which I beg to express my regret.

3. As regards the report called for in para 2 of your memo there appears to be no objection to the proposal, which has been adopted.

It is possible that if I had not been absent from the Circle [illegible]ctor 95, this delay would not have occurred. I saw the paper today 17th for the first time.

I have the honour to be,
Sir,
Your most obt. Servant,
W L C Baddeley
Major

CHIEF ENGINEER
FOR IRRIGATION.
No.........................

From,

The Superintending Engineer,
II Circle.

To,

The

Dated
Received } 18

Enclosures.

NO.

SUBJECT.

R1 & 6 KS/85

Enclo.

~~21~~ No 167 KS d/19.10.95

Letter S.E. 2nd Circle

With reference to letter No 1466 KS dated 7/10/95 the undersigned has the honour to request the S.E. 2nd circle to ~~return~~ forward to this office the estimate submitted with letter No 2294 KS & returned with this office No II/6 KS d 22/1/95.

~~(2) The S.E. is also requested to report whether the same of it~~

(2) In the opinion of E.I. and in the absence of any information regarding the number of years the tramway has been in use the ~~proper~~ best way to settle the matter will be to take the prime cost of the plant at Rs ~~7891~~ 7782 and to deduct ~~6~~ 7½ per cent per annum for the period the tramway has been in use ~~up to~~ adding the cost of any special repairs. The

Executive Engineer Rus
Division ~~in respect~~ to
cost of conveying the tra
from Rushi kulya to Rus

(3) The SE is requested to rep
the ~~pre~~ settlement of the pro
suggested in para 2 and
instruct the EE to accept the
transfer debit sent to him by
the EE Rushikulya Division
at once, ~~p~~ ~~[illegible] the [illegible] to such objections~~ subject to
such modifications as may be
decided on hereafter.

16/10

17/10

P.W. E.4 / 1143/98

Letter from the Executive Engineer, Rushikulya Division, to the Executive Engineer, Kistna Western Division, No. 1083 Camp, dated 7th August, 1895.

I have the honour to acknowledge your 367 M. / 26-6-95. Before despatch I carefully examined the Decauvilles plant, and satisfied myself that 5% was a fair deduction on account of wear and tear.

2. This moreover, was the percentage arrived at after consultation with the Superintending Engineer, First Circle, when it was proposed to transfer the plant to the Buckingham Canal Division.

3. I have further to point out that the 5% deduction has been made on the prime cost of the plant, and that you have not been charged with the freight and conveyance from Madras to Gopalpore, amounting to about Rs 2000; or the inland charges from Russelkonda to Gopalpore.

that the question of Cost might be settled before either tramway was purchased.

(4) In my No. 546 S., dated 6th Feby/95, I recommended the purchase subject to certain conditions of the Periyar Plant.

(5) In your No. 2900 K.S., dated 22nd March, 1895, you informed me that you had written to the Chief Engineer for Irrigation objecting to the purchase of the Periyar Plant as being unsuitable and too costly, but that, apparently, the Superintending Engineer, First Circle, had not been informed of this, and that the plant* had been despatched in accordance with a request made "By order" from your office whilst you were in Camp.

* Rushikulya plant is meant A.K.

(6) You added that steps would be taken to see that the plant was not priced too high.

(7) The plant was despatched from Gopalpore at end of February or early in March.

(8) On the

a telegram from the Executive Engineer, Rushikulya Division asking how many waggons I required.

(9) At that time I was in direct correspondence with the Superintendent of Works, Periyar, regarding his plant, and had no direct correspondence with the Executive Engineer, Rushikulya Division. I foolishly did not examine the telegram carefully, assumed it came from the Periyar, and replied that I required 20 trucks. I do not think, however, that this reply can be construed into an order for the plant.

(10) In your Endorsement No. 91 K.S., dated 11th April, 1895, I was instructed to afford credit after receipt and examination of the tramway.

(11) On the 24th June, 1895, I received the enclosed transfer debit advice, amounting to Rs 8,253-5-11, with an intimation that the carriage by road to Gopalpore would be debited separately. What this amount is, I

have

have not yet been informed.

(12) I have already paid Rs 191-3-6 for landing charges at Masulipatam, making a total of Rs 844/8/6, without road charges to Gopalpore.

