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MADRAS RECORD OFFICE.

Government of Madras.

P. W. DEPARTMENT.

G.O. No. <u>1124.</u>	Press <u>Mis.</u>
<u>184-6.</u>	
Dated <u>15-4-</u>	<u>1868.</u>

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department.
15th April 1868.

Read the following papers :—

No. 184. Endorsement of the Superintending Engineer, 4th Division, dated Madras, 16th March 1868, No. 5,609 :—
From W. FRASER, Esq., C. E., Executive Engineer, East Coast Canal, to the Superintending Engineer, 4th Division, dated Doogoorazpatani, 29th February 1868, No. 247.

1. I have the honor to inform you that I returned here this evening from an examination of the Sooranamooky, and of the country for a few miles north of that river.

I examined the points of crossing proposed by Colonel Chambers, R.E., and by Mr. Kennedy, and also one or two other points which appeared to me to present peculiar advantages.

2. So far as the mere crossing of the river is concerned, there is very little choice to be made. Wherever it is crossed there will be difficulty in dealing with the sand washed down by the floods, and from the fact that, within the limits between which we must cross, the high floods overflow the banks of the river; so that the principal thing to be attended to in selecting the point of crossing is to see that it leads into a good line on the north side of the river.

3. Mr. Kennedy's line, as you are aware, goes right into the high sand hills along the coast, with a cutting of 13 to 16 feet in depth. Colonel Chambers' line crosses the river higher up, and curves into a narrow swamp, which runs nearly the whole way to Kistnapatam; and in this line the average depth of cutting is seven to nine feet. In crossing from the river to the swamp, Colonel Chambers' line passes through two or three miles of high sand hills, in which the maximum cutting is about 17 feet; by crossing still higher up the river, these sand hills would be altogether avoided, and, in other respects, a better line would be obtained. But the Government Order No. 398, dated 5th February 1868, is so decisive in favor of Mr. Kennedy's line, (and this after a full discussion of the subject,) that I do not consider myself at liberty to pursue this question further. I am, therefore, proceeding with the first $6\frac{1}{2}$ miles from Doogoorazpatam, between which points we all agree.

1. Submitted to Government for information.

2. It will be seen that work is progressing on $6\frac{1}{2}$ miles of canal from Doogoorazpatam northwards, where no difference of opinion exists as to the line to be taken.

3. It is hoped that the Government will not insist on Mr. Kennedy's line being followed, until the Superintending Engineer has had an opportunity of examining and reporting on both lines, which he hopes to do in a month's time.

(Signed) A. J. M. BOILEAU, Colonel, R. E.,
Superintending Engineer, 4th Division.

No. 185. From Lieutenant-Colonel J. C. ANDERSON, R. E., Chief Engineer for Irrigation, to the Secretary to Government, Public Works Department, dated Fort St. George, 31st March 1868.

1. Having at your request availed myself of the opportunity offered by a recent visit to Nellore to examine the line of the country between Doogoorazpatam

the fact that, within the limits between

and Kistnapatam, I have the honor to furnish you with my opinion as to the precise line in which the extension of the East Coast Canal should be carried. Colonel Winscom, Superintending Engineer of the 2nd Division, travelled with me over the ground, and I had the advantage of discussing with him, the relative advantages of the several alignments which have been recommended by Captain Chambers, Mr. Kennedy, and Mr. Fraser.

2. Captain Chambers, after crossing the Sooranamooky at the 8th mile, proposed to deflect his line to a swamp which runs nearly parallel to the sea, and to follow the course of the swamp from the 10th to the 18th mile. By this arrangement the greater part of the 10th and 19th mile would be in a deep cutting in sand, but the intermediate eight miles would be in comparatively low ground.

3. Mr. Kennedy proposed to avoid the swamp altogether, and to carry the line nearly straight through the sandy plateau which extends from the swamp to the sea.

4. Mr. Fraser recommends Captain Chambers' line in the main in preference to Mr. Kennedy's, but proposes to cross the Sooranamooky higher up, so as to avoid the deep cutting contemplated by Captain Chambers between the 8th and 10th mile.

