

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

General.
Establishment.

READ—the following paper :—

From A. A. G. MALET, Esq., Officiating Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated 19th June 1893, No. 207 N.L.

I have the honour to forward an estimate (Rs. 2,250) and report on the Annangi project, submitted by the Executive Engineer, Nellore division, and recommend that it be sanctioned.

2. I have slightly altered the original estimate. The report and tracing are submitted in original and I have the honour to request that they may be returned when done with. The estimate is within my powers of sanction, but, as it provides for the investigation of a new project, I consider it advisable to submit it to you for sanction.

3. I have already sanctioned an estimate, amounting to Rs. 200, which provides for gauging the Gundlakamma at Annangi, so as to save time, as the gauging, if done at all, should be started at once. If the estimate now submitted is sanctioned, the expenditure on the estimate I have sanctioned will be written back to it.

4. As the project is for direct irrigation, the chief point to be ascertained is, with reference to the minimum discharges that are likely to occur during the irrigation season, the time at which they occur and the period for which they last. One year's gauging will not give us a reliable data, but it will be of some assistance and I have instructed the division officer to make inquiries regarding minimum discharges.

5. Taking the report as a whole I consider that the Executive Engineer has shown that the project is worth investigating, and, if the estimate is sanctioned, I will send him detailed instructions.

ENCLOSURE.

From C. H. D. MARJORIBANKS, Esq., Executive Engineer, Nellore Division, to the Superintending Engineer, II Circle, dated Kávali, 24th May 1893, No. 117.

I have the honour to forward, herewith, two alternative estimates for sanction of one or other of them—preferably the larger. The smaller is within my powers of sanction, but, as the work to which it refers is a very large one, I wish to have your approval before I do anything.

2. *Position of delta 90 miles north of Nellore.*—The Annangi project is a scheme for the irrigation of a tract of land some 75 square miles in area lying on the right bank of the Gundlakamma, a river which flows into the Bay of Bengal about 90 miles north of Nellore. The larger estimate provides for a complete investigation of the project; the smaller for gauging the river from 1st July 1893 to 31st March 1894.

3. *Mr. S. A. Subrahmanya Iyer's scheme.*—All the information I am about to set before you has been gathered by the sub-division officer, Kandukur, Mr. S. A. Subrahmanya Iyer, who proposed the scheme. I have not had the time to inspect the various sites for the anicut head works, &c., but will do so when you favour me with your instructions. Mr. Subrahmanya Iyer however has had considerable experience in investigation and worked for some time in the Sangam project division.

4. *Urgent necessity for irrigation in Ongole taluk as insurance against famine.*—Irrigation is sorely needed in the Ongole taluk. In the whole taluk of 796 square miles the extent of wet cultivation is only about 7 square miles and hardly exists in the tract of 75 square miles it is proposed to irrigate. In the great famine (1877—79) and in the scarcity of 1891 and 1892, the Ongole taluk suffered very severely and relief works had to be opened at Darsi, Addanki, Podili, Kalavakur, &c., on the borders of the taluk. In 1891 and 1892 the southern taluks experienced the same deficient rainfall as the northern, but the northern and southern deltas of the Pennéru staved off the necessity for relief works.

5. *Basin of Gundlakamma, 3,000 square miles.*—The basin of the Gundlakamma down to the site of the proposed anicut is about 3,000 square miles. The only dam across it is the bund of the Cumbum tank. The river is too large to escape, for long, an attempt on the part of the

Kurnool people or the zamindars of this district to abstract water for cultivation and it will be something to establish a claim for the water on behalf of land which is adjacent to the sea and so partakes more of the nature of deltaic land as regards easy slope of ground than any other portion of the river basin.

6. *Limits of ultimate irrigation, 15,000 and 30,000 acres.*—Taking 200 to 400 acres per square mile as the limits of probable ultimate irrigation this latter would range between (75 × 200) and (75 × 400) acres or between 15,000 and 30,000 acres. In the tracing the conjectured ayacut has not been taken south of the "Varava" or drain just north of Ongole town. It may be possible to extend the irrigation south of this drain; the levels are favorable; it is all a question of water.