8444-8-6

(13) In this Debit advice you will see that only 5 per cent on Rs 389-0-0 has been deducted for depreciation.

(14) In his No 1083, dated 7th August, 1895, (copy enclosed) the Executive Engineer, Rushikulya Division apparently takes credit that I have not been charged with the cost of conveyance from Madras to Gopalpore and Gopalpore to Russelkonda which amounts to Rs: 2298-6-6.

3. The tramway has now been examined in the Bezwada Workshops, and I have sent you an estimate, amounting to Rs 560-0-0, for putting it into proper working order.

4. Irrespective of the fact that the transfer of this plant was a mistake, and that I should much prefer to have purchased the cheaper and more suitable Periyar plant, the charges with which it is proposed to debit this Division are, I consider, excessive.

5. The proposed deduction of 5 per cent is absurd, and will not even cover the cost of putting the plant into working order.

6. I propose, however, to question the reasonableness of several of the other items.

7. The prime cost of the plant as far as this Division is concerned should be the original cost as delivered at Madras plus the cost of carriage from Madras to Masulipatam.

Original cost as delivered at Madras (vide Transfer Debit Advice)	7782-0-0
Madras to Masulipatam (say half of the cost from Gopalpore to Masulipatam as per Transfer Debit Advice	430-0-0
Prime Cost Rs.	8,212-0-0

Any one purchasing a new tramway plant, and then finding he had no use for it would consider himself extremely fortunate if he obtained

75 per cent of his original outlay for it. In this case, however, the plant has been used. Some of the treads of the wheels are a little worn and other parts are missing. As an interdepartmental transfer cannot be viewed entirely from a commercial standpoint, the smallest reasonable deduction to be made from the prime cost is in my opinion 25 per cent for depreciation plus Rs 560/. for putting the plant into working order.

		Rs. A. P.
Prime cost		8,212- - -
Deduct 25 per cent for depreciation	Rs. A. P. 2053- - -	
Cost of repairs	560- - -	
		2,613- - -
	Total Rs.	5,599- - -

Rs 5,599/. would therefore in this case be a fair debit.

8. The fact that the plant was taken to Russelkonda and had to be sent back again does not, I consider, affect this Division, and as all charges others than those noted by me above were incurred in the interests of or were due to the Rushikulya works on which the tramway plant was used, they are a fair debit to and should be charged against those works.

9. As the Executive Engineer, Rushikulya Division, in para 4 of his letter declines to agree to any reduction of his Debit Advice, I have the honour to refer the case to you for orders.

No. 1456KS / 11.10.95

Enclos 2.
1 Debit advice
1 Copy of Rushikulya Dn. E. Es. No. 1083 / 7.8.95

Forwarded to the Chief Engineer for Irrigation for favour of orders regarding the amount of debit to the Kistna Western Division on account of the Decauville Tramway transferred from the Rushikulya Division.

2. The Executive Engineer, Kistna Western Division, fully relates the circumstances under which the tramway was transferred & his reasons for thinking that the price debited to his Division is too high.

I have the honor to be
Your most obedient Sir
Servant

D 11.10.95

From

The Supg Engineer

Second Circle

CHIEF ENGINEER
FOR IRRIGATION.
C/906/4
14 OCT. 95
No.

To

The Chief Engineer

For Irrigation

Dated 7 } October 1895
Despd 11 }

Enclos 2.

No. 1456 K.S

Portable tramway transferred to K.W. Dn from Rushkulia Dn —

Forwards for orders copy of Ex Engr. K.W. Dn's letter protesting against the value ~~of~~ debited on account of —

E.7 / 11436/96

Superintending Engineer's Office,
Bezwada
II CIRCLE,
Dated 30th March 1895.

No. 2981 K.S

From, Major W.L.C. Baddeley R.E.
~~Esquire,~~
Superintending Engineer,
II Circle.

To,
The Chief Engineer
For Irrigation

Sir

In reference to your No. $\frac{II}{42\ K.S}$ of 23d March 1895, I have the honour to inform you that I do not wish the tramway to be reserved for this circle

I have the honour to be,
Sir
Your most obdt Servant
W.L.C. Baddeley
Major R.E.
Supg. Engineer, II Circle

I 29-3-95

13185

From

CHIEF ENGINEER
No. 7160
12 APR. 95
FOR IRRIGATION.

