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[L. & M. 2,000—]

Local & Munl. (1897) Department.

MISCELLANEOUS.

G.O., No. 1772 Mn.

DATED 13-8-97

INDEXED. CR 18/8.

This will be printed on release from this file.

DESPATCHED

[Despatch Abstract.]

Water supply scheme

Stating that at the present state of the Provincial finances the Govt. regret its inability to hold out any promise of aid towards the Gundiyatteau — within any definite period, & if the Municipal Council cannot carry out the work in their own association the question of a water supply for the town must stand over for the present.

BACK PAPERS.

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

FURTHER PAPERS.

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

Government of Madras.

LOCAL AND MUNICIPAL DEPARTMENT

MISCELLANEOUS.

ecd. } 1897. *Enclosures*

legd. *Spare copies*

G.O., No. 1772 M., 13th August 1897.

Water-supply Scheme.

Stating that in the present state of the provincial finances the Government regrets its inability to hold out any promise of aid towards the Gudiyáttam — within any definite period, and that if the Municipal Council cannot carry out the work without such assistance the question of a water-supply for the town must stand over for the present.

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following papers :—

I

Proceedings of the Sanitary Board, No. 19-S., dated 7th January 1897.

Read—the following paper :—

Letter—from J. A. JONES, Esq., M.I.C.E., Sanitary Engineer to Government.
To—the Secretary, Sanitary Board (through the Sanitary Commissioner, Madras).
Dated—Madras, the 4th December 1896.
No.—3397.

With reference to Sanitary Board's rule 16 embodied in G.O., No. 1698 L., dated 18th September 1896, I have the honour to send you report, plans and estimates for the Gudiyáttam water-supply scheme with connected papers.

ENCLOSURE.

Report on a scheme for the water-supply of Gudiyáttam, dated 4th December 1896.

A preliminary report on the water-supply of Gudiyáttam was made by the Assistant Sanitary Engineer to Government, and was submitted to Government with the Sanitary Board's Proceedings, No. 1343, of 1st May 1896. In its order, Mis. No. 1027 M., dated 18th June 1896, Government requested the Council to provide a sum of Rs. 100 for the preparation of detailed plans and estimates for the scheme, which form the subject of the present report.

2. The proposal for the water-supply of Gudiyáttam was first mooted by the Sanitary Commissioner in his inspection notes embodied in G.O., No. 1237 M., dated 1st August 1895. He suggested the substream of the Koundinia Nadi, which flows in close proximity to the town, as the source of supply. Also in view of the inability of the Municipality to afford a scheme permitting of complete distribution in the town, the Sanitary Commissioner indicated a cheap arrangement of distribution with a limited number of taps at important points of the town, an arrangement which would in the words of the Sanitary Commissioner "if not fulfilling the requirements of an engineering 'major work' be of considerable sanitary value to the people".

Source of supply.—The supply is to be obtained from the underflow in the bed of the Koundinia Nadi, which passes through and divides the Municipality of Gudiyáttam into two portions. The portions of the town nearest the river derive their present water-supply from spring channels excavated in the bed of the river. The river has also excellent spring channels, which are used for irrigation of lands. At the point selected for the head works the river is 590 feet broad. The level of its bed is 33·94 above M.S.L. and the depth of sand in the bed of the river is about 19 feet. *

Substream water level.—On the 16th July 1896, the water level under the sand was 27·29 above the M.S.L., which is 6·65 feet below the bed of the river. The subjoined statement gives the annual rainfall at Gudiyáttam for the past 25 years :—

* *Note.*—The depth of sand was ascertained by an open excavation down to water level, a well sunk 6 feet below water level, and by probing a further depth of 2 feet at the bottom of the well by a crowbar. Owing to the insufficiency of the length of the crowbar it was not possible to probe the sand further.

Year.	Rainfall in inches.	Year.	Rainfall in inches.
1870	30·00	1883	41·33
1871	39·42	1884	44·71
1872	47·25	1885	29·01
1873	36·52	1886	36·37
1874	59·94	1887	48·98
1875	27·68	1888	44·32
1876	14·71	1889	44·97
1877	37·81	1890	42·51
1878	42·04	1891	22·60
1879	38·88	1892	36·21
1880	40·34	1893	39·23
1881	29·64	1894	29·69
1882	37·68	1895	26·45

It will be seen that, during the last two years, the rainfall has been much below the average. The quantity that fell last year is the lowest but one on record excepting the famine year. It is not likely that in any year the water level will have fallen much lower than in 1895.

Quality of water.—The water has been analysed and pronounced "usable". The Chemical Examiner's report is given below :—

		Water from spring in the bed of the Koundinia Nadi, Gudiyáttam.
Total solids	Grms. per litre	0·470
Volatile solids	„ „	0·090
Chlorine	„ „	0·040
Total hardness	Clark's scale	5·950
Permanent hardness	„	trace.
Free ammonia	Mlgrms. per litre	0·056
Albuminoid ammonia	„ „	2·400
Nitric acid	„ „ (as ammonia)	
Apparent quality of the water as inferred from the results obtained on examination		Usable.

Quantity of water required.—The scheme provides for a supply of 6 gallons per head, this quantity being considered by the Sanitary Commissioner as the minimum likely to secure sanitary ends and the maximum that financial considerations permit. At the last census the population of Gudiyáttam was 18,745. For the purpose of this scheme the population is assumed at 19,000. The quantity of water required per day is $19{,}000 \times 6 = 114{,}000$ gallons.

Quantity of water available.—It is impossible to reckon the yield with any accuracy. But the following statement of facts will lend some assurance as to the sufficiency of water. Two pot wells $2\frac{1}{2}$ feet in diameter were sunk in the bed of the river to a depth of 6 feet below water level. As a pump was not available men were employed to bail out water with pots. Fast as they could work, they found it impossible to lower the water in the well by more than 15 inches. A careful calculation was made of the quantity bailed out, which averaged 30 gallons per minute from each well. If the assumption that the yield from a well varies as the square of the head is correct, it should be possible to obtain about 150 gallons per minute from each well with the water lowered 3 feet in the well. This is about the supply required for the whole town. The infiltration gallery designed for Gudiyáttam is in its design, depth below lowest water level and nature of sand, very similar to the one constructed at Conjeeveram. At the latter place the gallery which is 550 feet long was tested to yield 1,320 gallons per minute with the water level lowered by 6 feet. The length of the gallery proposed for Gudiyáttam is 200 feet.

