P. W. Cuo 6536

1784 W - 15 - 6 - 88

Cuos 6385 &
6535

No 2039 W d/ 6. 7. 88

Recorded.

Encl
(1 plan)

Recd: 5. 7. 88.

mem
6. 7. 88

No 2039 W d/ 6. 7. 88

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[25]

Marine Department.

CHIEF SECRETARIAT, MADRAS.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following paper

From the Public Works Department No 1784 W dated 15th June 1888.

Order dated 26th June 1888 No 281

The plans will be communicated to the Port Officer Madras for inspection and early return to the Public Works Department

(True Extract)

W W Bouldley

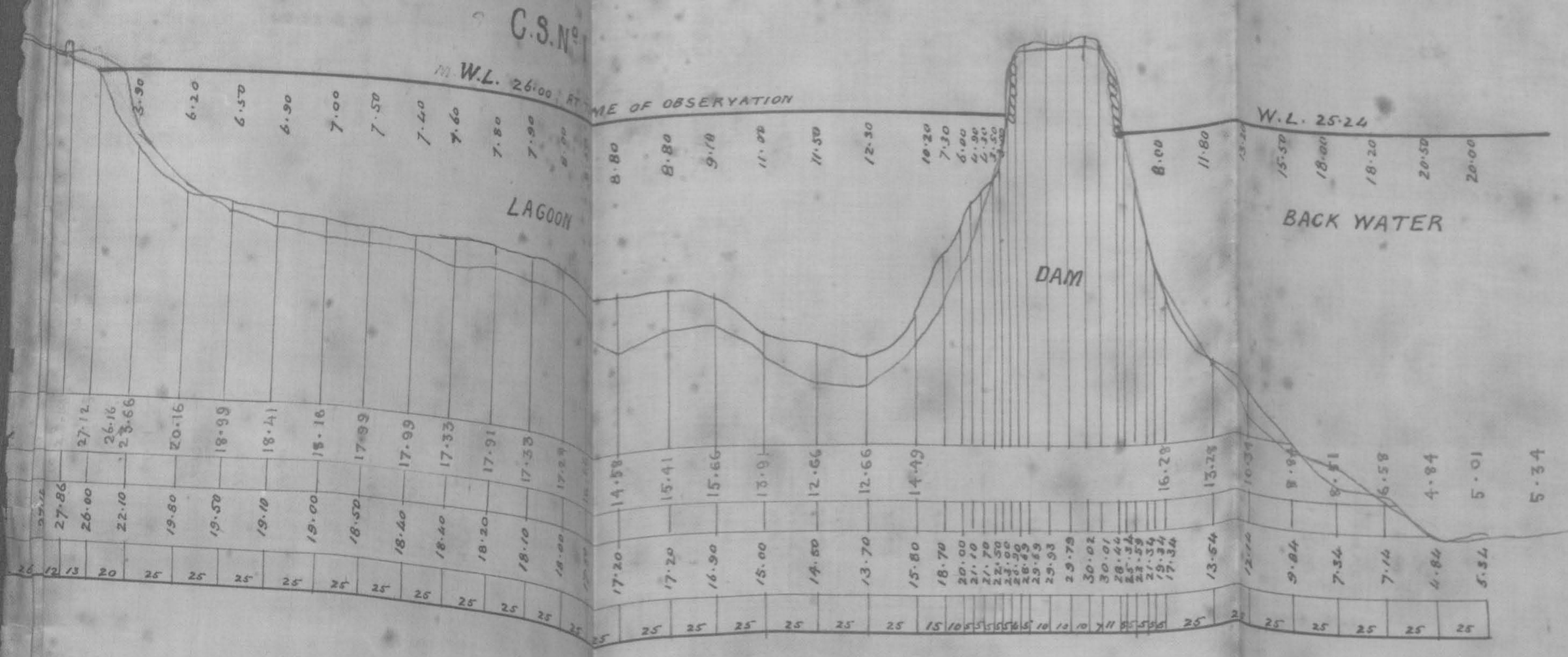
Under Secretary to Govt. for Chief Secretary. P. W.

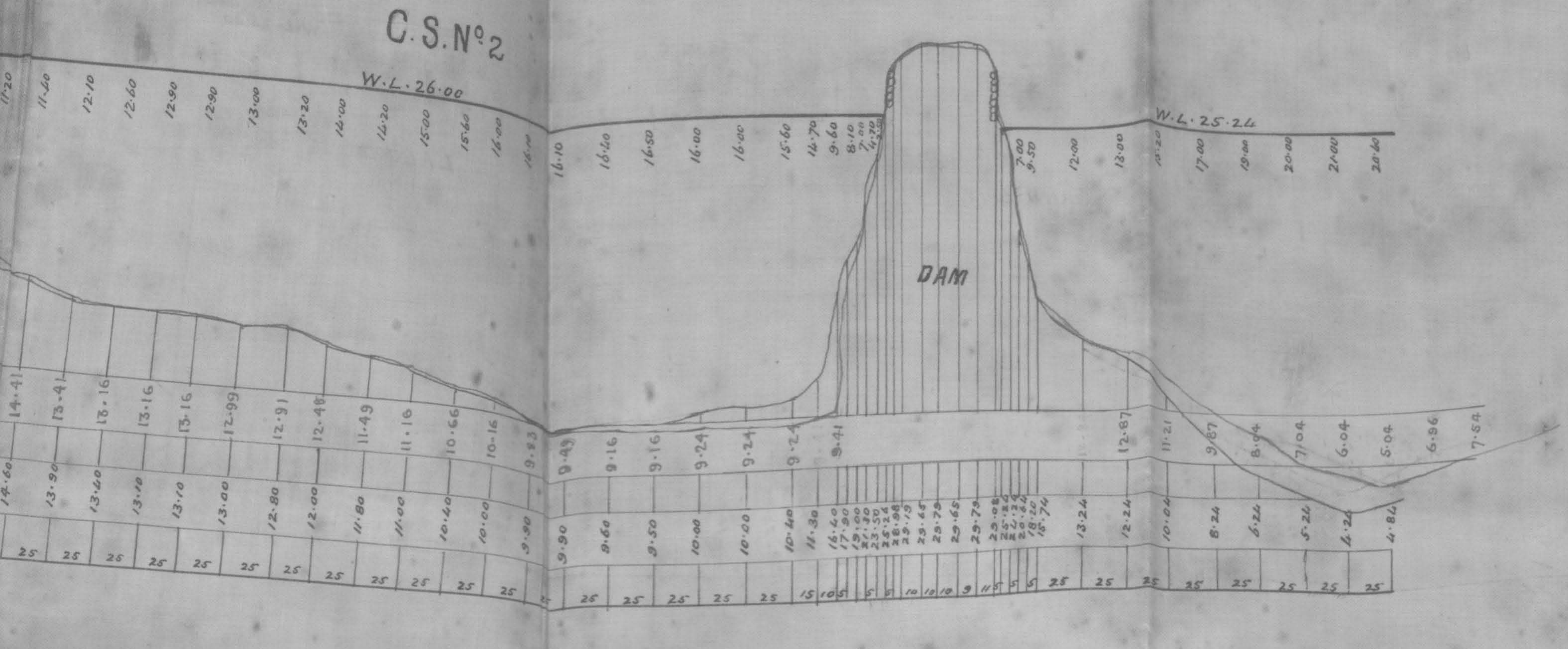
To
The Public Works Department
& Port Officer, Madras

