[E. & L. / 110]

200—1-7-10.

Educational (1910) Department.

ORDINARY MS.

G.O., No. 479

DATED 11-8-1910

15

[Despatch Abstract.]

Marine Aquarium

Communicating to the Director — Madras, the report from the Superintending Engineer, V Circle regarding the installation of a Motor-driven Air-Compresser at the ~~Madras~~ Aquarium

BACK PAPERS.

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

FURTHER PAPERS.

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

[E & L.
6]
2,400—15-3-09.

OFFICE
CIRCLE
No. 1/6446
24 MAY 1910

EDUCATIONAL DEPARTMENT.

CURRENT FILE. 2

SUPERINTENDING ENGINEER'S OFFICE
V CIRCLE P.W.D., MADRAS.
No. 1/5330 D
6 JUN 1910

CONTENTS.

From	Number.	Date.	Pages.
[887] Director, Marine Aquarium	59	28-4-10	169

[P.T.O. FOR PUT UP PAPERS.

PAPERS PUT UP WITH CURRENT No. 9

Papers of the department to which the current belongs.

Number.	Date.	Original (=O.) or spare copy (=S. C.)	Remarks. (In this column such of the papers as have been removed for copying, printing, etc., should be marked with a cross.)	Initials of Referencer with date in token of return to Reference department.

Papers of other departments.

Department.	Number.	Date.	Original (=O.) or spare copy (=S C.).	Despatcher to note the return of the papers to the departments concerned.

855-1 Edu 21-4-08 5 Ed C No 887 1
643 W 8-6-07
622 21-9-06 6-2-06 622

Stock Form No. 135.
4,000—1-8-08.

EDUCATIONAL DEPARTMENT.

3

LOCAL & MUNICIPAL SECRETARIAT 2-MAY 1910

Received .... 190 , *Registered* 3 . 5 . 1910

Subject.

Requesting to instruct the Public Works Department to investigate with reference to certain points the matter regarding the installation at the Aquarium of a motor-driven air compressor to be worked from the mains of the Electric Supply Corporation and enclosing a tender received from Messrs Siemens Brothers &c.

ENCLOSURES.	
No.	One + Three
Spare copies	nil

No. 59/Aqm

Station Madras , *Dated the* 28th April 1910.

From (Name) J.R. Henderson. Esq: M. B. C.M. F.L.S.

(Designation) Ag. Director, Marine Aquarium, Madras.

To The Secretary to the Government of Madras,
Educational Department.

Sir,

At the instance of the Marine Aquarium Committee, I have the honour to address the Government regarding the installation at the Aquarium of a motor-driven air compressor to be worked from the mains of the Electric Supply Corporation Company.

2. At present the tanks containing the live fish are supplied with air from two compression cylinders which are filled by a hand-pump. The experience of the last year has shown that this arrangement is unsatisfactory, as coolies have to be employed by night as well as by

45870 19/5

day, the pump readily gets out of order, and there is always a possibility of the air supply failing. The Committee believe that these difficulties will be obviated by the substitution of a motor-driven air compressor and I accordingly enclose for the consideration of Government a tender obtained from Siemens Brothers Dynamo Works, Limited (Madras Branch) for the supply and erection of such a compressor. I have at this stage thought it unnecessary to obtain from the Electric Supply Corporation Company an estimate of the cost of laying the necessary connection between their mains and the Aquarium and of the monthly recurring maintenance charge.

3. I have the honour to request that the Government will be pleased to instruct the Public Works Department to investigate the matter particularly with reference to the following points:—

(i) the general suitability of the installation and the question of its cost;

(ii) the amount of special attention which the installation is likely to require.

I have the honour to be,
Sir,
Your most obedient Servant,

J. R. Henderson.

Ag Director, Marine Aquarium.

960
450
410

[E. & L. / 7]
200—2-12-01

~~LEGISLATIVE~~ EDUCATIONAL DEPARTMENT.