Site of head works.—The head works are located on the right bank of the river just above the village of Bodipet, which forms a portion of the Municipality. This site is 3,700 feet from the nearest point in the main portion of the town, and has received the approval of the Sanitary Commissioner.

Infiltration gallery.—The length of the proposed gallery is 200 feet, and consists of two rows of 9 inches stoneware pipes laid at the level of 19·29 or 8 feet below the lowest summer water level. The pipes will be bedded on a layer of broken stones 6 feet wide and 6 inches thick. Broken stones will also be laid to the same breadth over the pipes and carried up to the level of 27·29. The infiltration pipes will be led into a cistern 6′ × 3′, close to the bank of the river. From this cistern, the water will be conveyed by a single 12 inches iron pipe to the suction well placed between the cistern alluded to above and the pumping house.

Pumping house.—The pumping house will be 28 feet 1½ inches from the centre of the suction well. The design consists of masonry foundations and basement and corrugated iron superstructure and roof. The basement is 1·68 feet above the highest known flood level.

Engines and pumps.—Pumping will take place only during the 12 hours of the day and night pumping will be avoided. The maximum quantities to be pumped will be—

114,000 gallons in 12 hours.
9,500 gallons in 1 hour.
160 „ in 1 minute.

The total lift will be 52 feet. The engines required will be of

$$\frac{160 \times 10 \times 52}{33,000} = 2{\cdot}6 \text{ P.H.P.}$$

Two engines each of 2·6 P.H.P. are provided in the estimate so as to have one always in reserve.

The engines shown on the plan are Messrs. John and Henry Gwynne's Twin Centrifugal pumping engines.

Pumping main.—The pumping main from the pumping station to the service reservoir is 3,700 feet long. It will be 7 inches in diameter and will discharge the required quantity of 160 gallons with a hydraulic gradient of 1·9 per 1,000.

Service reservoir.—The position of the service reservoir is shewn on plan No. 3. It is an elevated tank built entirely of masonry. Its inside dimensions are 30′ × 20′ with a depth of 5 feet. The maximum water level is 64·00 which is about 20 feet above ground level. The tank is capable of holding 18,750 gallons which is ⅛ of a day's supply. The reasons for restricting the reservoir to this size are given in the previous report.

Distribution.—From the service reservoir water will be distributed by a system of pipes consisting of—

944	L. ft.	of 7 inches	pipes.
945	„	of 6 „	„
1,206	„	of 4 „	„
6,786	„	of 3 „	„

There will be 14 fountains for the people to obtain water. These are marked in red circles on sheet No. 1. There will be 13 sluice valves on the pumping and distribution mains and branches, and these are shown in sheet No. 5.

Initial cost.—The scheme is estimated to cost as below:—

	Rs.
Infiltration works	6,940
Engine and boiler house	2,080
Quarters for engine drivers and coolies	2,000
Engines, pumps and boilers	7,500
Service reservoir	6,500
Compensation for land	900
Supply and delivery of pipes	18,620
Laying and jointing pipes	3,920
Total	48,460
Tools and plant	650
Contingencies	2,390
Total	51,500

Annual Cost.

On the assumption that Government will make a free grant of half the cost of the scheme the annual cost of the scheme will be—

	Rs.
Interest and sinking fund on Rs. $\frac{51,500}{2}$ × 5 96 per cent.	1,535
Cost of pumping 114,000 gallons daily 47 feet (average lift) high at Rs. 1 per million gallons raised one foot high	2,000
Repairs to machinery, fountains, etc.	465
Total	4,000

In the preliminary report on the scheme the cost of pumping was taken at As. 10 per million gallons lifted one foot high, which is too low for pumping a small supply. But in all probability the town consumption will not reach the maximum provided in this scheme for some years to come and until such time the annual expenditure will not exceed about Rs. 3,500 which is the sum reckoned in the original report.

HORMUSJI NOWROJI,
Asst. Sanitary Engineer to Government.

Resolution—No. 19-*S., dated 7th January* 1897.

With his letter No. 3397, dated 4th December 1896, the Sanitary Engineer submits a report with plans and estimates for the Gudiyáttam water-supply scheme, prepared in accordance with the orders of Government contained in G.O., No. 1237 M., dated 1st August 1895, and the Sanitary Commissioner's Inspection Notes recorded therewith.

The scheme, which is estimated to cost Rs. 51,000, is fully described in the Sanitary Engineer's report and is, in the opinion of the Sanitary Board, good as far as it goes; but the necessity for economy has caused it to be cut down to the lowest possible limits, the supply being reduced to only 6 gallons per head of the present population, and the service reservoir holding only one-sixth of a day's supply. The working expenses amount to Rs. 4,000 per annum, and to raise this sum, the house and land tax will have to be increased from 5 to 7½ per cent. and a water-tax levied in addition. This seems a rather serious burden on the resources of the Municipality, but the Sanitary Board does not see its way to suggesting any reduction, and accordingly submits the project for the orders of Government.

(True Extract.).

R. PARSONS,
Secretary, Sanitary Board.

To the Secretary to Government, Local and Municipal Department.

II

Endorsement No. 169, dated 16th February 1897.

Referred to the Municipal Council, Gudiyáttam, for early remarks.

G. S. FORBES,
Secretary to Government.

To the Chairman, Municipal Council, Gudiyáttam.

III

Letter—from SAYYID ADAM SAIT, Esq., Chairman, Municipal Council, Gudiyáttam.
To—the Secretary to Government, Local and Municipal Department.
Dated—the 30th March 1897.
No.—Cur. 312.