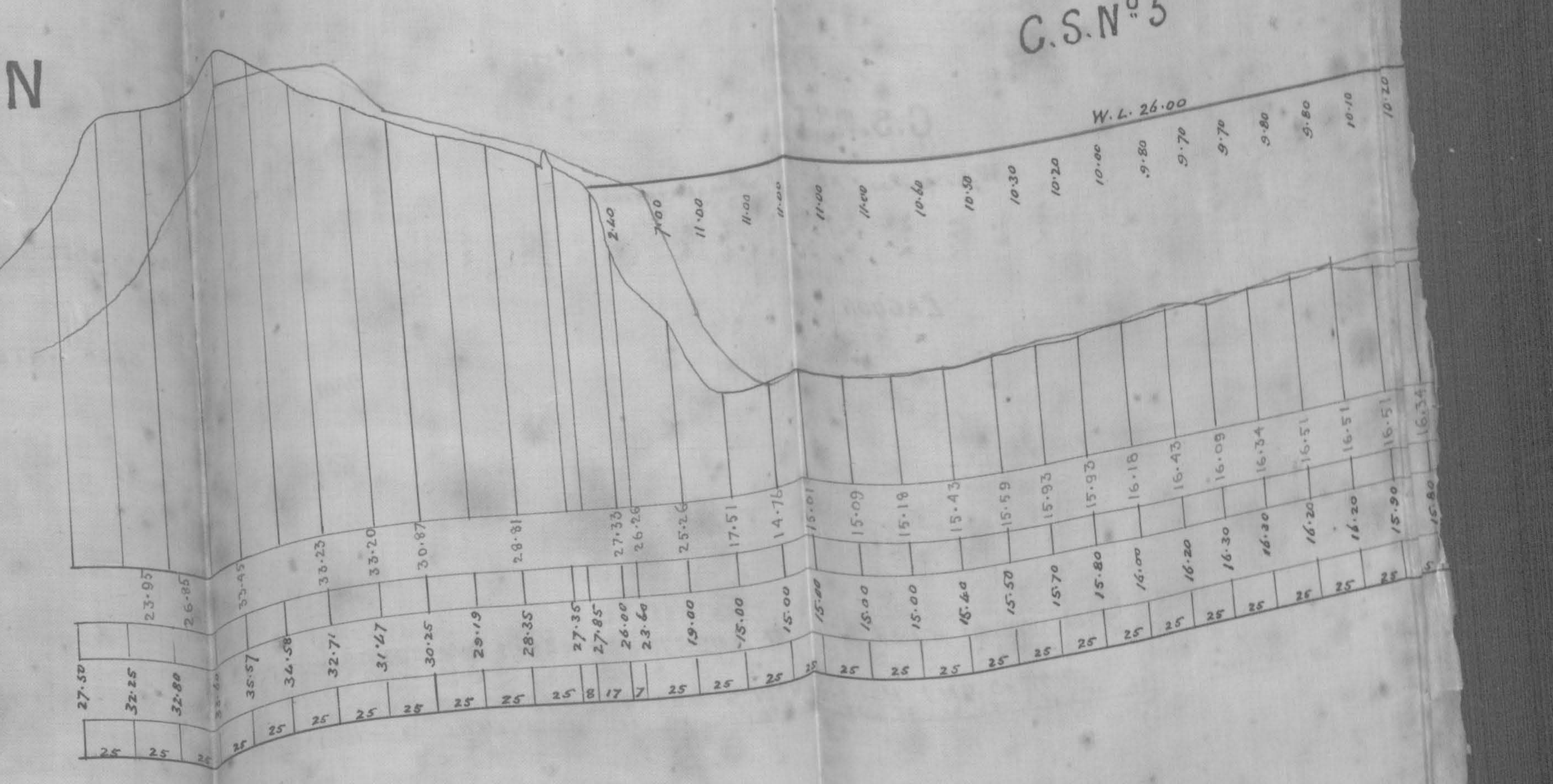
LEVELS AND SECTIONS OF THE CRUZ-MILAGRE DAM COCHIN

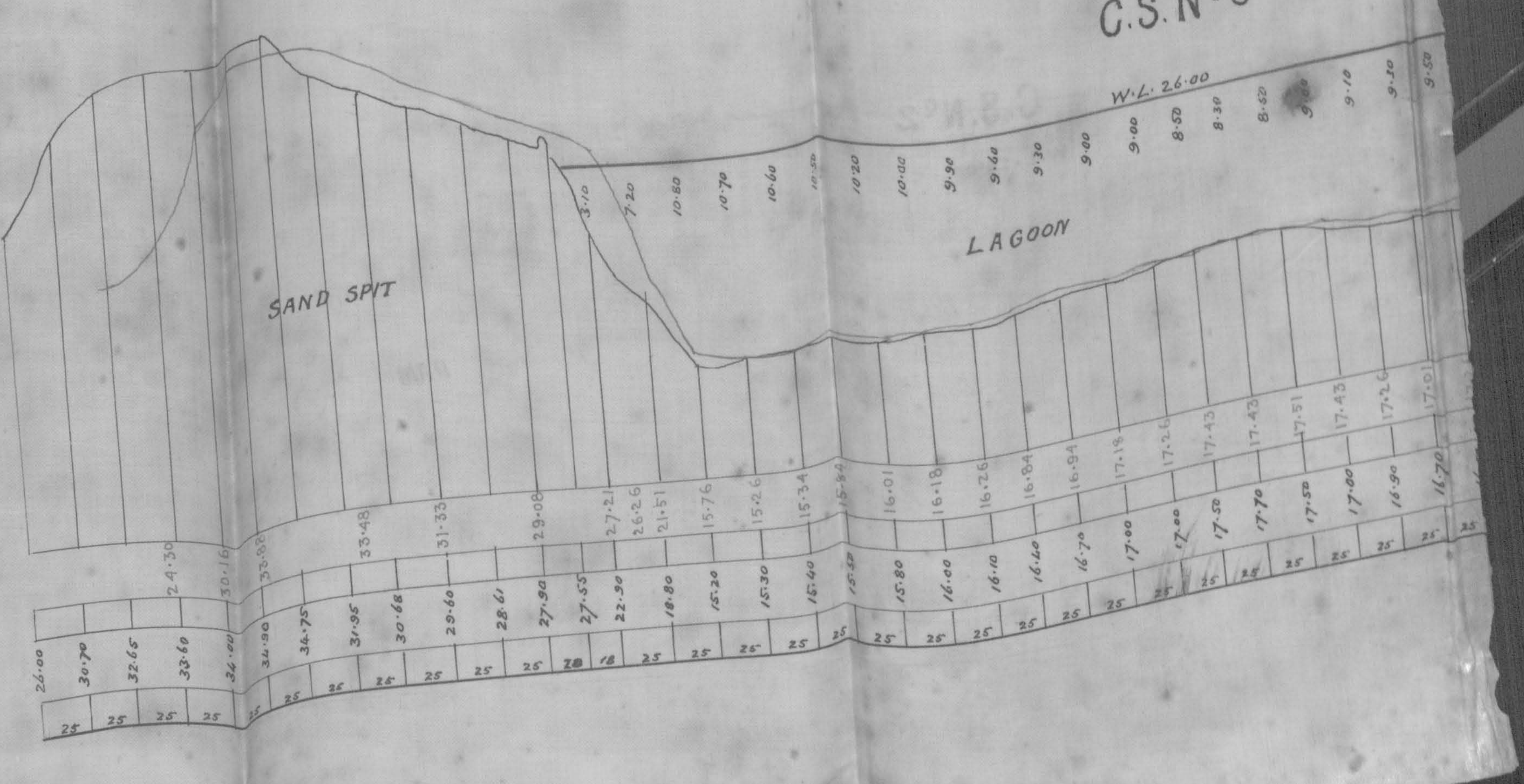
TAKEN ON THE 9th + 10th APRIL 1888

SCALE { HORIZONTAL - 1/1000