The Supg Engr:

II Circle.

To

The Chief Engineer
~~for Irrigation,~~
Madras

No. 2981 KS

Dated 30th March 95.

Tramway - Periar works - Informs that the one mile of — is not to be preserved for this Circle.

P.W.E.8.
11436/96

From,

The Superintending Engineer,
II Circle.

To,

The

Dated
Received } 18

Enclosures.

NO.

SUBJECT.

II
No 42 KS of 23-3-95

Memo.

In reply to para 2 of letter No 2680-K.S. dated 27 February 1895 from the Supery. Engineer, Second Circle, the undersigned has the honor to inform him that the steel railway referred to therein is not now available, it having been sold to the Chief Engineer, Travancore Government. Something over a mile more of the same railway, it is said, will be available for transfer from the Periyar in March 1896. - If the S.E. would like to have this, he is requested to say so, and it will be reserved for him

22.3

To
The Supery. Engineer,
Second Circle

Pressd 23/3

13180

CHIEF ENGINEER
7 MAR 95
FOR IRRIGATION

105 M

Presidency P. W. Stores.

From J. W. H. Ellis Esqr.
THE GENERAL SUPERINTENDENT,
PUBLIC WORKS STORES,
Madras,

To
Ag. Asst. Ch. Engineer
for Irrigation

No. 224 S.

Dated 6th
Despatched 6th } March 1895.
Received

No. OF ENCLOSURES. × nil

Subject.

Replying that the item referred to in his No 97 M. has not arrived yet & so unable to reply on the Subject.

P.W.S. E. 10 / 1143B/96

No 97 M d/4. 2 95

Memo.

The undersigned has the honor to request that the General Supt., P.W. Stores, Madras, will be so good as to report, as soon as possible, whether the 3000 ft. of portable steel railway with sleepers complete, entered (item 18) in the list of surplus stores for transfer & sale, circulated with G.O. No. 3130-W. dated 7 Decr. 1894, are in good working order, and if so, whether they will be ~~all~~ available, at the end of the current official year, for transfer to the Kistna Western Division.

WE
4.3

To
The General Supt.,
P.W. Stores.
Madras.

4/3

2/3/95

Ru 2/48/95

Rw. E. 11
1143/96

No. 2680 KS

Superintending Engineer's Office,
Bezwada
II CIRCLE,
Dated 27/28. 2. 1895.

From,

Major W. L. C. Baddeley, Esquire, R.E.
Superintending Engineer,
II Circle.

To,

The Chief Engineer,
For Irrigation,
Madras.

Sir

In reference to your No. II/6 KS. d/23rd January 1895, I have the honour to inform you that after enquiry, Mr. Malet is of opinion that the Rushikulya tramway is not altogether suitable and too costly for his work, and after reading the correspondence I agree with him.

2. About 3,000 feet of tramway is available from the Periyar works Vide G.O. 3130 W d/7.12.94, and if there is no reasonable doubt that this plant will be available at the end of the year, and if it is in good working order I beg to be favoured with early orders for its transfer to the Kistna ~~Northern~~ Western Divn.

official

I have the honour to be,
Sir
Your most obedt Servant
W L C Baddeley
Major
Supdg. Engr. II Cir.

Compd
cd 27/2

From

The Supg Engineer
Second Circle

R42Ks

To The Chief Engineer
~~P.W Department~~
for Irrigation
Madras

Dated 28 February 1895

No. 2680 K.S.

Tramway required for
K.W Do. — Informs that
— available in Rushikulya
is not suitable & requests
orders to get the same
from Periyar Works —

P.W. E.12 / 1438/96

CHIEF ENGINEER
No. ......
2 MAR. 95
FOR IRRIGATION.

From,
The Superintending Engineer,
II Circle.

To,
The

Dated } 18
Received

Enclosures.

NO. .

SUBJECT.

Urgent

Encs: 2

II
No 6 KS d/23-1-95

Memo.

In returning the estimate for Rs. 10,000 for a portable tramway & wagons for use on the Commamur Canal, received with letter No. 2294-K.S dated 4 Jany. 1895, the undersigned has the honor to inform him that a tramway with wagons, of the kind required is available now from the Rushikulya project works and to request that he ~~may~~ will put himself in communication with the Supdg. Engr., First Circle, regarding the transfer of the same to the Second Circle. This should be done before the Canals close this year, for economy in transport.

