

GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following papers :—

From M. W. ELLIOT, Esq., Chairman, Municipal Council, Cuddapah, to the Chief Secretary to Government (through the Collector of Cuddapah), dated Cuddapah, 24th February 1888, No. 157.

In compliance with the request of the Municipal Council contained in their resolution,* dated 24th February 1888, I have the honor to submit, for the favorable consideration and orders of Government, letter, No. 7,† dated 23rd instant, from the

Executive Engineer in charge of the Cuddapah Water-works, making certain proposals modifying Colonel Drake-Brockman's scheme for supplying the town of Cuddapah with water from the Bugga springs.

ENCLOSURE.

From J. C. JOHNSTON, Esq., Executive Engineer, Cuddapah Division, to the Chairman, Municipal Council, Cuddapah, dated 23rd February 1888, No. 7.

With reference to inspection notes of the Superintending Engineer, III Circle, on the Cuddapah Water-supply Project, with remarks thereon by the Chief Engineer, Public Works Department—copies given to you personally—I have the honor to lay before the Council an alternative scheme to that of Major Brockman's in respect to the conduit and main pipe

One longitudinal section of new line.
One tracing of survey.
One tabulated statement.
One comparative estimate.
One tracing of levels of Major Brockman's line.

only. I do not propose to make any alteration in the details of supply in the town whatever.
2. The alterations proposed are tabulated in the accompanying statement for ready reference, but I will here go over the main points of difference.

3. Major Brockman left out all supply to the railway, and his service reservoir he proposed to construct near the Dongalcheruvu tank, below the level of the railway compound, with a conduit and an 8" pipe leading to it from the lifting well on the right bank of the Bugga river; from the service reservoir an 11" main led to the town distributaries.

4. In order to supply the railway, or rather to enable the municipality to supply it at a minimum cost when necessary, I propose to have the service reservoir near the lifting well on the bank of the river, and an 8" pipe taking a line above the Buswareddy tank and passing close to the railway premises and on past Dongalcheruvu, ending at the commencement of the town distributaries. This 8" pipe will be 18,726 feet long against—

a length of conduit	..	..	..	..	..	..	..	8,840
a length of 8" pipe	..	..	..	..	..	..	..	2,150
a length of 11" pipe	..	..	..	..	..	..	..	7,370

Total .. 18,360 feet long

proposed by Major Brockman. The saving in round numbers by my alterations will be Rs. 7,800.

5. I enclose longitudinal section of my alternative line, and a tracing of the survey as far as the Dongalcheruvu tank, showing Major Brockman's and my lines. It was not necessary to carry the tracing of the survey further, as beyond this point I propose no alteration in the direction.

6. Pending orders of Government on this proposal, I request you will ask Messrs. Massey and Co. not to cast any pipes but the straight 8" ones for the present. For the alteration will entail a little remodelling of the plans for the special castings.

7. I shall be obliged if you will use your best endeavour to obtain Government orders as speedily as possible.

8. Pending such orders, the work of constructing the infiltration gallery and lifting well will progress.

9. Another objection to Major Brockman's site for the service reservoir near Dongalcheruvu tank is that a *very long* channel will be necessary to enable the scour pipe to do its duty. Whereas, were the reservoir near the bank of the river, this scour channel need not be a very long one.

No. 1697.

Forwarded. Mr. Johnston proposes to substitute an 8" main for the open masonry conduit of Major Drake-Brockman's scheme, and by slightly diverting the line to the east, he proposes to supply the railway station. By the change he estimates there will be a saving of Rs. 7,800.

2. Cuddapah being a large station, a very large number of railway employes live in the railway houses quite close to the station, and the omission to take the water to the station was always regarded as a blot on the original scheme. It is by no means the least important part of the present proposal that it meets this requirement.

3. The early orders of Government are sought.

26th February 1888.

(Signed) G. STOKES,
Acting Collector.

No. 224.

Referred to the Public Works Department for early remarks.

(By order.)

MADRAS,
7th March 1888.

(Signed) W. S. MEYER,
Asst. Secy. to Govt.

To the Public Works Department, with seven enclosures.

No. 13-D.

Note by the Chief Engineer, Public Works Department, on endorsement in the Local and Municipal Department, No. 224, dated 7th March 1888, referring, for remarks, proposals of the Cuddapah Municipal Council for modifying the Cuddapah Water-supply Project.

Cuddapah Water Supply.

The original project was passed in G.O., No. 248 M., dated 6th July 1885.

2. Major Brockman proposed to pass 280 gallons a minute for the supply of the town, through a conduit (ending with a short length of pipe) 10,960 feet in length, to a service reservoir, and from thence by an 11-inch pipe 7,370 feet long; from the end of this pipe the sub-mains were to be taken.