VERTICAL - 1/100









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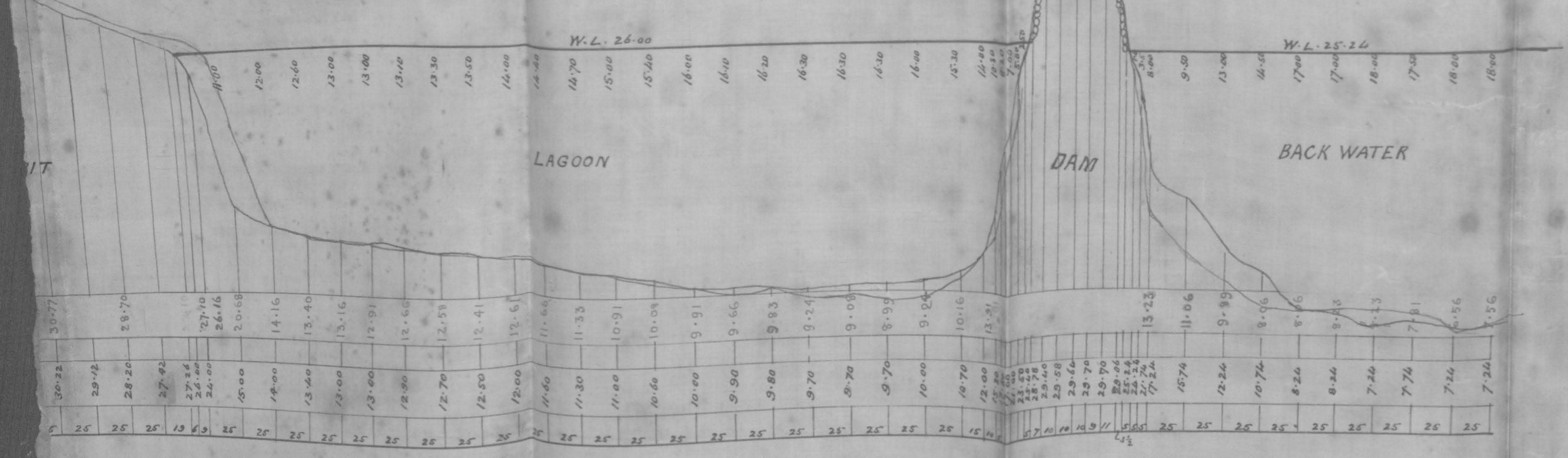
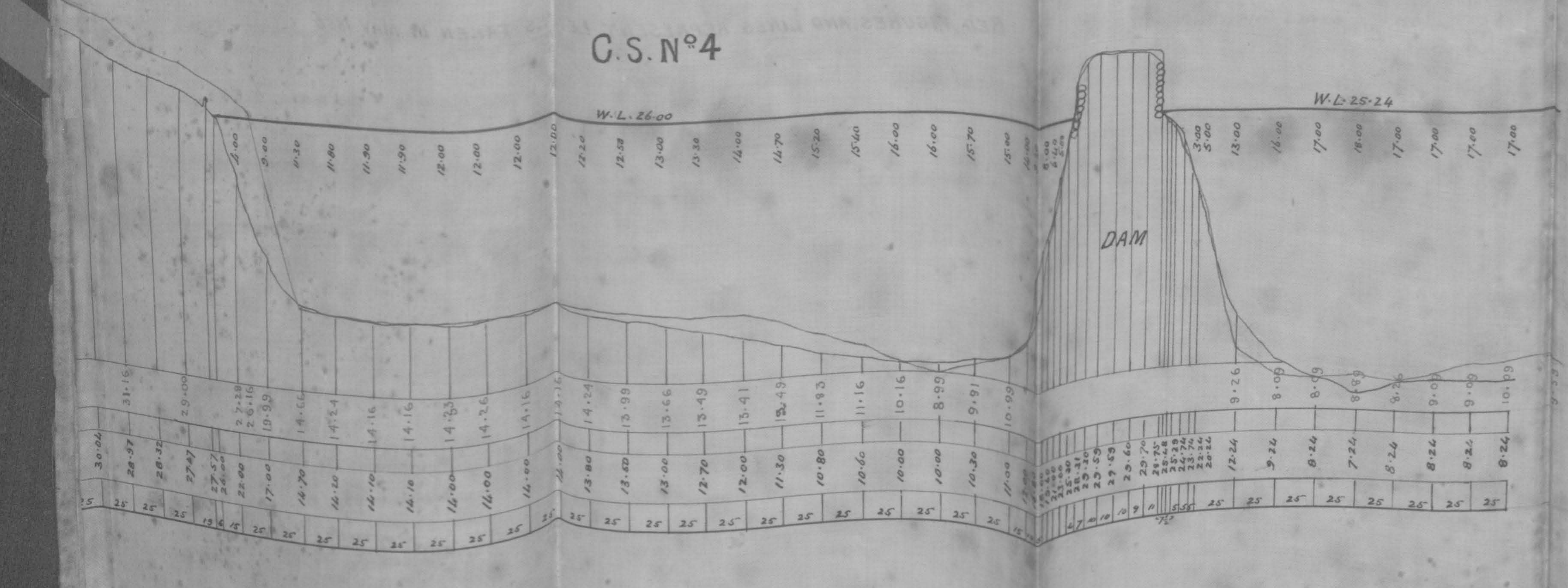
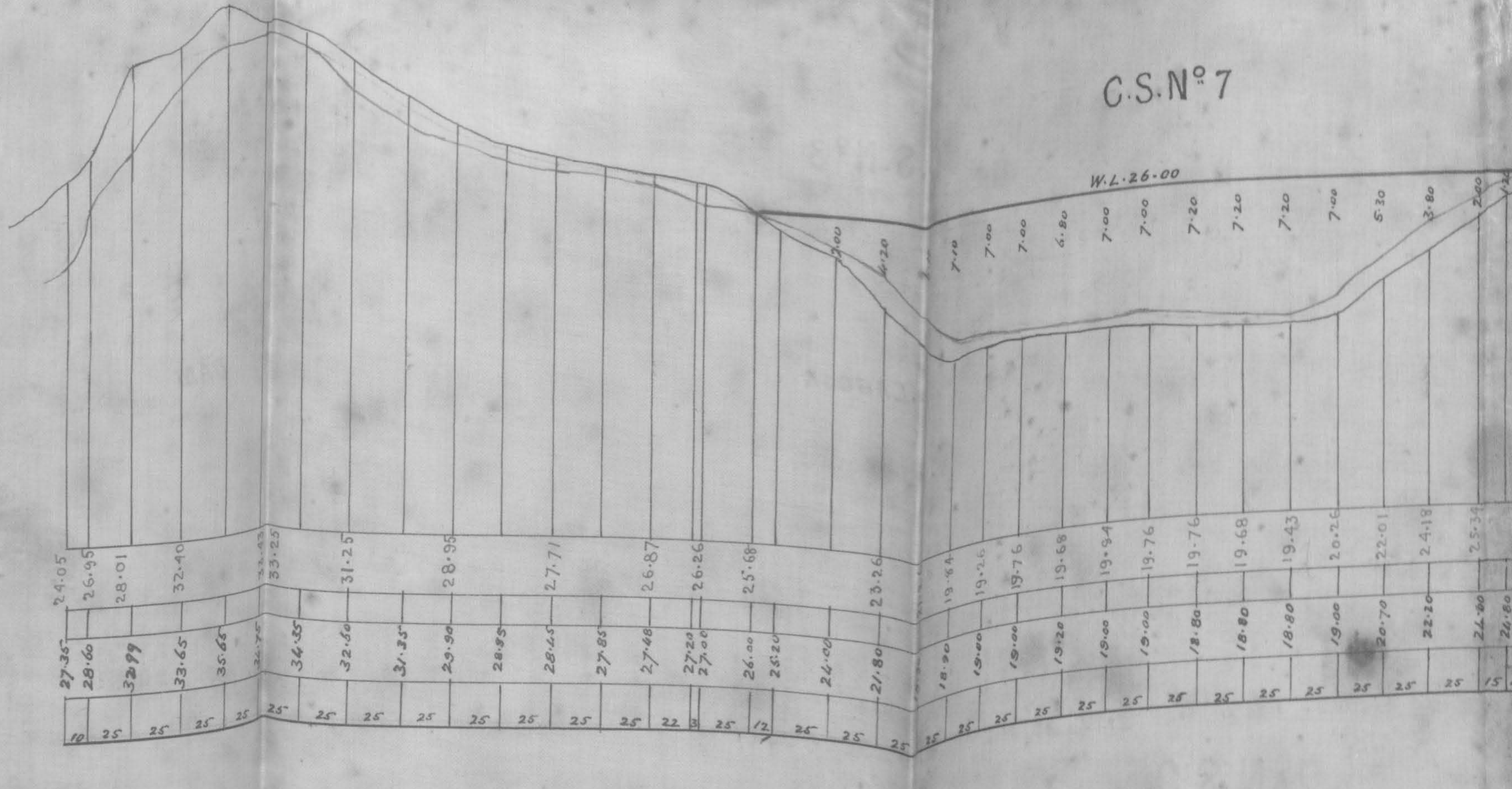


