

Public Works (1896) Department.

G.O., No. 1065.

DATED 17. December

10/12/96

[Despatch Abstract.]

Expenditure: The Examinee of P. W. Dept.
authorized to pass the - of Rs. 6387 incurred with
a sanctioned estimate on the tramway
waggons transferred from the Nishi Kaha
to the Kishu Western & "

10/12/96

10/12/96

18/12

[illegible][illegible]

Government [1896] of Madras.
PUBLIC WORKS.

Spare copies

DECEMBER.

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:—

Cost of plant	Rs.
Deduct depreciation as per instructions from this office	8,254
	2,454
Add cost of conveyance	Net cost 5,800
	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 28½ 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 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 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. MAIET,
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.

Encl. Shait Karim.

Public Works (1896) Department
Current No: 11/1/95
PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

9th Dec

Recd: 11/1/95

Enclos: 11
Under date the

No 228. READ the following

Note by the Chief Eng.
for Irrigation

With his letter,
No. 2294 K.S., of 4th Jan/95,
the Supg Eng. T. Birch,
submitted an estimate
amtg. to Rs 10,000 for
one mile of portable
tramway & twelve
waggons for the Com-
manur Canal, in the
Tinnevely District.
The plant being required
for the removal of
spoil heaps & subsequent
silt clearances as
specified in the
appended report of
the Supt. Eng.

H. B. K. 11/1/95

2. In this office memo
No. 648, of 23 Jan /95,
the above estimate
was returned to the
Supg Engr with intimation
that a tramway with
waggons of the kind
required was available
from the Rushikulya
project, & he was
requested to put him-
self in communication
with the Supg Engr, 1st
Circh, regarding the
transfer of the same
to the II Circh.

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

4. In the Examiner's
statement of objectionable
items, a sum of Rs
6387 is shown as the
expenditure incurred
without a sanctioned
estimate on the tram-
way & waggons trans-
ferred from the
Rushikulya to the
Kistna Western Dr.
The details of this
sum are shown below:-

Cost of plant . . .	Rs 8254/-
Deduct depreciation as per instructions from this office .	2454/-
Net cost	5800/-
Add cost of con- veyance .	587/-
Total	6387/-

It is recommended that
the Examiner of P.W.
may be authorized
to pass the above
expenditure from the

1.

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 tram-
way & waggons trans-
ferred from the
Rushikulga to the
Kistna Western Dr.,
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. 1503
of 1896-97.

4/12
F. I. Form No. 2-300-14-5-95

Public Works (1896) Department.

CURRENT No.

Order

From

Majist W. L. C. Baddiley R.E.
- Supergr. II Cudd.

No. 2327 H.W.

Dated 19 November 1896

Received 21-11-96

Enclosures 1

Spare copies

SUBJECT.

Estimate for one mile
of Pankabli Tramway
Complete and 12 waggons
for H.W.D. Returns
this with remarks
reg. the delay in the matter.

To the Chief Engr for
Supergr. II Cudd.
Do
28 Nov 1896

21-11-96

BACK PAPERS.

FURTHER PAPERS.

<i>Ex. P. Receipt</i>	No.	Department.	Date.
<i>Receipt</i>			
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	- Ks		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	(P.W.D.) S.B.		15.4.95
G.O. 1040	- do		3.12.95

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

Report to accompany estimate for one mile of Portable tramway complete and 12 Waggon for use in Kristian Western Division.

25 DEC 94

25 JAN 95

On the main canal from Kallamada old outlet at 28 $\frac{3}{4}$ miles to Sautaravir at 47 $\frac{1}{2}$ 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 in 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.

B. with consequent serious loss to Government & the delay & 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.

Executive Engineer
Krishna Western Division.

Superintending Engineer's Office.

Bengaluru

II Circle,

Dated 19 Nov. 1896.

No. 2327 KWS

From,

Major W. L. C. Baddeley ~~Superintending~~ ^{Engineer} ~~RE~~

Superintending Engineer,

II Circle.

To,

The Chief Engineer,
For Irrigation,
Madras.

Encl. Est.

Sir,

With reference to your Memo No. II/16723 of 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 Krishna Western D.

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 on 10.10.95, this delay would not have occurred. I saw the paper today for the first time.

