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*Proceedings of the Madras Government, Public Works Department,
25th May 1875.*

No 431. Read the following letter from Lieutenant-Colonel J H. M SHAW-
STEWART, R E, Consulting Engineer for Railways, to Colonel G W.
WALKER, R E, Secretary to Government, Public Works Department,
dated Madras, 13th May 1875, No 273 —

With reference to paragraph 3 of the Proceedings of Government, No 1,291,
dated 5th May 1875, I have the honor to report that the *Portlaw* anchored at Nega-
patam on the 19th April 1875.

No 432 ORDER THEREON, 25th May 1875, No. 1,429.

RAILWAY, No 50.

ORDERED to be recorded.

(True Extract)

Major, R.E.,

Offg. Joint Secretary to Government.

To the Consulting Engineer for Railways

Exd. S T Austin

Spare Copies

Detailed Estimate

Belton District

3✓

Work Lengthening the Belton structure
and constructing suitable approach on
the eastern bank of that structure

Particulars of Work	Number	Measurement				
		Length	Breadth	Depth	Cubic or Superficial	Contents

Booy wall

Concrete

To Wells of Booy wall 112 $(4\frac{1}{2} \times 7.7054) 9' - 12666 - 11$
Total Cft of Concrete 12666 - 11
or Cys of do 469 $\frac{1}{8}$

Brickwork

To Wells of Booy wall 112 $(5\frac{1}{2} \times 3.1416) \frac{1}{2} \times 9' - 26125 - 6$
Total Cft of Brick masonry 26125 - 6

Foundations

To Booy wall 1 $4488\frac{1}{2} 10 - 6 3' - 14133 - 8$
Total Cft of Rubble masonry 14133 - 8
or Cys of do 523 $\frac{1}{2}$

Superstructure

To Booy wall 1 $4497\frac{1}{2} 5.73 7' - 17645 - 6$
Total Cft of Rubble masonry 17645 - 6
or Cys of do 653 $\frac{1}{2}$

Laterite

Over Body wall 1 450-05-1 $\frac{1}{8}$ 2-0 4600
Total Cft of Laterite 4600
or Cys of do 170 $\frac{10}{7}$

Pointing

Body wall's top and front 1 450-04-0 6300
Total Cft of Pointing 6300
Deduct for groins 2 13-0 7-0 182
Total sq feet 6118
1st Binding wall or groins 61.2

Foundations

To first Binding wall 1 458-05-0 3-0 6828
Total Cft of Rough stone in Churn 6828
or Cys of do 252 $\frac{1}{2}$

Superstructure

1st Binding wall 1 455-33-0 5-3 7170 $\frac{3}{4}$
Total Cft of Rubble in Churn 7170 $\frac{3}{4}$
or Cys of do 265 $\frac{1}{2}$

Laterite

On top of 1st Binding wall 1 455-63-0 1-6 2049-9
Total Cft of Laterite in do 2049 $\frac{3}{4}$
or Cys of do 75 $\frac{25}{7}$

Pointing

On top of 1st Binding wall 1 455-73-0 1366-9
Total Cft of Pointing 1367
or sq feet of do 13-67

2nd Binding wall

Foundations

To 2nd Binding wall 1 462-05-0 2-0 4620
Total Cft of Rubble in Churn 4620
or Cys of do 171 $\frac{1}{7}$

Superstructure

2nd Binding wall 1 462-33-0 4-6 6240 $\frac{3}{8}$
Total Cft of Rubble in Churn 6240 $\frac{3}{8}$
or Cys of do 231 $\frac{1}{8}$

Laterite

On top of 2nd Binding wall 1 462-63-0 1-6 2081 $\frac{1}{4}$
Total Cft of Laterite in Churn 2081 $\frac{1}{4}$
or Cys of do 77 $\frac{1}{2}$

Pointing

On top of 2nd Binding wall 1 462-73-0 1387-9
Total Cft of Pointing 1387-75
or sq feet of do 13-9

3rd Binding wall

Foundations

To 3rd Binding wall 1 468-05-0 2-0 4680-0
Total Cft of Rubble in Churn 4680-0
or Cys of do 173 $\frac{1}{3}$

Superstructure

3rd Binding wall 1 468-33-0 4-6 6321 $\frac{3}{8}$
Total Cft of Rubble in Churn 6321 $\frac{3}{8}$
or Cys of do 234 $\frac{1}{8}$

Laterite

On top of 3rd Binding wall 1 468-6 3-0 1-6 2108-3
Total Cft of Laterite in Channel 2108-3
or Cys of do 78-1/2