C.S. No 4



C.S. No 7



NOTE

DATUM LINE 30.00 FEET BELOW B.M. AT SOUTH END OF BUND

RED FIGURES AND LINES REPRESENT LEVELS TAKEN IN MAY 1886

Signed, H. S. Saldanha
Supervisor

No. E/77

Madras, Port Office,
3rd July, 1888.

Heading
Cruz Milagre Dam.

From

The Port Officer,
Madras.

To

The Chief Engineer to Government,
Public Works Department.

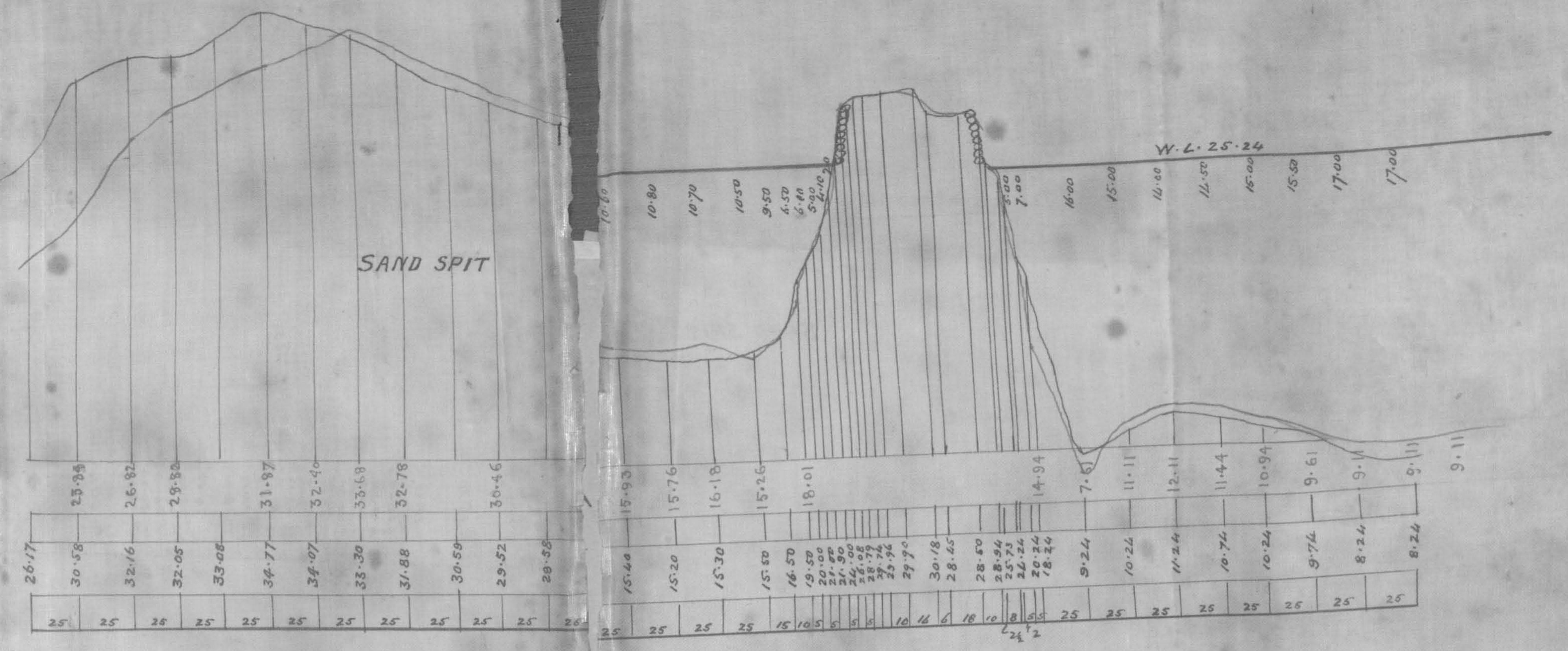
Sir,

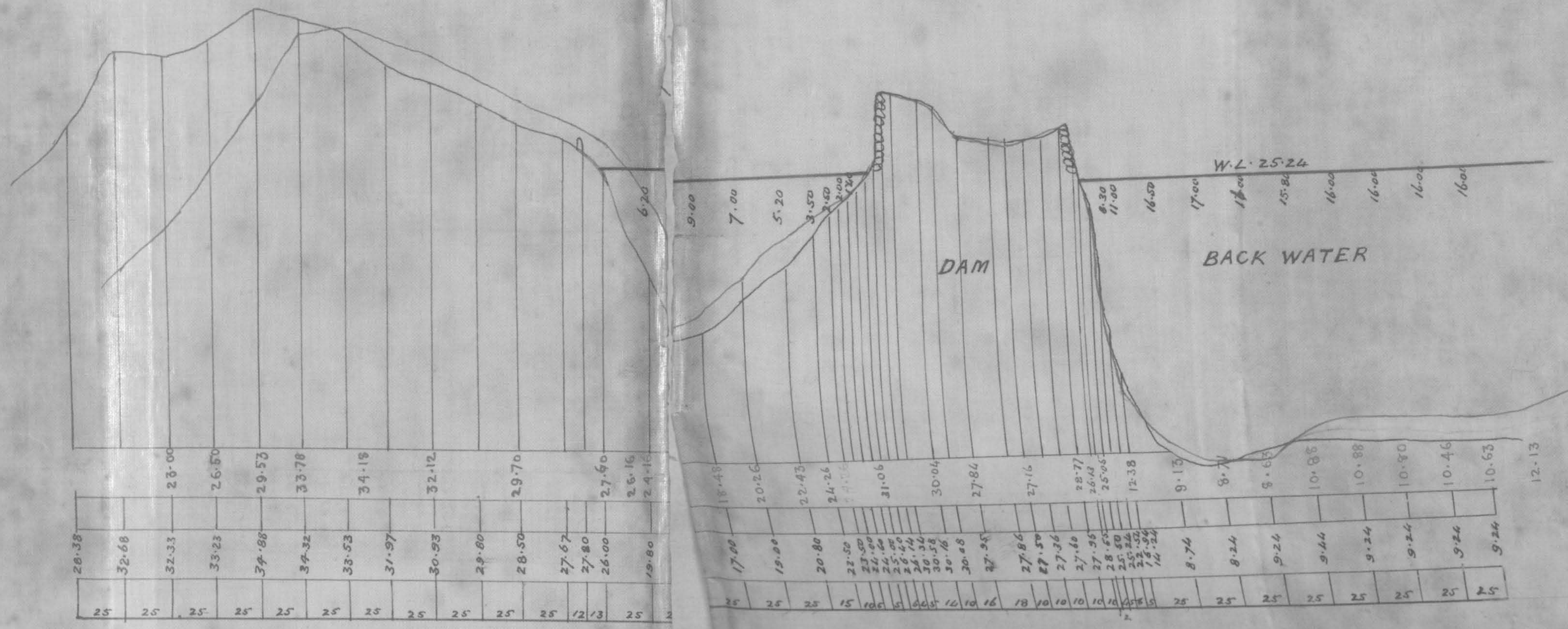