I am, Sir,
Yours most obedt. Servant,
W. L. C. Baddeley

From,
The Superintending Engineer,
II Circle.

To,
The

Dated
Received

18

Enclosures.

NO.

SUBJECT.

V. 11/10/67 KS 8/19. 1095
Letter 22 20 circle

Reference letter no 1458 KS
dated 7/10/95 the undersigned
has the honor to request the
82 20 circle to ^{forward} return to this
office the estimate submitted
with letter No 2294 KS
& returned with this office No 11/10/95.
922/1/95.

(2) The 82 is also requested
to report whether the same
of the

(2) In the opinion of 21 and
with absence of any information
regarding the number of years
the tramway has been in use
the proper best way to settle
the matter would be to take the
prime cost of the plant at
Rs 7782 and to deduct
7 1/2 percent per annum for the
period the tramway has been
in use of ~~settling~~ the cost of
any special repairs. The

Executive Engineer
 Division engaged to
 convey the two
 from Russkunda to
 (3) The EE is requested to
 the settlement of the
 suggested in para 2 and
 instruct the EE to accept the
 Engineer's debit and to transfer
 the EE Russkunda Division
 at once, & ~~submitting the report~~
~~transmission~~ subject to
 such modifications as may be
 decided hereafter.

WR
 18/10

Russk
 17/10

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

I have the honour to acknow-
 ledge your 367-H. Before despatch on
 26.6.95 I carefully examined the Beaulieu
 plant, and satisfied myself that 50%
 was a fair deduction on account of
 wear and tear.

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

3. I have further to point out
 that the 50% 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 Gop-
 alpore, amounting to about
 Rs 2000; or the inland charges
 from Russkunda to Gopalpore.

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

(4) In my No 546 S, dated 6th Feb'y 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, Sirich 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.

(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 11th 8/

a telegram from the Executive Engineer, Ruchikulya 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, Ruchikulya 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 8,253-5-4, with an intimation that the Carriage by road to Gopalpore would be debited separately. What this amount is, I have

R have not yet been informed.

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

5. (13) In this debit advice you will
see that only 5 percent on Rs 389-
has been deducted for depreciation.

(14) In his No 1083, dated 7th August,
1895, (copy enclosed) the Executive
Engineer, Rushikulya Division appar-
ently takes credit that I have not
been charged with the cost of Convey-
ance from Madras to Gopalpore
and Gopalpore to Russikhonda
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. In view of the fact that the
transfer of this plant was a mis-
take, and that I should much

prefer to have purchased the cheap
and more suitable Pinjar plant,
the charges with which it is proposed
to debit this Division are, I consider,
excessive.

5. The proposed deduction of 5 percent
is absurd, and will not even cover
the cost of putting the plant into work-
ing 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 Distribution) 7782-0-0

Madras to Masulipatam (by
half of the cost from Gopalpore
to Masulipatam as per Transfer
Debit Advice) 430-0-0

Prime Cost Rs. 8212-0-0

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

2) 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.

Prime cost ————— Rs. A. P.
 Deduct 25 per cent for depreciation ————— } 2053. — — —
 Cost of repairs — 560. — — —

2,613. — — —
 Total Rs. 5,599. — — —

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

3. The fact that the plant was taken to Russalkonda and had to be sent back again does not, I consider, affect this Division; and as all charges other than those noted by me above were incurred

incurred in the interests of or were due to the Rushkubya 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, Rushkubya 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.

1 1456 RS
 No 78.10.95

Enclos 2.
 1 Debit advice
 1 Copy of Rushkubya Division
 C. E. No 1083
 7.8.95

Forwarded to the Chief Engineer for Irrigation for favour of orders regarding the amount of debit to the Krishna Western Division on account of the Deccanville Tramway transferred from the Rushkubya Division.

2. The Executive Engineer, Krishna 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 taken note of the same.

— Yours faithfully,
 [Signature]

From
The Supg Engineer
To
The Chief Engineer
For Irrigation

Second Class
CHIEF
FOR IRRIGATION
14 OCT. 95

Dated 7 }
Des'd 11 } October 1895

Encls 2.
N^o 1456 NS

Portable tramway trans-
ferred to N.W. on from
Rushkulia on —
Towards for orders copy
of Ex Engr N.W.'s letter
protesting against the
value ~~of~~ debited on account
of —

No. 2981 NS

Superintending Engineer's Office,
B. G. Road

II CIRCLE,
Dated 30th March 1895.

