M.R.O. 1—77,000—3-6-37.

(1) Number of pages.....

(2) Date of repair.....

(3) Initials of the Reference.....

MADRAS RECORD OFFICE.

Government of Madras.

Revenue (Land Revenue) DEPARTMENT.

G.O. No. 5-3-5 Press Mis.

Dated 28-4- 1938.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department,
***22nd February* 1867.**

No. 445. Read the following Endorsement of the Officiating Superintending Engineer, 8th Division, dated Strivigoondum, 6th February 1867, No. 1,897 :—

Read the following letter from Captain G. M. PAYNE, Executve Engineer, on special duty, to the Superintending Enginer, 8th Division, dated Kodikarnel, 22nd January 1867.

1. With reference to my letter of the 18th September 1866, I have the honor now to report the result of my examination of the Perryaur project during the months of July, August, and September last.

2. In explanation of what has been done, I beg to forward copy of my levelling Field book,* and three sheets of survey and levels, the latter numbered 1, 2, and 3.

* Sent separately.

3. In No. 1 sheet I have given a sketch of a portion of the valley of the Chinna Mulyaur, and the country generally embraced by the project. The shaded piece on the small map in the right hand corner of the same sheet represents the extent of the country taken in, in the sketch. It has been traced from the Trigonometrical Survey Map (sheet No. 68).

4. No. 2 sheet gives an enlarged plan of the hills adjacent to the Perryaur, where it is proposed to dam the river up. Line F, A, G, H represents the first section taken, which corresponds nearly with that originally selected by Captain Ryves. Line F, K, L, M is the position of another section which I took a few days before my leaving the Perryaur, as it seemed to me one better adapted for the dam, inasmuch as a saddle between M and L offered a convenient site for a waste weir. This section, however, is incomplete, the levels having to be continued along the ridge to the west of hill M, where, from a reconnoissance, a better site might, I think, be found, on a higher level for the construction of the waste weir.

5. On sheet No. 3 I have laid down three lines of levels. No. 1, starting from the Perryaur and following the course of the Perrya Mulyaur and Chinna Mulyaur rivers, crosses the crest of the watershed at D (No. 1. sheet), and ends a little above the point where the elephant track towards Gudalur crosses a stream forming one of the sources of the Surulyaur. Levels Nos. 2 and 3 give the section alluded to in paragraph 4 above.

6. From these levels, and from observations of the country generally, I think the conclusion may be arrived at, that the project, although presenting some difficulties, is nevertheless practicable.

7. In round numbers I find the crest of the watershed (D, sheet No. 1) of the Cumbum valley, to be 170 feet above the deepest point in the bed of the Perryaur, at a ford (A, sheet No. 1) close to its junction with the Perrya Mulyaur.

8. The following suggestions have already been made on the subject of diverting the waters of the Perryaur :—

1*st*.—A low anicut and a deep cutting.

2*ndly*.—Do. and a tunnel.

3*rdly*.—An anicut 108 feet high, and a shallow cutting.

9. The first and second methods would be very costly. The third would be less expensive, but from the fact of the overfall of the river being so great, an apron to withstand its destructive effects would be not only a very difficult work to construct, but one liable to constant damage.

10. Captain Ryves being in the district, I have had the advantage of being able to consult him in this matter; and we have both come to the conclusion that the most advisable and least expensive method of carrying out the project would be by damming up the river entirely, with a strong bund composed of stone and earth, of about one hundred and fifty feet in maximum height, turning the high flood waters over an escape weir, constructed on the saddle between L and M (sheets Nos. 1 and 2), and diverting the waters of the lake that would thus be formed by a cutting through the crest of a maximum depth of about forty feet.

11. Captain Ryves having gone into the most laborious calculations, with reference to every species of work embraced in a project of the above nature, I have asked him to allow me to append, for the information of Government, an approximate estimate which he has framed, from which it will be seen that the whole project, inclusive of the improvement of existing irrigational works in the Madura District, and cutting of new channels for the supply of the Tirumungalam and Melur Talooks, would be fifteen lacs of Rupees. The minimum return has been assumed at three lacs per annum, which would be equivalent to 20 per cent. on the outlay.

12. From this would have to be deducted the amount of compensation to be paid to the Travancore Government, for the use of the water of the Perryaur.

Abstract Estimate framed by Captain Ryves from the levels, &c., furnished by me.