23-1

Recd.
23/1

To
I/77 PW — The Supdg. Engineer Second Circle.
Copy forwarded to the Supdg. Engineer First Circle with reference to his Office No. I/77-G.N. dated 2nd Oct. 1893.

23/1/95

Urgent

P.W. E.13
1143B/96

P.W. E.14
1143B/96

From:

The Supg Engineer
Second Circle

R10K

02 JAN 95
FOR IRRIGATION

To The Chief Engineer
For Irrigation

Dated 9 January 1895

Encl 2

No 2294 KS

one mile of
Portable tramway complete
& 12 wagons for use on
Commamur Canal —
Forwards for sanction
an estimate of Rs 10000 for —

From,
The Superintending Engineer,
II Circle.

To,
The

Dated
Received } 18 .

Enclosures.

NO.

SUBJECT.

No. 2294.

Superintending Engineer's Office,

Camp Madras

II CIRCLE,

Dated 4/9 . 1. 1895

From,

Major W. Baddeley ~~Esquire~~, R.E.,

Superintending Engineer,

II Circle.

To,

The Chief Engineer

For Irrigation,

Madras.

Enclos: 2
1 D & A Estimate
1 Report
½

Sir

I have the honour to forward herewith an Estimate amounting Rs 10,000 for one mile of Portabl tram way Complete & 12 wagon for use on the Comma Canal.

2. The esti mate is recommended for Sanction from the balance available for To ls and Plant of the Kistna Delta System.

3. The repo t which npanies the estimate e plains the sity for the tram

I have the ble,
Sir
most ob.t Servant,
Baddeley Major R.E.
Engr. II Circle

15th April 1893, No. 344 I., Public Works.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From J. W. MARTIN, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezwada, 6th October 1892, No. 1663 K.S.

Adverting to G.O., dated 12th August 1892, No. 685 I., in the matter of the disposal of the silt clearances from the canals within the municipal limits of Bezwada town, I have the honour to explain that there is no special difficulty about depositing in the Kistna river bed the silt removed from the Main and Masulipatam canals. In actual practice hardly any silt is removed from the Main canal, but the little that is removed can be temporarily placed on the right bank and subsequently removed by coolies into the river after the re-opening of the canals; and this plan can also be adopted as regards the Masulipatam canal, as there is an ample berm on the right side, on which the silt can be temporarily placed pending its final removal to the river bed by coolies after the re-opening of the canals.

2. In regard to the silt clearances from Ryves' and Ellore canals, there is a difficulty inasmuch as there is no suitable place conveniently near the canals on which the silt can be deposited, except the bed of the Kistna river; but taking the silt to the river involves carrying it a long distance and crossing the Masulipatam canal, so it is not practicable to remove the silt by manual labour only to the river during the time (about 3 months) the canals are closed each year; and to temporarily place it on the banks and afterwards remove it on boats to the river is almost impracticable for this would take a long time to do on account of it being necessary to haul the boats through the Main canal in which there is a strong current and the further difficulty of passing boats into the river during floods. Moreover we have not got a sufficient number of boats to carry the silt to the river and take materials, &c., to the works in progress in the Eastern and Western deltas. In these circumstances, I think special plant must be provided for the disposal of the silt clearances from Ryves' and Ellore canals, and what I recommend is a light tramway, by means of which the silt can be carried directly to the river over the flood bank as soon as it is removed from the canals.

3. I am forwarding a survey showing the position and length within municipal limits of Main, Ryves', Ellore and Masulipatam canals. What I propose is at a short distance below the railway bridge to make an incline to the river over the flood bank. An incline of 1 in 30 can be easily made by cutting the flood bank, which at present is unnecessarily high, as it is partly a spoil bank, down to + 70·00, which is 22·75 feet above crest of anicut. The silt can be easily taken over this incline by means of a tramway. The tramway should, I think, be 2′ 6″ gauge, rails 10 lb. per yard run, capacity of wagon $\frac{3}{4}$ cubic yard, and light sleepers made of steel should be used. A tramway of this description can be easily and expeditiously removed from place to place according to requirements, so I think a line sufficient to remove the silt from only one canal at a time will be sufficient. On the incline there must be a double line, one for the full wagons and one for the empty ones, but along the bed of the canal one line with sidings at intervals will be sufficient.

