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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	1482	(W)	Press
~~B.P. No.~~			~~Mis.~~
Dated	14-6-	1876	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
14th June 1876.*

Read the following papers :—

No. 245. From N. St. B. BEARDMORE, Esq., Officiating Superintendent of the Madras Harbour Works, to Colonel W. T. F. FAREWELL, Officiating Deputy Chief Engineer, Public Works Department, dated Madras, 29th May 1876, No. 17 W.

With regard to G.O., No. 1,238, of 17th May 1876, questioning the advisability of acquiring land at Chinnamapett, I have the honor to submit to you the following Memoranda :—

1. The Government could hardly have been ignorant of the proposal to obtain stone from another point than from Tritany, for it is referred to in G.O., No. 1,100, dated 3rd May, that Government Order being founded on a letter addressed by the late Superintendent of these works to Major-General G. W. Walker, dated 28th March of this year, in which, after referring to a conversation held with His Grace the Governor the previous day on the same subject, he quoting from his letter of October 4th, to the Agent of the Madras Railway, included in G.O., No. 3,324, states that there was reason to believe in the existence of hard stone suitable for concrete in the neighbourhood of Arconum, 40 miles from Madras, and this would obviate the necessity of drawing supplies from Tritany.

2. The subject as above-mentioned is also referred to in the correspondence covered by G.O., No. 3,324, dated as far back as 22nd November 1875, where the anticipation of obtaining stone from Arconum or Chinnamapett is referred to both by Mr. May and Mr. Elwin in their letters: from Mr. May to Mr. Elwin, dated October 4th, in which he states—"There is reason to believe that stone suitable for this purpose (the manufacture of concrete) exists at two points in the vicinity of the railway; one near Chinnamapett, 36 miles up, and the other near Arconum, 42½ miles;" from Mr. Elwin to Mr. May October 5th; from Mr. May to Mr. Elwin October 30th. The printed correspondence being, in fact, in a great part on the question as to how far the railway should be doubled in consequence of the probability of obtaining stone at some point nearer to Madras than Tritany.

3. For some time past the subject had been a matter of correspondence between the Engineer-in-Chief in London and the late Superintendent. The latter in his letter of February the 5th, 1876, says:—"There is no question as to the quality of the stone if the quantity is sufficient." And reports more fully in his letter of February the 12th, 1876, as follows:—"Yesterday I, accompanied by Mr. Beardmore and Mr. Lowe, visited the country adjoining the Railway Station at Chinnamapett, 36½ miles from Madras. On a moor of half-a-mile square or thereabouts, north of, and close to, that station, there is a sufficient quantity of stone for all the concrete required, and it is to be had for the picking up, in the shape of water-washed round pebbles of every variety of size from 12 inches diameter down to an inch or less. The ground is the property of the Rajah of Carvetnuggur; it is of no agricultural value, and none of the stone spread over it and under it for several feet in depth appears ever to have been utilized. These stones must once have been placed in water, although there is no water near them now; and they consist of quartz, jasper, and such like pebbles, brittle and easily broken, but each of them hard enough to cut glass. Specimens of this stone

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will be sent to your address by next P. and O. parcel post, and a plan of the ground showing the platforms and buildings at Chinnamapett Station will be prepared at once."

Mr. Parkes having received specimens of the stone, in reply to the above report discusses the question; and, on the supposition that it would be cheaper than granite, gave his acquiescence, mentioning that the final decision must rest with the local Superintendent.

4. Mr. May had instructed me on the subject, and in the last conversation he ever had with me on business affairs directed me to make the application to Government contained in my letter to the Secretary to Government, Public Works Department, dated April 25th, 1876.

5. Although waterworn, the stones are not all round and polished as might be supposed, but in a great part are broken and a little angular. River ballast is one of the best and most suitable of all stones for making concrete when of a hard character as these are; and, as stated in my letter above-mentioned, there are boulders which, after being crushed, will form, it is considered, sufficient angular pieces to fill the interstices between the pebbles.

6. To get them requires the removal of no large quantity of spoil, for they lie on the surface or mixed up with not a very large quantity of sandy soil from the river drift immediately below.

