

(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. 672 (W)	Press ~~Mis.~~
Dated 28-2-	1877.

Not to be folded or roughly handled

Read the following papers :—

No. 681. Note by the Hon. R. S. ELLIS, c.B., dated 9th February 1877.

No. 681-A.

MEMORANDUM.

Madras Harbour Works G.O., No. 480, of the 12th February 1877, paragraph 2.

THE Chief Engineer has consulted with Mr. Thorowgood and with Colonel Farewell, and has the honor to report to Government as follows on the two points referred for consideration :—

1st.—As to the way in which the works at the south surf bank and pier can be carried on *without impediment to trade*.

(a) The Superintendent of the works proposes to lay the beach railway as shown on the tracing, which has been dated 16th instant; except near Clive's Battery, which has to be passed on the east side, the line from the block ground to the south pier will run close alongside the tramway and the space occupied will thus be reduced to a minimum. Similarly the branch from the South Indian Railway will be carried alongside the tramway to the point where the root of the surf bank will commence.

(b.) The transport of blocks from the block ground to the south pier will for the most part be carried on at night. The Superintendent considers, however, that, looking to the early setting in of the southerly wind, it will be desirable to commence

the south surf bank as early as possible
with material* brought by the Madras

* Laterite.
Railway; for the construction of the Coom bridge on the South Indian beach branch is, with the appliances available, getting on but slowly, and the sooner the south surf bank is run out the less will be the accumulation of sand within the harbour space. The Chief Engineer considers that under these arrangements the impediment to trade due to works of construction will not be material at any time, and that when the branch of the South Indian Railway has been completed the interference will be nominal.

(c.) It appears proper further to note that it is more than probable that the action of the surf bank on the currents will at times make it difficult for boats to work at particular points on the beach between the north and south piers. The positions of these points will vary according to the strength of the current and the projection of the surf bank and pier. It is believed that the difficulty arising from this action will not be of moment, and there will, it is supposed, be nothing to prevent a large proportion of the grain traffic being carried on south of the south pier and between it and the Fort.

2nd.—*Danger to Boats.* The danger referred to is that arising from the dispersion of the stone used for the surf bank between the beach and the block abutment of the south pier.

(1.) Mr. Thorowgood has suggested that the dispersion of the small stone of this surf bank may be prevented or limited by placing blocks of seven tons weight along the foot of the north slope. It appears, however, to the undersigned that, so far as dispersion will be caused by the blow of the sea from waves coming in from the south-east and south south east, it will be the south slope rather than the north which will need

protection. Could the direction of storm waves be foreseen, preventive measures might be adopted which might be nearly completely successful in preventing the dispersion of any considerable point of the mass of small stone. What can be prevented however is rather such dispersion from the more regular action of the sea than from a storm which may not improbably occur either at the end of April or in May next. The Chief Engineer would recommend the following arrangements as likely to prevent any such dispersion as occurred at the north pier and to secure the surf bank as completely as is perhaps feasible.

(2.) The beach groynes which have from time to time been constructed to prevent erosion of the shore and danger to the beach road are made of not very large stone and have always stood fairly well, but little of this stone having been washed away, though much of it has sunk into the sand. It will be desirable therefore to act upon this experience, and to protect the entire south face of the south surf bank with similar stone but of rather larger size. This heavier stone facing to be made 6 feet thick and the mass of the surf bank to be reduced to a similar extent.

(3.) In the next place there will be a comparatively short length of this face, commencing at a distance from the shore, which may probably be determined with sufficient accuracy, where the heaviest blow from south-east waves will impinge, and here, and here only the seven ton blocks may be used with advantage as an additional and more complete protection.

(4.) The north face may it is considered be left unprotected. It will be assailable only by waves from east and from north of east, and the spreading of the small stone will not cover any large space to the north of the south pier.

2. It will be seen from Mr. Thorowgood's office note of the 14th instant, that stone was moved from the north surf bank to a distance of 360 feet south, and 230 feet north, and these limits are in excess of any probable dispersion of the south surf bank if first block setting be commenced before the next north-east monsoon, and if secondly there be no cyclonic storm in April or May.

The distance between the north and south piers and the iron pile pier respectively is about 500 yards, so that at worst only about one-sixth of the space is likely to be interfered with.

3. What appears to be essential is that Mr. Thorowgood should receive instructions to go on at once with the south surf bank and to push it forward with all possible rapidity. Then there will be a minimum of risk of interference with trade and of danger to the boat traffic.

FORT ST. GEORGE,
19th February 1877.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer, Public Works Dept.