5. Mr. Kennedy's object in proposing a radical alteration of the original design was to avoid the great difficulty which, as he thought, would be experienced in excavating the canal in the bed of the swamp, and to obviate the necessity of destroying a tract of land valuable for cultivation.

6. It is quite true that if the canal is to be carried along the swamp the wet cultivation now carried on there must be seriously injured, if not entirely put an end to; but, although the cultivation is valuable to the ryots and less precarious than perhaps any other kind of wet cultivation in the district, it occupies so small an area that even an exceptionally high rate of compensation will form an insignificant item in the cost of the project. A portion of the land in question is Zemin-dary, and the area under wet cultivation is not known, but of Government land only about 120 acres will be affected.

7. Mr. Kennedy's objection on this head cannot, therefore, be considered a very valid one. On the other hand, so far from the difficulty of excavating a canal along the swamp being greater than along the sandy plain, the fact is precisely the reverse; I apprehend that it would be found nearly impracticable by ordinary appliances to obtain the required depth along Mr. Kennedy's line, while the expense would certainly be enormous. The soil is pure sand, and water appears two or three feet below the surface, the depth of cutting being generally 13 or 14 feet. In addition to the inconvenience and expense which would be occasioned by the infiltration of the sand from the sides of the cutting in draining off the water, there would appear to be cause to apprehend that the lowering of the springs which that draining would produce, would deprive what little vegetation there is in the locality, of its moisture, for some distance at all events from the banks of the channel, and thereby increase the quantity of drift sand. For about a mile from the sea, there is nothing but a mass of barren sand hills, and the absence of vegetation is probably due to there being no impervious stratum to

prevent the lowering of the spring water to sea level. At the best, the successful completion and maintenance of Mr. Kennedy's line of canal would be a matter of great uncertainty.

8. There is no such uncertainty with regard to the swamp line. The soil is alluvial—a pit 10 feet deep was dug close to a paddy-field without any difficulty, and whatever drainage would be caused by carrying a canal through it, will thus be merely from the surface. I attach so much importance to securing this soil for the excavation of the canal, that I would propose to adhere to the line of the swamp throughout, though the length of the canal will be increased by more than a mile, in consequence. If the line were deflected in the manner proposed by Mr. Fraser, the additional length would not be so much, but it is very desirable that the Sooranamooky should be crossed at or near the point selected by Captain Chambers, that is in tidal water and near the mouth of the Tsalla Calwa, instead of at some point higher up, where the floods of the latter would prove very destructive to the canal.

9. The line would thus pass near the village of Goondapooram, and be curved round so as to pass to the west of the village of Siddarum. The land is low and favorable throughout excepting for a short distance from the Tsalla Calwa, where the soil is sandy. Some stone revetment will be required here, which need not be very expensive as a supply of stone can be obtained within a distance of six miles. The line should also be carried further to the west than Captain Chambers proposed between the 19th and 20th mile, that is towards its junction with Kistnapatam backwater.

10. The cultivation along the swamp is carried on mainly in the following manner. The water is led to it by means of numerous small cuts in the sand ridge. Bunds are thrown across the swamp, and tanks are thus formed which furnish a supply for wet cultivation. The land in the swamp itself is mostly waste, the principal cultivation is at the north and south ends. The excavation of the canal would destroy these small tanks, and the wet cultivation thus deprived of its source of supply would have to be abandoned. I would recommend that the whole of it be taken up in the first instance on behalf of Government, and that, on the completion of the canal, the area that is not actually occupied by the canal, may be let out to the ryots for such cultivation as it may be found to be suited. I believe that eventually there will be little or no reduction of the area of cultivation, but the ryots will have to content themselves with such crops as can be raised by the aid of picottah irrigation. There is no fear of cultivation being injuriously affected by the salt water in the canal. Near Kistnapatam backwater, we observed paddy growing on the level of tidal water with only a small bund to prevent the fresh and salt water intermingling. The water in the canal will be several feet below the level of the ground for almost the entire distance between the Sooranamooky and Kistnapatam backwater, and no land will be rendered uncultivable except what is actually within the limits of the channel.