7. Chinnamapett is to be preferred to Tritany on account of the shorter railway journey, 36 miles compared to 51.

8. A saving would be effected in the cost of crushing, as so much of the Chinnamapett stone is small and broken.

9. The stone at Tritany moreover would be more expensive to quarry than that of Chinnamapett, as many of the boulders there will require blasting or otherwise breaking before they can be removed, whereas at Chinnamapett few of the boulders will so require breaking.

10. Alternative sites have been considered but not favorably. Mr. Parkes himself in his report of November 1873, in paragraph 63, discountenances going to St. Thomas' Mount or to Palaveram on account of the greater expense of quarrying there.

11. Other sites have not been reported on, because it was considered in the Superintending Engineer's discretion where he should obtain stone.

12. Moreover, it was always considered we were obliged under previous arrangement to go to some point on the Madras line of railway to quarry stone until G.O., No. 1,100, of 3rd May, repudiating all previous arrangements, was issued.

13. Referring to paragraph 5, it is possible that sufficient boulders may not be found at Chinnamapett in order to form the item quarry lumps in the manufacture of concrete blocks, as well as to form, after being crushed, a sufficient number of angular pieces to fill in the interstices; it is proposed, therefore, that the supply for the total quantity of stone required might be divided into two portions, one portion to come from Chinnamapett and the other portion of granite to be obtained from Tritany or some other quarry to be decided on. These portions may be advertised for under two separate contracts, if the Government so desire, or they might be supplied by

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the same Contractor, the proportions that would be required from the two different points being stated in the specification. It is considered that the river ballast and pieces of granite or such other stone would marry well together; but, in my opinion, the quantity of granite thus required need be very small.

14. In conclusion, I beg to submit that the above memoranda have shown that the subject had been brought before the Government on the 22nd November of last year, the correspondence being dated as far back as October the 4th, and that the matter had been settled long ere this in the minds of the Engineers connected with the works.

P.S.—I append certain extracts from Mr. Parkes, Mr. May's, and my own private letters on the subject, from which it will be seen that every endeavour is being made to economise the work as much as possible.

No. 245-A. From Colonel W. T. F. FAREWELL, Officiating Deputy Chief Engineer, Public Works Department, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 30th May 1876, No.—.

With reference to G.O., No. 1,238, of the 17th May 1876. the Officiating Superintendent of the Madras Harbour Works having informed that it is of importance that he should, as early as possible, be in a position to advertize for tenders for the hard stone required for concrete block-making, and as Government may desire at once to pass orders on the subject, I have the honor to report upon the sites for quarries on the Madras Railway Line; the report upon possible sites for quarries in the other localities in the neighbourhood of Madras will follow at an early date. I have, as directed, communicated with the Consulting Engineer for Railways, but as yet have received no reply from him.

2. On the 25th instant, in company with the Officiating Superintendent of the Harbour Works, I inspected the land at Chinnamapett Railway Station referred to in G.O., No. 1,238, dated the 17th May 1876. The Officiating Superintendent's letter to my address, attached hereto, explains the whole history of the selection of this site, &c. &c.

3. The ground at Chinnamapett, 36 miles from Madras, lies close to the railway, from which it can be easily approached by sidings; it measures 103½ acres; there is room for extending it; it is said to belong to a Zemindar, who now, I was informed, charges a tax of one anna a cart-load (about half a ton) for stone removed from the ground. On the surface of the ground lies scattered, and in some places in heaps, pebbles of various hard descriptions, of stone of all shapes and sizes from about a cubic inch to near three-fourths of a cubic foot; much of it fit for use at once, i.e., requiring no breaking up at all. I saw but few large boulders. Many of the pebbles reminded me of those I had seen used for concrete block-making for the Breakwater at Kurrachée; below the surface of the earth, the pebbles appear to be loosely embedded in the soil, i.e., easily removable with a pickaxe; some shallow pits of about 3 feet in depth sunk in different parts of the ground showed a fair amount of stone as being obtainable;

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14th June 1876.*

taking this depth, the area proposed to be taken up would, after deducting, say, two-thirds for spoil, yield 333,000 tons of pebbles, or about the quantity of hard stone required for concrete block-making for the Madras Harbour Works.

4. The cost of quarrying should not amount to much; this could be practically ascertained before tenders are advertized for.

5. The difference in distance between Chinnamapett and Tritany being $14\frac{1}{2}$ miles, at 6 Pies per ton per mile, represents a saving of 7 Annas 3 Pies per ton in carriage; let alone wear and tear of rolling stock, &c. &c.

