1/145

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

5th March 1879, No. 669 W.

Buildings and Roads.
Civil Works.

Read the following paper :—

No. 87. Endorsement of the Acting Superintending Engineer, First Circle, dated Dowlaishvaram, 22nd February 1879, No. 141 V.Z.

From F. BRICKWELL, Esq., Executive Engineer, Vizagapatam Division, to the Superintending Engineer, First Circle, Dowlaishvaram, dated Waltair, 4th February 1879, No. 2,785.

I HAVE the honor to forward, herewith, a report on the damages done to roads, buildings, and irrigation works in the Vizagapatam Division by the cyclone of December 1878.

2. The probable cost of repairing these damages under each head will be as follows :—

	Rs.
Roads	25,176
Buildings	1,498
Irrigation	53,290

3. The submission of the above-mentioned report has been delayed pending information from Sub-divisional officers.

REPORT on the damages done to roads, public buildings, and irrigation works in the Vizagapatam Division by the late cyclone.

1. TRUNK ROAD FROM ANAKAPALLE TO TUNI.—Both north and south approaches to the Sarada bridge at Anakapalle have been destroyed and rendered quite impassable for traffic. In the town of Anakapalle the road was slightly damaged ; the flood rose 4·60 feet above crown of arches of the bridge and 3·06 feet on road surface at Anakapalle town. The road has been much damaged throughout, and breaches have occurred on the following miles :— 20th, 21st, 23rd, 29th, 42nd, 45th, 46th, 51st, and 55th ; side slopes and berms have been extensively gullied and destroyed, obstructing traffic at night. On all the miles the surface materials (metal and gravel) has been scoured out. The only masonry work damaged is a culvert on the 28th mile, and some rough stone aprons have been washed away in several places. At such places new slopes to the streams are required. An estimate of Rupees 4,486 for these emergent repairs has just been received from the Sub-divisional officer.

The damages done to the road are being repaired on emergency out of Rupees 1,000 allotted for the purpose by the Local Fund Board.

The reduced ordinary maintenance grant of this road is Rupees 2,800, of which Rupees 2,690 have been expended up to 31st December 1878.

2. TRUNK ROAD FROM ANAKAPALLE TO RAMPUR.—Most of the 21st mile has been entirely destroyed, though it was on a high embankment (above two yards in height). The 30th mile was breached in two places, one breach of twenty and the other of ten yards in length; the 33rd mile also is extensively breached, fully half the mile has been destroyed. On the 20th, 26th, 28th, 30th, and 31th miles, the greater portion of the surface material has been destroyed. The other miles have not been much damaged excepting the 29th, but the slopes to road dams generally require reformation to facilitate traffic. By the bursting of the Koduru tank belonging to the Maharajah the right side slope of the 29th mile has been much damaged. An estimate, amounting to Rupees 2,900, for these emergent repairs has just been received from the Sub-divisional officer.

No funds are available for repairing the damages done to this portion of trunk roads, the reduced ordinary maintenance grant, Rupees 5,110, having already been expended in full.

3. TRUNK ROAD No. VI BETWEEN RAMPUR AND CHITTIVALASA.—The damages done to this road are of a more serious nature, and although the traffic is not altogether interrupted it would be advisable to have the necessary repairs executed as soon as possible to prevent damages which may stop the traffic. The damages which would require immediate attention are the following:—

Between furlong stones 2 and 3 in the 8th mile the earthwork of the four wing walls of the first culvert to the extent of 48 yards has been washed away, leaving a space of about 6 feet of road between parapets. This is an embankment of about four yards in height, which makes the roadway dangerous for the passage of carriages, &c. Between furlong stones 3 and 4 in the same mile a similar damage was done to the earthwork of the four wing walls of the bridge to the extent of 120 cubic yards, and there also the road between parapets is only 6 feet wide. The embankment at the bridge is about 5 yards high, and the road there is as dangerous as in the previous case if not more; between furlong stones 6 and 7 in the 10th mile the same damage as above, to the earthwork of the culvert wing walls has been done to the extent of 36 yards. In the 15th mile the earthwork of the wing walls of the bridge has been washed away in the same manner to the extent of 180 cubic yards, but the road in that place is practicable.

Between furlong stones 5 and 6 in the 17th mile near the culvert the half of the road on the north-western side has been washed away for a length of four running yards.

Between furlong stones 1 and 2 in the 18th mile the earthwork of the culvert wing walls has been washed away to the extent of about 180 cubic yards, where the road is nearly cut through, excepting 3 feet breadth on the S.E. side.

Between furlong stones 2 and 3 of the same mile the road is entirely cut away for a length of 18 running yards, the embankment there being one and a half yards high; estimate is under preparation.

The work on this road has been stopped for want of funds, the reduced maintenance grant (Rupees 1,500) having been almost expended.

4. TRUNK ROAD BETWEEN CHITTIVALASA AND KANDIVALASAH RIVER.—This road has been greatly damaged. The estimate received from the Overseer in charge for repairing these damages amounts to Rupees 4,645, but owing to want of sufficient funds I have authorised the Overseer to fill breaches with earth and make the road passable for carts at a cost of Rupees 417, funds for which have been provided, leaving the remaining work to be done when funds are available. The estimate (Rupees 417) has been sanctioned by the Local Fund Board.

5. TRUNK ROAD FROM KANDIVALASAH RIVER TO CHICACOLE.—For two miles out of Chicacole the road is incomplete. No damage appears to have been done from 2nd mile to 7½ mile; road excellent. In 2nd furlong of 8th mile are two breaches, and the gravelling has been damaged. In 3rd furlong two more breaches, one a large and serious one; gravelling has also been damaged. From 7½ mile to 18th mile (Kandivalasah) no damage; and road is in good order.

