

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	1956-57.	Press
B.P. No.		Mis.
Dated	2 - 8 -	1876. 195

Not to be folded or roughly handled

No. 20/3.

PRESIDENCY DISTRICT ENGINEER'S OFFICE,

Fort Saint George,

17 July 1876.

From

THE DISTRICT ENGINEER,

To

PRESIDENCY,

THE Chief Engineer,
Dept Public Works.

Sir,

With reference to your Memo. No. 465, dated 27th ultimo, in which you direct me "as early as possible to arrange for a series of levels being taken to verify the correctness of Major De Havilland's B.M. with reference to the Mean Sea level, and ascertain if since it was originally fixed the stone has sunk at all." I have the honor to inform you that I am having an accurate set of levels taken from De Havilland's B.M. to a permanent B.M. which will be fixed opposite the Madras Pier, fixing en route the levels of all prominent and permanent objects such as the basement of the Light House &c. &c.

and

and to enable me to connect these levels with the Mean Sea level which is, at present unknown. I have directed the General Superintendent of the P. W. Stores to put in hand an apparatus for gauging the rise and fall of the tide at the Pier end. This apparatus will have to consist of a double cylinder firmly and rigidly fixed in which the gauge will work.

2. To prevent, as much as possible the motion of the surface waves effecting the gauge, the water will be admitted into the cylinder only by a small orifice, as near the bottom as possible, and the inner cylinder will be further protected by diaphragms. To protect the gauge a small deck house will have to be constructed, in which a self-registering apparatus may at any future period be fixed. And this deck house will be surmounted by an Anemometer to enable the force and direction of the winds to be registered at the same ^{time} as the rise and

and fall of the tide. This it will be absolutely necessary to do to arrive at any accurate conclusion as to the mean level of the sea.

3. As however the erection of this apparatus may take some little time, I shall endeavour meanwhile to arrive at an approximation to the mean sea level by means of a floating gauge which I propose anchoring just outside the surf at the mouth of the Poort, and by a series of observations which will be taken whenever the sea is calm between the floating gauge and the permanent gauge at the Napier Bridge some conclusions may be arrived at.

4. I am however not very sanguine of obtaining any reliable results from this arrangement, and I therefore have the honor to request your sanction and approval of the steps I am taking to construct a permanent gauge at the end of

of the Marine Vicer.

P. W. 1876 Dept.
No 5100A

I have the honor to be
Sir,

Your most obedient servant

Chas. J. Allen Major 1876
Offg. District Engineer
Residency

Recd.
J. S.
The District Engineer
Residency

to the Chief Engineer
Dist.

Dated 17th July 1876
Recd 17th July 1876
No 2013

Reporting in the steps
has taken for fixing
a permanent C. S. S. S.
in the harbor, Port. S.

S. C. S. S. 2 27-6-76
465

No 25-

Recd from C. S. S. S.
Recd - 27.7.76 Port 2.3.76
C. S. S. S. 26.7.76 Port 21.7.76
Recd to Oct 24-7-76

MEMORANDUM.

Letter Number _____
dated the _____
from the District Engineer of _____

The Chief Engineer reports
Major Montgomery R. S.
Dist. Eng. Residency
with as early as possible
arrange for a series of
works being taken to
briefly the construction
of Major St. Haviland
British marks with reference
to the sea level and
position of them it was
originally fixed the
time has sunk as

By order
W. F.
27. 6. 76

(This request was made
in a private letter to U.S.
by C. S. S. S. J. M.)

of the Marine Corps. P. W. 1876 Dept
No 5100A

I have the honor to be

Your most obedient servant

Montgomery
Offg. District Engineer
Residency

Recd
9/27

From
the District Engineer
Residency

To
the Chief Engineer
Dist.

Dated
Recd at 11:30 July 1876
17th
No 2013

Referring in the Dept
has tapping for fixing
a permanent light
in the houses, Pan. Co.

28 C. S. 42 7 27-6-76

No 25

Recd from C. S. 42 7 27-6-76
Recd from C. S. 42 7 27-6-76
Recd from C. S. 42 7 27-6-76
Recd from C. S. 42 7 27-6-76

No 460 7 27-6-76

MEMORANDUM.

Letter Number _____

dated the _____

from the District Engineer of _____

The Chief Engineer reports
Major Montgomery Res
dist Eng. Residency
with as early as possible
arrange for a series of
work being taken to
be verify the construction
of Major de Navarre
Bridle with reference
to the sea level and
ascertain if time it was
originally fixed the
time has sunk as

W. F.
27. 6. 76

Note
(This request was made
in a private letter to U.S.
by C.E. J. W.)

Administrative Department.