No. 682.

ORDER THEREON, 28th February 1877, No. 672.

CIVIL WORKS, No. 55.

HIS GRACE the Governor in Council having carefully considered the foregoing memorandum by the Chief Engineer is of opinion that the construction of the south pier surf bank should be proceeded with so soon as the branch under construction from the South Indian Railway will allow of the necessary material being brought by that line; but that, looking to the great

pressure now existing on the Madras Railway for the transport of grain inland, it will not be possible to provide either engines or wagons for the carriage of any material for the south surf bank by the latter railway. It is further considered that while this pressure lasts the rolling stock of the Madras Railway should not be diverted from the grain traffic to bring material for the north pier foundation, and that measures should therefore be at once adopted for utilizing the dispersed stone of that surf bank, and for transferring the stone of the abandoned bank north of the drain. When all the material referred to has been placed in the line of the north pier, the Superintendent of the Harbour Works will, if necessary, report what additional small stone will be required to enable the block setting to be proceeded with without interruption, and such orders as may at the time be necessary will then be passed.

2. The decision not to bring material for the south surf bank by the Madras Railway makes it doubtful whether the beach railway between the south and north piers will be required for some months to come, and on this point Mr. Thorowgood will be requested to submit a further report showing clearly, should he think this railway essential to his operations, what work it would be required to perform prior to the commencement of block setting, which it is understood will not be begun at the earliest until after July or August. The only heavy material until then to be used on the south pier will be the protective blocks, which can be made on the spot and will not therefore need any transport.

3. His Grace in Council considers that the use of similar, but somewhat larger stone than that used for the beach groynes, as a protective facing on the south side of the south surf bank, may be expected to diminish, if not altogether to obviate, the dispersion of the comparatively small material of which the mass of this bank will be formed. The use of such stone for a facing, and of blocks, either of the seven ton or some other suitable size, as a further protection along the limited space over which the surf action will be a maximum, is therefore approved, and the Superintendent will arrange to carry out this modification, and will report what additional expense will be entailed by these precautions.

4. The following telegram will be sent to the Secretary of State for India:—

Please inform Parkes Government have ordered south side south surf bank to be protected from surf action by facing of stone, like that used for beach groynes, but somewhat heavier, to obviate danger to boats by dispersion of small stone. Small blocks will be used as further protection where surf action greatest.

(True Extract.)

Lieut.-Colonel, R.E.,
Secretary to Government.

To the Superintendent of Madras Harbour Works.

" Consulting Engineer for Railways.

" Marine Department.

" Revenue Department.

Exd. E. C Shunker.

Spare Copies

5

Feb 15. 77. ^{W.H.W.}

12.0 tomorrow will
suit me quite well.

Reply to office note
already sent -

Other remarks noted.

W.H.W.

GOVT.
OF MADRAS. }

1877.

{ P.W.
DEPT.

J. SECRETARY.

Fort St. George, July 15. 1877.

OFFICE NOTE.

To Suplt. M. St. W.

Wm. St. W. wants to see
you in re G.O. no 400 dated
12 Inst. with your please
bring with you. If I am
clearing away from the
beach the beach rail way
as noted in your office letter
reply of 13 Inst. also let
me know as early reply
I have to my office letter
about the removal
of stone from beach
by surf action. I
have to my office letter
12 Inst. if you
can, at all events let
me know, this kind
with your Mr. St. W.
myself -

W. St. W.
15. 2. 77.

7
Feb. 14. 77. M. St. W.

Stone was moved as much
as 300 feet to the South of
the Surf bank, measuring
from the centre line to the
furthest lump of laterite -
on the North side the distance
was 230 feet from the centre
line -

I can get no authentic
information of any masula
boat being ~~detached~~ ^{damaged} by a
detached boulder of laterite,
but in the autumn of '76
two masula boats got broken
up on the spurs of laterite
near the North Surf bank -

I have searched for laterite
boulders along the beach from
time to time, but have never
found any that appeared to
have rolled along from the surf
bank -

J. St. W.
14/2/77

GOVT.
OF MADRAS. }

1877.

{ P.W.
DEPT.

SECRETARY.

Fort St. George, February 1877.

OFFICE NOTE.

To Sup. Mr. Kart. Irvell.

With your please let
me know the details
which stone was
removed by deep action,
north side of the
the north side of the
give length in feet from
bank north & south.
Is there any authentic
evidence as to stones
from the deep bank
having been washed
away in solution
blocks and stones
along the shore
across the line of
usual approach of
Mangalore boats and
their approach to the
shore or actually
occupying them -
during the past
year.

