M.R.O. 1—20,002—12-8-65.

(1) Number of Pages 18.

(2) Date of repair 30-5-67

(3) Initials of the Referencer SK 9/4/67.

MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue. DEPARTMENT

G.O. No. / B.P. No.	217	Press / Mis.
Dated	30-5-1874	196 . .

Not to be folded or roughly handled

No. 405. Read the following endorsement of the Chief Engineer for Irrigation, dated Camp at Chepauk, South Arcot, 26th February 1874, No. 184 :—

From Major J. BEATTY, R.E., District Engineer, Vizagapatam, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Camp at Yellamunchelly, 8th February 1874, No. 290-A.

I HAVE the honour to submit, herewith, the approximate estimate called for in paragraph 20 of your memorandum printed with G. O., No. 2,994, of 12th December 1873. Its preparation has been delayed by the severe illness of the Range Officer, which occurred immediately after your visit to the range; and the present weak state of the Range Establishment has prevented me collecting necessary information as quickly as I had hoped to do.

2. The estimate is based on a rough survey* of the channel, made since your visit by one of the two Overseers attached to the range, in the intervals of other work; and there has not been time to have it carefully checked, but I think it fairly correct. Such a survey was needed in order to arrive at any approximately correct conclusion as to the extent of additional land for which compensation will have to be paid, and this is a heavy item in the proposed expenditure.

* On a scale of 60 feet to an inch, with longitudinal and cross sections.

3. The primary object proposed to be attained by the works now estimated for is to recover and secure to the Government ryots of Aripalem, etc., their fair share of the supply of water drawn from the Saradanuddy by means of the head works of the Kristamraz channel.

4. These works were erected, and have been maintained, at the joint expense of Government and the proprietors of Ankapilly and Cassimkotta; but the rights of Government have been so systematically invaded, in every possible manner, by the proprietors' people, that Government now derive little or no benefit from their share of the outlay. At the beginning of the season, when the supply of water is scanty, the proprietors' ryots, by means of their cross dams in the Kristamraz channel, take very nearly the whole of it for their own lands, and when the river is in flood, and the Ava could get a good supply, the proprietors' ryots of Munagapaka require the head sluices shut to prevent their lands being flooded, owing to the want of a proper escape for the surplus water of the Ankapilly proprietors' river channels near that village. Those channels are entirely in the hands of that proprietor; he is therefore responsible for any flooding that ever occurs in his own lands of Munagapaka, and he should bear the cost of remedying it.

5. The Government ryots have long complained of these abuses; and early in last year the Collector applied to me to know what could be done to improve the supply of water to the Ava by the Kristamraz channel. I at once pointed out that the first thing necessary, the root of all improvement, was to dispose in a proper manner of the Munagapaka drainage; and that the best way of doing this was by passing it under the Kristamraz channel instead of over it. The Collector then, I understand, put himself in communication with the Ankapilly proprietor, whose interest it is to keep things as they are. The proposed improvements would not injure any one, while they would place the proprietors in a better

position than they now are with regard to water-supply; but, on the other hand, they may fairly be called upon to pay a share of the cost of the improvements; secondly, the improved state of the channel would put a stop to the illegal practices now pursued, and highly valued by their ryots; and, thirdly, some land must be purchased for the new works, and for that no amount of compensation would satisfy them. Consequently, notwithstanding the repeated complaints of the Government ryots, the proprietors' people have hitherto managed to have their own way by threats; and doubtless other means, even more objectionable, would be resorted to either subsequently or simultaneously.

6. As to threats, we have now an instance on record in the correspondence enclosed. That every possible native device has been freely used may fairly be inferred, as otherwise such a disgraceful state of things would not have been allowed to continue so long unchecked. As regards the two Government Departments responsible, the Revenue Officers were, of course, dependent on the Public Works Officers for advice; and the subordinates in charge of the range, until lately, were scarcely competent to suggest the best remedy. In the matter of the cross dams of the Kristamraz channel, the Range Officers have often urged their removal, but the Revenue Officers have refrained from insisting upon it, apparently awed by the proprietors' threats; and in consequence the people of Munagapaka, emboldened in lawlessness, now claim as a right what is a positive wrong to the villages under the Ava.

Vide accompaniments marked A, B, C, and D.

7. The Government ryots are fairly entitled to have their grievance redressed, as they have to pay a high rate of assessment, Rupees 8 an acre. On the other hand, the proprietors exact Rupees 8-8-0 per acre from their ryots, who consequently seize on every drop of water they can get by any and every means.

8. But the proposed improvements of the Kristamraz channel will not only have the effect of giving the Government villages under the Ava their fair share of the water, but the improved state of that channel will render it possible to construct subsidiary works to the Kristamraz channel, and to the Ava, that will bring the anicut works to bear on a large additional area of Government land which now derives a precarious supply by river channels.

9. The accompanying statement marked L, and framed from information given by the Revenue Inspector and the heads of villages (but not checked by the Revenue Department), shows that the area now under the Kristamraz channel is 2,600 acres; that the area under the Ava is 2,442 acres, while on the left bank of the Saradanuddy, commanded by the Godari anicut, but supplied by river channels, there are 10,627 acres of wet cultivation in Government villages, the whole of which may be most advantageously brought* under the anicut, as well as probably any further area of dry land for which there may be water.

* By means of the Kristamraz channel and the Ava.

10. The sketch map shows roughly how the villages mentioned in the statement are situated. It is a mere enlargement of the Trigonometrical Survey, but it is the best map that can be furnished at present, as no surveys on a large scale exist.

Proceedings of the Madras Government, Public Works Department,
20th May 1874.

11. The land for which compensation must be paid is all proprietary, and it will probably be valued at twenty times the present rent of wet land in the neighbourhood under that proprietor, which is 15 Rupees an acre. I have accordingly provided 300 Rupees an acre for compensation. I am however of opinion, from inquiries made, that the rate should not exceed 80 Rupees for dry land and waste, and 200 Rupees for wet land now under cultivation. I shall, therefore, if higher rates be proposed, request the Collector to take up the land under Act VI. of 1857.