6. At Tritany, $50\frac{1}{2}$ miles* from Madras, stone can be obtained almost as easily as at Chinnamapett; it is good granite and would furnish fine angular boulders and smaller chips for concrete block-making; quantities of suitable stone, much of which can be had without blasting, lie all over the hill side and ground near the station, and, if necessary, quarries could be opened close by.

7. I see by my report on the manufacture of the concrete blocks at Kurrachee, published with G.O., No. 93, dated 14th January 1874, that the quantity of pebbles used in each block is nearly double that of the boulders. If it be determined that the boulders required be obtained from Tritany, the quantity of land proposed to be taken up at Chinnamapett will be greatly in excess of what is wanted; should Government approve of the pebbles being drawn from this source, it might be more convenient, than purchasing the land, to arrange with the owner to pay him, as per railway lading bill, some small seigniorage per ton of pebbles removed. The agreement being that he should, say for ten years, allow pebbles or stones of all kinds to be removed from the ground shown in the survey on account of Government at a fixed rate which he shall not have the power to increase.

8. Lastly, I would note that, since there can be no doubt that the different kinds of stone required for the Madras Harbour Works can be supplied by contract, and it has been determined that such should be taken advantage of, Government having approved of certain specimens of each kind of stone selected by the Superintendent, the whole question of quarries, carriage, &c. &c., would be very simply disposed of by advertizing for tenders for certain fixed quantities of each description of stone, as per standard specimens lodged in the Superintendent's Office, to be delivered daily within a certain period on the Madras Harbour Works. Legally drawn up tenders prepared by the Government Law Officers should be printed and available at the Superintendent's Office for any one applying for them.

No 246.

ORDER THEREON, 14th June 1876, No. 1,483.

CIVIL WORKS, No. 38-A.

UNDER the fuller explanation now given by the Officiating Superintendent of the Madras Harbour Works, His Grace the Governor in Council withdraws his objections to the Chinnamapett quarry site being entertained. The Collector of North Arcot will take immediate steps for obtaining from the Zemindar of Carvetnuggur terms of the exclusive use of the stone on the site in question, and also at Tritany Station, for a term of seven years, at a

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14th June 1876.*

reasonable charge per ton of stone removed. The Officiating Harbour Superintendent will prepare in consultation with the Government Solicitor draft forms of tender for quarrying and loading the material at these points, and depositing it where required.

2. The Officiating Harbour Superintendent will at the same time submit sketches and sections showing the probable amount and cost of the sidings that it will be necessary to construct at Chinnamapett and Tritany respectively, and their relative levels with the material to be quarried and loaded, the latter quarry site being also

* No. 40, dated 7th June 1876.

† „ 1,484, „ 14th „ „

taken up in case of further need. It is seen from the Collector's letter* recorded in separate Proceedings† that this land is

also Zemindary property. All particulars concerning it should be ascertained and reported without delay.

(True Extract.).

Colonel,

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

To the Superintendent of the Madras Harbour Works.

„ Consulting Engineer for Railways.

„ Government Solicitor.

„ Revenue Department.

„ Judicial „

Exd. W. J. Lewis.
Spare Copies

Extract of private letter
from Mr. Parker.

If you want any more
information about Palo
Verde, please write let me
refer you to page 63 of
my Report of Nov. 1873,
and let me add some
other reasons - It is
not so easy to get from
the South Indian Railroad
to the South Sea as it
at first seems. The only
convenient way is through
the Hospital grounds,
and to that the Doctor
raised a howl of oppo-
sition - Then though
it might do for the
Prof. Bank, it would
have no advantage
over Lote 10 for the base
as the latter would be
shipped at the North Sea

to the
Palo Verde
State when
I refer to my
Report
of Nov. 1873
and let me
add some
other reasons
It is not so
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from the
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the South Sea
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only convenient
way is through
the Hospital
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to that the
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a howl of
opposition -
Then though
it might do
for the Prof.
Bank, it would
have no
advantage
over Lote 10
for the base
as the latter
would be
shipped at
the North Sea