Dam ...	Stone	$1\frac{1}{5}$	lacs	C. Yds. at	$\frac{5}{6}$	C. Yds. per Rupee	=	1·60		
	Earth	$4\frac{1}{4}$	,,	,,	$2\frac{1}{2}$	,,	=	1·70		
									lac of Rupees.	
									3·30	
Bund ...	Earth	$5\frac{1}{6}$	,,	,,	3	,,	=	1·71		
	Stone Revetment	$\frac{1}{10}$	,,	,,	$\frac{1}{4}$	,,	=	·20		
									1·91	
Escape weir.	Drop walls and wings	046	,,	,,	$\frac{3}{4}$	,,	=	·552		
	Packed stone	15	,,	,,	$\frac{1}{2}$	,,	=	·30		
									·852	
Cutting in stone		$2\frac{1}{4}$	,,	,,	$\frac{3}{4}$	,,	=	3·00		
									3·	
									9·062	
Plant									·75	
Ghaut, hutting coolies, &c.									·500	
Contingencies									·938	
Total for works at the Perryaur ...									11·250	
Improvement of existing irrigational works, and cutting new channels in Tirumungalam and Melur ...									3·75	
Total of approximate estimate, Rupees ...									15,00,000	

Proceedings of the Madras Government, Public Works Department,
22nd February 1867.

13. From Captain Ryves' knowledge of Madura District, and of the locality of the project, and from his experience in connection with the large works of irrigation in the Godavery and Kistna, I feel assured the Government would obtain from that Officer a more reliable estimate than any that I could have prepared, and I beg to submit whether it would not be very desirable, in the event of the project receiving the favorable attention of Government, that the final examination should be made by that Officer, assisted, if Government should think fit, by myself. My knowledge of the country about the Perryaur is now pretty considerable; but I should not feel at all satisfied in submitting a final estimate for so exceptionally difficult a project, without my work had previously been scrutinized by an Officer of known judgment and experience. Captain Ryves, as the Government doubtless is aware, has already devoted a great deal of time and labor to the investigation of the project, and to him is the credit due of being the first to bring it to the notice of Government, and hence, I cannot but think that that Officer's final report is most desirable.

14. The work that remains to be done before a complete estimate can be submitted is as follows:—

1st.—Completing the section F, K, L, M (sheets Nos. 1 and 2).—*Vide* paragraph 4 above.

2ndly.—Accurate measurements at the site finally selected for the dam and waste weir.

3rdly.—Contouring above the dam to show the area of the lake.

4thly.—Accurate measurements and cross sections along the line selected for the cutting.

5thly.—Further observations of discharge of river during the south-west monsoon.

6thly.—Examination of existing irrigational works in the Madura District, with a view to estimates for their improvement.

7thly.—Surveys and estimates of new channel for the Tirumungalam and Melur Talooks.

15. Of the above items Nos. 1 and 2 might be done between 15th February next and the first week in March, about which time the long elephant grass can be burnt. The hills become feverish generally about the middle of March.

16. Items 3, 4, and 5 could be taken up during the next working season, viz., from about the 15th June, and if, as above proposed, Captain Ryves can be spared to work with me, Government might, I believe, be furnished with full information on every point, and with final estimates by the close of the season.

17. Items 6 and 7 could be put in hand as soon as the extra establishment sanctioned in G. O. No. 3,402 of the 24th October 1866 has been appointed.

Enclosures 3.

1. Submitted for the information of Government, to show the progress made in the investigation of the Perryaur project. This report is only a preliminary

one, and does not call for much remark on my part, especially as Captain Ryves has been authorized* to remain in the district, and present the scheme in a practical form.

* G. O. No. 152, dated 16th January 1867.

2. It has now been ascertained that the crest of the watershed of the Cumbum valley is 169·3 feet above the deep bed of the Perryaur river; and my own opinion is decidedly in favor of a high dam being thrown across the river, so as to arrest its waters entirely, with a calingulah at the adjacent saddle.

3. Captain Payne will now be engaged in taking further levels to determine the point from which the surplus water may be discharged, and accurate measurements of the site for the dam.

4. As Captain Ryves is specially deputed to report on the project, the Government will receive a more full report after the present working season is over.

(Signed) H. L. PRENDERGAST, Captain, R. E.,
Officiating Superintending Engineer, 8th Division.

No. 446. ORDER THEREON, 22nd February 1867, No. 539.

CIVIL WORKS, No. 67.