12. I would specially point out, in regard to the Kristamraz channel improvements, that the first step is to build the aqueduct and the bridge at Munagapaka, and embank the channel at that place. If this alone were done, it would have the most beneficial effect on the supply of water to the Ava. I beg to recommend that the bridge be sanctioned for immediate execution in the present dry season, and that funds be provided for proceeding with the aqueduct and embankments near Munagapaka on the 15th December next, the date up to which the Ava, by existing arrangements, may receive a supply by the channel. We should then have the whole of next dry season to carry out the works in a satisfactory manner.

13. As regards the extension of cultivation under the Ava, a most important point is to ascertain what land belongs to the Ava and what to the proprietor, *i.e.*, what is the correct high water level. Mr. Fane fixed this, in 1860, by the evidence of the villagers concerned, but the bench-marks then erected have been destroyed, and it is supposed that this was done by the Ankapilly Proprietor's villagers of Munagapaka and Wadrapilly, as they are the parties most interested in having the high water level reduced.

14. I send you herewith copies of all the papers* I have been able to obtain on the subject of the Ava high water level. It is evident, 1*st*, that Captain Blagrave's intention was to make the level of the crest of the old and that of the new calingulah 3 inches below the bench-mark on the Jodu Dibbalu; 2*ndly*, that if this had been done the proprietors' ryots would have had no object in destroying the bench-mark and cutting down the mounds; and, 3*rdly*, that there would have been no occasion for dam stones in the body wall. I think it highly probable, therefore, that your opinion is correct, and that the proper high water level is one foot† above the crest of the present calingulahs.

* *Vide* accompaniments marked E. to K.

† At least, but possibly more.

15. This matter of the high water level is most important, because the extension of irrigation under the Ava will, in a great measure, be limited by it. The north-east monsoon here fails about once in three years; it failed in 1868 and again in 1871. Consequently, it will not be safe to encourage irrigation under the Ava beyond the area for which there would be a two months' supply on 15th September, the date on which, in seasons of drought, the supply from the river, as well as by local drainage, entirely fails.

16. And I think it very desirable that all cultivation in the bed of the Ava should be forbidden, as until this is done it will be next to impossible to prevent fraudulent waste of water. I shall of course bring this specially to the Collector's

notice when he proceeds to determine what are the Government rights in connection with the Ava, and how it is to be treated in future. I understand that the whole subject is now before him, under a reference from the Board of Revenue.

17. The approximate estimate now submitted amounts to Rupees 25,280. The area of wet cultivation directly affected is said to be 5,042 acres, paying an assessment of Rupees 41,795. As to the way in which the cost of the proposed works should be met, my opinion is that, considering how largely the proprietors must have benefited for many years by their illegal proceedings, it would not be unfair to make them bear the whole expense. Under any circumstances, the Ankapilly Proprietor should, I think, pay for the drainage works at Munagapaka, as the flooding at that place is caused by his irrigation above it; and as to the remaining works, possibly it may be decided to share the cost between Government and the proprietors in proportion to the amount of wet cultivation belonging to them now supplied by the channel and Ava.

	Rs.
Proprietary 2,878, at 8½ Rupees ...	24,483
Government 2,164, at 8 ,, ...	17,312
Total...	41,795

18. The following papers are sent herewith:—

10 Accompaniments of this letter, marked A to K.
1 Approximate Estimate.
1 Report by the Assistant Engineer.
1 Sketch Map.
1 List of Irrigation commanded by the Godari Anicut, marked L.
1 Statement showing the discharge of Kristamraz channel when improved.

15

A

From Major J. BEATTY, R.E., District Engineer, Vizagapatam, to J. R. DANIEL, Esq., Acting Collector of Vizagapatam, dated Camp at Nuckapilly, 11th October 1873, No. 1,284.

"In 1860, the then Collector of Vizagapatam proceeded to Kondakirla in order to settle the long-pending water dispute, and entered into arrangements by which the water level was fixed, and the supply in the Ava was to be retained at the full level until 15th December, and then it was to be drawn off *as required for cultivation below the calingulah*, thus allowing a dalwa, or late cold weather crop, to be cultivated in the tank bed."

2. My interpretation of that agreement is that the water was to be drawn off after 15th December only for purposes of cultivation under the Ava, and not that the Ava should then be suddenly emptied for the benefit of parties who wish to cultivate in its bed.

3. Instead of the gradual discharge of the water, *as required for cultivation*, a practice appears to have sprung up, of late years, of opening the sluices on the 15th December and emptying the Ava as quickly as possible, thus wasting much valuable water, which should be most carefully stored for the use of the Government villages under the Ava; some of which are, it would seem, entitled to a supply of water for a second wet crop.

4. If this practice, which I regard as an encroachment by the neighbouring proprietors on the rights of Government, meets with your approval, I shall be obliged by your giving me your reasons for it, to enable me, if necessary, to refer the matter for the orders of Government.

B

From J. R. DANIEL, Esq., Acting Collector of Vizagapatam, to the District Engineer, Waltair, dated Vizagapatam, 27th October 1873, No. 1,616.

In reply to your letter No. 1,284 of the 11th instant, I have the honour to state that I was not aware of the practice to which you refer, and have certainly never given it my approval.

2. The practice of drawing off the water to waste, simply for the purpose of cultivating the ped, ought most certainly not to be allowed; the arrangement made by the Collector in 1860 certainly does not warrant it, and if the ryots have been doing so, it must have been done surreptitiously; at least I* am at present unaware of anything which can justify them.

* It has since been ascertained that the practice was authorized by two Principal Assistant Collectors, Messrs. Boswell and Hutchins.—J. B.