About moving the wagons, they can be pushed along the canal by coolies; but going up the incline I think bullocks must be employed to pull the wagons, but this will not lead to much expense.

4. The accounts show that about 500,000 cubic feet of silt is the total quantity removed each year from Ryves' and Ellore canals within municipal limits during the closure of the canals To remove the whole of this quantity to the river within 3 months, the time the canals are usually closed, I think the total length of the tramway, including sidings and the double line up the incline, must be about two miles and that there must be 40 wagons. The cost of a tramway of this length and 40 wagons at rates furnished by Messrs. Richardson and Cruddas, Bombay, is as follows:—

	RS.
2 miles of tramway 2′ 6″ gauge, rails 10 lb. per yard run and steel sleepers complete	9,000
40 wagons, capacity ¾ cubic yard	6,000
Total ...	15,000

I think the cost of excavating the silt and taking it by means of the tramway direct to the river will be about 2 annas and 6 pies per cubic yard.

5. The tramway will, of course, last for many years, as at the close of each working season it can all be taken up including the steel sleepers and be stored in a place of safety until it is again required; but should any special earthwork involving long lead require to be carried out when the tramway is not required for the canals, it will be most useful, and, I believe, it may often be used with advantage in the quarries removing quarry rubbish.

6. I am forwarding a report prepared under my instructions by the Assistant Engineer in charge of the Head Quarter sub-division of the Kistna Eastern division exhibiting all the data required to form an opinion as to whether a tramway will answer, &c., from which you will see how the particulars given above have been arrived at.

7. I notice that in the correspondence printed with the Government Order under reference "elevators" are suggested as suitable for removing the silt from the canals. I think, however, that an "elevator" cannot be more suitable for the work than a tramway, as excavating under water is always troublesome, expensive and unsatisfactory.

Enclosure.

Report on the method proposed to be adopted for clearing the silt collected in the heads of canals within municipal limits, Bezwada.

1. In G.O., No. 685 I., dated 12th August 1892, it is laid down in para. 3 that "the deposit of silt clearances on the canal banks within the limits of the town of Bezwada must cease at whatever cost" and this report is drawn up with the object of pointing out the most suitable way of disposing of the silt.

2. *Quantity of silt to be disposed of.*—The quantities of silt removed from the beds of the canals during the closure in the years 1891–92 and 1892–93 are given in the table below:—

Name of canal.	Year.	Quantity.	Rate.	Amount.	Length of canal cleared.	Remarks.
			RS. A. P.	RS. A. P.	M. F.	
1. Main canal ..	1892–93.	111,714	8 1 6	904 0 0	0 1	All cleared below railway bridge.
2. Ellore „ ..	Do.	110,991	7 11 5 5 9 6	735 7 1	1 3	
3. Ryves' „ ..	{1891–92. 1892–93.}	371,497	..	1,682 13 0	1 0	Includes silt cleared in February 1892.
4. Masulipatam canal ..	1892–93.	486,642	..	3,085 15 9	1 3	

It should be noted that these quantities only represent the silt cleared after the closure of the canals. Besides this extensive dredging operations were done from October to January, but as this is done more or less every year it is not thought necessary on this account to make any addition to the quantity to be cleared. Moreover a considerable quantity of the silt dredged from Ellore canal and Bandur canal within municipal limits was, owing to the want of sufficient boats to convey it away, again deposited at the head of Ryves' canal and this has swelled out the quantity cleared in Ryves' canal, so that a reduction in the quantity to be cleared from this canal of the odd 71,497 is necessary and more accurate figures are not available. The total quantity of silt then to be removed from the head of all canals within the limits of the municipality is 1,080,844 — 71,497 = 1,009,347 cubic feet.

3. *Proposals as to disposal of silt.*—We have now to consider the cheapest as well as the quickest way to dispose of this quantity of silt counting upon a period of closure of canals of three months, and, taking 25 working days in each month, in a period of 75 working days. The only place where there is plenty of room available for the deposit of this large quantity of silt, year by year, is out in the river, so it only remains to investigate the most expeditious way of getting it there. As the Masulipatam canal runs parallel to the river bank the 486 units of silt to be disposed of in this canal may be treated in the ordinary way, it being necessary only that the earth, after being removed over the bank, be trimmed down to correct level of the top of the river bank so as not to increase the size of the river bank which is already excessive both in height as well as width. The quantity now remaining to be disposed of is 1,009,347 — 486,642 = 522,705 cubic feet, or, say, 500 units.