For the ~~Assistant~~ Under Secretary.

SUBMITTED that the Public Works Department may be asked when a reply to the unofficial reference noted below * may be expected.

SRi
17.6.10

17-6

17/6

TO

THE P.W.D. U.O.

×P.W. U.O. No. 333 d 9-5-10.

SECRETARY TO GOVERNMENT
18 JUN 1910
PUBLIC

17/6

*U. O. No. 887-1D, DATED 9. 5. 1910.

Subject.

Regarding the installation at the Marine Aquarium of a motor-driven Air-Compresser.

REMINDERS ALREADY SENT.

.... 190 .
.... 190 .
.... 190 .

Note Please see memo No. 2381-C / 21-5-10 in this connection.

B# 11

Stock Form No. 141.
20,000—8-12-09.

PUBLIC WORKS DEPARTMENT.

5

CURRENT No. 7337

ENCLOSURES. Plans No.

Others No. 1+1 file

Total 2

SPARE COPIES.

Encl: one current file in original

23 JUL 1910

Received .... 19 .

Registered .... 19 .

Passed on by Registering Clerk ... 25-7-10

" " U. R. Clerk ..

" " Referencer ...

" " Record Superintendent.

" " Drafting Officer ...

Subject.

Proposed electro pneumatic installation for the marine aquarium. making a report on

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No. 508W

Station Madras, *Dated the* 21-7-1910

From (Name) H. T. Keeling, Esq., A.M.I.C.E.

(Designation) Superintending Engineer, V Circle.

To *The Chief Engineer* / *The Secretary* *to the Government of Madras.*

Public Works Department,

Sir,

Flag K.

In reply to your Memo No. 238-C dated 21st May 1910 I have the honour to enclose an endorsement by the Executive Engineer, Presidency Division, dated 16th July 1910 forwarding a letter and report from Mr. Cardew.

2. The initial cost of the installation including the cost of connecting up with the mains of the Madras Electric Supply Corporation is estimated at Rs 2,041 and the recurring expenditure is estimated at Rs 50 per month or Rs 600 per annum.

3. It will be seen from Mr. Cardew's note that he considers that

W/23.7

OLS 352

that a much smaller capital outlay viz Rs450 will suffice for present requirements and that the recurring expenditure on that will be about Rs21 per month or Rs252 per year.

4. The actual quantity of air required at present is about 3 c.ft. per hour and I do not consider that this quantity necessitates the larger outlay proposed. If however considerable extensions are proposed hereafter the installation of a motor driven compressor with a receiver designed to give a constant pressure may possibly prove to be economical. At present it cannot be considered to be so and I therefore recommend that Mr. Cardew's alternative proposal be adopted.

I have the honour to be,
Sir,
Your most obedient servant
21/7/10
Supg. Engineer, V Circle.

20.7.10

Copy of communication No. 552 dated 9th July 1910 from the officer in charge, Electric Sub Division, to the Executive Engineer, Presidency Division.

In supersession of my No. 445 dated 10th June 1910 in reply to your No. 276 S/1 dated 30th May 1910, I have the honour to inform you that in my opinion the proposed electro-pneumatic installation for the Marine Aquarium will not be so suitable to the requirements of the Superintendent as he has been ~~xxxx~~ led to believe, the chief of these next to a regular supply of air being independent from cooly labour. The facts upon which this opinion is based and for recommending instead the installation of a well made hand pump similar to the one now in use are set forth in the accompanying report.

No. 620 S.E. dated 16th July 1910.

Copy forwarded to the Supg. Engineer, V Circle, in supersession of this office No. 486 S.E. dated 15th June 10.

W. G. Molesworth,
Ex.Engineer, Presidency Division.

20.7.10

MARINE ACQUARIUM.

Aeration of the fish tanks was at first accomplished by the delivery of air from compressed air cylinders filled by means of bicycle and motor car tyre inflators, but by this method constant failure in the supply of air were experienced owing to the unceasing work required to keep the cylinders filled and to breakages of the inflators.