3. The management of the sluices is in your hand, and I hope therefore you will not allow the water to be drawn off after December 15th, except for cultivation purposes.

C.

From G. L. NARSING ROW, dated Vizagapatam, 9th December 1873.

I received an emergent letter yesterday from my Amin at Ankapilly, and the emergency is so great that he has followed it up by coming down himself. The extraordinary and unreasonable torrents of rain we have had lately in the country have of course swollen the Kondakirla Ava to such a degree that the crops on my lands of Wadrapilly and Munagapaka are almost all completely swamped, and threaten me with a loss not under 15,000 Rupees. The remedy is in the hands of Mr. Brickwell, but being a stranger and unacquainted with the usage on such emergent occasions, it appears he declines to use it.

2. The original understanding was that the water should not exceed the bench-mark or Jodu Dibbalu, and a calingulah was built accordingly. Now it does, affecting our crops *to the amount of* 15,000 *Rupees*. The understanding for opening the valves after the 15th December is merely to get my lands under the lake cultivable for the cold weather crops, and not to prevent swamping the paddy fields under high cultivation. Most right. Now Mr. Brickwell seems to confound one with the other. You are an experienced officer, and I have every hope that you will see things done amicably without the the necessity of my seeking* redress elsewhere.

* Meaning that he would bring an action in the Civil Court, with damages laid at 15,000 Rupees.—J. B.

3. Surely if the village of Munagapaka were submerged by excessive rains, a contingency which would not be provided against in an ordinary arrangement, the practice usually obtaining could never override the consideration for the safety of the lives and property of the village. In the present case not lives but the loss of property is certainly at stake, and I beg you will kindly issue peremptory instructions to the Assistant Engineer to open the sluices at once, and prevent damage to my property, which otherwise would be inevitable.

(True Copy.)
(Signed) J. BEATTY, Major, R.E.,
District Engineer, Vizagapatam.

Note.—Mr. Narsing Row was informed that the District Engineer saw no reason to interfere; he thereupon proceeded to threaten the Principal Assistant Collector.

(Initialed) J. B.

D.

Endorsement on the Petition of the Proprietor of Ankapilly.

The petitioner represents that his villages Munagapaka, Wadrapilly, Mallavaram, Kakarapilly and Nagavaram cannot be cultivated unless the "excess water" in the Kondakirla Ava be taken off, and requests that Mr. Brickwell, the Assistant Engineer, be directed to open the shutters of the calingulah, and the proprietor hints that if this be not done he may go to a Civil Court for damages.

The petitioner is informed that it is an abuse of language to speak of "excess water." That which is in excess is his cultivation which is found to be in the bed of the tank.

The orders of Mr. Boswell, dated 21st May 1866, No. 126, and of Mr. Hutchins, dated 12th September 1868, No. 114, are clearly superseded by the Acting Collector's letter to the District Engineer, dated October 27th, 1873, No. 1,616, in which occurs the following passage, (paragraph 3):—

"The management of the sluices is in your hand, and I hope therefore you will not allow the water to be drawn off after December 15th, except for cultivation purposes."

B

The petitioner is reminded that it is indecent of him to threaten the Covenanted servants of Government with Civil Suits if they do not comply with his unreasonable requests.

From paragraph 8 of Mr. Minchin's letter, dated 12th May 1869, No. 240, to the Board of Revenue, it is clearly stated that "the cultivation of the waterspread of the reservoir, expressly excluded from the estate assets in the Permanent Settlement Accounts, is an illegal encroachment." Again, in paragraph 3 of the postscript to the same letter, it is found that "the bed of the tank is not included in the assets on which the peishcush is charged, and its cultivation, though a long sanctioned abuse, can properly be put an end to for such time as the Government may be able to keep water in the reservoir."

The Board in their Proceedings of the 14th June 1869, No. 4,246, say they "are not prepared to acquiesce in the Ankapilly claims to cultivate a portion of the waterspread in spite of their having been recognised by subordinates, and if the claims are allowed, the Board believe that additional peishcush might legally be imposed as these lands were not assessed to the Permanent Settlement." Read also to the same effect paragraph 7 as to the cultivation of the waterspread.

There is yet another alternative, to take the land up under the Act.

The petitioner is also reminded that no prescription bars the Crown.

Under all these circumstances, petitioner is advised not to threaten the servants of the Crown, and for his own sake to remain as quietly as possible.

CAMP AT WALTAIR,
January 1874.

(Signed) J. F. SNAITH,
Acting Principal Assistant Collector.

FORWARDED to the District Engineer, Vizagapatam, for information.

(True Copy.)

(Signed) J. BEATTY, Major, R.E.,
District Engineer, Vizagapatam.

E.

From Captain E. BLAGRAVE, District Engineer, to Conductor W. G. BEVAN, Supervisor, Public Works Department, dated Waltair, 20th October 1860, No. 762.

FORWARDED Collector's* letter, No. 1,103 of 17th instant, regarding Kondakirla affair, to Mr. Bevan, for his information, etc., with instructions to have the pillar on the Jodu Dibbalu put up at once; also a corresponding permanent bench-mark made on the pier of the sluice, and to frame an estimate for an additional calingulah 21 feet in length on the north side of the sluice, the body of the present and of the new calingulah to be on a level 3 inches below bench-mark.

* To be returned.

NOTE.—It will be observed by these papers that Captain Blagrave proposed to build a calingulah 21 feet long, with its crest 3 inches below the bench-mark, while Mr. Bevan submitted an estimate for a calingulah 30 feet long with its crest 6 inches below the bench-mark.

(Initialed) J. B.

F.

From Conductor W. G. BEVAN, Supervisor, Public Works Department, to Captain J. H. M. SHAW-STEWART, R.E., Acting District Engineer, Vizagapatam, dated 14th March 1861, No. 275.

I HEREWITH beg to submit a plan* and estimate for the improvements proposed to be made to the Kondakirla Ava calingulah; the crown is to be 6 inches below the bench-mark laid down by the Collector and Captain Blagrave at the Jodu Dibbalu.