11. There are some fine sites on the sandy plain adjacent to the line of canal for Casuarina plantations, and Acacias, and other trees will grow readily on the alluvial soil of which the spoil banks of the canal will be formed. There are also strips of alluvial soil on the margin of the swamp, which may be conveniently retained within canal limits, for the formation of a plantation.

*Proceedings of the Madras Government, Public Works Department,
15th April 1868.*

No. 186.

ORDER THEREON, 15th April 1868, No. 1,124.

CIVIL WORKS, No. 22.

1. In November 1863 Mr. Kennedy, the then Executive Engineer in charge of the East Coast Canal, in compliance with the Orders of Government submitted plans, with estimates amounting in the aggregate to Rupees 2,35,000, for the extension of the Northern Canal from Doogoorazpatam to Kistnapatam, a distance of about 19½ miles.
2. The country between these points was originally examined by Captain Chambers, who proposed that the line of canal should after crossing the Soorana-mooky at the 8th mile deflect westward to a swamp, along which it should be carried from the 10th to the 18th mile. Mr. Kennedy did not advocate the adoption of this line on the ground of the serious injury which would result to a large area of valuable wet cultivation, of the heavy compensation which would have to be paid for land and damage, and of the difficulty which, as he believed, would be experienced in excavating the canal in the bed of the swamp; and he accordingly proposed to avoid the swamp altogether, and to carry the line nearly straight across the sandy waste lying between the swamp and the sea.
3. Believing under all the circumstances, that the line chosen by Mr. Kennedy was the most favorable that could be adopted, the Government submitted his estimate to the Government of India, whose sanction, as well as that of the Right Honorable the Secretary of State, was communicated in the orders marginally noted.
4. The relative advantages of the alternative lines of canal from Doogoorazpatam to Kistnapatam was again discussed in the papers read in Proceedings of the 20th January 1865, No. 189, and doubts were thrown upon the expediency of adopting that recommended by Mr. Kennedy; but the Government were unable to arrive at any proper decision with the information then before them.
5. The question was, however, again brought under the notice of Government in the letter from the Superintending Engineer of the 4th Division above recorded, and, in order to its being finally and definitively settled, Colonel Anderson, the Chief Engineer for Irrigation, was requested on the occasion of his recent visit to the Nellore District to inspect the country between Doogoorazpatam and Kistnapatam, and to report his opinion of the direction in which the canal should be carried.
6. The result of Colonel Anderson's examination is contained in the second of the papers above read, in which he expresses himself strongly in favor of Captain Chambers' line with a slight deviation to the westward for a short distance near where it joins the Kistnapatam backwater, as indicated on the accompanying plan.
7. On a full consideration of the grounds upon which Colonel Anderson bases his recommendation the Government approve of the adoption of Colonel Chambers' line where it differs from Mr. Kennedy's line, and, believing that the cost of the canal will not be materially affected by the change, they direct that the work be proceeded with on that line with the modification suggested by Colonel Anderson.

G. O. No. 1,084, 15th April 1864.
" " 2,244, 5th August "

*Proceedings of the Madras Government, Public Works Department,
15th April 1868.*

8. These Proceedings will be communicated to the Revenue Department, with a view to measures being taken for obtaining possession of the land required.

(True Extract.)

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

To the Superintending Engineers, 2nd and 4th Divisions, with two Plans;
" Controller of Public Works Accounts.
" Revenue Department.

Ed. S. T. Augustin.