The damage to fish and constant trouble thus occasioned has been practically overcome by the use of a mechanical hand-power air-compresser in place of the tyre inflators, the compresser having to be worked for about 20 or 30 minutes every three hours, necessitating the employment of a cooly day and night.

The present equipment however is of a make-shift nature the compressor having been made by a local native mechanic and the air-receiver and pipes having originally formed part of a Kitson light out-fit.

As a means of improving the present air compressing plant and at the same time of securing a constant supply of air without depending on coolies or any other attention, an electrically driven air ~~xxx~~ compressor fitted with an automatic regulating device for starting and stopping the compressor as necessary has been proposed.

The Machine offered by Messrs. Siemens Brothers, though very inefficient, would appear to meet all conditions so far as automatic action is concerned , but as there is the possibility of the most nicely adjusted automatic machinery, or even of the electric supply itself, occasionally failing, and that 6 hours without fresh air is sufficient time in which all the fish would be killed., it would be necessary to retain the present hand worked compressor as a reserve in case either of the above mentioned accidents occured, and a cooly would have to be in constant attendance to work it when necessary.

The attendance of this cooly however could be dispensed

Ome-337/10

dispensed with, by the provision of a spare tank for storing a sufficiency of air to give a supply for 12 hours. By this means the watchman, when he saw the compressor was not working when it should, could turn on the reserve supply and have 12 hours in which to find casual labour to work the hand pump until the electric pump had been put in order again.

The installation of an automatic electrically driven air compressor requiring the minimum amount of attendance will thus have to include a spare tank (of approximately 50 Cft. if air is stored at a pressure of 30 lbs. per square inch) and the presnece of an intelligent watchman

2. It is believed that if the Aquarium retains its present popularity, extensions to it may be considered in the near future, in which case it is submitted that an electric supply service should not be laid down without due consideration to future requirements. It appears evident for one thing that any extensions will necessitate the complete reoroganisation of the~~xxxxxxxx~~ present ~~xxxxx~~ system of water supply and the inroduction of power pumps to meet the increased demand for water, at the same time an increased demand for air will have to be met, resulting possibly in the necessity for increasing the capacity of the present proposed compressor and all together justifying the employment of an attendant to operate and tend the several pumps.

The conclusion is therefore drawn that if there is any possibility of the Aquarium being extended in the near future, it would be advisable to postpone the installation of electrically ~~xxxxx~~ driven machinery until that date, and that to meet present requirements the installation of a sound hand-power air-compressor and receiver will give quite as much satisfaction as an automatic elec~~xxxxx~~trical compressor, and will eventually when the Acquarium is electtrically equipped be needed as a reserve in case of break down or failure of electric supply.

Following

Following are the estimated costs of supply and maintenance of the electrical compressor, new hand-power compressor and present compressor.

Supply.	
Electrical compressor as tendered by Siemens Brothers	Rs. 1366
Reserve tank (50 G/ft) and necessary pipe connection	"" 375
Electric supply service	" 300
Total	Rs. 2041
One new hand-power air-compressor	x Rs. 200
One new receiver and necessary piping	" 200
Repairs to existing pump	" 50
Total	Rs. 450

x. Rs 200 is quoted by P. W. Stores for a pump at present in stock.

Maintenance per year.	
Cost of power with compressor working 10 minutes every day	Rs 540
Casual attention and Minor repairs @ 5%	50
Meter Rent	10
Total	600
For cooly labour @ 10 annas a day	Rs. 230
Casual attention and minor repairs @ 5%	23
Total	Rs. 253
Present employment of cooly labour @ 10. annas a day	Rs 230.

(Sd) J. H. Cardew.
7-7-10
Electric Inspector

[E. & L.
67]
2,500—26

EDUCATIONAL ~~**LEGISLATIVE**~~ **DEPARTMENT.**

I

Installation at the Marine Aquarium
of a motor driven air-Compressor.