* The plan cannot be found.—J. B.

G.

Estimate of the probable expenses of the addition and improvement proposed to be made to the Kondakirla Ava Calingulah in Survasiddy Taluq in Vizagapatam District for the year 1860-61.

Number.	Measurement. Length.	Breadth.	Depth.	Superficial contents.	Cubical contents.	Description.	Rate.	Per Item.	Amount.	Total.
						Additional Calingulah.	Rs. A. P.		Rs. A. P.	Rs. A. P.
1	29	6	5	...	870	Foundation to Calingulah ...	...	...	...	...
1	22	3	4	...	264	Do. to wing wall between the head sluice, etc., the calingulah.	...	...	...	...
1	8½	4	4½	...	153	Do. to front wing wall ...	...	...	...	...
1	4	4	4½	...	72	Do. to do.	...	...	...	...
1	5½	4	4½	...	99	Do. to rear wing wall ...	...	...	...	...
1	19	4	4½	...	342	Do. to end wall ...	...	...	...	...
1	34	2½	4½	...	382½	Do. to retaining wall ...	...	...	...	...
1	30	4	1½	...	180	Calingulah above	...	...	...	...
1	23	2	6	...	264	Wing wall above between the head sluice and the additional Calingulah.	...	...	...	...
1	8	2½	7½	...	150	Front wing wall above ...	...	...	...	...
1	3½	2½	7½	...	65⅝	Do.	...	...	...	...
1	5	2½	5	...	62½	Rear do.	...	...	...	...
1	4	2½	7½	...	75	End wall above	...	...	...	...
1	15	2½	6½	...	234⅜	Do.	...	...	...	...
1	33	11	1½	...	528	.....	...	...	...	...
					3,742	or 138·16 cubic yards of rough stone-in-chunam.	1 8 0	Cubic yards.	207 14 3	...
1	30	4	...	1 20	...	Calingulah	...	...	...	...
1	32	14	...	4 48	...	Apron	...	...	...	...
				5 68	...	Squares of Cutstone-in-chunam ...	10 0 0	Squares.	56 12 9	...
1	30	5	...	1 50	...	Calingulah	...	...	...	...
1	20	14	...	2 80	...	Wing wall between the head sluice and the additional Calingulah.	...	...	...	...
1	18	10	...	1 80	...	Front wing wall	...	...	...	...
1	6	7	...	0 42	...	Rear do.	...	...	...	...
1	4	7½	...	0 30	...	End wall	...	...	...	...
1	15	8½	...	1 23½	...	Do.	...	...	...	...
...	...	...	...	7 55½	...	Squares of plastering-in-chunam ...	...	...	...	...
8	...	...	...	...	...	Guard stones	2 8 0	each.	20 0 0	...
...	...	...	...	...	...	Excavating foundation and filling in.	...	...	25 0 0	...
						Improvements to old Calingulah.				
1	51	4	1	...	204	or 7·15 cubic yards of rough stone-in-chunam for raising the calingulah.	1 8 0	Cubic yards.	11 5 4	...
...	...	...	...	8 25	...	Squares of plastering-in-chunam the calingulah and wing walls.	1 8 0	Squares.	12 6 0	...
						Guards stones	2 8 0	each.	35 0 0	...
...	...	...	...	...	...	Extra Establishment and Sundries	5 0 0	Per-cent	20 4 4	...
						Total...	...		...	400 0 0

NURSIPATAM,
14*th March* 1861.

(Signed) W. G. BEVAN, Acting Conductor,
Supervisor, D. P. W., G. Range.

FORM No. 5.

Estimate Rupees 400 for the addition and improvement proposed to be made to the Kondakirla Ava calingulah in the Survasiddy Taluq in Vizagapatam District.

1*st*.—Length of the additional calingulah 30 feet.

2nd.—Calingulah to be built of rough stone-in-chunam. Breadth of foundation 6 feet and depth 5 feet, and the calingulah is to be raised 1½ feet above foundation. Nature of soil, black earth.

3rd.—The calingulah is to be crowned with cut-stone with an apron in rear of the same material built on a foundation of rough stone-in-chunam 1½ feet deep.

4th.—The retaining wall will be sunk 4½ feet, and have a breadth of 2½ feet. Material rough stone-in-chunam.

5th.—The old calingulah is to be raised 1 foot with rough stone-in-chunam.

NURSIPATAM,
14th March 1874.

(Signed) W. G. BEVAN, Acting Conductor,
Supervisor, D. P. W.

II.

From Captain J. H. M. SHAW-STEWART, R.E., Acting District Engineer, Vizagapatam, to the Collector of Vizagapatam, dated Cassimkotta, 6th April 1861, No. 1,464.

WITH reference to your letter to Captain Blagrave, dated the 17th October last, No. 1,103, I have the honour to forward herewith a plan and estimate for raising and lengthening the calingulah of the Kondakirla Ava, which have been prepared agreeably to Captain Blagrave's instructions.

2. You know the circumstances of the case far better than I do, and I need not, therefore, make any remarks upon the necessity or the object of the work.

3. The estimate amounts to Rupees 400, and as it is not strictly a repair, it must be sanctioned by the Chief Engineer. I request, therefore, that you will be so good as to return it with your countersignature.

4. With reference to paragraph 5 of your letter above alluded to, it seems to me that Mrs. Sooriah may fairly be called on to pay her share of the expense. This, of course, is for you to arrange.

I.

MEMORANDUM.

No. 1,571.

MR. BEVAN is authorized to commence the work of raising and lengthening the Kondakirla Ava calingulah, charging one-half of the expenditure to Government and the other half to the Ankapilly Proprietrix. The sum of Rupees 200, being the half of the estimate, will be sent to Mr. Bevan when received from Mrs. Sooriah Pracasarow.

WALTAIR,
29th April 1861.