7. *Water probably sufficient; necessity for gauging depth and velocity at anicut site.*—Mr. Subrahmanya Iyer states that his knowledge of the river extends to a short period in 1887 and the early months of this year when there was never less than about 700 or 800 cubic feet a second passing down to the sea. In order, however, to obtain reliable data it will be necessary to gauge the river for depth and as far as can be done for velocity; hence the second or smaller estimate now submitted.

8. *Rainfall in basin of Gundlakamma to be gone into.*—Intend to go into the question of rainfall after I have ascertained the stations in the Gundlakamma bed where rain registers have been kept (the Gundlakamma drains a portion of the Kistna district as well as a great part of the Kurnool district). The *Fort St. George Rainfall Supplement* will give me all particulars regarding heaviest falls, &c. I have written to the Executive Engineer, Kurnool, asking him to give me the catchment area of Cumbum tank as a very material deduction will have to be made for this area of the Gundlakamma basin. It may be necessary to get copies of the weir registers at Cumbum for the purpose, but your permission will be asked in case this is found necessary.

9. *Site of anicut.*—The site for the anicut is a good one between a conical hill on the left and hilly ground on the right; the anicut could not be turned by a flood. The bed is in all probability rock, since there is no scour though the Gundlakamma at Annangi contracts to about 300 or 400 feet while it is more than three times that width higher up.

Trial pits.—The larger estimate includes a provision for digging trial pits at 50 feet apart.

10. *Flood bank.*—As far as can be ascertained only one flood bank is necessary, that on the right above the anicut. The Gundlakamma in flood time spills over the ground which will render it necessary in calculating the flood discharge to add the amount escaping over this flank to the amount flowing through the gap or gorge at Annangi.

11. *Materials for construction—stone, lime, brick-earth.*—Materials are available near. Rough stone like that at Buchy and Sangam is at site; lime can be obtained 5 miles from Annangi; brick-earth is procurable close by. For cut stone Ongole, 13 miles away, would have to be resorted to.

12. *Revenue details asked of Collector.*—Information regarding the revenue details has been asked for from the Collector and as only 14 villages are concerned there should be no difficulty in obtaining very accurate information.

13. *Conjectured cost between 4½ and 9 lakhs.*—The project at Rs. 30 per acre irrigated would cost from 4½ to 9 lakhs.

14. *Distribution of cost not feasible till project has been investigated.*—It would be useless to attempt to distribute the cost under the various heads of compensation, distributaries, head works, &c., until more details are at our command.

15. *Information to be collected.*—The following are the main directions that I propose giving in case you approve of the investigation being made:—

(1) *River register.*—The river to be gauged and weekly reports be made by the gumastah in charge.

(2) *Survey.*—A survey to be made of the site of the anicut and head works.

(3) *Longitudinal section of river.*—A longitudinal section to be taken of the river for four miles above and down to the sea (in order to see if it is necessary to embank the river from the anicut to the sea. This would be an agricultural work).

(4) *Longitudinal section of river.*—Cross sections to be taken at the site of anicut and every ½ mile above and below, the cross sections above being taken well above M.W.L. and tied on to B.M.S.

(5) *Longitudinal section of delta.*—Cross sections to be taken at every ¼ mile of the delta from N. to S. This will enable us to locate the distributaries and minor distributaries.

(6) *Lockspitting.*—Lines of proposed channels to be lockspitted.

(7) *Trial pits.*—Trial pits to be dug at every 50 feet at the site of the anicut and head works.

(8) *Cross drainages.*—Particular attention to be paid to the question of cross drainages.

(9) *Compensation; head works to be designed for ultimate maximum channels for minimum.*—Extent of land to be taken up to be carefully noted. It will probably be advisable to dig the main channel only large enough to irrigate 10,000 acres, but land might be taken up to provide for future widening, the head sluice being designed for 30,000 acres.

16. *Necessity for gauging even if investigation is postponed.*—The information I have been able to put before you is rather nebulous, but I trust you will agree with me as to the advisability of gauging the river even if no detailed investigation be made.