9
and carried nearly in
the Steam Hoppers - Then
for (more) the destination
would be ^{not} the South Pier,
but the Black Ground; &
that is, the other side of
the town, & very difficult
of access; so altogether
I can only conclude
that Paloveran has not
been overlooked, or aban-
doned without good
reason - Nevertheless,
if any one is more suc-
cessful than I was in
seeing his way to deli-
vering Paloveran Stone,
in the Surf Haul, or at
the Black Ground, cheaper
than Limestones, or Portland
Gravel, or Woolley's bones
etc., by all means give
him the Contract -

(True & Trust)

Wm. Walker, Surveyor
Chief Eng. Dept.

being called on
 beyond their
 time to the bench.
 It is not yet set-
 tled whether
 they are to ex-
 tend beyond
 their Lord's Sta-
 tion as yet; &
 a very long time
 will elapse be-
 fore they will
 be allowed to
 lay down even
 a temporary to
 the bench - Pres-
 idently the Man-
 -dred Railway
 must have the
 monopoly of
 carriage for the
 next 2 years at
 least -

-C. W. W.
 1. 1. 1.

Extract of letter
 from Mr. Parker is
 appended

FOR ORDERS.

Letter from the Supt. Madras Harbour Works
No. 14 W dated 29th May 1876.

Letter from the Deputy Chief Engineer Public
Works Dept. dated 30th May 1876.

FOR ORDERS.

C. M. A. L. C. Major Genl. R. E. S.

Secretary to Govt. P. W. D.

In the opinion of
the Chief Engineer,
the correspondence
between Mr. M. and
Mr. P. is quite
alter the
aspect of affairs
no regards
regarding at
M. and P. -
and the Govt.
will not be
in objection

Yours truly
in original writing

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the

Read the following:—

From
The Supt. Madras Harbour
Works } (H.C. No. 17 W of 29th May 1896)
Dy. Chief Engineer P.W.D. (— of 30th —)

Under the fuller explanation now given by the officiating Superintendent of the Madras Harbour Works, His Grace the Governor in Council withdraws his objections to the Chinampett Quarry site. The Collector of North Arcot will take immediate steps for obtaining from the Zemindars of Carwaitunggar, exclusive

ing further to a site which has been chosen with great deliberation by the Harbour Supt. and acquiesced in by the Engineer-in-Chief of the works. Many more will be added to the list of needs, legally delaying the work.

The South Indian Railways have quite enough on their hands already, in the opinion of the Chief Engineer, to attend to the work of the Harbour.

site being also taken up in case of further need. It is seen from the Collector's letter recorded in separate Proceedings that this land is also Zemindari property. All particulars concerning it should be ascertained and reported without delay.

C.M.W.

* No 40 of 7th June 1876.

Supt. Madras H. W. R.
Comd. Eng. for Pys.
Govt. Solicitor
Rev. Dept.
Jud. Dept.

784

use of the stone in the site in question for a term of seven years, at a reasonable charge per ton of stone removed. And the officiating Harbour Superintendent will consult with the Govt. Solicitor as to the preparation of draft forms of tender for quarrying and loading the material and depositing it where required.

2. The Superintendent will at the same time submit sketches shewing the probable amount of siding that it will be necessary to construct both at Chinnampett and Tritany, the latter quarry site

and cleared for quarrying
stone

the site is to be cleared and

Extract from Mr. May's letter in re
Chinnamaset Stone

and the quality of the stone

February 5th 1896. "Next week I hope to take an opportunity
of visiting the old River beds of shingle near
Chinnamaset Station. There is no ques-
tion as to the quality of the stone if the
quantity is sufficient."

February 12th 1896. "Yesterday I accompanied by Mr.
Beardmore and Mr. Lowe visited the
country adjoining the Railway Station at
Chinnamaset 5 1/2 miles from Madras.
On a Moor of half a mile square, or thereabouts,
north of and close to that Station there
is a sufficient quantity of stone for all
the concrete required, and it is to be had
for the picking up in the shape of water
washed round pebbles of every variety of
size from 12 inches diameter down to an
inch or less. The ground is the property
of the Rajah of Carvetnaggar, it is of
no agricultural value, and none of the

C No 3834

Get it checked

"stone spread over it and under it
for several feet in depth appears
ever to have been utilized. These stones

"must once have been placed in water,
although there is no water near them
now; and they consist of quartz,
jasper, and such like pebbles, brittle
and easily broken, but each of them
hard enough to cut glass. Specimens
of this stone will be sent to your
address by next P. O. parcel
post, and a Plan of the ground,
showing the Plot forms, named
buildings at Chinnamapet Station,
will be prepared at once."