I have the honor, by direction of Government, to return the accompanying plan of Levels and Cross Sections of the Cruz Milagre Dam, Cochin, taken on the 9th and 10th April, 1888.

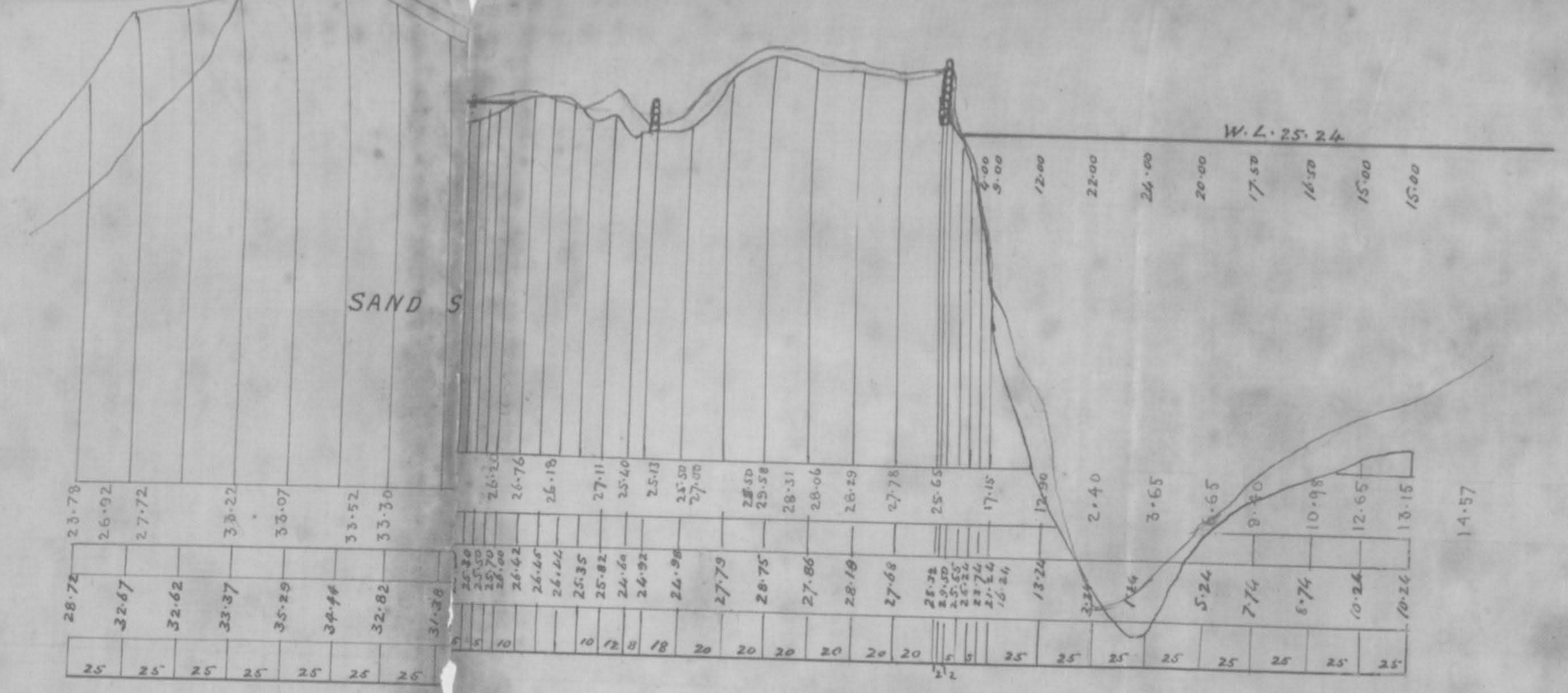
I have the honor to be
Sir,
Your Obedient Servant

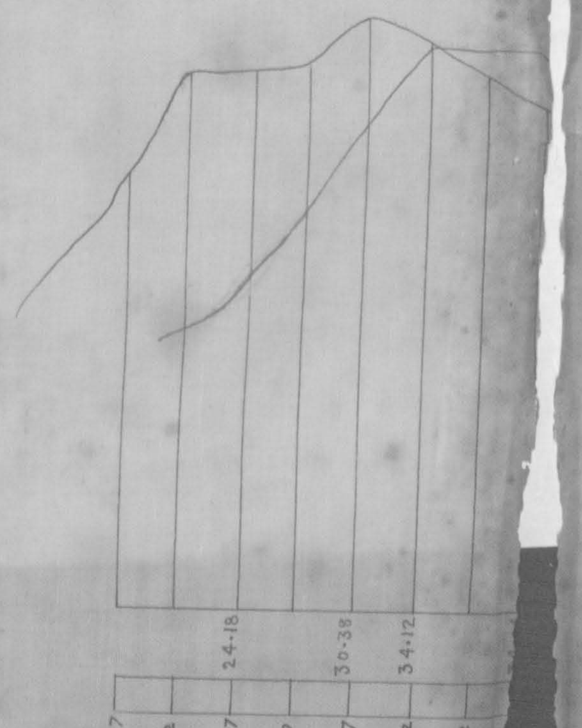
H A Street
Captain H.M's I.M
Port Officer.

mmd









Supg: Engineers Office IV Circle
Coimbatore 5th June 1888

P.W.

L. Beatty
Colonel R.E.
Supg: Engineer 4th Circle

[6] PWC No 6385

Govt. of {188 } Madras.

To

The P.W.D.