NOTES.

10

9/8

[E. & L. / 73]
2,000—15-3-09.

Educational DEPARTMENT.

C. No. 887 From the Director, Marine Aquarium No. 59/AM, dated 28-4-1910.

SUBJECT.

Installation at the Marine Aquarium of a motor driven air-compresser.

At the instance of the Marine Aquarium Committee Mr. Henderson, Ag. Director, submits a tender obtained from Siemens Brothers Dynamo Works, Limited, (Madras Branch) for the supply and erection of a Motor-driven Air Compresser at the Marine Aquarium and requests that the P.W.D. may be instructed to investigate the matter particularly with reference to the following points:—

(i) the general suitability of the installation and the question of its cost;

(ii) the amount of special attention which the installation is likely to require.

2. At present the tanks containing the live fish are supplied with air from two compression cylinders which are filled by a hand pump. Experience has shown this arrangement to be unsatisfactory; the Marine Aquarium Committee therefore proposes to substitute a Motor-driven Air Compresser to be worked from the mains of the Electric Supply Corporation Company.

3. It is for consideration whether the P.W.D. may be requested to investigate the matter.

T.K.
6.5.10

P.7 of C.f.

The cost of the installation is estimated at Rs 1366 excluding the cost of connection with the

the mains of the Electric Corporation. The cost of maintenance is not known; nor is it stated how much is now spent on the wages of Coolies employed "night and day" to work the present hand-pump. The matter may be investigated by the P.W.D.

E.D.
7-5-10

✓
P.W.D. u.o.
Sm
9.5.10

Est No 887—1
D/9159. 9-5-10

9 MAY 1910
WORKS

~~1075~~
DR 9/5

P.W.D

P. W. U. O. R No. 333
Dated 9-5-10.

DW

A report has been obtained from the Supdtg Engineer V circle on the subject, which, with its enclosures, may, it is submitted, be forwarded to L & M.

× pp. 14 to 19-CF.

Bsu The conclusion arrived at by the S E is that to meet present requirements the installation of a new hand-power air-compressor involving an initial outlay of Rs 450 and a recurring annual charge of Rs 253 per annum will suffice. This conclusion may be accepted.

P.W.S
4.8.10.

E.ll
~~Lolia~~ uo

5/8.

LOCAL & MUNICIPAL
10 AUG 1910
SECRETARIAT.

Educational Dept.

The report received from the Suptng. Engineer may, it is submitted be communicated

T.N.
1078

to the Supdt. Govt. Museum, who is also Director of the Marine Aquarium.

2. A draft is submitted for approval.

T.K.
10-8-10

The Director of the Marine Aquarium only wanted that the matter should be investigated by the P.W.D. Mr Cardew's report furnishes full information on the proposal.

Electric Inspector
pages 17 to 19 of c.f.

KD
11.8.10.

Issue
SW
11/8

[E. & L. / 74]
2,000—15-3-09.

20

Educational DEPARTMENT.

14

READ AGAIN G.O., No. ...., dated ....19 .
" " " " ...., " ....19 .

READ ALSO:-

C. No. ~~88~~7, From the Director, Marine Aqm, No. 59-, dated 28-4-1910.
" " ...., " " Supting Engineer V.cir, 608, " 21-7-1910.
" " ...., " " ...., " ...., " ....19 .

ORDER. No. 479, dated 11. 8. 1910.

Eris -

The report received from the Superintending Engineer with its enclosures, will be communicated to the Director, Marine Aquarium, Madras.

T.K.
10-8-10

11/8

4. Encls. despd 18/8/4-

despd with report & its Encls. 13/8/10

To
The Director, Marine Aquarium, Madras.
with Enclosures

When given for copying ——
When copied ——
When examined ——
When signed ——
191

READ AGAIN G.O., No. , DATED 19 .

CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT. A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

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