From, Major W. L. G. Baddley R.E.
Esquire

Superintending Engineer,
II Circle.

To,
The Chief Engineer
For Irrigation

Sir
I have referred to your No. 1456 NS
of 23rd 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. G. Baddley
Major R.E.
Supg. Engineer, II Circle
929-3-95

12/85

From 7/1/95

The Super Engineer:
H Circle.

To

The Chief Engineer
for Immigration,
Madras

No 2981 K.S.

Dated 30 March 95

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

From,
The Superintending Engineer,
H Circle.

To,
The

Dated

Received

18

Enclosures.

NO.

SUBJECT.

2/2/95

Memorandum.

In reply to para 2 of letter No.
2680-K.S. dated 27 February 1895
from the Super. Engineer, Second
Circle, the undersigned has the honor
to inform him that the steel rail-
way 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 Perias in March
1896. If the L.S. would
like to have this, he is
repeated to say so, and
it will be reserved for
him.

Uth

22.5

To The Super. Engineer,
Second Circle.

(Recd 20/3)

1057

Presidency P. W. Stores.

From

J. M. H. Ellis Esq.,
THE GENERAL SUPERINTENDENT,

PUBLIC WORKS STORES,

Madras,

To

Agst. Ch. Engineer
for Irrigation

No. 224 S.

Dated

Despatched

Received

6th March 1895

No. of ENCLOSURES

Subject.

Replying that the item referred to in his no 97 m. has not arrived yet & so unable to reply on the subject.

No 97 - 4 of 4. 2 18

Encs.

The undersigned has the honor to request that the General Supt., Mr. Shree 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 a sale, circulated in the G.O. No. 3130-W. dated 7 Dec. 1894, are in good working order, and if so, whether they will be available, at the end of the current official year, for transfer to the Krishna Western Division.

W. S.
11.3
P. S. 11/3

The General Supt.,
Mr. Shree.
Madras.

100
212 180

F

No. 2680X1

Superintending Engineer's Office,
Bewanda

II CIRCLE,

Dated $\frac{27}{28}$ 2. 1875.

From,

Major W. D. C. B. D. Esquire, R. Co.

Superintending Engineer,

II Circle.

To,

The Chief Engineer,
For Irrigation,
Madras.

Sir

In reference to your No. II/6 K.S. d/23rd January 1875. I have the honour to inform you that after enquiring Mr. K. K. is of opinion that the Rushikudga 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 Prigar works - vide L.P. 3130 W d/7. 12. 74, and if there is no reasonable doubt that this plant will be available at the end of the official year, and if it is in good working order I beg to be favoured with early orders for its transfer to the Prigar works. I have the honour to be, Sir, your most obedient servant,

C. B. D.

W. D. C. B. D. Esquire, R. Co.

From
The Supy Engineer
Second Circle

162/

To The Chief Engineer
P.W. Department
Madras

Dated 28 February 1895

No. 2680 K.S.

From,
The Superintending Engineer,
II Circle.

To,
The

Dated

Received

18

Enclosures.

NO.

SUBJECT.

Tramway required for
K.M.D. — Information has
— available in Ruskhulya
is not suitable & requests
orders to get the same
from Benigar Works —

Subject

II
No. 688 of 23-1-95
Received

In returning the estimate for
Rs. 10,000 for a portable tramway
& wagons for use on the Communion
Canal, received with letter No. 2244-K.S.
dated 14 Jan'y. 1895, the undersigned
has the honor to inform him that a
tramway with wagons of the kind re-
quired is available now from the
Ruskhulya project works and re-
quest that he ^{will} put himself in
communication with the Supy Eng.
First Circle, regarding the transfer of
the same to the Second Circle. This
should be done before the Canal
closes this year, for economy in
transport.

Hand
23-1

To
The Supy. Engineer, Second Circle.
Copy forwarded to the Supy. Engineer
First Circle with reference to his
Order No. I
77-K.S. dated 22 Oct. 1895.