The Government are pleased to learn that Captain Payne's late investigation of the Perryaur project tends to the conclusion that the proposed diversion of that river into the Vigay, for the better irrigation of lands in the Madura District, is feasible, and they will be glad to receive Captain Ryves' final report on the project.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 8th Division.
,, Public Department.
,, Revenue do.

Exd. S. T. Augustin.

Madras Division
No. 22nd February 1867

From
Captain C. H. Harper
Executive Engineer Trichy Coly

To
The Superintending Engineer
8th Division

Sir

With reference to my letter of the 18th September 1866, I have the honor to report the result of my Examination of the Perryaur Project during the Months of July, August and September last

2. An explanation of what has been done, I beg to forward Copy of my Cuddapah Field book, and three sheets of Survey and Levels the latter numbered 1, 2, and 3.

3. On No 1 sheet, I have given a sketch of a portion of the course of the Cumbum Valley and the Country surrounded by the project. The shaded part on the south side of the Vigay River is the right hand Corner of the Dam. The sketch of the Country

traced

traced from the Progressive Sections drawn (Sheet No 68).

4. No 2 Sheet A general enlarged plan of the hills adjacent to the Ferryfoor, where it is proposed to dam the river for Lines P, Q, R, & S, referred to the first section taken, which Corresponds nearly with that previously directed by Captain Royce. Lines F, K, L, M, & N, Section of another section which Mr Hook a few days before my leaving the Ferryfoor, as it seemed to me a better adapted for the dam, in as much as a saddle between No 1 offered a convenient site for a waste weir. This section, however, is incomplete, the levels having to be continued along the ridge to the west of hill No: 1 where, from a reconnoissance, a better site might Think be found, on a higher level for the construction of the waste weir.

5. On Sheet No 3 Shews laid down the lines of levels No 1 starting from the Ferryfoor and following the Course of the Ferryfoor Harbour and Channel Harbour towards, Cross the Crest of the watershed at D, C, No 1 Sheet and ends a little above the point where the Elephant back bounds Cudalore Cross on Streams forming one of the sources of the Cudalore Levels No 2 and 3 cross the section and extended

to

to the point A, above.

6. From these levels, and from observations of the Country generally, I think the Conclusion may be arrived at, that the project, although presenting some difficulties, is nevertheless practicable.

7. By round numbers, Should the Crest of the watershed D, Sheet No 1 of the Cumbam valley, be 170 feet above the deepest point in the bed of the Ferryfoor, as found (A, Sheet No 1) close to the junction with the Periya Nedyaar.

8. The following suggestions from those already been made on the subject of diverting the waters of the Ferryfoor.

1st A low Cement of a dam Costing
2nd Do and a tunnel &
3rd An aqueduct 18 feet high, and a Shallow Costing

9. The 1st and 2nd methods would be very costly. The 3rd would be less expensive, but from the fact of the energetic of the river being so great, can appear to avoid Several destructive effects, would be found only a very difficult work to Construct, but one liable to Constant damage.

10. Captain Royce being in the Country

Sewers below and Holes between would be of four feet less of Depth. The measurements below have been estimated at three feet which would be equivalent to 20 per Cent on the outlay.

1st. Where there would have to be deducted the amount of Compensation to be paid to the Tenants Government for the use of the water of the Fens.

Estimated & approved by Captain Rhodes for the Lords Wm. proceeded by me.

Cut. { Clay 1½ acre deep yards @ — ½ Cy. = 1.60 / Sand 4¼ — " — " — 2½ " = 1.70 } 3.30

Sand { Sand 2·5 — " — " — " — 3 — = 1.91 / Clay 4½ 2·20 " — " — " — ¼ — = ·20 } 1.91

Sheet piles { Clay 46 " — " — " — ½ — ·552 / Peat 15 " — " — " — ½ — ·30 } ·852

Cofferdam 2¼ " — " — " — ¾ — 3·00 3.