In order to dispose of this quantity it is proposed to lay down a light portable tram line 30″ gauge worked by hand and to run the wagons through a cut in the river bank and tip the silt on the outside keeping it to the proper level of top of the river bank.

4. *Cost of plant required.*—It is thought that the capacity of a wagon, worked by hand, should not be more than ¾ cubic yard or say 19 cubic feet and the extreme lead is 1 mile 1,980 feet in Ellore Canal *plus* 500 feet to foot of slope over river bank, making a total 1 mile 2,480 feet; taking half of this or roughly ¾ mile as the average lead we can now arrive at the number of wagons required. One wagon can be pushed along at the rate of about 2 miles an hour full and 3 miles an hour empty. Total distance to be travelled in one journey is ¾ mile going and the same returning; total time occupied at the above speed is 37½, or, say, 40 minutes. To this must now be added the time taken to haul the wagon up a slope of 1 in 30 which is proposed to be done by bullocks a distance of about 700 feet, tipping the wagon and return down the slope, say, 10 minutes. Therefore the total time occupied in one journey would be 50 minutes.

In one working day of 9 hours one wagon would do $\frac{9 \times 60}{50} = 11$ trips and would carry 11 × 19 = 209 cubic feet daily or in 75 working days would convey 15,675 cubic feet; therefore number of wagons required is $\frac{500{,}000}{15{,}675} = 33$, or, say, 40.

Length of line required is as follows:—

	ML.	FT.
Length of single line in Ellore canal		
Do. double line to foot of slope	1	1,980
Sidings at every ¼ mile at 50 R. feet each No. 5	0	1,000
Double line up incline 700 feet	0	250
	0	1,400
Total length ...	1	4,630

Or, say, 2 miles.

4. (*a*) *Cost of the above plant.*—The cost of this plant at rates quoted by Messrs. Richardson and Cruddas, Bombay, is—

	RS.
2 miles of do.	9,500
40 wagons at Rs. 150 each	6,000
Total ...	15,500

This plant would not be lying idle for the remaining 9 months of the year; a portion of it could be used in the quarries where such a line would be invaluable where the quarry refuse has to be carried a long distance at great cost.

5 The present rate paid for silt clearance in *Main canal* is Rs. 8–1–6 per 1,000 cubic feet or As. 3–5½ per cubic yard and the cost of clearing by the tram line can be taken as follows :—

	AS.	P.
Cost of filling at 1 anna per cubic yard	0	9
Two men to push the wagon to foot of slope, say, 400 feet average at 4 annas each	0	6
Hauling wagon up the gradient of 1 in 30 by one pair of bullocks at 12 annas each bullock per diem making 3 trips per hour, working day being 9 hours—⁸⁄₉ of one anna—say	1	0
Tipping wagon and returning it down gradient—say	0	3
Total per cubic yard ...	2	6

The silt cleared at the second mile of Ellore canal would cost somewhat more owing to the longer lead. The cost of silt clearance by means of tram line would therefore cost less than it does at present cleared by hand labour.

6. *Earthwork.*—The first two hundred feet of gradient of *1 in 30* would be made up in the canal bed and the remaining 500 feet would be cut out of the slopes and made permanent. The level of the cut through the river bank is proposed to be + 70·00 and this would be permanently left open; this level is 22·75 above the crest of anicut as raised, viz., 47·25; rough estimate of cost of earthwork Rs. 500.

7. *General remarks.*—No silt clearance is likely to be required in the Main canal above the railway bridge; if any is ever required it is likely to be very little and can be removed to the berms and punted away afterwards or despatched to work as sand of which the deposit, such as it is, is composed. A deeper cut might with safety be made in the river bank, but it would lessen the depth on the river side to be filled in and would therefore increase the lead outside the bank. Of the double line up the incline one line would be used for loaded wagons and the other for return empties.

4th October 1892.

(Signed) A. C. PEREIRA,
Assistant Engineer.