No. 4528

MADRAS,

Marine Office,

8th July 1876.

From

J. H. TAYLOR, Esq., LIEUT., R.N.R.,

Master Attendant,

Administrative Department,

Madras,

To

The Honorable W. H. H. H. H.

Chief Secretary to Government,

Marine Department,

Fort Saint George.

Sir,

I have the honor, in attention
* N^o 884 dated
4th April 1876. to G. O. to state, for the information and
orders of His Grace the Governor in Council,
that I have carefully considered the
subject of a tide gauge for Madras, and
looking to the failure of the former gauge
and the very small rise and fall at
the port, which require the most
gauge adjustment possible to produce
any satisfactory result, I beg respectfully
to propose an entirely different mode
of action. I have tried for three months
experiments with a three inch pipe
at the outer end of the Pier, where
the water is 24 feet deep, this pipe
was lowered to about 2 feet from
the

the

recd to Oct 24-7-76

Administrative Department.

No. 4528

MADRAS,

Marine Office,

8th July 1876.

From

J. H. TAYLOR, Esq., Lieut., R.N.R.,

Master Attendant,

Administrative Department,

Madras,

To

The Honorable W. H. Crockett

Chief Secretary to Government,

Marine Department,

Fort Saint George.

Sir,

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that I have carefully considered the
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gauge adjustment possible to produce
any satisfactory result, I beg respectfully
to propose an entirely different mode
of action. I have tried for three months
experiments with a three inch pipe
at the outer end of the Pier, where
the water is 24 feet deep, this pipe
was lowered to about 2 feet from
the

the bottom, and only a sufficient number
of perforations made in it to ensure
the water entering freely, the bottom being
closed. In spite of this depth and perme-
tion, the float keeps oscillating more
than or fast at a time, whenever a small
passer, and I find on enquiry that the
gauges previously set up were rendered
comparatively useless by the same defect.
I could enclose this pipe in another
larger one, and so reduce the difficulty,
but I do not think any means at
my disposal could secure a large trunk
in a spot so very much exposed to heavy
seas, and cleaning and attending to it
would be rendered very difficult. Again
a house for the registering apparatus
would be too much exposed, as the sea
makes clean beaches over the Pier
hard in bad weather, and no further
objection exists in necessity that often
arises for employing the whole I and
for cargo purposes, an objection which
will have still greater weight when
steamers

recd to Oct 25-7-78

Steamers or vessels lie alongside of the
Pier, as is expected by Mr. Ponkes. 16
2 Again, it will not be a place
for ready useful reference. I would on
these accounts ask leave to remove
the gauge to the neighbourhood of the
Commons mouth, where it will be very useful
for comparison with that River. I
propose to construct a well, about 6 feet
diameter and ten feet deep, below high
water mark. This will hold a large body of
water, then to run an iron pipe or
carefully cleaned and pointed with antiseptic
lime points, and having inch rubber packing
introduced in each ten feet flange to
render it slightly pliable; from this
well out to about 600 feet from low water
mark, the end being turned upwards and
covered with a dome to keep solid particles
out, the last length made of flexible
hose, and kept floating by some simple
aid. I think in this manner I can ensure
perfect stillness in the well, and the
pipe can be easily unobstructed and cleaned,
perhaps once a year or at longer periods.

it necessary the water in the well can
be easily changed when necessary, and
a small house built to hold the registering
apparatus in connection with this. I would
construct a brick and chimney trench
from the nearest part of the Coom int.
a smaller receptacle alongside the large
well, and constant observation of the two
levels would be a very valuable addition
to our knowledge of the important subject
of closing or opening the bar. The only
level now existing in Madras was taken by
Colonel De Havilland in 1821, and is scarce
on a stone at the north gate of the Fort
in a very awkward position for reference.
This level 8-10. above H.W.M. seems to me,
from such rough experiments as I can
now make, to be different from the present
sea level.

I would respectfully urge upon
the consideration of His Grace in Council
that tidal observations may on such a
flat shore, with such small rise and
fall, be not only subject to the ordinary
Salon

Dec 26 to Oct 26-7-78.

solar and lunar disturbance, and of the
revolutional effects of lunar cycles perigee
and apogee, but also to an alteration
of the mean sea level, owing to the long
continuance of strong currents, which for
months are pressing water up into the
confined area of the sand heads of the
Bay of Bengal. This is a subject, which
from force of circumstances, has
not yet received a proper enquiry,
and yet it is one that for Madras
particularly possesses great interest. The
whole Town is suffering grievously now
from the stagnation of a river, which has
doubtless at very many times during the
last two years, during which the bar
has been closed, been below the level
of favourable tides and floods of the
sea, and could have been cleared out
by the simplest form of labour. Again
the approach of a cyclone will receive
valuable confirmation from the rise of
level invariably thrown in evidence of
the storm by the storm wave, and
although the gauge hitherto in use
has

it has been rendered useless for such
purposes by the necessity of extending
its readings over long periodical averages.
I trust that the one for which East
Co. sanction will be of daily use.