R 2-7-88

Proceedings, dated 26 June 1888.

No. 281

Subject.

Requesting the Port officer Madras to return the plan to the P.W.D.
No. 2039 dd/ 6. 7. 8

Date taken out.	For what purpose.			Initials of clerk taking the paper or of attender.	Date returned.	Initials of attender.
	Department.	C. No.	Year.			

[Ref.]

TELEPHONIC MESSAGE.

Date, 8th December 1906.

12 Hours 7 Minutes.

From R.h.W.

To S.G.d.

Cl.

Please note that G.O. no. 2134 (O.&) 6-7-88 has been put up with C no. 12765 of 06.

O.E.
8/12/06

1888.

P. W. DEPARTMENT

Current No. 5788

From

The Suptg. Engineer
VI circle

ENCLOS.—

No. 304 T. N.
Dated 12th June 1888
Received 18 — do —

SUBJECT.

Requesting instructions, if there is any objection to the payment of Compensation (Rs 360) in lieu of quarters for the current year for the Apothecary in charge of the Hospital at Tuticorin who lives in his own house.

DISPOSAL.

No. 2290C Dated 19th June 1888

To
C

For favour of remarks.

(Sd) W. L. C. B.
19-6-88
D.W.

B 17/6

D 21/6

D 25/6

OFFICE OF THE SUPERINTENDING ENGINEER,
6TH CIRCLE.

(Camp) Musiri 12th June 1888
D15/—

No. 304 T.N.

From
J. W. Rundall Esquire M. I. C. E.
~~The~~ Superintending Engineer,
6th Circle.

To
The Chief Engineer
Public Works Department,
Madras.

ENCLOSURES.

Sir,

I received from the Executive Engineer Tinnevelly Division, an Estimate of Rs 360 for compensation in lieu of quarters, for the current year, for the apothecary in charge of the Hospital at Tuticorin.

2 On applying to the Executive Engineer to know whether he had under Code paras 1136 & 1138 been called on to provide quarters for the medical warrant Officer, I am informed by Mr Russell that the house occupied by the Apothecary is not an hired one, but his own property and, that house rent at the

the rate prescribed in appendix C Section II Page 23, has been paid to him for some time past.

3 Please instruct me if there is any objection to this arrangement being continued.

I have the honor to be,
Sir,
Your most obedient Servant.

J. W. Rundall
Superintending Engineer 6th Circle.

No 2033 in d/ 6. 7. 88

B

There is no objection to the arrangement reported by the Supt g Engr to whom the Examiners remarks will be communicated for guidance

3. 7. 88

3/7/88

S E VI Circle
Examr PW accts

D 6/7

9/7

11/7

No. 2290 C d/19 June 1888

To
C

For favour of remarks.

19.6.88

D.W.

No 1783 d/ 29.6.88

To W.

There is apparently no objection to the arrangement , provided the Executive Engineer is unable to obtain suitable quarters at a rent less than the amount now paid as compensation ; but if quarters can be hired at a less rent, they should be, unless the apothecary is prepared to let his house to the Executive Engineer for the purpose at the same(lower)rate.

C.

29/6

P. W. D, 6TH CIRCLE.

EXAMINED
No. 1257
21 JUN 1888
ENCLOSURES
P. W. ACCOUNTS

From
The Superintending Engineer,
6th Circle.

To
The Chief Engineer
P.W.D.

No. 304 TN.

Dated 12
D 15 Received ~~18~~ } June 1888.

Received 2 July /88.

Enclosure.

C No 2033 W d/6.7.88

Requests instructions if there is any objection to the payment of Compensation in lieu of Quarters for the Apothecary in charge of the Hospital at Tuticorin who lives in his own house.

To

[No. 116.]

No. 3261-B, *Buildings—Sanitaria*, dated Simla, 12th July 1887.

From—Maj.-Genl. E. F. Chapman, c.b., R.A., Quartermaster-General in India.

To—Lieut.-Col. E. H. H. Collen, Offg. Secy. to the Govt. of India, Mily. Dept.

With reference to Military Department No. 1083-M-W, *Accommodation for Troops*, dated 30th May 1887, I am directed by the Commander-in-Chief to forward, for the information of Government, the Proceedings of the Committee therein referred to, and to say that His Excellency hopes Government may approve of the recommendations made.

2. A moveable frame, combined with the cheapest walling procurable locally, has been selected, in order that removal of the huts on emergency will not subject Government to loss.

3. The hut may be adapted to all military requirements, and, in determining the scale of accommodation to be allowed in each case, existing regulation has been taken as a guide: where a difference in the sanctioned floor area is necessary, the number of units nearest above the sanctioned area has been accepted.

4. In recommending additional length to the dormitory huts for dining space at the expense of the verandahs, His Excellency is satisfied that the men's comfort will be greatly increased with practically slight additional cost in construction.

Proceedings of a Committee assembled in the Quartermaster-General's Office on the 7th June 1887 to consider the type of iron-framed hut barrack for use in India.

Present:

Major-General Chapman, c.b., R.A., *Quartermaster-General in India.*

Colonel Sanford, R.E., *Inspector-General of Military Works.*

Colonel Gatacre, *Deputy Quartermaster-General.*

Major Arnott, R.E., *Assistant to Inspector-General of Military Works.*

Major Broadbent, R.E., *Assistant Secretary, Military Department.*

Major Elles, R.A., *Assistant Quartermaster-General.*

Lo

No. 116—(*Contd.*)

1. The question of introducing a type of iron-framed hut barrack equally suitable for use in the hills over an elevation of 4,000 feet, or in the plains during the winter, for hutted camps, forms a new departure in connection with barrack accommodation for the British soldier in India, as it will, to a large extent, obviate the necessity for building any further permanent barracks of the present expensive type.

The frames should be furnished with walls, &c., of the cheapest construction locally obtainable: these can be very light, as they are mere screens and bear no weight. The roofs should be adapted to the special object for which particular huts are intended and to the climate.

The frames themselves will thus be easily transportable and can be erected where required.

The hut frames should be adapted for the following requirements:—

- (i) Barracks for single men.
- (ii) Quarters for married men.
- (iii) Quarters for sergeants of classes A, B, and C.
- (iv) Quarters for officers.
- (v) Auxiliary accommodation.

2. A memorandum on the type of hut barrack recommended with plans is laid before the Committee by the Inspector-General of Military Works, and the following points are decided:—

3. *Constructional unit.*—The Committee note that the hut for 12 men proposed in para. 1 of the Inspector-General of Military Works' memorandum is built in "bays;" there are 6 bays, each of which is to accommodate 2 men. In view to adapting the type to the various objects given in para. 1, and also of permitting any length of hut to be erected for which sites at hill stations are suitable, the Committee consider that the bay (20×6 interior space), and not the hut for 12 men, should be taken as the constructional unit. Accommodation will then be calculated by bays and adapted to any object required.

4. *Accommodation for single men.*—The unit for single men to be one bay, 20×6 interior space=120 feet, providing accommodation for 2 men at 60 square feet per man.

Taking into consideration the dining-room space recommended in the next paragraph at the end of the dormitory, the Committee consider that 50 square feet per man is sufficient, and that in calculating the amount of accommodation to be provided for a regiment or battery, it will be sufficient to allow for $\frac{5}{6}$ths of the full strength of single men.

5. *Dining-room space.*—Dining-room space should be provided by the addition of bays in prolongation of the dormitories and with or without partition between, as may be found desirable on the scale of 2 bays to from 12 to 18 men.