Received
23/1

23/1/95 Hand

Regd.

*From : H.E.
The Supg Engineer
Second Circle*

*To The Chief Engineer
For Irrigation*

*Dated 9 January 1895.
Encl. 2
N^o 2274, H.S.*

*one mile of
Portable tramway complete
12 wagons for use in
Commander's Canal—
Forwards for sanction
an estimate of Rs 10,000 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 $\frac{4}{9}$ 1. 1895

From,

Major W. Baddley, Esq., R.E.,

Superintending Engineer,

II Circle.

To,

The Chief Engineer,
for Irrigation,
Madras.

Encls: 2 Sir

184.48.1.1

1 Report

I have the honour to
forward herewith an estimate
of Portakali Rs 10,000 for one mile
of 12 wagon tram way complete
Canal for use in the Comma.

2. The estimate

for sanction is recommended
able for the balance avail
Nishu Delta and Plant of the
System.

3. The report which
the estimate contains the
for the tram.

I have the honor
to
most respectfully
Baddley Major
Super 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 imprac-
ticable 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
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:—

2 miles of tramway 2' 6" gauge, rails 10 lb. per yard run and steel sleepers complete	Rs.
40 wagons, capacity $\frac{1}{2}$ cubic yard	9,000
	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.
1. Main canal	1891-92.	111,714	Rs. A. P.	Rs. A. P.	M. F.	
2. Ellore "	Do.	110,991	8 1 6	904 0 0	0 1	
3. Ryves' "	{ 1891-92.		7 11 6	735 7 1	1 3	
4. Masulipatam canal	{ 1892-93.	371,497	5 9 6	1,682 13 0	1 0	All cleared below railway bridge.
	1892-93.	486,642	..	3,085 15 9	1 3	Inclusive silt cleared in February 1892.

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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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 $\frac{1}{2}$ mile going and the same returning; total time occupied at the above speed is 37 $\frac{1}{2}$, 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 $11 \times 19 = 209$ 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:—

	Length of single line in Ellore canal	Do. double line to foot of slope	Sidings at every $\frac{1}{2}$ mile at 50 R. feet each No. 5	Double line up incline 700 feet	Total length
ft.	1,980	1,980	250	1,400	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—

2 miles of do.	Rs.
40 wagons at Rs. 150 each	9,500
	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.

384h

IRRIGATION.
ACCOUNT.

Govt. of {1893} Madras.
PUBLIC WORKS.

Dated April, 15th.

Recd.

Encl.

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

APRIL.

Tramway and Wagons for
Removal of Silt

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

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 en- dorsement No. 1599 K.S., dated 28th October 1895, on memo. from Chief Engineer for Irrigation, No. 11/167 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,
16th November 1895. for Offg. Suptg. Engr., II Circle.

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

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.
Goddavari delta	1,20,000	1,20,000	..	..
Kistna	47,500	50,000	— 2,500	— 250
Pennér anicut	400	600	— 200	— 20
Bangam	600	700	— 100	— 10
Karnool-Cuddapah canal (exclusive of irrigation revenue).	10,000	11,700	— 1,700	— 170
Cauvery delta	5,000	2,500	600	60
Srivaikuntam 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.	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.
Goddavari 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	1,48,000	1,43,000	3,000	180
Bangam	2,45,000	2,45,000	..	..
Karnool-Cuddapah canal	97,895	97,895	..	..
Barur tank	10,000	12,000	— 2,000	— 120
Cauvery delta	7,65,000	7,65,000	..	..
Srivaikuntam anicut	1,06,000	1,06,000	..	..
Total ..	68,49,895	64,48,895	— 6,99,000	— 35,910

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

42. Major Works (Working Expenses).

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

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.

(Signed) R. R. E. DRAKE-BROCKMAN, Col., R.E.,
2nd December 1895. Chief Engineer for Irrigation.

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.
Spare Copies

IRRIGATION.

14 DEC 95

No. 9764 IRRIGATION.
ACCOUNT.

Govt. of {1895} Madras.
PUBLIC WORKS.

Dated December, 3rd.

Recd.

Encl.

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

DECEMBER.

*Funds for Treasury rep
to the Hon. Secy
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.