N^o 247

E. C. Canal Office

Druvarajapatam

29th February 1868

From W. Fraser Esq^r R. E.
Ex: Engineer

To Colonel A. Boileau R. E.
Superint^g Engineer 4th Divⁿ

Sir -

I have the honor to inform you that I returned here this evening, from an examination of the Surnamukki, and of the Country for a few miles North of that River -

I examined the points of crossing proposed by Colonel Chambers R. E. and by Mr Kennedy; and also one or two other points which appeared to me, to present peculiar advantages. -

2 So far as the mere crossing of the River is concerned, there is very little choice to be made - Wherever it is crossed there will be difficulty in dealing with the sand washed down by the floods; and from the fact that, within the limits between

which we must cross, the high floods overflow the banks of the River: So that the principal thing to be attended to in selecting the point of crossing is to see that it leads into a good line on the north side of the River. —

3 — Mr Kennedy's line, as you are aware, goes right into the high sand hills along the Coast with a cutting of 13 to 16 feet in depth:

Colonel Chambers' line crosses the River higher up and curves into a narrow Swamp, which runs nearly the whole way to Ristnapatam; and in this line the average depth of cutting is 7 to 9 feet:

In crossing from the River to the Swamp, Colonel Chambers' line passes through 2 or 3 miles of high sand hills in which the maximum cutting is about 17 feet;

By crossing still higher up the River, these sand hills would be altogether avoided; and, in other respects, a better line would be obtained:

But the Government order No. 398 dated 5 Feb'y 68. is so decisive in favour of Mr Kennedy's line (and this after a full discussion of the subject.)

that I do not consider myself at liberty to pursue this question further: I am therefore proceeding with the first $6\frac{1}{2}$ miles from Oruvarajapatam between which points we all agree. —

I have the honor to be
Sir

Your most Obedt. Servant

William R. R. R. C.E.

C.E. Engineer

N. 5609

Submitted to Government for information.

2. It will be seen that work is progressing on $6\frac{1}{2}$ miles of Canal from Doogovajapatam Northwards, where no difference of opinion exists as to the line to be taken.

3. It is hoped that the Government will not insist on Mr. Kennedy's line being followed, until the Superintending Engineer has had an opportunity of examining & reporting on both lines which he likes to do in a month's time.

Subd. Engr. 4th
Madras
1868

A. B. R. R. R.
Superd.

Stam No 515.

The Es Engineer
E. E. Canal

To the Deputy Engineer
H. Division

Exd-24th 1st of January 1881

AM 8th March 1881
H. E. Canal

Informing that, with
regard to the extension of
the Eastern Canal, he is
proceeding with the first
6 1/2 miles from Bramble
Point - in the

From
 Lieutenant Colonel L. C. Anderson
 Royal Engineers
 Chief Engineer for Irrigation
 To
 Colonel C. A. Orr R. E.
 Secretary to Govt. P.W.D.
 Sir:

Having at your request avail-
 ed myself of the opportunity offered
 by a recent visit to Vellore to ex-
 amine the line of the country between
 Doogarazpatam and Thotnapatam,
 I have the honor to furnish you with
 my opinion as to the precise line
 in which the extension of the East
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 Colonel Winscom Superintending
 Engineer of the 2nd Div. travelled with
 me over the ground, and I had
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 him, the relative advantages of the
 several alignments which have
 been recommended by Captain
 Chambers, Mr Kennedy, and
 Mr.

1st Div. of Govt. for April 1868
 The Superintending Engineer
 L. C. Anderson

To
 The Secretary to Government
 P.W. Dept.

Dated 16th March 1868
 Recd

N^o 5609

Submitting for in-
 formation a letter from
 the Executive Engineer
 Northern Circle, regarding
 the line for the proposed
 extension of the East
 Coast Canal. —

Ch. 1874

2. 14th April 1868 A. B.

1124-15th April 1868

Mr. Fraser.

2. Captain Chambers after crossing the Sooranamooky at the 8th mile, proposed to deflect his line to a swamp which runs nearly parallel to the sea, and to follow the course of the swamp from the 10th to the 18th mile. By this arrangement the greater part of the 10th and 19th mile would be in a deep cutting in sand, but the immediate 8 miles would be in comparatively low ground.

3. Mr. Kennedy proposed to avoid the swamp altogether & to carry the line nearly straight through the sandy plateau which extends from the swamp to the sea.

4. Mr. Fraser recommends Captain Chambers' line in the main in preference to Mr. Kennedy's but

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5. Mr. Kennedy's object in proposing a radical alteration of the original design was to avoid the great difficulty which, as he thought, would be experienced in excavating the Canal in the bed of the swamp and to obviate the necessity of destroying a tract of land valuable for cultivation.