6. *Verandahs.*—The Committee do not consider that the inner verandah referred to in para. 2 can be considered a verandah, and recommend that it should be abolished, the outer wall of the hut corresponding with the present inner edge of the verandah. They consider that verandahs are a necessity, and that an open verandah 6 feet wide should be provided on one side of the hut only.

7. *Size of frame.*—The Committee note that the iron frame is $21\frac{1}{4}$ feet span, the width of 20 feet in the plan shewn being obtained by allowing $1\frac{1}{4}$ feet for a wall inside the iron upright (the other side is the inner verandah in the plan). It is considered that, when desirable, the walls of the hut can be placed outside the uprights, thus affording more interior space.

8. *Married men.*—The accommodation for a married man will be 2 bays=240 square feet.

Different classes of quarters cannot be fixed according to the number of children in families; a certain proportion of married accommodation must be sup-

No. 117.

plied to a corps and distributed at the discretion of the officer commanding, men with children being given 2 units of quarters if necessary.

The broad verandah, as given in Inspector-General of Military Works' plan, to be retained for family quarters as an *open* verandah.

All married quarters should be provided with FitzWygram cooking-stoves, thus obviating the necessity for providing cook-houses.

9. *Sergeants' accommodation.*—The scale of accommodation to be :—

Class A sergeants ..	4 bays with bath-room added.
,, B ,, ..	3 ,, ,, ,, ,,
,, C ,, ..	2 ,, ,, ,, ,,

Married sergeants to be provided for as married men under para. 8.

10. *Officers' quarters.*—Officers' quarters will be provided for as follows :—

For 2 subalterns 6 bays divided into 3 rooms of 2 bays each, thus giving one room to each subaltern and one common sitting-room between the two.

For one captain, 4 bays divided into 2 rooms.

For field officer, 6 bays divided into 3 rooms similarly to the quarters for 2 subalterns.

For commanding officer, 12 bays, divided as may be convenient.

11. *Auxiliary accommodation.*—The sanctioned floor area will be adhered to as far as possible, the number of units (bays) nearest above the sanctioned area being allotted.

12. *Subsidiary accommodation.*—Wash-houses and cook-houses should be built, as far as possible, in communication with the single men's quarters.

13. *Recreation-room.*—The question of recreation-rooms is still under the consideration of Government as regards the type to be supplied; on a decision being arrived at, the number of bays required can be allotted.

14. *Fire-places*—Fire-places to be supplied instead of stoves, iron-stove pipes being used above the chimney breast if considered suitable by Inspector.General of Military Works.

15. The nature of the fittings, shelves, &c., for the wall space for single men's huts has to be fixed. Oxenden arm-racks should be used.

16. *Sergeants' quarters (single).*—A sergeant's quarter (single) will be attached to a hut if the number of men is in excess of 18, or one quarter to every 2 huts for 12 men.

17. *Flooring.*—Plank flooring is approved by His Excellency the Commander-in-Chief for the hills, and the special flooring recommended for Rawal Pindi has been accepted.

18. *Hospitals.*—The Committee record their opinion that the huts of the type under consideration are most suitable in every way for hospitals in the hills, and that accommodation can be allotted by bays in accordance with the sanctioned superficial area.

Nos. 118 & 119.

[No. 118.]

No. 1562-M-W, *Accommodation for Troops*, dated Simla, 1st Aug. 1887.

From—Lieut.-Col. E. H. H. COLLEN, Offg. Secy. to the Govt. of India, Mily. Dept.

To—The Inspector-General of Military Works.

WITH reference to your letter No. 1056-B, dated 16th May 1887, and in continuation of this office letter No. 1083-M-W of 30th May 1887, I am directed to forward herewith a letter,* with its enclosures, from the Quartermaster-General in India, submitting the Proceedings of the Committee which, following the suggestion made in para. 4 of your letter above cited, was ordered to assemble to report upon the principles to be followed in designing hut accommodation for troops, and conveying the recommendation of His Excellency the Commander-in-Chief that the proposals of the Committee should be accepted.

2. In reply, I am to convey the sanction of the Government of India to the principles of the Committee's recommendations on all points.

3. With reference, however, to section 4 of the Committee's Proceedings, I am to state that it is understood that the Committee do not propose to reduce the area per man actually in the barracks, but are of opinion that as there are always a considerable proportion of absentees, it will suffice to provide accommodation in the huts for five-sixths of the nominal full strength of the troops occupying them. The proposal of the Committee is sanctioned in this sense only.

4. With regard to section 18 of the Proceedings, I am to say that when huts of the proposed type are used for hospitals in the hills, they should be provided with a verandah at the back as well as in front.

5. In connexion with this subject, I am to forward, with five copies of its enclosures, an extract para. 1 of a Military letter from the Secretary of State for India, No. 151, dated 16th June 1887, transmitting drawings and specifications of iron frames for hut barracks, and to add that there will be no objection to your making any modification of structural details that you may, after an inspection of the India Office plans, consider would effect improvements in the Committee's design.

---

* No. 3261-B of 12th July 1887.

E. 2
P.W. 5-367/88

No. 720 B.

Military Works Department,
Simla, 16th March 1888.

From
The Inspector General of Military Works,
To
The Secretary to the Government of India,
Military Department.

Sir,

With reference to Military Department letter No. 1562 M.W. "Accommodation for troops", dated 1st August 1887, conveying the orders of the Government of India on the Proceedings of a Committee assembled to report upon the principles to be followed in designing hut accommodation for British troops, I have the honor to forward two sheets of tracings shewing types of huts for single and married men and for hospitals designed in accordance with the Committees views. These designs have received the approval of His Excellency the Commander-in-Chief.

2. **Sheet I**. Figs I and II shew the type of hut originally proposed by me, the same section being

being intended for all purposes. The plan is that of a hut for 12 single men.-

Figs III and IV represent the plan and section of a hut for 12 single men on the pattern recommended by the Committee, namely with a 6' open verandah on one side and additional space under the main roof for dining purposes. It is observed that as the Committee have recommended the same dining space, namely 2 bays, for 12 or 18 men, it will be cheaper to build huts for 18 men, provided suitable sites can be found.

3. Sheet II. Figs I and II shew the plan and section of huts for married men, the wide verandah being given in this case as an open verandah. The plan as drawn provides 2 clear bays = 240 S. ft., under the main roof, in accordance with paragraph 8 of the Committee's proceedings, but as this arrangement involves different lengths of bays of roofing and does not admit of the conversion of family quarters, when neceſsary, into quarters for single men, I propose to include the space occupied by cross walls in the area

allowed

allowed per quarter. The actual floor area of the room would then be 20'×10'-9" = 215 S. ft. if the thickneſs of the cross walls is 1'-3", or more if this thickness can be reduced. The Committee were of opinion that different classes of family quarters should not be provided, but that married men and married Sergeants should occupy the same class of quarters, a certain proportion of such quarters being supplied to a Corps and distributed at the discretion of the Officer Commanding, men with children being given 2 units if neceſsary. In order to carry out this arrangement it will be neceſsary to allow in each case a percentage above the authorized numbers of quarters for married men and Sergeants, so as to provide for men with children. I request instructions as to the percentage which should be estimated for.-

4. Fig III and IV, sheet II, shew a part plan and a section of a hut suitable for hospital purposes, a wide open verandah being given on both sides.