With reference to Government Endorsement No. 169, dated 16th February 1897, on the Proceedings of the Sanitary Engineer, No. 3397, dated 4th December 1896, regarding the introduction of water-supply scheme, calling for remarks of the Council, I have the honour to forward herewith an extract of the resolution of the Council, dated 15th March 1897, for the favourable consideration and orders of Government.

ENCLOSURE.

Extract from the Proceedings of the Municipal Council, Gudiyáttam, dated 15th March 1897.

* * * * *

Read endorsement No. 169, dated 16th February 1897, of Government, on the Proceedings of Sanitary Engineer, No. 3397, dated 4th December 1896, about the water-supply scheme, for early remarks of the Council.

Resolution No. II.—The Council have no objection to the introduction of the water-supply scheme in the town, but considering their financial circumstances and the condition of the town's people, most of whom are unable to bear the present taxes, it is hoped that the Government will be pleased to contribute more to this Municipality than they have done to other Municipalities.

IV

Memorandum No. 518, dated 23rd April 1897.

The Chairman is requested to return the plans forwarded to him with Government endorsement No. 169, dated 16th February 1897.

G. S. FORBES,
Secretary to Government.

To the Chairman, Municipal Council, Gudiyáttam.

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To—the Secretary to Government, Local and Municipal Department.
Dated—the 15th June 1897.
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With reference to Government Memorandum No. 518, dated 23rd April 1897, I have the honour to forward herewith a roll of plans relating to the water-supply scheme of this Municipality returned to me by the Collector for transmission to Government.

Order—No. 1772 M., dated 13th August 1897.

In the present state of the provincial finances, the Government regrets its inability to hold out any promise of aid within any definite period. If the Municipal Council cannot carry out the work without such assistance, the question of a water-supply for the town must stand over for the present.

(True Extract.)

G. S. FORBES,
Secretary to Government.

To the Chairman, Municipal Council, Gudiyáttam
(through the Collector of North Arcot).
,, Sanitary Board.
,, ,, Commissioner.
,, ,, Engineer.

No. 1772 M., 13TH AUGUST 1897.

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S. E. 500—8-8-06.

No. 3397.

OFFICE OF SANITARY ENGINEER,

Kensington House, Chetput,

Madras, 4th December 1896 ~~190~~ .

From

J.A. Jones Esquire, M.I.C.E.,

~~W. HUTTON, Esq., A.M.I.C.E.,~~

SANITARY ENGINEER TO GOVERNMENT,

To

The Secretary, Sanitary Board,

Through

The Sanitary Commissioner,

M a d r a s.

SIR,

With reference to Sanitary Board's Rule 16 embodied in G.O.No.1698 L., dated 18th September 1896, I have the honour to send you Report, plans and estimates for the Cudiyattam Water Supply Scheme with connected papers.

I have etc.

(Signed) J.A. Jones,

Sanitary Engineer to Government.

LOCAL & MUNICIPAL 20 JAN 1897 SECRETARIAT

(True copy)

Manager,

(to be entitled for printing G.O. No 1722 m 13-8-97

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NOWRAJI HORMUSJI,
Asst. Sanitary Engineer to Government.

No. 1772 M., 13TH AUGUST 1897.

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(True Extract.)

R. PARSONS,
Secretary, Sanitary Board.

To the Secretary to Government, Local and Municipal Department.

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G. S. FORBES,
Secretary to Government.

To the Chairman, Municipal Council, Gudiyattam.

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Dated—the 30th March 1897.
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MISCELLANEOUS.

G.O., No. 1772 M., 13th August 1897.

Water-supply Scheme.

Stating that in the present state of the provincial finances the Government regrets its inability to hold out any promise of aid towards the Gudiyáttam — within any definite period, and that if the Municipal Council cannot carry out the work without such assistance the question of a water-supply for the town must stand over for the present.

Report on a scheme for the Water Supply of

Gudiyattam.

A preliminary report on the water supply of Gudiyattam was made by the Asst. Sanitary Engineer to Government, and was submitted to Government with the Sanitary Board's Proceedings, No. 1345, of 1 st. May 1896. In its order, No. 1027, M Mis., dated 18 th. June 1896, Government requested the Council to provide a sum of Rs 100 for the preparation of detailed plans and estimates for the scheme, which form the subject of the present report.

2. The proposal for the water supply of Gudiyattam was first mooted by the Sanitary Commissioner in his Inspection Notes embodied in G. O. No. 1357 M. dated 1 st. August 1895. He suggested the substream of the Koundinia Nadi, which flows in close proximity to the town, as the source of supply. Also in view of the inability of the Municipality to afford a scheme permitting of complete distribution in the town, the Sanitary Commissioner indicated a cheap arrangement of distribution with a limited number of taps at important points of the town- an arrangement which in the words of the Sanitary Commissioner "If not fulfilling the requirements of an engineering "Major Work" be of considerable sanitary value to the people".

Source of supply.- The supply is to be obtained from the underflow in the bed of the Koundinia Nadi, which passes through and divides the Municipality of Gudiyattam into two portions. The portions of the town nearest the river derive their present water supply from spring channels excavated in the bed of the river. The river has also excellent spring channels, which are used for irrigation of lands. At the point selected for the head works the river is 590 feet broad. The

The level of its bed is 33·94 above M. S. L and the depth of sand in the bed of the river is about 19 feet.✗

Substream water level.- On the 16th. July 1896 the water level under the sand was 27·29 above the M.S.L., which is 6·65 feet below the bed of the river. The subjoined statement gives the annual rainfall at Gudiyattam for the past 25 years.

Year	Rainfall in inches	Year	Rainfall in inches
1870	30·00	1883	41·33
1871	39·42	1884	44·71
1872	47·25	1885	39·01
1873	36·52	1886	36·37
1874	59·94	1887	48·98
1875	27·68	1888	44·32
1876	14·71	1889	44·97
1877	37·81	1890	42·51
1878	42·04	1891	22·60
1879	38·88	1892	36·21
1880	40·34	1893	39·25
1881	29·64	1894	29·69
1882	37·68	1895	26·45

It will be seen that, during the last two years, the rainfall has been much below the average. The quantity that fell last year is the lowest but one on record excepting the famine year. It is not likely that in any year the water level will have fallen much lower than in 1895.