From the Superintending Engineer, II Circle, dated 14th November 1892, No. 2017 K.S.
To ,, ,, II ,, ,, 22nd ,, ,, ,, 234 ,,
,, ,, ,, II ,, ,, 13th January 1893 ,, 8 ,,
From ,, ,, II ,, ,, 20th ,, ,, ,, 2518 ,,
,, ,, ,, II ,, ,, 26th ,, ,, ,, 2587 ,,
To ,, ,, II ,, ,, 30th ,, ,, ,, 16 ,,
From ,, ,, II ,, ,, 6th February ,, ,, 2707 ,,
To ,, ,, II ,, ,, 11th ,, ,, ,, 24 ,,
From ,, ,, II ,, ,, 20th ,, ,, ,, 2851 ,,

No. 52 I.

Submitted to Government. For the disposal of the silt clearances from the canals within the municipal limits of the town of Bezwada referred to in the papers embodied in Proceedings of the Madras Government, No. 685 I., dated 12th August 1892, it has been decided in correspondence with the Superintending Engineer, II Circle, to provide a light tramway with the necessary rolling stock. The accompanying estimate, amounting to Rs. 16,800, prepared in this office for providing the necessary plant and meeting the incidental charges for the erection of the line, is recommended for the sanction of Government.

CHEPÂK,
31st Mar. 1893.

(Signed) R. R. E. DRAKE-BROCKMAN, Lt.-Col., R.E.,
Ag. Chief Engineer for Irrigation.

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

15th April 1893, No. 344 I., Public Works.

ORDER—dated 15th April 1893, No. 344 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
42. Major Works (Working Expenses).
Kistna Delta System.
Eastern Section.
III. Tools and Plant.
3. Railway Plant and Rolling Stock.

	RS.
Providing a tramway and wagons for removal of silt from canals at Bezwada, estimate	16,800

2. This sanction is registered as No. 12 I. of 1893–94.

(True Extract.)

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

To the Chief Engineer for Irrigation.
,, Superintending Engineer, II Circle, with estimate.
,, Examiner, Public Works Accounts.
,, Revenue Department.
,, Local and Municipal Department.
Editors' Table.

Exd. A. D. Xavier.
Spare Copies

384b
27 APR 93
FOR IRRIGATION

IRRIGATION.
ACCOUNT.

Govt. of {1893} Madras.
PUBLIC WORKS.

Dated April, 15th.

Recd. *Encl.*

G.O., 15th April 1893, No. 344 I.

APRIL.

P.W. E. 15/1143/6/96

Tramway and Wagons for Removal of Silt

Estimate of Rs. 16,800 for providing a — from canals at Bezwada, sanctioned.

84/35

No. 1040 I., 3rd December 1895.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

Third Application for modification of allotments, Irrigation Branch, Kistna Western division, for 1895–96.

Item No.	Main and sub-heads.	Name of work.	Existing grant.	Modification.		Remarks.
				Increase.	Decrease.	
		42. *Major Works (Working Expenses).*	RS.	RS.	RS.	
3	....	3. Tools and plant ..	4,000	10,000	..	Required to meet the outlay for tramway—*vide* your endorsement No. 1599 K.S., dated 28th October 1895, on memo. from Chief Engineer for Irrigation, No. II/167 K.S., dated 19th Oct. 1895.
		Total ..	..	10,000	..	

(Signed) A. A. G. MALET,
Ex. Engr., Kistna Western division.

No. 1716 K.S.

Forwarded to the Chief Engineer for Irrigation for favour of obtaining the sanction of Government for the additional grant of Rs. 10,000 now applied for the adjustment of the cost of tramway transferred from Rushikulya division.

(Signed) G. R. VENKATARAMA AIYAR,
Assistant Engineer,
for Offg. Suptg. Engr., II Circle.

16th November 1895.

Office-note to the Examiner, Public Works Accts., dated 25th Nov. 1895, No. 315.
„ from the „ „ „ 27th „ „ „ 4182 D./B.

No. 234 I.

Note by the Chief Engineer for Irrigation.