17. *Comparison with coast rivers of same.*—The basin of the Vellair in the South Arcot down to Pelandorai and Shatiatope anicuts measures 1,600 square miles and 2,850 square miles respectively, and, though the rainfall of the upper basin of the Vellair is much heavier, the river in its upper reaches is much more indented on for water than is the Gundlakamma. I am endeavouring to collect information about those rivers in South Arcot, North Arcot and Chingleput which have been anicuted; a comparison of these rivers with the Gundlakamma would be of the very greatest help.

18. *New overseer to be sent if surveyor not sanctioned.*—I will try and get the levels and survey done without the aid of a surveyor if you consider that the necessity for a surveyor's services has not been demonstrated. In that case it will be necessary to send an overseer in place of A. V. Rangarow Naidu. The report on this overseer will be sent as soon as I get some information. I have asked of his previous sub-divisional officers. The stoppage of works in this sub-division renders this a splendid opportunity for going into the scheme.

No. 33 E.W.

Forwarded to the Chief Engineer, General, Buildings and Roads Branch, Public Works Department, with a recommendation that sanction of Government may be obtained with reference to G.O., No. 483 W., dated 24th February 1893, to the employment of the marginally-noted establishment required for investigating the Annangi project in the Nellore division. The other items of the estimate of Rs. 2,250, aggregating Rs. 1,760, may be sanctioned by the Superintending Engineer himself under "43. Minor Works and Navigation," "Minor Works for which neither Capital nor Revenue Accounts are kept, P.W.D., Original Works—" vide G.O., dated 28th March 1893, No. 840 W.

2. The Superintending Engineer, II Circle, should report, in due course, the result of the investigation for the information of Government.

(Signed) F. W. ASHPITEL,
MADRAS,
30th June 1893.
for Chief Engineer for Irrigation.

ORDER—dated 14th July 1893, No. 1840 W., Public Works.

Sanction is accorded to the entertainment, for seven months, of a surveyor on Rs. 70 per mensem to investigate the Annangi project in the Nellore division.

2. The attention of the Superintending Engineer, II Circle, is drawn to the remarks of the Chief Engineer for Irrigation in his endorsement recorded above.

3. This sanction has been registered as Provincial No. 33 W. of 1893-94 and classified as Establishment, Temporary.

(True Extract)

(Signed) J. HANNAN,
Ag. Joint Secy. to Govt., P.W.D.,
General, Buildings and Roads Branch.

To the Chief Engineer for Irrigation.

" Superintending Engineer, II Circle, with the estimate.

" Examiner, Public Works Accounts.

" Revenue Department.

Exd. A. D. Xavier.

Spare Copies

GENERAL.
ESTABLISHMENT.

Gobt. of {1893} Madras.
PUBLIC WORKS.

Dated July, 14th.

Recd.

Encl.

G.O., 14th July 1893, No. 1840 W.

JULY.

Annangi Project

The entertainment of a surveyor to investigate the — in Nellore division, sanctioned with remarks.

G.O. 14th July 1893 No. 1840 W.
PUBLIC WORKS.

G.O. 14th July 1893 No. 1840 W.

JULY.

Annangi Project

The entertainment of a surveyor to investigate the — in Nellore division, sanctioned with remarks.

No. 117 M

Superintending Engineer's Office

Bezwada

II CIRCLE,

Dated 12 May 1897

From,

Major, W. L. C. Baddley Esquire, R.E.

Superintending Engineer,

II Circle

To,

The

Chief Engineer,

For Irrigation,

Madras.

Enclosure 1. Sir,

I have the honour to request
you will be good enough to renew
the sanction accorded in para 1
of G.O. No. 1840 W. dated 14th July 1893,
to entertain a Surveyor on Rs 70 for
7 months to investigate the Annangi
Project, in the Nellore District, as the
investigation is now commenced, and
the sanction to the establishment al-
ready accorded was not utilized.

I have the honour to be

Sd

Your most obedient Servant.

W. Baddley Major, R.E.

Asst. Supt. Engineer, II Circle



From

The Supg Engineer
Second Circle

From,

The Superintending Engineer,

II Circle.

To,

The

To The Chief Engineer
For Irrigation

Dated 12 May 1895

Dated

Received

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6134

18

Encls 1.

Enclosures.

No. 117 AL

NO.

Amangi Project in
Nellore District —

SUBJECT.

Requesting to renew the
sanction accorded to
perpetuate a Surveyor for
investigation of —