Pointing

On top of 3rd Binding wall 1 468-7 3-0 1-6 1405-9
Total Cft of Pointing 1405-9
or Cys of do 14

Retaining wall

Concrete

Swells of flash on Retaining wall 115 (4 1/2 x 7854) 7-0 10116
Total Cft of Concrete 10116
or Cys of do 374-3/4

Brickwork

Swells of Retaining wall 115 (5 1/2 x 3.1416) 1 1/2 x 7 20864-2
Total Cft of Brick in Channel 20864-8

Superstructure

Retaining wall 1 470-3 6-4 3-0 8934-9
Total Cft of rubble in Channel 8934-9
or Cys of do 330-2/7

Laterite

On top of retaining wall 1 473-4 5-0 2-0 4733-4
Total Cft of Laterite in Channel 4733-5
or Cys of do 175-5

Pointing

On top of retaining wall 1 470-6 5-0 2352-6
Total Cft of Pointing 2352-2
or Cys of do 23-5

Foundations

To groins 2 75-0 17-0 1-6 3825-0
Total Cft of rubble stone 3825-0
or Cys of do 141-2/3

Superstructure

Groins 2 75-0 9-6 4-6 6412-6
Total Cft of rubble stone 6412-2
or Cys of do 237-1/2

Apron between body & 1st Binding wall

Rubble under Apron

Between Body wall & 1st Binding wall } 1 450-0 33-0 2-6 37125-0
Total Cft of Rubble 37200-0
or Cys of do 1377-7/9

Apron above

Between body wall and 1st Binding wall } 1 450-0 33-0 3-6 51975-0
Total Cft of Glopane Rubble 52080-0
or Cys of do 1929

Filling up interstices of
Apron between body & 1st

Building walls

Concrete 450' 30" 2" 2475

Total Cft of Concrete 2480

Apron between 1st & 2nd Building walls or Cys of do 92

Rubble

Under apron between 1st & 2nd Building walls } 1 459' 25" 2-6 28687.6

Total Cft of Rubble 28687 1/2

or Cys of do 1062 1/2

Apron above

Between 1st & 2nd Building walls } 1 459' 25" 3-6 40162.6

Total Cft of Cyclopean Rubble 40162 1/2

Filling up interstices of Apron between 1st & 2nd or Cys of do 1487 1/2

Building walls Concrete 459' 25" 2" 1912 1/2

Apron between 2nd & 3rd Building walls } 1 465' 30" 2-6 34875.0

Rubble Total Cft of Concrete 1912 1/2

Under apron between 2nd & 3rd Building walls } 1 465' 30" 2-6 34875.0

Rubble Total Cft of Rubble 34875.0

or Cys of do 1291 2/3

Apron above Between 2nd & 3rd Building walls } 1 465' 30" 3-6 48825.0

Total Cft of Cyclopean Rubble 48825.0

or Cys of do 1808

Filling up interstices of
Apron between 2nd & 3rd

Building walls

Concrete 465' 30" 2" 2325

Total Cft of Concrete 2325

Apron between 3rd building and 4th Retaining wall or Cys of do 86 1/2

Rubble

Under apron between 3rd Building & 4th Retaining wall } 1 469' 29" 2-6 34002.6

Total Cft of Rubble 34002 1/2

or Cys of do 1259 1/2

Apron above

Between 3rd Building and Retaining wall } 1 469' 29" 3-6 47603.6

Total Cft of Cyclopean Rubble 47603 1/2

Filling up interstices of Apron between 3rd building and 4th Retaining wall or Cys of do 1763 1/2

Concrete 469' 29" 2" 2266 5/8

Total Cft of Concrete 2266 5/8

or Cys of do 84

Apron beyond retaining wall

Rubble Under apron beyond retaining wall } 1 483' 639" 2-0 37713.0

Total Cft of Rubble 37713.0

or Cys of do 1396 2/3

Apron above Beyond retaining wall } 1 489' 40" 4-0 78240.0

Total Cft of Rubble 78240.0

or Cys of do 1808

Total Cft of Cyclopean rubble 78240
 Filling in interior of Apron beyond retaining wall

Concrete 1 492' 40" 2" 3280

Total Cft of Concrete 3280

Rubble Beyond retaining wall 2nd portion 1 489' 60" 4" 117360

Total Cft of Rubble 117360
 or Cys of do 4346²/₃

Pitching adjacent to rear return.
 Foundation in front of rear return 1 100' 12" 4" 4800