Quality of water. The water has been analysed and pronounced "usable". The Chemical Examiner's report is given below.

	Water from spring in the bed of the Koundinia Nadi, Gudiyattam.
Total solids ----------Grms. per litre ----------	0.470
Volatile solids -------- do. do. ----------	0.090
Chlorine ---------- do. do. ----------	0.040
Total hardness ----------Clark's scale	5°.950
Permanent hardness ---------- do.	trace
Free ammonia ---Mlgrms. per litre ----------	trace
Albumenoid ammonia--do. do. ----------	0.056
Nitric acid --------do. do. --------(as ammonia)--	3.400
Apparent quality of the water as inferred from the results obtained on examination.	Usable.

✗ Note.- The depth of sand was ascertained by an open excavation down to water level, a well sunk 6 feet below water level, and by probing a further depth of 2 feet at the bottom of the well by a crowbar. Owing to the insufficiency of the length of the crowbar it was not possible to probe the sand further.

Quantity of water required--- The scheme provides for a supply of 6 gallons per head, this quantity being considered by the Sanitary Commissioner as the minimum likely to secure sanitary ends and the maximum that financial considerations permit. At the last census the population of Gudiyattam was 18,745. For the purpose of this scheme the population is assumed at 19,000. The quantity of water required per day is

19,000 X 6 = 114,000 gallons.

Quantity of water available--- It is impossible to reckon the yield with any accuracy. But the following statement of facts will lend some assurance as to the sufficiency of water. Two pot wells 2½ feet in diameter were sunk in the bed of the river to a depth of 6 feet below water level. As a pump was not available men were employed to bail out water with pots. Fast as they could work, they found it impossible to lower the water in the well by more than 15 inches. A careful calculation was made of the quantity bailed out, which averaged 50 gallons per minute from each well. If the assumption that the yield from a well varies as the square of the head is correct, it should be possible to obtain about 150 gallons per minute from each well with the water lowered three feet in the well. This is about the supply required for the whole town. The infiltration gallery designed for Gudiyattam is in its design, depth below lowest water level & nature of sand, very similar to the one constructed at Conjeeveram. At the latter place the gallery which is 550 feet long was tested to yield 1320 gallons per minute with the water level lowered by 6 feet. The length of the gallery proposed for Gudiyattam is 200 feet.

Site of head works.--- The head works are located on the right bank of the river just above the village of Bodipet, which forms a portion of the Municipality. This site is 3700 feet from the nearest point in the main portion of the town, & has received the approval of the Sanitary Commissioner.

Infiltration gallery.--- The length of the proposed gallery is 200 feet, & consists of two rows of 9" stoneware pipes laid at the level of 19.29 or 8 feet below the lowest summer water level. The pipes will be bedded on a layer of broken stones 6 feet wide and 6 inches thick. Broken stones will also be laid to the same breadth over the pipes & carried up to the level of 27.29. The infiltration pipes will be lead into a cistern 6' X 3', close to the bank of the river. From this cistern the water will be conveyed by a single 12" iron pipe to the suction well placed between the cistern alluded to above & the pumping house.

Pumping House.--- The pumping house will be 28 feet 1½ inch from the centre of the suction well. The design consists of masonry foundations & basement & corrugated iron superstructure & roof. The basement is 1.68 feet above the highest known flood level.

Engines & Pumps. Pumping will take place only during the 12 hours of the day & night pumping will be avoided. The maximum quantities to be pumped will be:-

114,000 gallons in 12 hours.

9,500 gallons in 1 hour.

160 gallons in 1 minute.

The total lift will be 52 feet. The engines required will be of

$$\frac{160 \times 10 \times 52}{33000} = 2.6 \text{ P.H.P.}$$

Two engines each of 2.6 P.H.P. are provided in the estimate so as to have one always in reserve.

The engines shewn on the plan are Messrs. John and Henry Gwynne's Twin Centrifugal pumping engines.

Pumping Main.--- The pumping main from the pumping station to the service reservoir is 3700 feet long. It will be 7 inches in diameter & will discharge the required quantity of 160 gallons with a Hydraulic gradient of 1.9 per 1000.

Service Reservoir.--- The position of the service reservoir is shewn on plan No. 3 . It is an elevated tank built entirely of masonry. Its inside dimensions are 30' X 20' with a depth of 5 feet. The maximum water level is 64.00 which is about 20 feet above ground level. The tank is capable of holding 18750 gallons which is 1/6th of a day's supply. The reasons for restricting the reservoir to this size are given in the previous report.

Distribution--- From the service reservoir water will be distributed by a system of pipes consisting of:-

944 L.ft. of 7" Pipes.

945--do-- of 6"--do--

1206--do-- of 4"--do--

6786--do-- of 5"--do--

There will be 14 fountains for the people to obtain water. These are marked in red circles on sheet No. 1. There will be 15 sluice valves on the Pumping & distribution mains & branches, and these are shewn in sheet No.5.

Initial cost--- The scheme is estimated to cost as below:-

	Rs
Infiltration Works----------	6,940
Engine & Boiler House----------	2,020
Quarters for Engine Drivers & coolies--	2,000
Engines, Pumps & Boilers----------	7,500
Service Reservoir----------	6,500
Compensation for land----------	900
Supply & delivery of pipes----------	18,620
Laying & jointing pipes----------	5,920
Total---	48,450
Tools and plant----------	650
Contingencies----------	2,390
TotalRs--	51,500/-

Annual cost

On the assumption that Government will make a free grant of half the cost of the scheme the annual cost of the scheme will be:-

Interest & sinking fund on Rs $\frac{51,500}{2}$ X 5.96%-Rs 1,535

Cost of pumping 114,000 gallons daily 47 feet (average lift) high at Rs 1/- per million gallons raised one foot high----------Rs 2,000

Repairs to machinery, fountains &c ----------Rs 465

Total---Rs 4000/-

In the preliminary report on the scheme the cost of pumping was taken at 10 as. per million gallons lifted one foot high, which is too low for pumping a small supply. But in all probability the town consumption will not reach the maximum provided in this scheme for some years to come and until such time the annual expenditure will not exceed about Rs 3500, which is the sum reckoned in the original report.