The current year's revised estimate of direct receipts from Major works as estimated by Superintending Engineers in their budget estimates for the ensuing year compares with the budget estimate of this year as shown below :—

Systems.	Revised estimate, 1895-96.	Budget estimate, 1895-96.	Difference.	Establishment charge at 10 per cent. on the difference of revenue between the budget and revised estimate.
	RS.	RS.	RS.	RS.
Gódávari delta	1,20,000	1,20,000	..	..
Kistna ,, ...	47,500	50,000	— 2,500	— 250
Pennér anicut	400	600	— 200	— 20
Sangam ,, ...	600	700	— 100	— 10
Kurnool-Cuddapah canal (exclusive of irrigation revenue).	10,000	11,700	— 1,700	— 170
Cauvery delta	3,000	2,500	500	50
Srívaikuntam anicut	1,500	1,500	..	..
Total ..	1,83,000	1,87,000	— 4,000	— 400

2. The current year's revised estimate of irrigation revenue derived from Major (Productive) works, exclusive of the revenue due to old irrigation, is Rs. 5,99,000 less than the budget estimate as shown below :—

Systems.	Revised estimate, 1895-96. 2251000	Budget estimate, 1895-96.	Difference.	Establishment charge at 6 per cent. on the difference of irrigation revenue between the budget and revised estimate.
	RS.	RS.	RS.	RS.
Gódávari delta	23,01,000	27,01,000	— 4,00,000	— 24,000
Kistna ,, ...	21,79,000	23,79,000	— 2,00,000	— 12,000
Pennér anicut	1,46,000	1,43,000	3,000	180
Sangam ,, ...	2,45,000	2,45,000	..	..
Kurnool-Cuddapah canal	97,895	97,895	..	..
Barur tank	10,000	12,000	— 2,000	— 120
Cauvery delta	7,65,000	7,65,000	..	..
Srívaikuntam anicut	1,06,000	1,06,000	..	..
Total ..	58,49,895	64,48,895	— 5,99,000	— 35,940

The amount shown as the revised estimate of the current year for the Cauvery delta system does not include the figures relating to the portion of that system in the Trichinopoly district, which the Board of Revenue states are not ready yet owing to the revision of settlement in that district. In its Proceedings (Revenue Settlement, Land Records and Agriculture), No. 370 Press, dated 16th November 1895, the Board of Revenue promises to submit a supplemental budget on receipt of the necessary particulars from the Collector of Trichinopoly.

3. The net amounts not required for establishment at 10 and 6 per cent., viz., Rs. 400 and Rs. 35,940, respectively, as shown in the preceding paragraphs aggregate Rs. 36,340, from which the sum of Rs. 10,000 required for the Kistna Western division under "42. Major Works (Working expenses)—Tools and Plant" may be appropriated leaving a balance of Rs. 26,340, which may be distributed as shown in the margin and held in reserve to meet future demands for additional funds. The small amount which will be required to cover the charge for establishment at 6 per cent. on the irrigation revenue of the Trichinopoly portion of the Cauvery delta system may be appropriated from the reserve on receipt of the Board's supplemental estimate of revenue.

42. Major Works (Working Expenses).

Reserve.

	RS.
Maintenance and repairs	21,415
Establishment	4,925
Total ...	26,340

(Signed) R. R. E. DRAKE-BROCKMAN, Col., R.E.,
Chief Engineer for Irrigation.

2nd December 1895.

ORDER—No. 1040 I., dated 3rd December 1895.

The modifications of allotments recommended by the Chief Engineer for Irrigation are sanctioned.

2. Ordered that a copy of these Proceedings be forwarded to the Government of India for information.

[Here enter No. 1041 I., dated 3rd December 1895.]

(True Extract.)

(Signed) R. R. E. DRAKE-BROCKMAN, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineers.
,, the Examiner, Public Works Accounts.

Exd. T. K. Narayana Aiyangar.

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IRRIGATION.
14 DEC.95
No. 9784

IRRIGATION.
ACCOUNT.

Govt. of {1895} Madras.

PUBLIC WORKS.

Dated December, 3rd.

Recd.

Encl.

G.O. No. 1040 I., 3rd Dec. 1895.

DECEMBER.

P.W. E.16 / 1143/196

Funds fr Tramway reqd in Kistna Delta

Funds

Certain modifications of allotments recommended by the Chief Engineer for Irrigation, sanctioned, and a copy of the Proceedings ordered to be forwarded to the Government of India.