(Signed) J. SHAW-STEWART, Captain, R.E.,
Acting District Engineer

K.

Extract from a letter from Assistant Engineer Lieutenant Bevan, dated Arnee, 25th November 1873.

* * * *

I NOW find that the only reference to the work that my old diary contains is merely that I marked a bench-mark on the old sluice wing wall 3 inches below the top of the Jodu Dibbalu. And the other entries are simply records of inspections made while the calingulah was in progress. Captain Blagrave and Mr. Fane came to the decision about the height the water in the

Ava was to be retained, not from levels, but from inquiries made of the parties concerned. An Overseer named *J. Iyapah Naidoo** was employed on the work, and, if he could be found, would be able, I think, to give the information about the Jodu Dibbalu, as he knows all the bench-marks connected with the Ava, and those on the wing of the Kondakirla sluice. Iyapah Naidoo lost his appointment in the department on its organization in 1863, and was shortly afterwards (at my recommendation) appointed to a post in the Revenue Department, either as Sheristadar or Revenue Inspector of the Survasiddy Taluq.

* I am told that Iyapah Naidoo has since died.—J. B.

* * * *

(Signed) W. G. BEVAN.

From T. BRICKWELL, Esq., C.E., Assistant Engineer, in charge of No. 1 Range, to Major J. BEATTY, R.E., District Engineer, Vizagapatam, dated Ellamunchilly, 7th February 1874, No. 1,277.

I HAVE the honour to submit a report on the approximate estimate for improving the Kristamraz channel, which is the supply-channel of the Kondakirla Ava and derives its supply from the Godari anicut across the Saradanuddy near Cassimkotta in the Survasiddy Taluq.

One Estimate.

2. The Chief Engineer for Irrigation, in his memorandum No. 716 B., dated Nursipatam, 8th October 1873, paragraph 20, directed this approximate estimate to be submitted to admit of provision being made for the work in the Budget of 1874-75.

3. In the same memorandum, paragraphs 6, 7, 8, 12, 14, etc., the Chief Engineer has fully reviewed the necessary works required for improving the Kristamraz channel, and which have been provided for in the approximate estimate and the object and advantages to be obtained by them.

4. The estimated amount is as close an approximation to the actual cost of the work as the investigations already completed would allow of being framed, and, provided that the cost of land is not greater than Rupees 300 per acre entered in the estimate, I feel sure the work may be completed within the amount estimated, Rupees 25,280.

5. The first item for "earthwork," Rupees 6,985, needs no comment, except that the cross sections when plotted led me to estimate for providing embankments on the western side for about 1⅛ miles above the Munagapaka aqueduct and on the eastern side about 1 mile above it, towards the head sluice, *vide* Chief Engineer's memorandum, paragraph 12. (The Munagapaka aqueduct is 2¾ miles from the head sluice.) Part of this work consists of removing and reconstructing old banks.

6. The second item, compensation for land, is open to doubt. The annual rental paid by the ryots to the Zemindars whose land lies adjacent to the channel is on an average Rupees 15 per acre, which at 20 years' purchase amounts to Rupees 300 per acre as the present value, and this should be sufficient. Beyond this the only criterion we have is the price paid for compensation for land taken up for the Poodimadaka road, which was fixed at Rupees 300 per acre on the average. At the same time the proximity of the land now required to the Kristamraz channel, and the fact that some of it is garden land, may lead to higher rates being demanded. The Zemindars concerned will undoubtedly derive much benefit to their lands under command of the channel by the proposed improvements which, besides providing an additional supply of water, also provide for head sluices to their branch channels, and they will probably contribute some portion of the cost of the works. It has been impossible to settle the amount of their contributions in time to enter them in the estimate, but the amount may be taken as a set off, approximately, against any enhanced value of land.

7. *Item No. 3, Aqueduct at Munagapaka.*—This work is designed to pass under it the drainage from the Ankapilly Ava, which now flows through the present channel on the same level

and escapes over two calingulahs, Pippecolum and Chintaman, built in the western bank of the Kristamraz channel. (The Kristamraz channel flows from north to south nearly, the Ankapilly drain from east to west nearly,) and which, as noticed in Colonel Mullins' memorandum,* cause the chief of the mischief which it is now desired to remedy. The design has been prepared from instructions and sketches given by the Chief Engineer for Irrigation. A suggestion of Colonel Mullins, that four arches of 9 feet instead of 3 of 10 feet span, his original plan, has been adopted, as it is proposed to provide for a considerable portion of the cross drainage intercepted by the embankments of the channel, by turning it into the Ankapilly Ava drainage channel through the spoil cuttings it will be necessary to excavate outside the channel banks and so under the aqueduct, hence a further width of opening of 6 feet has been adopted. There will be a considerable fall of the drainage water immediately in front of the aqueduct, which has been provided for by a drop wall and floorings of stone-in-chunam. It will be, I think, a matter for after-consideration whether the drop wall is not too close to the aqueduct. There is no doubt, I think, that if any alteration is made the sum entered in the estimate (Rupees 5,730) will meet the cost. This sum provides also for retaining walls connecting the aqueduct with the piers of the old bridge, which carries the Poodimadaka road over the Kristamraz channel at this place.

* No. 716-B., dated Nursipatam, 8th October 1873

8. *Bridge of one arch of* 30 *feet span to carry the Poodimadaka road over the new drainage line.*—The wings of this bridge are to be connected with the wings of the old bridge referred to in the above paragraph. The cost of it, including aprons, etc., is Rupees 2,340.

9. The sum entered for additional head sluices to the various branch channels is Rupees 1,700.

10. The cost of the alterations directed* to be made in the head sluice of the Kristamraz channel is Rupees 55, which sum will, I think, be ample.

* Chief Engineer's Memorandum, No. 716-B, dated Nursipatam, 8th October 1873, paragraph 21.