It I would ask leave to draw from the
Public Works Department the remains of the
three inch pipe removed from the
Pier after the last accident, which
pipe has been paid for out of Port
fund, and be allowed to use it for
the purpose of this experiment. The
expense of the work is not easy to estimate,
for modifications of the plan might prove
advisable as the work progresses, but
it would be small, and if His Grace
in Council would be pleased to put
at my disposal the sum expended
on the last Pier tide gauge, I think
it would be amply sufficient, and
my balance would be refunded.
I should like to commence proceedings
at once while fine weather and
smooth

smooth water can be relied on.

I have the honor to be

Sir

Your most Obedt Servant

W Taylor

Master Attendant

Administrative Department

for 4 April 76. 884.
 - 26 June 76 - 1697 + 1698.

P. W. 1876 Department

- 88-88113

From the Marine Department

Recd. 10th July } 1876
 Received 11th August }
 88-1070

Marine 1876. 884.
 (The Chief Secretary to Govt
 Marine Department
 Fort Saint George
 Madras)

Recd 8 July 1876

88-1528.

Submitting his proposal
 as to the erection of a new
 pier at Madras.

Sample No. 1528.

W. H. M. S. S.

for 4 April 76. 884.
 - 26 June 76 - 1697 + 1698.

PUBLIC WORKS DEPARTMENT.

Endorsement in the Marine Dept. No 1070
 dated 10th July 1876 on letter from the Master
 Attendant, Administrative Dept. Madras, No 1528
 dated 5th July 1875.

FOR ORDERS.

Majr Genl. R.E.
 Secy to Govt. P.W.D.

No 24-

Recd for 6.5.4.8-76
 Decr. 31.7.76 Mtd 2.8.76
 Decr. 24.7.76 Mtd 31.7.76
 Decr. 13.7.76 Mtd 26/7/76
 S. L. Chitt. 11 July

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FOR ORDERS.

5563

5700A

5th Dec 1867

N^o 1950

Public Works Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the

2^d August 1867

Read the following

Endowment in the Marine
Dept. as letter from the Master
Attendant d/o 4th July 1866 N^o 4528

(N^o 1070 d/o 10th July 1867)

From

The Dist. Engr. Presidency

(2013-17)

After careful con-
sideration of the question
of fixing a tide gauge at
Madras and the difficulties
pointed out by the Master
Attendant as presenting them-
selves, His Grace the Governor
in Council is of opinion that
it would be best on the whole
to act on the original sug-
gestion and adopt, at Madras,
the form of gauge to be used
elsewhere; guarding it as far

as practicable from the
dangers which experience
has shown to exist. Possibly
by fixing it under the decking
of the pier, the gauge would
be more protected and in
the necessity and in-
convenience of a deck house
avoided.

The papers will be
forwarded to the Govt. of
India in continuation of
those transmitted with letter
No. 1598 dated 26th June 1876,
and early sanction requested
to the requisite number of
apparatus being obtained
from home and the experiments
carried into effect without
delay.

The District Engineer
Presidency need not set up
a separate gauge.

(H.E. No. 1957 d/2 Aug. 1876.)

District Engr. Presidency
Marine Dept.

Oct. 12-8-76

No. 1957.

To,
The Secy. to the Govt. of India
Sir,

In continuation of my
letter No. 1598 dated 26th
June 1876 reporting the arrange-
ments proposed for tidal
observations in the Madras
Presidency, and promising
further information in respect
to the gauge to be set up
at Madras, I am now
directed to forward the
accompanying copy of Pro-
ceedings recording the con-
clusions at which His Grace
the Governor in Council has
arrived. I am to request the
early orders of the Govt. of
India thereon to admit of
effect being given to the
arrangements with the least
practicable delay.

Oct 12-8-76 with 7 copies of
H.E. No. 1957 d/2 Aug. 1876

W. A. L.

5543
5100

Govt. of Madras.

PUBLIC WORKS.

To

To N. B. Presidency

Delet

Is not

Recd

Encl.

G. O. 2nd Sep. 1876, No. 1956-1957

Nos. 24 & 26

Forwarding copy of Prop: on
correspondence relating
to the fixing of a Tide
gauge at Madras & request
for early order
thereon.

Tide gauge at Madras:-
issuing orders on corres-
pondent the fixing of a

Cont. in No. 17-5-76

100-100 11-8-76