Feb 26. is Notice, despatched of Parcel con-
taining a Tracing of a piece of
space land described to you on
the 13th Inst. in 1845, containing
a sufficient quantity of stones in the
shape of pebbles for all the Concrete
required on the work. The land is

"defined by a neutral tint on the tracing, it
measures 103 ^{square} ~~inches~~ ^{acres} in extent,
and it is situated in the most favora-
ble position possible North and West of
the Railway Station at Chinnamapet,
3 1/8 miles from Madras. -

"I think the simple course in this
case would be to apply to the Government
to get possession of the property and then
to have the stone delivered on the most
favourable terms obtainable into Railway
Wagons at Chinnamapet Station". -

Extract from Mr Beardmore's Letter.

April 22. 1876. - "Have just received your letter of 31st
March. I am about to send in an applica-
tion to Government with Plan to take up
the land at Chinnamapet, for I find that
you have favourable views for this proposal
and have left the decision with Mr May
whom I know is quite settled in his mind
that this is the best place to go to. I may also
mention that I myself have the same opinion
the stone is of an exceeding hard quality and
I think there will be plenty enough of large

10. 1876. Acknowledges Mr. May's Letter of the 12th February -
 "The suggestion for Concrete Stone seems likely
 "to bear fruit, but the price as formerly men-
 "tioned by you. Rs 2 1/2 per ton, is too high, and
 "you would have to supplement it with sand
 "coarser than that of the Beach which might be
 "a difficulty."

order 211. Acknowledges Mr. May's letter of the 26th February -
 "I have not followed your suggestion of telegraph-
 "ing approval of the Chinnamapet scheme, for it
 "seemed to me a case in which a Telegram might
 "be interpreted to mean too much or too little.
 "What I said on the 10th instant will have in-
 "formed you that I look upon the scheme
 "favourably, but I have hardly the materials
 "to justify my taking the final decision on
 "myself. There will be a saving in quarrying
 "on 12 miles lead, and in partial crushing,
 "but there is on the other hand the Contractors'
 "profits, and I cannot but fancy that something
 "more will be wanted to bring water-worn pebbles
 "and boulders equal to crushed granite as a
 "material. - At the same price I should prefer

Extract from Mr. May's Letter of the 12th February -
 "The suggestion for Concrete Stone seems likely
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Chinnamapet Stone
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 "coarser than that of the Beach which might be
 "a difficulty."

"the Granite at least so far as I can
"picture the other material to myself,
"but 2^d or 3^d per ton would turn the scale,
"I think therefore the decision must rest
"with you."

Apr 11. 1896

He then suggests advertising in
general terms for stone delivered into
Railway Trucks at a point to be indi-
cated by the contractor. Each would
then have his chance with the others.

March 31. 1896

"Yours of the 4th March came to
"hand on the 25th and on the 27th arrived
"the samples of Lehighmanapet Shingle.
"This seems excellent as far as it goes
"but will clearly require either crushing
"or mixture with something coarser
"than sea sand to get the interstices
"properly filled up. It is not unlike
"the Manora shingle. This was mixed
"with a gravelly river sand. at my
"request Rice tried crushing it in a
"machine and using it without sand
"or with a little sea sand. He found
"the cost just the same as with the
"River sand, but one or the other was
"quite necessary."

Lehighmanapet

Shingle
22
1896

The Office of the Superintendent of the
 Harbour Works
 Mr. Sherwell
 Deputy Superintendent
 21st May 1876
 With regard to the question of 17th May
 1876 questioning the advisability of acquiring
 land at Lhinnamaphel, I have the honour to submit
 to you the following Memoranda:-
 The Government works, which have been
 commenced for the purpose of obtaining stone
 and other materials from Tintany,
 and for its use in the construction of the
 works, were founded
 by the late Super-
 intendent of these works, Mr. Major Gene-
 ral G. W. Walker, dated 20th March of
 this year in which after referring to
 a conversation held with His Grace the
 Governor the previous day on the same
 subject he quoting from his letter

Lhinnamaphel
 stone

Extract from Mr.
 Parker's letter in re.

3834/76
 2/7/76

of October 1st to the Agent of the Madras Railway included in G. O. 3324. states that there was reason to believe in the existence of hard stone suitable for concrete in the neighbourhood of Arcunum, 40 miles from Madras and this would obviate the necessity of drawing supplies from Trintany.