11. *Regulating masonry dam at the site of the Peta Cattu.*—The Peta Cattu is referred to in the Chief Engineer's Memorandum, No. 716-B, dated 8th October 1873, paragraph 6, in which it is shown to be another of the causes of the present inefficient state of the Kristamraz channel. The estimate provides for an entirely new structure of masonry. The crest is to be at the same height as the former one, and below it the channel bed is to be dropped about 4 feet 6 inches, and to have a regular fall from thence to the cill of the Ava calingulah sluice. The total cost of the new dam will be Rupees 400.

12. *Regulating dam in the drainage channel.*—The fall in the bed of the Ankapilly drainage channel, represented hitherto by the height of overfall of the Chintaman and Pippecolum calingulahs, has been regulated by a drop wall or dam about 30 feet in front of the aqueduct. This work with flooring revetment, etc., is estimated to cost Rupees 870. As mentioned above* I think it will be a matter for after-consideration as to whether, in its present position, it is not too near the piers of the aqueduct, and whether there is not a possibility of the aqueduct foundations being shaken by the too great proximity of the overfall and broken water caused by the dam. Extensive floorings and revetments have been provided, and I believe the cost of them would be about the same as any other arrangement which could be adopted.

* Paragraph 7.

13. In conclusion, I have the honour to state that I have in this report dwelt chiefly upon the sufficiency or otherwise of the various items entered in the estimate which does not profess to be more than an approximation, but which, on the whole, I believe will be found more than sufficient to carry out the work. The estimate has been framed upon actual surveys and levels taken in the field from time to time as opportunity offered, some of which observations are undoubtedly inaccurate, but moderately complete as far as they go. I hope shortly, as soon as the Surveyors, whose entertainment was sanctioned in G. O., No. 2,994, dated 12th December 1873, can be procured, to push on with the preparation of the field work required for framing

Proceedings of the Madras Government, Public Works Department,
20th May 1874.

an estimate for the Ava Project, of which the improvements of the channel now estimated for are but a preliminary step. I should, in fact, have taken the levelling for this channel in hand myself ere this but for several untoward events, one of which has been, at least as far as the preparation of levels and surveys are concerned, the heavy downpour of rain in December, which has prevented the prompt execution of Repairs Agricultural, and has called my attention elsewhere, more especially to the Golgonda Taluq. Had it not been for the help of your Office Draughtsman, whose services you kindly devoted to the preparation of the plans and estimate for a time, those papers would not have been in their present state of forwardness towards completion.

14. I should perhaps add what amount I consider may be spent in the current official year, providing the regular estimate is sanctioned. As this may not be expected until after the monsoon is over, I consider that—

		Rs.
1.	The aqueduct	5,730
2.	The Bridge	2,340
3.	Pata Cattu Dam	400
4.	Dam in Drainage channel	870
5.	Compensation...	7,200
6.	Earthwork	3,460
	Total...	20,000

is as much as can conveniently be completed by the end of the current official year, leaving the rest of the earthwork, etc., to be completed before the monsoon of 1875.

Statement showing the extent of existing Wet Cultivation.

No.	Source of Supply.	Description of Land.	Names of Villages.	EXTENT OF WET — JEROYETTE. Extent.	Assessment.	LAND, ETC. — INAM. Extent.	Assessment.	Rate per Acre.	TOTAL. Extent.	Assessment.	Remarks.
					Rs. A. P.		Rs. A. P.	Rs. A. P.		Rs. A. P.	
1	Kristamraz Channel.	Government	Peddapaudu	39 39	387 15 10	52 0	391 4 0	... .	91 39	779 3 10	The whole of the wet cultivation shown in this statement is situated on the left bank of the Sárada river, and commanded by the Godari Anicut.
			Timmarazupettah ...	3 62	50 9 6	64 75	577 5 0	.....	68 37	627 14 6	
				42 71	438 9 4	116 75	968 9 0	8 13 2	159 46	1,407 2 4	
		Cassimkotta Proprietor.	Cassimkotta	846 0	6,102 10 0	... ...	.....	.....	846 0	6,102 10 0	
			Aravapallem	464 0	2,074 4 0	... ...	.....	.....	464 0	2,074 4 0	
				1,310 0	8,176 14 0	... ...	.....	.....	1,310 0	8,176 14 0	
		Ankapilly Proprietor.	Munagapaka	876 72	9,679 5 2	... ...	.....	.....	876 12	9,679 5 2	
			Timmarazupetta ...	253 45	2,987 14 7	... ...	.....	.....	253 45	2,987 14 7	
			Wadrapilly	... ...	.....	... ...	.....	.....	.....	.....	
				1,130 17	12,667 3 9	... ...	.....	.....	1,130 17	12,667 3 9	
2	Kondakirla Ava ...	Government.	Kondakirla	205 62	1,731 5 5	50 50	370 14 0	.....	256 12	2,102 3 5	
			Yerravarum	218 68	1,511 9 10	61 50	350 10 0	.....	280 18	1,862 3 10	
			Kurripalem	258 25	2,614 0 0	87 0	875 0 0	.....	345 25	3,489 0 0	
			Jaggannapetta	257 87	2,190 11 10	130 25	840 6 0	.....	388 12	3,031 1 10	
			Appanapalem	75 56	384 6 0	2 0	12 0 0	.....	77 56	396 6 0	
			Undalapilly	105 25	512 4 0	27 50	135 4 0	.....	132 75	647 8 0	
			Peddapaudu	22 04	203 3 0	71 21	534 0 0	.....	93 25	737 3 0	
			Khajepallem	53 0	572 0 6	35 50	267 10 0	.....	88 50	839 10 6	
			Timmarazupetta ...	127 59	1,752 12 4	75 12	612 6 0	.....	202 71	2,365 2 4	
			Oopavarum	48 0	226 8 0	35 0	145 9 0	.....	83 0	372 1 0	
			Mullavarum	24 25	97 5 0	6 0	15 0 0	.....	30 25	112 5 0	
			Seemalapilly	7 0	50 6 6	... ...	.....	.....	7 0	50 6 6	
			Somaveram	10 0	20 0 0	... ...	.....	.....	10 0	20 0 0	
			Razam	9 0	20 0 0	... ...	.....	.....	9 0	20 0 0	
				1,422 11	11,886 8 5	581 58	4,158 11 0	8 0 1	2,003 69	16,045 3 5	
		Ankapilly Proprietor.	Munagapaka	159 87½	831 9 11	... ...	.....	.....	159 87½	831 9 11	
			Timmarazupetta ...	89 0	881 13 0	... ...	.....	.....	89 0	881 13 0	
			Wadrapilly	189 25	1,632 1 0	... ...	.....	.....	189 25	1,632 1 0	
				438 12½	3,345 7 11	... ...	.....	.....	438 12½	3,345 7 11	
3	Now under the river Kassimodum Kattu, but proposed to be supplied direct from Kristamraz channel.	Government.	Peddapaud	262 0	.....	... ...	.....	.....	262 0	2,124 0 0	The Kassimodum Kattu is a rough-stone dam in the Saradanuddy near Cassimkota.
			Kazeepalem	143 0	.....	... ...	.....	.....	143 0	1,212 0 0	
				405 0	.....	... ...	.....	.....	405 0	3,336 0 0	
		Cassimkotta Proprietor.	Cassimkotta	191 0	1,468 0 0	... ...	.....	.....	191 0	1,468 0 0	
			Byyavarum	192 0	1,210 0 0	... ...	.....	.....	192 0	1,210 0 0	
			Veddurupurty	629 0	3,967 8 0	... ...	.....	.....	629 0	3,967 8 0	
				1,012 0	6,645 8 0	... ...	.....	.....	1,012 0	6,645 8 0	
4	Now under other river channels, but proposed to be supplied by a new channel from the Ava.	Government.	Tatiyakulapalem ...	834 62	.....	106 50	.....	.....	941 12	3,113 14 0	
			Muracuda	322 34	.....	221 50	.....	.....	543 84	2,060 7 5	
			Murripalem	190 20	.....	118 91	.....	.....	309 11	.....	
			Agraharum	1,042 81	4,305 13 4	... ...	.....	.....	1,042 81	4,305 13 4	
			Kottooru	143 0	.....	181 50	.....	.....	342 50	.....	
			Kottaliyellamunchelly ...	300 50	.....	106 50	.....	.....	407 0	.....	