6. It is quite true that if the Canal is to be carried along the swamp the wet cultivation now carried on there must be seriously injured, if not entirely put an end to; but, although the cultivation is valuable to the Ryots and less precarious than perhaps any other kind of wet

cultivation in the District, it occupies so small an area that even an exceptionally high rate of compensation will form an insignificant item in the cost of the project. A portion of the land in question is zaminidary and the area under its cultivation is not known, but of Government land, only about 120 acres will be affected.

Mr. Kennedy's objection on this head cannot therefore be considered a very valid one. On the other hand, so far from the difficulty of excavating a canal along the swamp being greater than along the sandy plain, the fact is precisely the reverse; I apprehend that it would be found nearly impracticable by ordinary appliances to obtain the required depth

17
depth along Mr. Kennedy's line, while the expense would certainly be enormous. The soil is pure sand, and water appears two or three feet below the surface, the depth of cutting being generally 13 or 14 feet. In addition to the inconvenience and expense which would be occasioned by the infiltration of the sand from the sides of the cuttings in draining off the water, there would appear to be cause to apprehend that the lowering of the springs which that draining would produce, would deprive what little vegetation there is in the locality, of its moisture, for some distance at all events from the banks of the Channel, and thereby increase the quantity of drift sand. For about a mile from the sea, there is nothing but a mass of barren sand hills and the absence of vegetation is

probably due to there being no previous stratum to prevent the lowering of the spring water to sea level. At the best, the successful completion and maintenance of Mr Kennedy's line of Canal would be a matter of great uncertainty.

8 There is no such uncertainty with regard to the swamp line. The soil is alluvial - a pit 10 feet deep was dug close to a paddy field without any difficulty, and whatever drainage would be caused by carrying a Canal through it, will thus be merely from the surface. I attach so much importance to securing this soil for the excavation of the Canal, that I would propose to adhere to the line of the swamp throughout, though the length of the Canal will be increased

19
by more than a mile, in consequence. If the line were deflected in the manner proposed by Mr Fraser the additional length would not be so much, but it is very desirable that the Sooronamookly should be crossed at or near the point selected by Captain Chambers, that is in tidal water and near the mouth of the Yalla Calwa, instead of at some point higher up, where the floods of the latter would prove very destructive to the Canal.

9 The line would thus pass near the village of Soonda-porram and be carried round so as to pass to the west of the village of Siddarum. The land is low and favorable throughout excepting for a short distance from the Yalla Calwa where the soil is sandy. Some stone

revetment will be required here, which need not be very expensive as a supply of stone can be obtained within a distance of six miles. The line should also be carried further to the west than Captain Chamber's proposed between the 19th and 20th mile - that is towards its junction with Krishna's backwater.

10 The cultivation along the swamp is carried on mainly in the following manner. The water is led to it by means of numerous small cuts in the sand ridge. Bunds are thrown across the swamp, and tanks are thus formed which furnish a supply for wet cultivation. The land in the swamp itself is mostly waste, -
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21 the principal cultivation is at the North and South ends. The excavation of the Canal would destroy these small tanks, and the wet cultivation thus deprived of its source of supply would have to be abandoned. I would recommend that the whole of it be taken up in the first instance on behalf of Government, and that, on the completion of the Canal, the area that is not actually occupied by the Canal, may be let out to the Ryots for such cultivation as it may be found to be suited. I believe that eventually there will be little or no reduction of the area of cultivation, but the Ryots will have to content themselves with such crops as can be raised by the aid of peccottah irrigation. There is no fear of cultivation being injuriously affected by the salt water

water in the Canal, near —
Tistnapatam backwater, we
observed paddy growing on the
level of tidal water with only a
small bund to prevent the fresh
and salt water intermingling.
The water in the Canal will
be several feet below the level
of the ground for almost the
entire distance between the Soo-
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11 There are some fine
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to the line of Canal for Casuarina
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23
the spoil banks of the Canal
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be conveniently retained within
Canal limits, for the formation
of a plantation.