2. The subject as above mentioned is also referred to in the correspondence covered by G. O. 3324 dated as far back as 22nd November 1875, where the anticipation of obtaining stone from Arcunum or Chinnamapet is referred to both by Mr. May and Mr. Colvin in their letters from Madras to Mr. Selwin dated October 24th, in which he states: "There is reason to believe that stone suitable for this purpose (the manufacture of concrete), exists at two points in the vicinity of the Railway: one near Chinnamapet 36 miles up, and the other near Arcunum 42 1/2 miles." - From Mr. Colvin

to Mr. May October 5th
from Mr. May to Mr. Selwin October 30th
The printed correspondence being in fact in a great part on the question of the Railway should be enabled in consequence of the probability of obtaining stone at some point nearer to Madras than Trintany.

3. For some time past the subject had been a matter of correspondence between the Engineer in Chief in London, and the late Superintendent. The latter in his letter of February the 5th 1876, says: "There is no question as to the quality of the stone if the quantity is sufficient." And reports more fully in his Letter of February the 12th 1876, as follows: "Yesterday I, accompanied by Mr. Beardmore and Mr. Lowe visited the country adjoining the Railway Station at Chinnamapet 36 1/2 miles from Madras. On a moor of half a mile square

or thereabouts North of and close to
that station there is a sufficient quantity
of stone for all the concrete required and
it is to be had for the picking up, in the
shape of water washed round pebbles of
every variety of size from 12 inches dia-
meter down to an inch or less. The
ground is the property of the Rajah of
Bardetungga, it is of no agricultural
value, and none of the stone spread over
it and under it for several feet in
depth, appears ever to have been utilized.
These stones must once have been
placed in water although there is no
water near them now: and they
consist of quartz, jasper, and such
like pebbles, brittle and easily broken,
but each of them hard enough to cut
glass. Specimens of this stone will be
sent to your address by next P.O.
parcel post, and a plan of the
ground showing the Platforms and
buildings at Chinnamapet Station
will be prepared at once.

Mr. Parker having received
specimens of the stone; in reply to

the above report, discusses the question,
and in the supposition that it
would be cheaper than granite gave
his acquiescence, mentioning that the
final decision must rest with the local
Superintendent.

Mr. May had instructed me on the
subject and in the last conversation he
ever had with me on business affairs

directed me to make the application
to Government contained in my Letter
to the Secretary to Government, Public
Works Department, dated April 25th 1896.

Although water worn, the stones are
not all round and polished as might
be supposed, but in a great part are
broken and a little angular. River
ballast is one of the best and most
suitable of all stones for making concrete
when of a hard character as these are
and as stated in my letter above mention-
ed, there are boulders which after being
crushed will form it is considered suf-
ficient angular pieces to fill the interstices
between the pebbles.

To get them requires the removal of
a large quantity of spoil for they lie
on the surface or mixed up with
not a very large quantity of sandy soil

from the River drift immediately below:
 Chinnamapet is to be preferred to
 Tirutany on account of the shorter Rail-
 way journey 36 miles compared to 51.

8. A saving would be effected in
 the cost of crushing, as so much of
 the Chinnamapet stone is small and
 broken.

9. The stone at Tirutany moreover
 would be more expensive to quarry
 than that of Chinnamapet as many
 of the boulders there will require
 blasting or otherwise breaking before
 they can be removed, whereas at
 Chinnamapet few of the boulders
 will require breaking.

Alternative sites have been
 considered but not favorably.

Mr. Parker himself in his report
 of November 1873, in paragraph 63,
 discountenances going to St. Thomas
 Mount or to Palaveram on ac-
 count of the greater expense of
 quarrying there.

11. Other sites have not been reported on
 because it was considered in the
 Superintending Engineer's discretion
 where he should obtain stone.

12. Moreover it was always considered
 we were obliged under previous ar-
 rangement to go to some point on the
 Madras line of Railway to quarry
 stone until G.O. No. 1100 of 3rd May
 repudiating all previous arrangements
 was issued.