Total Cft of Cyclopean rubble 4800
 or Cys of do 177²/₃

Pitching Above do do 1 100' 44" 3" 13200

Total Cft of Cyclopean rubble 13200
 or Cys of do 488⁸/₃

Gravel backing Under pitching beyond the rear return 1 100' 59" 1" 5900

Total Cft of Gravel backing 5900
 or Cys of do 218¹/₂

chips adjacent to front wing.
 Foundation in front of front wing 1 150' 12" 4" 7200

Total Cft of Cyclopean rubble 7200
 or Cys of do 266²/₃

chips above front of front wing 1 133' 44" 3" 17556
 Total Cft of Cyclopean rubble 17556
 or Cys of do 650²/₃

and backing under Pitching 1 133' 59" 1" 7847
 Total Cft of gravel backing 7847
 or Cys of do 290²/₃

Front wing wall concrete
 Cells of front wing 39 (4²/₃ x 7854) 9' 4410.80
 Total Cft of Concrete 4410⁴/₅
 or Cys of do 163¹/₃

Brick work sinking well used out wing 39 (5¹/₂ x 3.1416) 1-6 x 9' 9097.25

Total Cft of Brick in Mortar 9097¹/₄

Foundation front wing 1 125' 6 12' 7¹/₂ 3" 4753⁵/₁₆
 Total Cft of rubble masonry 4753⁵/₁₆
 or Cys of do 176

Superstructure

Front wing 1 125-9 11-2½ 7-0 9807 $\frac{7}{24}$
Total Cft of rubble masonry 9807 $\frac{7}{24}$
or Cys of do 363 $\frac{1}{4}$

Laterite

Front wing above 1 125-0 10-9½ 3-6 4712 $\frac{1}{4}$
Do Do 1 125-0 6-3½ 21-6 16964 $\frac{81}{90}$
Total Cft of Laterite in masonry 21677 $\frac{3}{32}$
or Cys of do 803

Pointing

Faces of front wing above 1 26-0 0 6-6 169-
Do of Do beyond 1 16-0 0 3-0 48-0
Do of Do above pitching 1 42-0 0 22-6 945-0
Do Do beyond do 1 49-0 0 32-0 1568-0
Sp of wing wall 1 128-6 2-0 257-0
Total sq ft of Pointing 2987-
or sqs of do 30

Abutment

Concrete

In wells under abutment 7 (4½ x 7854) 9-0 791 $\frac{7}{10}$
Total Cft of Concrete 791 $\frac{7}{10}$
or Cys of do 29 $\frac{1}{3}$

Brick Work

7 (5½ x 3.1416) 1½ x 9-0 1632 $\frac{4}{5}$
Total Cft of Brick in masonry 1633

Foundations

To Abutment

13✓
1 27-0 12-7½ 3-0 1022 $\frac{5}{8}$
Total Cft of Rubble in foundation 1022 $\frac{5}{8}$
or Cys of do 37 $\frac{5}{8}$

Above

Abutment

1 27-0 11-2½ 7-0 2118 $\frac{3}{8}$
Total Cft of Rubble in foundation 2118 $\frac{3}{8}$
or Cys of do 78 $\frac{1}{2}$

Laterite

To abutment under

2 10-9½ 6-0 3-6 452 $\frac{3}{8}$
Do above 2 10-2 5-0½ 21-6 2204 $\frac{746}{2858}$

Deduct for flooring 1 13-10-9 1-6 208 $\frac{7}{8}$

Total Cft of Laterite in foundation 2447 $\frac{5}{8}$
or Cys of do 90 $\frac{2}{3}$

Pointing

Faces of abutment

2 14-10 0 23-0 682 $\frac{1}{3}$
Sp of do 2 8-10 4-1 72 $\frac{1}{7}$

Faces where revetment

walls meet 2 2-5 0 23-0 111 $\frac{1}{6}$

Total sq ft of Pointing 865 $\frac{2}{3}$
or sqs of do 87

Rear Wing wall

Concrete

In wells under rear wing 29 (4½ x 7854) 9-0 3279 $\frac{4}{5}$

Total Cft of Concrete 3279 $\frac{1}{2}$
 or Cys of do 121 $\frac{1}{2}$

Brickwork

For wells under rear wing 29 (5 $\frac{1}{2}$ x 3.1416) 1-6 x 9-0 6763.34
 Total Cft of Brick in Mortar 6763.34

Foundations

Under rear wing 1 113-0 11-10 $\frac{1}{2}$ 3-0 4025 $\frac{5}{8}$
 Total Cft of Rubble in Mortar 4025 $\frac{5}{8}$
 or Cys of do 149 $\frac{1}{2}$