W.H.
13.2.77.

M.H.W.

Feb 13. 1877.

The Titan Crane was the
ready in February - but I have
heard nothing of it as yet. It
may be expected any day -
It would take about three weeks
to put it into working order -
Beach Railway -
I have sufficient block
trucks to send blocks to the
south pier at night and
leave them there till next day.
Sufficient, at least, for
starting the block setting -
I would bring the beach
railway along close to the
present tramway, as I feel
confident this would give
the least inconvenience to
the rice traffic -
The extension of the S.I.R.
must necessarily cut
through some sheds, and
many heaps of rice.

J.M.
Sup. M.H.W.

GOVT.
OF MADRAS. }

1877.

{ P.W.
DEPT.

SECRETARY.

Fort St. George, *July 12*

1877

OFFICE NOTE.

To *Supr Mr. N.W.*

Have you any information
as to when the *Steamer* for the
South Coast Bank is likely to
arrive, and how long after
arrival will it take to leave
it set up for use.

Beach Railway -

Could you work your Rail
way at night in carrying
sufficient blocks to the
South Coast at night leaving
them on the trucks for use
on each day, have you
sufficient block trucks
to admit of this.

What modifications of
the line of Beach Railway
Congress. propose to provide
interfering with the Rail
Stones to be on the line.

W.H.
12.2.77

For order

Colonial Secretary to Govt.

19/2

At the ...
...
...

...

...
...

13
...

I have read the paper
carefully. The C. ...
Suggestion seems ...
about ... (or at
least ... it) from the
making away of ...
from the S. ... bank while
making ...
But it seems to me quite
impossible that ...
... a ... can be
used for ... traffic on
Madras rail. while
the rice daily needed
can hardly be carried -
+ I do not feel justified
in allowing any ...
... which would

Repeal the grain traffic
of the use of a single wagon

Must be a long time -

Handwritten signature: J. Edgar Hoover

I think just as the rest

Mr. Mat. Stearns

James M. Smith

genuine
not visited before

Safely

Storian clew

Junior to Hailuocun

Dr. H. C. Sturges

Wm. S. Miller

Must be pushed over to

the utmost — and

until then I do not

✓ Stuck Blank Am

See Mar 1897
1897

be in part in nature

I agree with K. H. H. as the South Pier is energetically pushed forward a short postponement may not prove seriously inconvenient.

For substitute with large stones (as in the shore groynes) or blocks. As soon as low water low water level mark is reached & telegraph & Parkes that we propose this
28/2 J.H.

Harbour Works.

The proposal is to turn out the surf bank under the protection of a bank of more solid material. I would like to see the material suggested for the protection bank used for the surf bank. But there appears to be a difficulty about this form work of material.

Not send for Thorne
- (cont) 9/2 186?

Captain Taylor has represented the injury that is likely to be caused to the shipping in the roadstead of Madras by the construction of the South Pier of the Harbour. He considers that the material used, if similar to that employed in the construction of the North Pier, will, according to the experience gained, be washed away in the direction of

of the Iron pier and seri-
ously injure the landing
of cargo from Masulah
Boats.

Further the temporary
Railway required for
conveying material to
the South Pier will limit
the space now occupied
by some of the River
Sheds.

It has therefore to be
considered whether it
is necessary in the in-
terests of the Public, to
postpone for some
months the construction
of the South Pier.

The objections to this
postponement are weighty

In

In the first place Mr
Therowgood, in charge
of the works, has pointed
out that the postponement
of the South Pier, or any
delay in its construction,
will lead to an accumu-
lation of sand, such as
has already taken place
during the construction of
the North Pier, aggra-
vated as it will be by
the presence of the North
Pier in a completed
form. To obviate this
it is very desirable that
the South Pier should be
constructed as rapidly
as possible.

2^d Delay entails ex-
pensive deterioration of
plant

plant, and heavy expen-
-sure in establishments.

There is a middle
course which if adopted
might probably obviate
the danger pointed out
by Captain Taylor, while
it will not necessitate
delay in the completion
of the work. It seems
possible so to construct
the bed of laterite or
other stone, which is
a main feature of the
construction of the pier,
as to reduce to a mini-
mum the dispersion of
the laterite. A protecting
work of concrete blocks
thrown in "at random"
might be made which
would act as a retaining
wall

wall to the bed of laterite
until deep water is
reached; when it is be-
lieved the bed would
remain comparatively
undisturbed until the
large concrete blocks
would be placed in
position and then
this process would of
course be in addition
to the cost of the pier,
but it would not be
any violent departure
from the original design
and this arrangement
would, if successful,
obviate the evil con-
templated by Captain
Taylor. It would not
in any material degree
delay

delay the work, and it
would in all probability
prevent any accumula-
tion of said grain.