The Quartermaster General's Committee were of opinion that accommodation in hut hospitals should

be

be allotted by bays in accordance with the sanctioned superficial area. It is presumed that the reduction in cubic space due to the small height of the type hut is accepted. The cubic space per patient will then be 1020 or 1275 cft. according as the space between tie rods and roof covering is neglected or taken into account. The cubic space hitherto allowed in the hills has been from 1632 to 1836 cft. per man.

5. Huts for officers and Staff Sergeants would be of the section shewn in fig II, sheet II, but the rooms would be partitioned off in accordance with the scale laid down by the Committee.

In these cases also it is proposed that the space occupied by cross walls should be included in the area allowed per quarter.

6. In huts built for recreation purposes it will be better to give the wide enclosed verandah shewn in sheet I, figs I and II. Interior space is the desideratum in these buildings. In the first instance this verandah may be in one side only, but if the huts are judiciously placed on suitable sites, a second verandah may be given if wanted, and the

recreation

~~and the~~ recreation room section would then be that of the hospital, but with both verandahs enclosed.

7. I have the honor to request the early orders of Government on these designs and proposals.-

I have, &ca.,

Sd/ H. Arnott, Major R.E.,
for Inspr. Genl. of Mily. Works.

No. 907 M.W.

Government of India.
Military Department.
Simla, the 16th May 1888.

To
The Inspector General of Military Works.

Sir,

I am directed to acknowledge the receipt of your letter, No. 720 B dated 16th March 1888, forwarding, for the approval of the Government of India, and for orders on certain points, drawings of types of huts for single and married men, and for hospitals, prepared in accordance with the orders on the proceedings of the Committee,

which

which assembled on 7th June 1887, to consider this subject.

2. In reply, I am to communicate the following orders and instructions.

(a) The plan and section shown in sheet I, figures III and IV for huts for single men are approved. Where practicable the huts should, as suggested by you, be constructed for 18 men.

(b) The design for huts for married men shown in sheet II, figures I and II is also approved. The width of each quarter should not, however, be leſs than 12 feet. The difficulties to which you refer as involved in making the quarters of this width appear due solely to the cross-walls being used to in part support the roof. This is not in accordance with the principles of construction of the hut barracks, viz: that the roofs should be entirely carried by the iron frames, and the walls be mere screens. If these principles be followed, the partition walls of the family quarters can be placed at any distance apart that may be considered advisable, and could be removed at any time without affecting

the

the stability of the building. This applies equally to the quarters for Staff Sergeants and Officers.

(c) With regard to the number of family quarters which should be provided for married men and sergeants, I am to ask that you will consider the subject, in communication with His Excellency the Commander-in-Chief, and submit definite proposals for the orders of the Government of India.

(d) The design for a hut for hospital purposes is approved.–

(e) Your recommendations regarding the design and arrangement of huts built for recreation purposes are also accepted.–

I am, &ca,

Sd/ J. E. Broadbent,
for Secy. to the Govt. of India

(True Copies.)

Thos. C. Rutledge.
Supdt., Mily. Dept.

E.1
PW 5367/88

SECRETARY TO GOVERNMENT,
5 JAN 8
P.W. DEPARTMENT, MADRAS.

HEADING. Accommodation for troops. No. 958 M. W.

GOVERNMENT OF INDIA,

MILITARY DEPARTMENT.

It is requested that the above heading, with number and date of this communication, may be quoted in any subsequent correspondence on the subject.

Simla, the 23rd May 1888.

To

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
PUBLIC WORKS DEPARTMENT.

SIR,

From Quartermaster General in India No. 3261 B dated 12th July 1887 and enclosures.
To Inspector General of Military Works No. 1562 M. W. dated 1st August 1887.
From —— Do. —— Do. —— No. 720 B dated 16th March 1888 and tracings.
To —— Do. —— Do. —— No. 907 M. W. dated 16th May 1888.

In compliance with the request contained in your letter No. 1272 W. dated 1st May 1888, I am directed to forward a copy of the papers marginally noted, together with the type design, on the subject of iron framed hut barracks for British troops.

2. The return of the tracings when done with is requested.—

I am, Sir,
Your most obedient servant,
J. E. Broadbent Major,
for Secretary to the Govt. of India.

P.W.C. No. 5367

1271-2 W - 1-5-88

Enc: 5 (2 plans)

R 7.6.88

GJS 17.6.
M. 5.VI.88

No 2037 W

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 6 July 1888

READ the following

Letter from the Government of India (H.E. No. 958 M.W. d/ May 23, 1888)

Communicated to the Superintending Engineer IV Circle for information.

(H.E. No. 2033 W d/ 6 July 1888)

To,
The Secretary to the
Government of India, Military depart.

Sir,

I am directed to return herewith, as requested, the tracings of iron framed hut barracks for British troops which accompanied your letter No. 958 M.W. d/ 23rd May 1888.

60 copies each of the two plans lithographed.

S.E. IV Circle with 9 copies of type designs
Military dept 15 do - do

+D 13/7

D 7/7

J.H.
5/6/88

1888.

P. W. DEPARTMENT.

Current No. 5654

From

The Suptg. Engineer
I circle

ENCLOS.—

No. 6635.D
Dated 8th June 1888
Received 14 — do —

SUBJECT.

Submitting a statement shewing the works on which the outlay exceeded the Budget grant for 1887-88 under Provl: Orig: Works Civil Buildings Godavari Eastern Dn & requesting that sanction? of Govt may be obtained authorising the Exr. to admit the excess outlay.

DISPOSAL.

No. 2233C Dated 15th June 1888

To
C

For favour of remarks.

(Sd) W. L. C. B.
14-6-88

B W/1576

D 15/6 D.W.

18/6

Godavari Eastern Dn

4/456 C/10/88

Statement shewing the works on which the outlay exceeded the budget grant for 1887.88

Name of Work	Grant for 1887.88	Expenditure in 1887.88	Explanation of excess over appropriation
Provincial Original Works Civil Buildings Constructing a residence for the Executive Engineer Dowlaishweram	3591	5815	The excess outlay was rendered necessary for completion of the Main building. The excess was covered from savings on other items under the same head of Service but sanction for the transfer of funds could not be obtained for want of revised estimate which was lately submitted to the Chief Engineer for sanction.

No 663 G.D.

30/5/88

Executive Engineer
Eastern Division
Godavari.

Submitted to the Chief Engineer P.W. Deptt with a request that under the explanation furnished by the Ex. Engineer, he will be so good as to obtain the sanction of Govt authorizing the Examiner to pass the excess outlay Rs 2224, incurred over appropriation.

8/6/88 Ex. Engineer in charge 1st circle

Exd 9/6

of a letter which the Collector has addressed to the Board of Revenue.

4. In forwarding this draft reply, the Executive Engineer Mr. Russell points out that properly speaking the Collector should represent Govt. as Defendant in this and other suits relating to lands.

5. The Revenue Department is primarily responsible in cases of this kind, and it is from the Collector's Office, that the records necessary for the defence have to be obtained.

6. I don't know whether in this particular case it is now worth while to apply for the Collector to be made Defendant, but I would be glad if orders were passed on the general question, so that in case of similar suits being filed, we might move the Court to make the Collector the Defendant. Some Correspondence would certainly be saved thereby. The Officers of both departments would of Course be equally anxious to preserve the rights and interests of Government.

I have the honor to be,
Sir,
Your Most obedient Servant,

J. W. S. Rundall
Superintending Engineer 6th Circle

Compd A.L.