Superstructure

Rear wing up to 9 feet in height 1 112-3 10-6 $\frac{1}{2}$ 9-9 11320-7
 Do above 1 111-1 $\frac{3}{4}$ 5-11 $\frac{5}{8}$ 19-5 12986-4
 Total Cft of Rubble in Mortar 24257
 or Cys of do 898 $\frac{1}{2}$

Painting

Face and top of rear wing 1 112-0 " 26-9 2996
 Total Sq ft of Painting 2996
 or squares of do 30

Rear Returns

Concrete
 In Wells under rear returns 13 (4 $\frac{1}{2}$ x 7.854) 9-0 1470 $\frac{1}{4}$
 Total Cft of Concrete 1470 $\frac{1}{4}$
 or Cys of do 54 $\frac{1}{2}$

Brickwork

15 ✓
 For walls under rear returns 13 (5 $\frac{1}{2}$ x 3.1416) 1-6 x 9-0 3031.84
 Total Cft of brick in Mortar 3031.84

Foundations

For rear returns 1 52-0 11-1 $\frac{1}{2}$ 3-0 1735 $\frac{1}{2}$
 Total Cft of rubble in Mortar 1735 $\frac{1}{2}$
 or Cys of do 64 $\frac{1}{2}$

Superstructure

Rear returns up to 9 ft block 1 52-0 9-7 $\frac{1}{2}$ 9-0 4504 $\frac{1}{2}$
 Do above do 1 52-0 5-7 $\frac{1}{2}$ 17-6 5118 $\frac{3}{4}$
 Total Cft of rubble in Mortar 9623 $\frac{1}{4}$
 or Cys of do 356 $\frac{1}{2}$

Painting

Face of rear returns 1 40-0 " 17-0 680-0
 Driveway pitching 1 20-10 $\frac{3}{4}$ " 26-6 553-9
 Top of do 1 60-0 2-0 " 120-0
 Total Sq ft of Painting 1353-9
 or squares of do 13 $\frac{1}{2}$

Retement walls

Concrete

Under retement walls 2 450-0 7-3 $\frac{1}{2}$ 1-6 9825-0
 Total Cft of Concrete 9825-0
 or Cys of do 364 $\frac{22}{27}$

Foundations

Retainment walls 2 450 6-2 1-6 8325-0
Total Cft of rubble in mortar 8325-0
or Cords of do 308 $\frac{1}{2}$

Superstructure

Retainment walls above 2 452 3-6 $\frac{1}{2}$ 12-9 40640-7 $\frac{1}{2}$
Total Cft of rubble in mortar 40640-8
or Cords of do 1505 $\frac{2}{3}$

Pointing

Faces & top of retainment walls 2 450 0 8-0 7200-0
Total sq ft of Pointing 7200-0
or squares of do 72

Latent flooring

Between retainment walls 1 30-0 13-0 1-6 585-0
Total Cft of Latent flooring 585-0
or Cords of do 21 $\frac{2}{3}$

Concrete

Under flooring 1 18-6 12-6 1-0 231-3
Total Cft of Concrete 231 $\frac{3}{4}$
or Cords of do 8 $\frac{5}{9}$

Packed Rubble

Flooring 1 30-0 13-6 2-0 810-0
Total Cft of packed rubble flooring 810-0
or Cords of do 30

Flooring

Between retainment walls 1 120-0 13-0 1-0 1560-0
Total Cft of packed rubble flooring 1560-0
or Cords of do 57 $\frac{1}{2}$

Pitching of outer face of upstream approach foundation

Pitching of front embankment 1 413-0 2-0 5-0 4130-0
Total Cft of Cyclopean rubble 4130-0
or Cords of do 153

Pitching above do 1 418-0 1-6 32-0 20064-0
Total Cft of Cyclopean rubble above foundations 20064-0
or Cords of do 743 $\frac{1}{9}$

Gravel backing 1 415-0 39-0 1-0 16185-0
Total Cft of gravel backing 16185-0
or Cords of do 599 $\frac{1}{2}$

Pitching of outer toe of downstream approach foundation

Pitching of gravel slope 1 435-0 5-0 1-6 3262 $\frac{1}{2}$
Total Cft of Cyclopean rubble 3262 $\frac{1}{2}$
or Cords of do 121

Pitching above 1 441-019-61-6-12899 $\frac{1}{4}$
Total Cft of Cyclopean rubble
above foundations 12899 $\frac{1}{4}$

or Cys of do — 478.