Assistant Sanitary Engineer to Government

Office of Sany. Engr. to Govt.

Fort St. George 4 Decr. 1896.

Plans accompanying report on Gudiyattam Water Supply Scheme.

Sheet No. 1. General plan shewing Infiltration Gallery Engine House, Service Reservoir, Pipe Lines &c.

Sheet No. 2. Plan of Infiltration gallery & Engine House.

Sheet No. 3. Plan of Service Reservoir.

Sheet No. 4. Plan shewing site of Service Reservoir.

Sheet No. 5. Sections shewing hydraulic gradients of pipes.

dated 4 December 1896 for the ir...

Government of Madras.

SANITARY BOARD OFFICE.

LOCAL & MUNICIPAL DEPT. G.O.No. 60 M

PROCEEDINGS OF THE SANITARY BOARD, No. 198, DATED 7 January 1897

READ the following:—

Letter from the Sanitary Engineer No. 3397, dated 4 December 1896.

Endorsement thereon by the Sanitary Commissioner No. No. 2298/3, dated 7 December 1896.

Resolution.

With his letter No. 3397 dated 4 December 1896 the Sanitary Engineer submits a report with plans and estimates for the Gudiyattam Water Supply scheme, prepared in accordance with the orders of Government contained in G.O. No. 1237 M., Local and Municipal, dated 1st August 1895, and the Sanitary Commissioner's Inspection notes recorded therewith.

The scheme, which is estimated to cost Rs 51,000, is fully described in the Sanitary Engineer's report and is, in the opinion of the Sanitary Board, good as far as it goes; but the necessity for economy has caused it to be cut down to the lowest possible limits, the supply being reduced to only 6 gallons per head of the present population, and the service reservoir holding only one-sixth of a day's supply. The working expenses amount to Rs 4,000 per annum,

and

and to raise this sum, the house and land tax will have to be increased from 5 to 7½ per cent and a water tax levied in addition. This seems a rather serious burden on the resources of the Municipality, but the Sanitary Board does not see its way to suggesting any reduction, and accordingly submits the project for the orders of Government.

(True Extract)

A. Parsons
Secretary, Sanitary Board.

To

The Secretary to Government
Local and Municipal Department
with report, plans and estimates.

Local & Munl. (1897) Department.

CURRENT No. 60

19.2.97

Received 15-3-97

From

The Secretary,
Sanitary Board.

No. 198

Order
No. 169 of 16-2-97
Referred the Municipal Council, Gudiyattam, for early remarks

Dated 7 January 1897
Received 8- JAN.-1897
Registered
Enclosures 4 (one book containing 5 plans)
Spare copies.

SECRETARY TO GOVERNMENT * LOCAL & MUNICIPAL DEPARTMENT *

Secretary to Government

P.R. 15/2/97
for Chairman
15 February 1897

SUBJECT.

Gudiyattam Water Supply Scheme

Submitting with remarks report, plans and estimates for the ——

To
The Chairman, M.C. Gudiyattam
(with plans & estimates to be returned)

+ Per Parcel Post

26/1 a/1897

BACK PAPERS.

G.O.	No.	Department.	Date.
Go	1027	h	18-6-96
Go	301	h	20-2-96
Go	1499	h	16-9-95
Go	1237	h	1-8-95

FURTHER PAPERS.

G.O.	No.	Department.	Date.

18 500—21-5-96.

Abstract of Detailed Estimate No. 9 , dated 4th December 1895, for the Construction of Water Works for the town of Gudiyattam.

Quantity.	Description of work.	Rate. Rs.	A.	P.	Per	Amount. Rs.	A.	P.	Total. Rs.	A.	P.
	Infiltration Works.										
	Gallery.										
30280	C.ft. Earthwork excavation for laying stoneware pipes 8½ ft. below S.W.S. including timbering & refilling sand	35	"	"	C.ft 1000	1,060	"	"			
440	R.ft. 9" stoneware pipes 400 ft. for gallery & 40 ft. extra for breakages &c	1	2	"	R.ft	495	"	"			
400	" Laying & jointing 9" stoneware pipes	"	1	"	"	25	"	"			
10050	C.ft. Filling with broken stone collecting chamber	8	"	"	C.ft 100	804	"	"			
5719	" Earthwork excavation for foundation below bottom of gallery including timbering & refilling	50	"	"	1000	296	"	"			
108	" Concrete in cement in floor	50	"	"	100	54	"	"			
278	" Brick in cement in side walls up to water level	50	"	"	"	139	"	"			
283	" Brick in surkhi in side walls, above water level & backing	19	"	"	"	54	"	"			
	Carried over					2927	"	"			

Grand Total of Estimate ..

Office of Sanitary Engineer to Government,
Fort St. George, December 1896

Asst. Sanitary Engineer to Govern

Abstract of Detailed Estimate No. 9, dated 4th December 1896, for the construction of Water Works for the town of Gudiyattam

S. E. 18 [illegible] 21-5-96

Abstract of Detailed Estimate No. 9, dated 4th December 1896, for the construction of Water Works for the town of Gudiyattam

Quantity.	Description of work.	Rate. Rs.	A.	P.	Per	Amount. Rs.	A.	P	Total. Rs.	A.	P.
	Brought forward				c.ft.	2927	—	—			
16	c.ft. Arch-work	22	—	—	100	4	—	—			
12·25	" Covering stone for walls	2	—	—	C.ft.	25	—	—			
502	S.ft. Plastering with cement ½" thick	12	—	—	Sqt	60	—	—			
1	No. Cover for the chamber	5	—	—	Each	5	—	—			
1	" Iron ladder for do	25	—	—	"	25	—	—			
	Pipes between chamber & suction well.										
·621	Tons 18-ft 12" Cast Iron, class B, plain pipes	112	—	—	Ton	70	—	—			
416	C.ft. Earthwork, excavation for laying pipes including timbering & refilling	50	—	—	C.ft 1000	21	—	—			
18	S.ft. Laying & jointing 12" Cast iron pipes	1	—	—	C.ft	18	—	—			
1	No. 12" Reservoir sluice with rod pillar, & base plate, wall clamp girders & socket connection (to fit class B pipes) together with all necessary fastenings, the depth from the bottom of pipe to top of wall is 19·71ft.	170	—	—	Each	170	—	—			
	Carried over					3325	—	—			
	Grand Total of Estimate ..										