13. Referring to paragraph 5 it is
 possible that sufficient boulders may
 not be found at Chinnamapet in order
 to form the iron quarry lumps in the
 manufacture of Concrete Blocks as
 well as to form after being crushed
 a sufficient number of angular pieces
 to fill in the interstices. It is proposed
 therefore that the supply for the total
 quantity of stone required might be
 divided into two portions, one portion
 to come from Chinnamapet and the
 other portion of granite to be obtained
 from Tirutany or some other quarry
 to be decided on. These portions

may be advertised for under two separate Contracts, if the Government so desire: or they might be supplied by the same contractor the proportions that would be required from the two different points being stated in the Specification. - It is considered that the River ballast and pieces of granite or such other stone would marry well together; but in my opinion the quantity of granite thus required need be very small. -

In conclusion I beg to submit that the above Memoranda have shown that the subject had been brought before the Government on the 22nd November of last year, the correspondence being dated as far back as October the 14th and that the matter had been settled long ere this in the minds of the Engineers connected with the works. -

I have the honour to be,
Sir,
Your most obedient servant
Nathl^l Beardmore
Offg Superintendent

18. 12. 22.

18. 12. 22.

I append certain extracts from Mr Parkes' Mr May's and my own private letters on the subject, from which it will be seen that every endeavour is being made to economise the Work as much as possible. -
N.B.B.

18. 12. 22.

18. 12. 22.

60116 June 1/40/93.
 - 22nd June 1/75 - 332423225
 - 3rd June 1/76 - 1100.

S. H. 1876 Department

- 3834

17th June 1876 1238
 17 July 1876 2086
 Report of formation of Harbour
 The Capt. Madras Harbour
 Works.

Date d. 29th May 1876
 Received 29th May 1876

- 17th H.

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Regarding the
 advisability of acquiring land
 at Chinnamapalle for the
 quarrying purposes of the
 Madras Harbour Works.

N-245

Recd. 12.6.76
 Cir. 1.6.76
 Despatched 30.5.76
 PMA 12/6/76

No.

30th May 1876

From, Colonel W. Lawrence
 offg. Deputy Chief Engineer.
 Fort. St. George

To, The Secretary to Government
 Public Works Department
 Ootacamund

Sir, With reference to No. 1238 of the
 17th May 1876, the officiating Super-
 intendent of the Madras Harbour
 Works having informed that it is
 of importance that he should as
 early as possible be in a position
 to advertise for tenders for the hard
 stone required for concrete Block-making
 and as Govt. may desire at once to
 pass orders on the subject, I have
 the honor to report upon the sites
 for Quarries on the Madras Railway
 line; the report upon possible sites
 for Quarries in the other localities in
 the neighbourhood of Madras will
 follow

follow at an early date. I have as directed communicated with the following Engineer for Railways, but as yet have received no reply from him.

2. On the 25th Instant in company with the offg. Superintendent of the Harbour Works, I inspected the land at Chinnaaipett Railway Station referred to in L.O. 1238 dated the 14th May 1876. The offg. Superintendent's letter to my address attached hereto explains the whole history of the selection of this site &c. &c.

3. The ground at Chinnampett
36 miles from Madras lies close to the
Railway from which, it can be easily
approached by sidings; it measures
103 $\frac{1}{4}$ acres; there is room for extending
it; it is said to belong to a Zemindar
who now, I was informed, charges a tax
of one anna a Cart load (about $\frac{1}{2}$ a ton)

For

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for stone removed from the ground. On the surface of the ground lies scattered and in some places in heaps, pebbles of various hard descriptions of stone of all shapes and sizes. All from about a cubic inch to near $\frac{3}{4}$ ton, of a cubic foot, much of it fit for use at once i.e. requiring no breaking up at all. Saw but few large boulders. Many of the pebbles reminded me of those I had seen used for concrete block-making for the Breakwater at Kurrachee, below the surface of the earth, the pebbles appear to be loosely embedded in the soil i.e. easily removable with a pickaxe, some shallow pits of about 3 feet in depth sunk in different parts of the ground, showed a fair amount of stone as being obtainable, taking that of

this depth, the area proposed to be taken up would, after deducting say $\frac{2}{3}$ for spoil, yield 333,000 tons of pebbles or about the quantity of hard stone required for Concrete Block-making for the Madras Harbour Works.

4. The cost of quarrying should not amount too much. This could be practically ascertained before tenders are advertised for.