that may be supplied by works subsidiary to the Godari Anicut.

Statement showing the extent of existing Wet Cultivation that may be supplied by works subsidiary to the Godari Anicut.—(Concluded.)

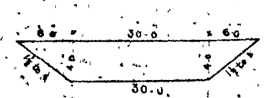
No.	Source of Supply.	Description of Land.	Names of Villages.	EXTENT OF WET ... JEROYETTE. Extent.	Assessment. Rs. A. P.	LAND, ETC. INAM. Extent.	Assessment.	Rate per Acre. Rs. A. P.	TOTAL. Extent.	Assessment. Rs. A. P.	Remarks.
4	Now under other river channels, but proposed to be supplied by a new channel from the Ava.	Government.	Gokivada	73 69	.....	81 0	.....	.....	154 69	.....	
			Dimilee half share ...	314 17	.....	465 81	.....	.....	779 98	.....	
			Tamaracherla	332 73	.....	381 25	.....	.....	713 98	.....	
			Teruvupilly	417 75	.....	529 56	.....	.....	947 31	.....	
			Kattubolu	126 63	.....	505 25	.....	.....	631 88	.....	
			Rajala	677 12	.....	252 50	.....	.....	929 62	.....	
			Kummarapilly	343 75	.....	114 50	.....	.....	458 25	.....	
			Veluchooru	401 97	.....	155 3	.....	.....	557 0	.....	
			Kalavalapilly	299 0	.....	152 50	.....	.....	451 50	.....	
				5,820 28	.....	3,372 31	.....	.....	9,210 59	.....	
5	Other cultivation under river channels not proposed to be brought under the anicut.	Maharajah of Vizianagram.	Punchadarla	853 2	3,514 3 2	.....	.....	.....	853 2	3,514 3 2	
			Voogynypalem	350 0	2,090 0 0	.....	.....	.....	350 0	2,090 0 0	
			Tagada	63 0	264 0 0	.....	.....	.....	63 0	264 0 0	
			Anundapuram	220 0	2,300 0 0	.....	.....	.....	220 0	2,300 0 0	
			Yellamunchelly... ...	1,262 0	8,697 0 0	.....	.....	.....	1,262 0	8,697 0 0	
				2,748 2	16,865 3 2	.....	.....	.....	2,748 2	16,865 3 2	
		Cassimkotta Proprietor.	Purushottapollem ...	98 0	774 12 0	.....	.....	.....	98 0	774 12 0	
			Guntavampalem ...	531 0	3,700 12 3	.....	.....	.....	531 0	3,700 12 3	
			Cottapilly	109 0	983 4 0	.....	.....	.....	109 0	983 4 0	
			Paruntalapallem ...	198 0	775 2 9	.....	.....	.....	198 0	775 2 9	
			Milupaka	1,338 0	6,459 12 4	.....	.....	.....	1,338 0	6,459 12 4	
			Jagamadapuram ...	788 0	3,726 8 0	.....	.....	.....	788 0	3,726 8 0	
			Chummarapuram ...	203 0	1,103 5 0	.....	.....	.....	203 0	1,103 5 0	
			Ganapurty	378 0	1,941 14 6	.....	.....	.....	378 0	1,941 14 6	
			Chellamalla	92 0	478 14 6	.....	.....	.....	92 0	478 14 6	
			Choochiconda	101 0	596 4 0	.....	.....	.....	101 0	596 4 0	
			Mulajumpah	261 0	971 13 0	.....	.....	.....	261 0	971 13 0	
			Somalingapalem ...	474 0	1,805 2 6	.....	.....	.....	474 0	1,805 2 6	
			Jumpapalem	281 0	1,061 15 0	.....	.....	.....	281 0	1,061 15 0	
			Somavarum	251 0	1,274 14 0	.....	.....	.....	251 0	1,274 14 0	
			Yanuga Tooni	347 0	2,150 10 0	.....	.....	.....	347 0	2,150 10 0	
			Gollagoonta	261 0	991 15 0	.....	.....	.....	261 0	991 15 0	
			Narsingapilly	99 0	540 12 0	.....	.....	.....	99 0	540 12 0	
			Amin Sayabupata ...	87 0	553 13 4	.....	.....	.....	87 0	553 13 4	
				5,897 0	29,891 8 2	.....	.....	.....	5,897 0	29,891 8 2	