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Abstract of Detailed Estimate No. 9, dated 4 December 1896, for the

construction of Water Works for the town of Gudiyattam

Quantity.	Description of work.	Rate. Rs.	A.	P.	Per	Amount. Rs.	A.	P	Total Rs.	A.	P.
	Brought forward					3325	—	—			
1	No. Fixing 12" reservoir sluice Suction Well.	20	—	—	Each	20	—	—			
3270	C.ft. Earthwork, excavation down to water level	12	—	—	C.ft. 1000	39	—	—			
1479	L.ft. Sinking well to a depth of 14.79 ft. below lowest water level	25	—	—	L.ft	370	—	—			
	Curb for well				Sum	200	—	—			
190	C.ft. Concrete in cement at bottom of well	50	—	—	C.ft 100	95	—	—			
296	" Brick in cement, in steining of well, below water level	50	—	—	—	148	—	—			
277	" Brick in surki in steining of well above water level	19	—	—	—	53	—	—			
496	S.ft. Plastering with cement, $\frac{1}{2}$" thick	12	—	—	Sq.ft	60	—	—			
6	R.ft. Old rails under pipes	—	12	—	R.ft	5	—	—			
44	C.ft. Cut stone at top	2	—	—	C.ft	88	—	—			
404	" Excavation for laying pipes from suction to Engine House, including timbering & refilling	50	—	—	C.ft 1000	20	—	—			
	Carried over					4423	—	—			

Grand Total of Estimate ..

Office of Sanitary Engineer to Government,

Fort St. George, December 1896

Asst Sanitary Engineer to Government.

Grand Total of Estimate ..

Abstract of Detailed Estimate No. 9, dated 4 December 1896, for the

Abstract of Detailed Estimate No. 9, dated 4 December 1896, for the

construction of Water Works for the town of Gudiyattam

Quantity.	Description of work.	Rate. Rs.	A.	P.	Per	Amount. Rs.	A.	P	TOTAL. Rs.	A.	P.
	Brought forward					4423	—	—			
	Pumping during construction of work				Sum	2400	—	—			
	Petty charges					117	—	—			
	Total for infiltration works								6940	—	—
	Engine & Boiler House										
26/3	C.ft. Earthwork, excavation for foundation of walls & filling in basement	4	—	—	C.ft. 1000	11	—	—			
111	" Concrete in sunki for foundations	17	—	—	100	19	—	—			
1507	" Brickwork in chunam	17	—	—	"	256	—	—			
26	" Arch work over doors & windows	22	—	—	"	6	—	—			
940	S.ft. Plastering with cement, $\frac{1}{2}$" thick	12	—	—	"	113	—	—			
641	" Flooring with Cuddapah slabs, over 4" concrete bed	30	—	—	Sqr.	192	—	—			
20·5	Cwts. Galvanized corrugated iron roofing including nuts & washers, rigging &c complete with allowance for lappage	17	—	—	Cwt.	349	—	—			
21·5	Cwts. Galvanized corrugated iron sheet (22 B.W.G.) walling including washers & bolts, nuts &c complete with allowance for lappage	17	—	—	"	366	—	—			
	Carried over					1,312	—	—	6940	—	—

Grand Total of Estimate ..

SANITARY ENGINEER TO GOVERNMENT,

December 189 6

Sanitary Engineer to Government.

Grand Total of Estimate

Abstract of Detailed Estimate No. 9, dated 4 December 1906, for the construction of Water Works for the town of Gudiyattam

Quantity.	Description of work.	Rate. Rs.	A.	P.	Per	Amount. Rs.	A.	P	Total Rs.	A.	P.
	Brought forward					1,312	--	--	1,340	--	--
½	c.ft. Teakwood, wrought & put up	4	8	--	C.ft.	32	--	--			
200	R.ft. Old rails	--	12	--	R.ft.	150	--	--			
22·11	Cwts. Iron work	19	--	--	Cwt.	420	--	--			
45	S.ft. Door, teak framed & venetianed, with hinges, bolts & c complete	2	--	--	S.ft.	90	--	--			
9	" Glazed windows	1	8	--	--	14	--	--			
5	Sqrs. Painting with Carson's paint, 3 coats	4	--	--	Sqr.	20	--	--			
	Petty charges					42	--	--			
	Total for Engine & Boilers House								2,080	--	--
	Quarters for Engine Drivers & coolies &c				Sum				2000	--	--
	Engines Pumps & Boilers.										
	2 John & Henry Gwynne's turbine centrifugal pumps & engines each capable of lifting 160 gallons per minute to a height of 52 ft (2·6 P.H.P. each) including suction pipes, valves, erection &c complete				"	7,500	--	--	7,500	--	--
	Carried over								18,520	--	--

Grand Total of Estimate ..

Office of Sanitary Engineer to Government,

Fort St. George, December 1906

Asst Sanitary Engineer to Government.