Gravel backing 1 438-021-01-0 9198
Total Cft of gravel backing 9198

or Cys of do 340 $\frac{2}{3}$

Surfing square yards 3800
Excavating foundations & filling in

Filling in pool in line of body & retaining
walls to water level for Wells

Sinking Wells

Under body wall ft 112

Do last retaining wall 115

Do front wing wall 39

Do abutment 7

Do rear wing 29

Do rear return 13

Heavy rubble and
clay for front of abutment

Pairs & extensions of tramway

Baling water

Special Petty Superintendence scaffolding and
sundries

Compensation for land
Superintendence 19V
Executive Establishment
Directions and Control
Tools and Plant & vide separate Estimate

District Engineer's
Office
Bell Street
21st April 1875.

W

Wm. H. Smith
District Engineer

3242

Part of E. No. 5 of 1924/75

M. G. O. No. 1429

25th May /75

Railway Department.

CONSULTING ENGINEER'S OFFICE.

No. 273. *Madras 13 May 1875*

From

LIEUT COLONEL J H M SHAW STEWART, R E,

Consulting Engineer for Railways,

To

COLONEL G W WALKER, R E,

Secretary to Government,

Public Works Department,

Fort Saint George

SIR,

With reference to paragraph 3 of the Proceedings of Government, No. 1291, dated 5th May 1875, I have the honour to report that the 'Portlaw' anchored at Negapalam on the 19th April 1875.

I have the honour to be,

Sr,

Your most Obedt Servant,

W. M. M. M. M.

W. M. M. M. M.
Consulting Engineer for Railways

Proceedings of the Madras Government, Public Works Department,
25th May 1875

No 433 Read the following endorsement of the Chief Engineer for Irrigation,
dated Fort St George, 7th April 1875, No 17 —

From J H LATHAM, Esq, Chief Engineer and Manager of the Madras Irrigation
and Canal Company, to Lieutenant-Colonel J MULLINS, R E, Chief
Engineer for Irrigation, dated Kurnool, 24th March 1875, No. 42

In reference to G O, No 50, of 8th January 1875, I have the honor, at the desire
of the Directors, to ask you to place before Government the Board's Minute of 23rd
February last, a copy of which I enclose

2 The Board also desire me to urge the importance, in the interests of irrigation
generally, that the ryots should by some means be made to understand that the present
charges, fixed by Government after the Meeting of Cuddapah, will not be reduced If
the ryots only once have an idea that by holding out, in their turn, from using the
water, they will be able to beat down the price fixed after all the deliberation,
circumstance, and public display of the present rates, held forth by the Government
and the Company as a formal tender of water-supply, then it will be next to impossible
to extend the area now supplied, and even those who have already grown wet crops
may contract their irrigation

3 In contributing the following remarks, I am very anxious to leave nothing
unsaid, which it is in my power to say, in order to assist the Government in coming to
a successful decision on this difficult matter —

(1) In reference to the rate for filling Government tanks, I need scarcely remind
you that in my view Rupees 6 being a fair rate for rice, that it is equivalent in
average seasons to about 800 cubic yards a rupee delivered on the fields, and to about
1,600 cubic yards a rupee for water stored at the beginning of a season in a tank in
which the evaporation will in three or four months approximately equal the water
delivered. The supplies given by the canal to Government tanks have generally
maintained the tanks with from one to three months' supply in them. If the officers
of Government find that they can utilize the canal water by the aid of existing tanks,
but in a rather wasteful way, I think that it is at present fair that the canal alone
suffer by the waste, until there be an ample demand for the canal water for less
wasteful irrigation, and this seems to be the view of the Board, who only ask a
reconsideration by the Government, with whom they leave the final settlement of the
exact rate to be charged

(2) I have few facts to add in reference to the already carefully considered water-
rates for general irrigation I have, however, had the areas of land actually irrigable
from existing channels, and also that capable of being irrigated by slight extensions
of the channels, carefully got out, except for Sirwel and Kolkuntla still incomplete

RAILWAY DEPARTMENT

From

The Consulting Engineer,

To

for Railways,

The Secretary to Government,

P W Department,

Fort Saint George

Dated

Recd

1875

No 273.

No: 3240

3240

PUBLIC WORKS.

The Consulting Engineer

Dated

Recd

28 May 1875, No 149

Nos 431-432

South India Railway

The Consulting Engineer

reports the arrival of

the ship "Gordon"

at Negapatnam on the

19th April 1875, with

the goods.

1875 May 1875 No 143/144

No: 1875

1

1875

1875 May 1875 No 143/144

1875 May 1875 No 143/144

Recorded

1875

1875 May 1875 No 143/144

1875 May 1875 No 143/144

1875 May 1875 No 143/144