I have the honor to
be, Sir,

Yours most obedt

J. Anderson

Fort St George
11 March 1855

Chief Engineer for
Irrigation

Public Works Dept. 25
No 1124

Proceedings of the Madras Government
Under date the 15th April 1868.

Read the following

From the Supy. Engr of the 4th Div. - (H.R. No 5609 of 16th March 1868)

Chief Engr for Irrigation - (H.R. dated 1st April 1868)

In November 1863,
Mr. Kennedy, the then
Executive Engineer in
charge of the East Coast
Canal, submitted, in
compliance with the or-
ders of Government,
plans with estimates
amounting in the ag-
gregate to Rs. 235,000
for the extension of the
Natham Canal from
Doogarazpatam to
Thietrapatam, a dis-
tance of about 19 1/4
miles.

The

PA 1858
No 1219

From
The Engr
for Engrs.

Dated 1st April 1868

Submitting his
views on the proposed
Canal from Doo-
garazpatam to
Thietrapatam -

No 1124-155 of April 1868.

PA 1868

PA 185

2 The country between these points was originally examined by Captain Chambers, who proposed that the line of Canal should, after crossing ^{the} Soorana, meekly at the 8th mile, deflect westward to a swamp, along which it should be carried from the 10th to the 18th mile. Mr. Kennedy did not advocate the adoption of this line on the ground of the serious injury which would result to a large area of valuable wet cultivation, - of the heavy compensation which would have to be paid for land and damage, and of the difficulty which

which, as he believed, would be experienced in excavating the Canal in the bed of the swamp, and he accordingly proposed to avoid the swamp altogether, and to carry the line nearly straight across the sandy waste lying between the swamp and the sea.

Believing that, under all the circumstances, the line chosen by Mr. Kennedy was the most favorable that could be adopted, the Govt. submitted his Estimate to the Govt. of India, whose sanction, as well as that of the Right Honorable the Secretary of State, was communicated in the orders marginally noted

Lj 6 No. 1084 - 15th April. 1864
" " 2244 - 5 Aug. 1864

The relative advantages of the alternative lines of Canal from Doogoo-pazpatam to Pishna-pollom was again discussed in the papers read in Proceedings of the 20th January 1865, No. 189, and doubts were thrown upon the expediency of adopting that recommended by Mr Kennedy; but the Government were unable to arrive at any proper decision with the information^{then} before them.

The question was, however, again brought under the notice of Government in the letter from the Supg Eng of the 4th Decr above recorded

and in order to its ^{and definitively} being finally settled Colonel Anderson, the Chief Engineer for Irrigation, was requested on the occasion of his recent visit to the Bellary District to inspect the country between Doogoo-pazpatam and Pishna-pollom, and to report his opinion of the direction in which the canal should be carried

The result of Col Anderson's examination is contained in the second of the papers above read, in which he expresses himself strongly in favor of Captain Chambers' line with a slight

deviation to the west-
ward for a short
distance near where
it joins the Krishnapatnam
backwater, as indicated
on the accompanying
plan.

On a full consider-
ation of the grounds
upon which Colonel
Anderson bases his
recommendation, the
Government approve
of the adoption of Col
Chamber's line where
it differs from Mr
Fleming's line, and
believing that the cost
of the Canal will not
be materially affected
by the change, they
direct that the work
be proceeded with on

31
on that line with the
modification suggested
by Colonel Anderson.

These Proceedings
will be communicated
to the Revenue Department
with a view to measures
being taken for obtain-
ing possession of the
land required -

To
The S. Engr^{2nd} Lt^{1st} Bn with 2 planes
Comdr
Rov Dept

44
Recd 16/4/08
+ Recd to the Supt Engr 4/5/08 only

931-131

Pub. Works 1868 Department

Pro. of Govt. for April

No. 1124

Pro. of the Madras Govt.
15th April 1868

Approving of the lines
proposed by Col. Chambers and
modified by Col. Anderson Esq.
for the extension of the East
Coast Canal from Coimbatore
to Tutnabad.

No. 182 @ 186

@ 186 April 1868.