Grand Total of Estimate ..

ailed Estimate No. 9, dated 4 December 1896 for the
on of Water Works for the town of Gudiyattam

Quantity.		Rate.		Amount.	TOTAL.

ailed Estimate No. 9, dated 4 December 1896, for the
ction of Water Works for the town of Gudiyattam

Quantity.	Description of work.	Rate. RS.	A.	P.	Per	Amount. RS.	A.	P	TOTAL. RS.	A.	P.
	Brought forward								16520	--	--
	Service Reservoir.										
9380	c.ft. Earthwork excavation for foundations of abutments & piers	3	12	--	C.ft 1000	15	--				
1295	" Concrete in sunki in foundations of abutments & piers & lower piers & arches	17	--	--	100	220	--	--			
628	" Concrete in cement in flooring of reservoir between walls	50	--	--	"	314	--	--			
5481	" Brick in chunam for abutments & piers &c to the level of 58.00	17	--	--	"	931	--	--			
2067	" Brick in cement for walls of reservoir & drain above level of 58.00	50	--	--	"	1,034	--	--			
2022	" Archwork, brick in chunam	22	--	--	"	445	--	--			
	Centering for arches				Sum	100	--	--			
	Carried over					3059	--	--	18520	--	--

Grand Total of Estimate ..

A.

iled Estimate No. 9, dated 4 December 1896 for the
n of Water Works for the town of Gudiyattam

Quantity.	Description of work.	Rate. Rs.	A.	P.	Per	Amount. Rs.	A.	P.	Total. Rs.	A.	P.
	Brought forward					3,059	"	"	18,520	"	"
858 S.ft.	Flooring with brick on edge 4½" thick, over concrete 3" thick for the portion between abutments and pier	13	"	"	S.ft 100	112	"	"			
138 "	Honey comb tiled work in chunam whitewashed, below archways in abutments	7	"	"	"	10	"	"			
122 R.ft.	Cornice work all round the reservoir	"	6	"	R.ft	46	"	"			
10·5 C.ft.	Cut stone over weir and under trusses	2	"	"	C.ft.	21	"	"			
7041 S.ft.	Plastering with cement ½" thick	12	"	"	S.ft 100	845	"	"			
20 Cwts.	Galvanized corrugated iron sheet 22 B.W.G. roofing with nuts, washers & ridging &c complete	17	"	"	Cwt.	340	"	"			
22 Cwts.	Iron work in trusses for roof &c complete	19	"	"	"	418	"	"			
	Carried over					4851	"	"	18,520	"	"

Grand Total of Estimate ..

Office of Sanitary Engineer to Government,
Fort St. George, December 1896

Asst Sanitary Engineer to Government.

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			Brought forward			4,851	—	18,520	—
125	s.ft.	Doors with teak frames &c complete	2	—	s.ft.	250	—		
17	c.ft.	Planking for platforms	48	—	c.ft.	77	—		
1	No.	Iron ladder 24½ ft. long			Sum	25	—		
3.6	Tons.	7" Cast Iron class B pipes 225 ft. long for inlet, outlet & overflow	112	—	Ton	403	—		
25	Cwt.	Specials (Branch 7"x7" = 2 No. & Bends 7¼ = 12 No.)	10	8	Cwt.	263	—		
2	No.	7" sluice valves	65	—	Each	130	—		
2	—	Brown's patent surface box for sluice valves	12	—	—	24	—		
1	No.	Reservoir sluice with rod, pillar & base plate, wall clamp, girders & socket connection to fit class B pipes with all necessary fastenings the depth from bottom of pipe to top of platform is 8 ft.			Sum	150	—		
						6173	—	18,520	—

Grand Total of Estimate ..

Office of Sanitary Engineer to Government,
Fort St. George, December 189 6

Asst Sanitary Engineer to Government.

Grand Total of Estimate ..

Office of Sanitary Engineer to Government,
Fort St. George, December 189 6

Asst Sanitary Engineer to Government.

Fort St. George, December 189 6

Asst Sanitary Engineer to Government.

S. E. 18

		Supply & delivery pipes &c.					
39·5	Tons.	Cast Iron pipes, class B, 13581 ft. 20 per cent to be plain pipes & 80 per cent I & B	112	"	Ton	15,624	"
31·53	Cwts.	Bends	10	8	cwt.	331	"
4·81	"	Branches	10	8	"	51	"
2·89	"	Taper pipes	10	8	"	31	"
3·53	"	Collars	10	8	"	37	"
		Sluice valves, stop ferrules &c				1168	"
		Surface boxes				268	"
		Wrought iron tubes &c				740	"
		Petty charges				370	"
		Total of supply & delivery pipes &c				18620	"
		Laying & jointing pipes &c.					
13935	C. ft.	Excavation for laying 13581 ft. of cast iron pipes	7	"	C. ft. 1000	975	"
2691	C. ft.	Laying & jointing of cast iron pipes, lead joints from 7" to 3"				685	"
		Carried over				1,610	"
						44,540	"

Grand Total of Estimate ..

OFFICE OF SANITARY ENGINEER TO GOVERNMENT,
Fort St. George, December 1896.

Asst. Sanitary Engineer to Government.

Grand Total of Estimate .. 51,500 "

OFFICE OF SANITARY ENGINEER TO GOVERNMENT,

Asst. Sanitary Engineer to Government.

Abstract of Detailed Estimate No. 9, dated 4 December 1896 for the construction of Water Works for the town of Gudiyattam.

Quantity	Description of work.	Rate. RS.	A.	P.	Per	Amount. RS.	A.	P.	TOTAL. RS.	A.	P.
	Infiltration works								6,940	–	–
	Engine & Boiler House								2,080	–	–
	Quarters for Engine Drivers & coolies								2,000	–	–
	Engines, Pumps & Boilers								7,500	–	–
	Service Reservoir								6,500	–	–
	Compensation for land								900	–	–
	Supply & delivery of pipes &c								18,620	–	–
	Laying & jointing pipes								3,920	–	–
	Total								48,460	–	–
	Tools & plant								650	–	–
	Contingencies								2,390	–	–

Grand Total of Estimate .. 51,500 – –

W. Mu[illegible] [signature]

Asst. Sanitary Engineer to Government.

Office of Sanitary Engineer to Government,
Fort St. George, December 1896

cur No 3/2

OFFICE OF MUNICIPAL COUNCIL,

Gudiyatam, 30th March 1897.