3. Mr. Johnston proposes to build the service reservoir close to the pumping station at the river edge, and carry the water the whole way to the sub-mains in an iron pipe. He states that an iron pipe 8 inches in diameter is sufficient, and shows in his estimate a saving of Rs. 7,820 will be effected.

4. The quantity required for the town is 280 gallons a minute, the length of the pipe is 18,700 feet, the head available is 58 feet.

5. The theoretical supply through an 8-inch pipe according to Hawksley formula—

$$V = 48 \sqrt{\frac{d h}{L + 54 d}}$$

and rejecting the small item $54 d$ which practically makes no difference making—

$$V = 48 \sqrt{S d}$$

$$S = \frac{58}{18,700} = \frac{1}{322} \text{ say } = \frac{3}{1,000}$$

$$d = 8" = .66 \text{ feet.}$$

$$v = 2.11 \text{ feet per 1"}$$

$$\text{Quantity} = 273 \text{ gallons per minute.}$$

According to Neville formula—

$$V = 140 \sqrt{R.S.} - 11 \sqrt[3]{R.S.}$$

$$= 70 \sqrt{S.D.} - 6.9 \sqrt[3]{Sd}$$

$$V = 2.25.$$

$$\text{Quantity} = 292 \text{ gallons per 1"}$$

6. Theoretically the 8-inch pipe is sufficient, provided it is laid quite straight and kept clean, but it is considered the pipe should be at least 9 inches diameter, the theoretical discharge of which is 360 gallons per 1" according to Hawksley, and 398 gallons per 1" according to Neville.

7. There is, however, the supply to the railway station to be taken into account, and there is nothing to show how much this will be, but it will require an increase in the dimension of the pipe, and therefore it may be said that a 10-inch pipe will be necessary.

8. It is considered that Mr. Johnston's proposals are advantageous, and that it is better the water should be carried in an iron pipe, than in a masonry conduit; but it seems doubtful if piping of the requisite dimensions can be provided without increasing the amount of the estimate.

(Signed) J. O. HASTED, Col., R.E.,
Chief Engineer, P.W.D.

No. 14-D.

Transferred to the Local and Municipal Department, and the original papers returned.

MADRAS,
6th April 1888.

(Signed) J. O. HASTED, Col., R.E.,
Secy. to Govt., P.W.D.

To the Local and Municipal Department, with papers.

ORDER—dated 16th April 1888, No. 355 M., Local and Municipal.

The modifications in the original scheme now proposed by Mr. Johnston are approved subject to the Chief Engineer's remarks, which will be communicated to the Collector and the Chairman. The amount of the estimate as thus revised should be reported, and the work should be put in hand with as little delay as possible.

(True Extract.)

H. E. STOKES,
Chief Secretary.

To the Chairman, Municipal Council, Cuddapah,
through the Collector,
" Collector of Cuddapah, with 5 enclosures.
" Public Works Department.
" Sanitary Commissioner for Madras,

Exd. A. Raitt.

Gobt. of (1888) Madras.

LOCAL AND MUNICIPAL.

Issued

Recd.

Encl.

G.O., 16th April 1888, No. 355 M.

No 1299 to 42: Muz/88

APRIL.

*Communicated to the
Suppy. Engr III Cir
Sd/- J. A.*

Water-supply Project.

Approving, subject to Chief Engineer's remarks,
the modifications proposed in the Cuddapah —.

S.E. III Cir

16TH APRIL 1888, No. 355 M., LOCAL AND MUNICIPAL.

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6th April 1888.

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Secy. to Govt., P.W.D.

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(True Extract.)

W. S. Meyer
Under Secy. to Govt. P.W.D.
for Chief Secretary.

To the Chairman, Municipal Council, Cuddapah,
through the Collector.

„ Collector of Cuddapah, with 5 enclosures.
„ Public Works Department.
„ Sanitary Commissioner for Madras,

Exd. A. Raitt.

PMC No 3783

Govt. of {1888} Madras.

LOCAL AND MUNICIPAL.

No 1299 W. of 2nd May 1888

B

Communicated
to the Supty Engr
to the Supty Engr
III Circle.
III Circle

Wm
24.4.88

See
26/4/88

2/5/88

A.S.C

Issued

Recd.

24.4.88

Encl.

G.O., 16th April 1888, No. 355 M.

No 1299 W. of 2nd May 1888

APRIL.

Water-supply Project.

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W. Thorne

See
S.E. III Circle 3/5
request to
12/1
24/4 12/1
26/4 12.32.4.88