5. The difference in distance between Chinnamapett and Tirutany being $14\frac{1}{2}$ miles at 6 pice per ton per mile, represents a saving of 7 Annas per ton in carriage. Let alone wear and tear of rolling stock &c. &c.

6. At Tirutany $50\frac{1}{2}$ miles from Madras, stone can be obtained almost as easily as at Chinnamapett; it is good granite and would furnish fine

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fine angular boulders and smaller chips for Concrete Block-making, quantities of suitable stone much of which can be had without blasting, be all over the Hill side and ground near the station, and if necessary, quarries could be opened close by.

7. I see by my report on the manufacture of the Concrete Blocks at Kurrachee published with the G.O. dated 14th January 1874, that the quantity of Pebbles used in each block is nearly double that of the boulders. If it be determined that the boulders required be obtained from Tirutany, the quantity of land proposed to be taken up at Chinnamapett will be greatly in excess of what is wanted. Should Government approve of

the Pebbles being drawn from the source,
it might be more convenient, than
purchasing the land, to arrange
with the owner to pay him as per
Railway loading bill some small
seigniorage per ton of Pebbles removed.
The agreement being that he should,
say, for ten years allow Pebbles or
stones of all kinds to be removed
from the ground shown in the
Survey on account of Government
at a fixed rate which he shall not
have the power to increase.

8. Lastly, I would note that, since
there can be no doubt that the different
kinds of stone required for the Madras
Harbour Works can be supplied by
contract, and it has been determined
that such should be taken advantage
of, Government having approved of
certain specimens of each kind of stone
selected by the Superintendent, the
whole

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whole question of quarries, Carriage &c.
would be very simply disposed of by
advertising for Tenders for certain
fixed quantities of each description
of stone as per standard specimens
lodged in the Superintendent's Office,
to be delivered daily within a certain
period on the Madras Harbour Works.
Legally drawn up Tenders prepared
by the Govt. Law Officers should
be printed and available at the
Superintendent's office for any one
applying for them.

I have the honor to be,
Sir,

Your most Obedient Servant,

W. H. M. Colonel
offg. Deputy Chief Engineer
J. H. B.

Under date the 14 June 1876.
Read the following:—

From
The Supt. Madras
Harbour Works } (No. 17th of 29th May 1876)
Dy. Chief Eng. J. W. D. (4th of 30th June 1876)
Print without Date & Co

Under the fuller
explanation now given by
the Officiating Superinten-
dent of the Madras Harbour
Works, His Grace the
Governor in Council with-
draws his objections to the
Chinnampett Quarry
site being entertained. The
Collector of North Arcot
will take immediate steps
for obtaining from the
Zemindars

No 245A

Cir. 1-6976
O. H. 8th 12 66 men

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Zemindar of Carwantunggar
 terms of the exclusive use
 of the stone in the site in
 question, and also at Tritany
 station, for a term of seven
 years, at a reasonable
 charge per ton of stone
 removed. The officiating
 Harbour Supt. will prepare
 in consultation with the
 Govt. Solicitor draft forms
 of tender for quarrying
 and loading the material
 at these points, and de-
 positing it where required.

2. The Offg. Harbour
 Supt. will at the same
 time submit sketches and
 sections showing the probable
 amount and cost of the
 sidings that it will be

necessary

* No. 40 of 7th June 1876

+ No. 1484 of 14th June 76.

necessary to construct at
 Chinnamapett and Tritany,
 respectively, and their relative
 levels with the material
 to be quarried and loaded;
 the latter quarry site being
 also taken up in case of
 further need. It is seen
 from the Collector's letter
 recorded in separate
 Proceedings that this land
 is also Zemindary pro-
 perty. All particulars
 concerning it should be
 ascertained and reported
 without delay.

Supt. M. H. Works²
 Comd. Eng. for Rep²
 Govt. Solicitor 2 ✓
 Rev. Depts 21 ✓
 Judl. Depts 7 ✓
 M 17

Ans despd. to Supt. M. H. Works
 on the 24/6/76.

Dated 23/6/76

3834

Gobi. of 1876 Madras.

PUBLIC WORKS.

The Supt. Madras Harbour Works

10/1/76

G. O. No. 1483

No. 1483

215-216

Madras Harbour Works

Passing orders on
papers relating
to the question of obtain-
ing stone from the
quarries at ^{Chinnamapett} ~~Chinnamapett~~
~~Chinnamapett~~ & Inland for