LOCAL & MUNICIPAL DEPT.
CONFDL No 1507/M

FROM Syed Adam Saib

~~M. SUBBAYADU CHETTY GARU,~~

Chairman, Municipal Council,

Gudiyatam.

TO, The Secretary to Government
Fort St George

Thro.

The Divisional Officer.

Sir. Vellore.

Enclosures returned. } With reference to Government Endorsement No 169 Dated 16 February 1897, on the Proceedings of the Sanitary Engineer No 3397 dated 4 December 1896, regarding the introduction of water supply Scheme, Calling for remarks of the Council, I have the honor to forward herewith an Extract of the Resolution of the Council dated 15 March 1897, for the favorable Consideration and orders of Government.

I have the honor to be
Sir
Your most obedt Servt
By proxy
Chairman

Extracts from the minutes of Proceedings of the Municipal Council, Gundiyatam, passed at their meeting held on 15th March 1897.

Present.

Syed Adam Saib (Chairman)

M Key C. V. Subba Rowgam.

" Shaik Imam Saib

" Ranga Jowndar avergal

" Abboy Chetty Garu

" Arumuntha Rowgam.

" Ponnusami mudaliar avergal

" Vadivelu mudaliar avergal

x x x

II Read Endorsement no 169 dated 16. Feby 1897 of Government, on the Proceedings of Sanitary Engineer no 3397 dated 4th December 1896 about the water supply Scheme, for Early remarks of the Council.

The Council have no objection to the introduction of the water supply Scheme in the Town, but Considering their financial circumstances and the Condition of the Town's people most of whom are unable to bear the present taxes, it is hoped that the Government will be pleased

to contribute more to this municipality
than they have done to other municipalities

x x x

(Signed) Syed Adam Sahib
Chairman

(True extract)
Syed Adam
Chairman

1507 Encd 1897

Current No: 1561 of 1897

Local & Munl. (1897) Department.

CURRENT No. 1507 Fr

GOVERNMENT OF MADRAS
16 APR 97
RECEIVED

Forwarded.
Alexandrayar
3.4.97.
AD Qrs Coll in Ch:
Sub Coll's office N.A

4/2.4.97 4/2-4-97

From

The Chairman
Municipal council
Cuddapah

Memo
Reference No 518
~~Order~~ 23-4-97

Case No. 312

The Chairman is requested to return the plans forwarded to him with Government endorsement No. 169, dated 16th February 1897.

Dated 30th March 97

Received

Registered

Enclosures 3/ (~~2 in a separate packet~~ & Encls to be with 3 encls rcd)

Spare copies

Encl 4 containing 5 plans not received

V. R for Secy
21/4/97

Q STubes
AG Secy to Govt.

office
Verify before despatch
Done
22/4/97 Despd
KR
22/4/97

SUBJECT.

Forwarding the Resolution of the council about the introduction of water supply scheme

To The Chairman, Mu C. Cuddapattam.

KR
Despd
23-4-97

1/4 a 1/4

1R 22/4/97

KR 24/4/97

BACK PAPERS.

G.O.	No.	Department.	Date.
Ext.	169	97	

FURTHER PAPERS.

G.O.	No.	Department.	Date.

Cir No. 312

OFFICE OF MUNICIPAL COUNCIL,

Gudiyatam, 15 June 1897.

LOCAL & MUNICIPAL DEPT.
CURRENT No. 2288/M

FROM

Syed Adam Sahb

M. ~~SUBRAYALU CHETTY GARU~~,

Chairman, Municipal Council,

Gudiyatam.

To,

The Secretary to Govt
L & M.B. dept Fort St. George.

Thro.

The Divisional Officer.

Sir.

With reference to Govt
Memorandum No 578 dy 23-4-97, I have the
honor to forward herewith a roll of plans* *by Packet post
relating to the water supply scheme of
this Municipality returned to me by the
Collector for transmission to Govt

I have the honor to
Sir
Your most obedt Servt
Chairman
Municipal Council

To

Sa

Sa

Gudiyatam

700—2-4-96.

Papers to be read in Proceedings:—

Again G.O., dated 189 , No.

Current No. 607 dated 7- January 97 from the Secretary Sanitary Bd.

Current No. 1507 of 1897, dated 30- March 97 from the Chairman M.C. Gudiyatta.

Current No. 2288 of 1897, dated 15th June 97 from the do. do.

Mis.

Order. No. 1772 M. mis. dt 13.8.97

In the present state of the Provincial finances, the Government regrets its inability to hold out any promise of aid within any definite period, and the Municipal Council cannot carry out the work without such assistance, the question of water-supply of the town must stand over for the present.

(Hom orders.)

1/R
11/8/97

13/8/97

To the Chairman M.C. Gudiyattam
thro' the Collector of N. Arcot

Sanitary Board ~~with Plans Estimates~~ (returned)

Sanitary Commissioner
Sanitary Engineer.

Dated 18/8/97

Local & Munl. (1897) Department.

CURRENT No. 2288/M

From The Chairman, Municipal Council, Judicigatam.

Order.

Corr. **No.** 312

Dated 15 June 1897.

Received 18 JUN. 1897

Registered 18-6-1897

Enclosures one book containing 5 plans

Spare copies Returned Vide corr 874 by 03

SUBJECT.

Submitting a roll of plans relating to the water supply scheme of this Municipality

BACK PAPERS.

G.O.	No.	Department.	Date.
Est 169/E78			

FURTHER PAPERS.

G.O.	No.	Department.	Date.

GOVERNMENT OF MADRAS.

SANITARY ENGINEER'S DEPARTMENT.

SPECIFICATION and Detailed Estimate No. 9
of 1896-97 of the cost of constructing

Water Works

for the town
of Gudiyattam
Amount of Estimate No. 9
Rs. 51500

Covering letter No. 3397 dated 4 Dec 1896

2/
to Prof VT

copying
Sent 17/8/97
ed 17/8/97
189.

O., No. DATED

A A A A A A A

NG PLANT FOR DESPATCH

l.
opied.
ct only.
ng only.