I should be disposed
to send for Mr. Thoroughgood
and propose this to
him: and if he con-
sents sanction the
work being commenced
with as little delay as
possible. This only
meets one difficulty and
does not relieve us of
the impediment caused
to the storage of grain
on the beach, by the
temporary Railway. But
this is only a matter
of increased cartage
to be borne by the
merchants

I need not say for
anyone but a report
will be made to the
Govt. & this is the
only satisfactory
solution.

11/11/77

I agree

merchants by having to
carry their grain to a
greater distance from
the landing place to its
storage ground pending
its removal inland by
Rail.

The places where
grain is now being stored
are not places to which
the merchants have
any right, nor can they
I think reasonably
complain at the Govt.
resuming ground ur-
-gently required for
a great public work.

MR

9. 2. 77

A. Harmer

I think of the
 many who have
 been in the
 the same place
 and have found
 it to be a
 very good
 place.

[illegible]

P. 28: July/77 E.B.L. 681

7-2-24-2-1 19.2.77

Memorandum.

Madras Harbour Works
G.O. No. 480 of the 12th February 1877
Para 2.

The Chief Engineer has
conferred with Mr. Thoroughgood
and with Colonel Farewell,
and has the honor to report to
your Government as follows on the
two points referred for con-
sideration.

1st As to the way in which the
wood at the South Pier bank
and pier can be carried on
without impediment to trade.

A The Superintendent of the work
proposes to lay the beach Railway
as shown on the tracing, which has
been dated 16th instant. Except

mean Chino's Battery, which has
to be passed on the East side,
the line from the black ground
to the South pier will run close
alongside the tramway and the
space occupied with this be
reduced to a minimum. Similarly
the branch from the South Indian
Railway will be carried alongside
the tramway to the point where
the foot of the dump bank will
commence.

B. The transport of bldg. from
the black ground to the South pier
will for the most part be carried
on at night. The Superintendent
considers however that looking
to the early setting in of the
Easterly wind it will be desirable
to commence the South dump
bank as early as possible.

*laterite

27 3
with material brought by the
Mardera Railway, for the construc-
-tion of the Coom bridge on the
South Indian beach branch
is, with the appliances available,
getting on but slowly, and the
earner the South pier bank is
run out the top will be the accu-
-mulation of sand within the
harbour space. The Chief Eng.
-man considers that under these
arrangements the impediment to
trade due to works of constanc-
-tion will not be material at
any time, and that when the
branch of the South Indian
Railway has been completed the
interference will be nominal.

C. It appears proper further

to note that it is more than
probable that the action of the
surf bank on the current will
at times make it difficult for
boats to work at particular
points on the beach between the
North and South piers. The
positions of these points will
vary according to the strength
of the current and the projection
of the surf bank and pier. It
is believed that the difficulty
arising from this action will
not be of moment, and there
will, it is supposed, be nothing
to prevent a large proportion
of the grain traffic being carried
on South of the South pier and
between it and the Fort.

2nd Danger to boats. The danger

29 4

referred to is that arising from
the dispersion of the stone used
for the surf bank between the
beach and the block abutment
of the South pier.

A. Mr. Tharavgood has suggested
that the dispersion of the small
stone of this surf bank may be
prevented or limited by placing
blocks of 7 tons weight along the
foot of the North slope. It appears
however to the undersigned that
so far as dispersion will be caused
by the blow of the sea from waves
coming in from the South East
and South South East it will
be the South slope rather than
the North which will need
protection. Could the direction
of storm waves be foreseen
preventive measures might be

adopted which might be nearly completely successful in preventing the dispersion of any considerable part of the mass of small stone. What can be prevented however is rather such dispersion from the more regular action of the sea than from a storm which may not improbably come either at the end of April or in May next. The Chief Engineer would recommend the following arrangements as likely to prevent any such dispersion as occurred at the North pier and to secure the dump bank as completely as is perhaps feasible.

B. The beach goynes which have been time to time

been constructed to prevent erosion of the shore and danger to the beach road are made of not very large stone and have always stood fairly well, but little of this stone having been worked away, though much of it has sunk into the sand. It will be desirable therefore to act upon this experience, and to protect the entire South face of the South pier bank with similar stone but of rather larger size. This heavier stone facing to be made 6 feet thick and the mass of the dump bank to be reduced to a similar extent.