9.062

Plant ·750

Shoring Cubic 8 ·600

Contingencies ·938

Total for works at the Sluices 11.250

Sluices & existing irregular works and existing new channels in Cranmore Lake and Meyles 3.750

Total of all works £12,000

13. From Captain Rhodes knowledge of the

1. Mr. Adams Quarter Deck of the Leeward side of the Poop, and from that extending in Connection with the large works of Encouragement on the Gadroon and Head, shall contract the Government would obtain from the Officer a more reasonable Estimate than any that could have been received, and they be thereby enabled to form a better Judgment of the Necessity of the Encouragement, that the proper Encouragement should be made by that Officer, entrusted, of Government should think fit, by way of. My knowledge of the Country where the Engineer is, would justify Considerable, but I believe almost all the Estimates delivered in Public Offices cannot be depended on as Estimates without any work had previously been executed by an Officer of known Judgment and experience. Estimates Report, as the Commissioners Estimates as above, have generally turned out great Losses and Loss to the Undertakers of the Public, and to them as the Estimates are of Course the first Losers of the Publick Money, and Loss of Character, that the Public should have the Officers employed as most desirable.

4th. The work that remains to be done before a Complete Estimate Can be submitted as follows.

1st Completing the Gadroon F K L M

Estimate Vizt. Inside Face as above

2dly Carrying the Counterscarp No 1 Head as formerly detailed for Gadroon and across Dock

3dly Continuing above the Gadroon Gallery the Counterscarp of the Cofferdam

4th Carrying the Counterscarp by Profile Colonel the Lower Gadroon for the Platforms

5th Further Excavation of Dock Gallery and Lower Gadroon No 5 Men wanted

6th Excavation about of Earth Engineer Gadroon Platforms Gadroon Estimate for Men to Labour for Excavation

7th Timber and Estimate of Timber for the Platforms Gadroon Platforms

12. Of the above Gadroon Gallery might be done before the Platforms and the first work in March, about which time the Long Days begin Can be done. Of the Gallery Platforms Gadroon Platforms

16. Men Gadroon Could be taken off during the Winter Season Platforms about the 15th June and the above Estimate Can be spared to work in

Mr

...Engineer might be induced to proceed with full confidence on any part of the Line selected by the Chief of the Survey.

If the Main Line should be finally located as above mentioned, the Contract will be let at the Office of the Chief Engineer at Colombo on the 2nd October 1867 for the whole distance.

(Signed) C. H. Harper Captain
Executive Engineer

Colombo 1st August 1867

Submitted for the information of Government, & that the Surveys made on the various lines of the Navigation project, after referred to as preliminary ones, and does not call for much remark on my part respecting the Captain Harper has been authorized to pursue on the Chief Line, and from the Schemes in the printed form.

It had now been ascertained, that the Crest of the watershed of the Attanagalle valley, is 109.3 feet above the depth of the Navigation; and my own opinion is decidedly in favor of a high dam being thrown across the river, so as to cover it and the valley both on Colonels at the adjacent saddle.

Colombo. 3

C.C. No 152 dated 16th January 1867

Captain Harper will now be employed on locating specifically the details of the Navigation project, and the Contract may be let Charged, and a correct estimate of the cost for the same.

Captain Harper will specially direct his attention to ascertain the Quantities of Earth to be removed in the Excavations, and the Lengths of Locks &c.

(Signed) Lieutenant Colonel
Commanding Royal Engineer

6th February 1867

Capt. Harper

P. W. D.

Received

No. 539

Proceedings of the Madras Government

Under date the 22nd July 1867

Read the following

From the Offg. Secy. Engineer

of the 8th Division — No. 1897 26th Feby 1867

The Government are pleased to learn that Captain Paynes late investigation of the Perryar Project tends to the conclusion that the proposed diversion of that River into the Vigay, for the better irrigation of lands in the Madura District, is feasible, and they will be glad to receive Captain Paynes final report on the project —

To The Secy to Govt Public Dept

— Revenue — Do —

Rep 23rd July 67

To The Offg. Secy. to Govt. Public Dept.

From The Offg. Supdg. Engineer Southern Division

Dated Madura 26th Feby 1867

The Secretary to Government Public Works Madras

Sir

Referring to the correspondence ending with your letter No. 1897 dated 22nd instant, I have the honor to forward herewith Captain Paynes Report on the Periyar Project, together with a Map and Estimate.

I have &c

Offg. Supdg. Engineer

Offg. Secy. Engr. 8th Divn.

Rep 23rd July 1867

Pub. Works 1867 Depart.

Pro: of Govt. for February

No. 539

Pro: of the Madras Govt.

Dt 22d. February 1867

Taking ordered on the
Report, submitted by the
Chief Engr. of the 8th Division
of the Board of Captain Pogues
Examination of Peruvaram Regulator
during Oct. August and
September last.

No 1445-1446

Ex. 13 m Feby 1867 Dr 16 m