(Signed) J. BEATTY, Major, R.E.,
District Engineer, Vizagapatam.

Statement showing the discharge of Kristamraz Channel when improved.

Formula $D = A \times 92 \sqrt{rf} \times \frac{a}{b}$

Depths on bed of channel.	Area of Section.	Perimeter.	Hydraulic mean depth.	Fall per mile.	Mean velocity per second.	Discharge per second in cubic feet.	Discharge per hour in cubic yards.	Discharge per day in cubic yards.	Remarks.
F. In.	S. Ft.	FEET.	FEET.	FEET.	FEET.				Section of channels.
0 6	15·37	31·80	0·48		1·29	19 07	2,613	63,10	
1 0	31·50	33·60	0 93		1·97	57·01	7,680	1,82,4	
1 6	48·37	35·40	1 36		2 19	105 91	14,121	3,33,901	
2 0	66	37·20	1 77	2 10	2·50	165·15	22,020	5,28,480	
2 6	84 37	39·00	2 16		2 76	232·86	31,048	7,45,152	
3 0	103·50	40·80	2 53		2·99	309·46	41,261	9,90,264	
3 6	126·37	42 60	2·87		3·19	393 55	52,473	12,59,352	
4 0	144	44 42	3·24		3 38	486·72	64,896	15,57,504	



CAMP AT YELLAMUNCHELLY,
8th February 1874.

(Signed) J. BEATTY, Major, R.E.,
District Engineer, Vizagapatam.

SUBMITTED to Government with reference to G. O., No. 2,994, of the 12th December 1873. The approximate estimate, amounting to Rupees 25,280, for the improvement of the Kristamraz channel which supplies the Kondakirla Ava has from unavoidable circumstances been delayed until too late for entry in the Budget of 1874-75, but I beg to recommend that the District Engineer's proposals (paragraph 12) to commence the construction of the bridge on the Poodimadaka road in the present dry season, and the aqueduct which is to pass the Ankapilly Ava drainage under the Kristamraz channel as soon as possible after the 15th December next, be sanctioned, and that he be authorized to incur expenditure, in the first instance, from the grant for Minor New Works, so that materials may be prepared. Additional funds can be placed at his disposal so soon as the requirements of incomplete works of 1873-74 have been provided for.

From District Engineer, Vizagapatam, No. 290A, dated 8th February 1874.

2. In the meantime the longitudinal and cross sections of the channel and the plans of the masonry works should be sent to this office as soon as may be convenient, in order that all the important details may be finally approved before any constructive work is commenced.

3. The papers transmitted by the District Engineer, marked A to K, are of considerable interest.

4. The proportion in which the cost of the improvements included in the approximate estimate should be borne by Government and the proprietors, respectively, will, it is supposed, be determined ultimately in the Revenue Department.

(Signed) J. MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 406. ORDER THEREON, 20th May 1874, No. 1,339.

IRRIGATION, No. 31.

THE Governor in Council regrets that, as the approximate estimate for the Kristamraz channel was not received in time to allow of any provision being made for the work in the Budget, and as the funds under Ordinary Agricultural at the disposal of Government are altogether inadequate to admit of an allotment being made therefrom, it is necessary to postpone the commencement of the improvements until next year. In the meantime the regular estimate with the plans of the masonry works should be submitted through the Chief Engineer for Irrigation for entry in the Budget of 1875-76. His Excellency has noticed with satisfaction the careful attention which has been given to this project, which appears likely to be really useful and beneficial both to the Government and proprietary lands under the channel.

2. These Proceedings will be communicated to the Revenue Department in continuation of G. O., No. 2,994, of the 12th December 1873, with a request that consideration may be given as to the incidence of the expenditure which may be requisite to render the Kristamraz channel efficient and capable of meeting the requirements of all the cultivation under it, and that as reliable an estimate as possible may be framed of the amount of land compensation which will have to be paid. The statements of wet cultivation, though compiled from revenue sources, have not, it will be noticed, been checked by the Collector of Vizagapatam.

(True Extract.)

(Signed) J. MULLINS, Lieut.-Colonel, R.E.,
Joint Secretary to Government.

To the Chief Engineer for Irrigation.
" District Engineer, Vizagapatam.
" Officiating Controller of Public Works Accounts.
" ~~Military~~ Department.

Revd order thereon 30 May 1874 No 217:
Communicated to the Board of Revenue for report in Continuation of G.O. 19 December 1873 No 123.
1 Spare Extract
By C.E. for Irrigation
Ag. Secy to Govt.

Exd. E. C. Shunker.
Spare Copies

To
The Board of Revenue.

Govt. of 1874 Madras.

PUBLIC WORKS.

To

THE CHIEF ENGINEER for IRRIGATION.

&c.," &c., &c.

Dated May 20th.

Recd. Last.

G., O., 20th May 1874, No. 1,559.

MAY

Nos. 405-406

Existence Channel.—Passing order on the note by the Chief Engineer for Irrigation submitting approximate estimate for improvements to the channel in the Tinnevelly District.