C. In the next place there will be a comparatively short length of this face, commencing at a distance from the shore which may probably be determined with sufficient

accuracy, where the heaviest blow
from South East waves will
impinge; and here, and here only
the 4 low blocks may be used,
with advantage as an additional
and more complete protection.

D. The North face may it is
considered be left unprotected.

It will be available only by waves
from East and from North of
East and the spreading of the small
stone will not cover any large
space to the North of the South pier.

E. It will be seen from Mr.
Thornycroft's Office note of the
14th instant that plane was marked
from the North Surf bank to a
distance of 360 feet South and

230 feet North, and these limits
are in excess of any probable
dispersion of the South surf bank

if 1st block setting be commenced
before the next North East Monsoon
and if 2nd there be no Cyclonic
storm in April or May.

The distance between the North and
South piers and the Low pile pier
respectively is about 500 yards so
that at worst only about $\frac{1}{6}$ of the
space is likely to be interfered with.

3. What appears to be essential
is that Mr. Thornycroft should
perceive instructions to go on at once
with the North Surf bank and to
push it forward with all possible
rapidity. Then there will be a
minimum of risk of interference
with trade and of danger to the
boat traffic.

Wm. L. L. L.

Chief Engineer M. W. L.

Fort St. George
19th February 1877.

G.O. 3rd July 177 No 389
12 " " " 480

Enl

P. W. Dept
35

No 172

Proceedings of the Madras Govt

Under date the 28 Feb/77

Read the following

✓ Note by the Secy to Govt
Memorandum by the Chief Engineer P. W. D. } dated 9th February 1877
(P. W. D. 119 Feb 1877)

BC

W

MD
24/2

His Grace the Governor in Council having carefully considered the foregoing Memorandum by the Chief Engineer is of opinion that the construction of the South Pier surf bank should be proceeded with as soon as the branch under construction from the South Indian Railway will allow if the necessary material being brought by that line, but that looking to the great pressure now existing on the

P. 28th Feb/77 J. B. K. 1881

Madras Railway for the transport of grain inland, it will not be possible to provide either engines or wagons for the carriage of any material for the South surf bank by the latter Railway. It is further considered that while this measure lasts the rolling stock of the Madras Railway should not be diverted from the grain traffic to bring material for the North pier foundation and that measures should therefore be at once adopted for utilizing the dispersed stone of that surf bank and for transferring the stone of the abandoned bank north of the drain. When all the material is referred

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referred to has been placed in the hire of the North pier, the Superintendent of the Harbour Works will, if necessary, report what additional small stone will be required to enable the block setting to be proceeded with without interruption, and such orders as may at the time be necessary will then be passed.

2. The decision not to bring material for the South surf bank by the Madras Railway makes it doubtful whether the beach Railway between the South and North piers will be required for some months to come, and on this point Mr. Thoroughgood will be requested

requested to submit a further report showing clearly, should he think this Railway essential to his operations, what work it would be required to perform prior to the commencement of block setting which it is understood will not be begun at the earliest until after July or August. The only heavy material until there to be used on the South Pier will be the protective blocks, which can be made on the spot and will not therefore need any transport.

3. His Grace in Council considers that the use of similar but somewhat larger stone than that used for the beach groynes as a protective facing on the South side of the

39
South Pier bank may be expected to diminish if not altogether to obviate the dispersion of the comparatively small materials of which the mass of this bank will be formed. The use of such stone for a facing and if blocks either of the 4 ton or some other suitable size as a further protection along the limited space over which the surf action will be a maximum, is therefore approved, and the Superintendent will arrange to carry out this modification and will report what additional expense will be entailed by these precautions.

4. The following
telegram will be sent
the Secy of State for India
to ~~the Secy of State~~

Please inform Parkes
Government have ordered
the South side of South
surf bank to be protected
from surf action by
facing of stone like
that used for beach groynes
but somewhat heavier, in
order to abate danger
to boats by dispersion of
small stone. Small
blocks will be used as
further protection
where surf action is
greatest.

W. 24/2

Telegram despd 28/2/77

Supd to St. W. No. 1
C. E. for Rep.
Darius Dyer
Recd Sept 1/97

Despd 5. 3. 77

W. 24/2



Govt. of 1877 Madras

PUBLIC WORKS.

To the *Lt. Col. R. S. S. S.*

Recd.

Encl.

Encl.

Encl.

G. O. 28th Feb. 1877, No. 572

Nos. 681-82

Madras Harbour

*Passing orders on Indian
drawn by the Chief Engineer
relative to the construction
of the South Pier and
bank of the —*