An estimate of Rupees 769 for repairing these damages has been sanctioned by the Local Fund Board, and Rupees 200 have been allotted for expenditure on the work in this year.

There is no maintenance grant provided in the revised Local Fund Budget for this portion of trunk road.

6. ROAD FROM ANAKAPALLE TO AGUNUMPOODY.—Slightly damaged in 12th mile. The last 6 furlongs of 15th mile are extensively breached, and the surface material for most of the other miles has been displaced, and side slopes and berms injured. No masonry works have been

destroyed, and traffic can pass. An estimate amounting to Rupees 302 has been sanctioned by the Local Fund Board, but no funds have been allotted. I have authorised the Sub-divisional officer to proceed with the work to the extent as far as the expenditure can be met by saving from the grants for other roads.

The reduced maintenance grant for this road is Rupees 1,000, for which Rupees 818 have been expended up to December.

7. ROAD FROM AGANUMPOODY TO VIZAGAPATAM.—The damages done to this road are more considerable than any of the other roads in the Vizagapatam Sub-division. The necessary works to be executed immediately in order to open traffic are the following:—

At the ferry the road has been washed away in many places to the extent of 40 yards; this causes a great deal of inconvenience to the numerous carts, &c., which have to halt here until they cross the ferry.

Between furlong stones 1 and 2 in the 8th mile the road has been entirely cut away for a length of 18 yards. The embankment at the breach is 1½ yards in height.

Between furlong stones 2 and 3 in the 9th mile the road for a total length of 126 running yards has been badly injured. For a length of 33 yards it has been entirely washed away, and for the remaining length of 93 running yards is half cut though more or less. On the whole length the road is altogether impracticable. The amount of earthwork required to bring the road to the full width is about 1,500 cubic yards.

Between furlong stones 6 and 8 of the same mile the road has also for a total length of 224 yards been very badly damaged; within the above length two breaches of 40 yards and 28 yards have been made where the embankment is entirely gone. On the remaining portion of 156 running yards the road has been partly cut away, half the embankment more or less having been destroyed. The amount of earthwork required at that place to bring the road to the full width is about 2,000 cubic yards.

The work for repairing the above-mentioned damages has been put in hand. An estimate amounting to Rupees 377 has been sanctioned by the Local Fund Board, and funds to the extent of Rupees 300 allotted.

8. ROAD FROM VIZAGAPATAM TO VAMULAVALASAH AND CHITTIVALASA.—The damages done to this road are very slight, and the traffic is in no way interrupted. The only damages worth mentioning are the following:—

In the 4th mile near the junction of the road from Waltair with the Vamulavalasah road, the revetment 12 yards long and 2 yards high, on the east side of the road forming the prolongation of the culvert wing walls, has fallen down, and consequently the east side slope of the road has been washed away, but without much injury being done to the road. This damage has already been repaired.

In the 6th mile the revetment near Hanumathavaka bridge has in some places fallen down without much affecting the road.

In the 6th furlong of the 13th mile near the culvert the east side slope of the road for a length of 32 yards having been partly washed away, the road nearly remaining intact. The work on the road has been stopped for want of funds under the restrictive orders of the Government.

An estimate amounting to Rupees 397 has been received from the Overseer in charge who has been authorised to proceed with the work on emergency out of the Rupees 200 allotted for the purpose by the Local Fund Board. The orders issued by me have been to the effect that those parts of the road by which the troops were about to march should be made passable for carts at once. The breaches to be filled in by earthwork 12 feet wide at top beyond which the funds at disposal will not, I think, allow of our going.

It will be seen that under this order trunk road No. VI between Anakapalle and Chittivalasa *viâ* Rampore will be left untouched and work done on Aganumpoody Branch road, Vizagapatam and Chittivalasa road, paragraphs 7 and 8, as these are the Military lines.

It will be observed from the above report that the amount of Local Funds allotted under the revised budget is insufficient for the repairs of the main line of communication between north and south of the district, and that all other works must be left untouched until a fresh allotment is available.

9. PUDIMADAKA BRANCH ROAD.—The first six miles are impassable for traffic and very extensively breached. The whole of the surface material on this section has been displaced. From 7th to 13th mile the road is only slightly breached. A large embankment has been washed away near Pudimadaka; only one small road dam has been destroyed on the 2nd mile 8th furlong.

An estimate amounting to Rupees 1,224 has been sanctioned by Local Fund Board for repairing these damages, but owing to want of funds the Sub-divisional officer has been authorised to proceed with the work to the extent as far as the expenditure can be met by savings from

the grants already placed at his disposal for other roads. The reduced maintenance grant (700) for the road has been almost expended.

10. ROAD FROM SUBBARAM TO VENKANNAPALEM.—Some small breaches have been formed in the 2nd and 4th miles; the left slope of the 8th mile has been washed away by a hill torrent, and its present state is dangerous to night traffic. An emergent estimate for the work amounting to Rupees 219 has been sanctioned by the Local Fund Board, but no funds. I have authorised the Sub-divisional officer to go on with the work to the extent as far as the expenditure can be met by savings from the grants for other roads.

The reduced maintenance grant (Rupees 540) for the road has been expended.

11. ROAD FROM NARSAPATAM TO THALLAPALEM.—One stable drain was destroyed on the 1st mile and road dams on the 11th and 13th mile partly so, whilst a road dam on the 12th mile was totally destroyed. The south approach to e Mamidevaka Gedda on the 15th mile was extensively damaged, and a large deposit of sa as covered the adjacent fields. The approaches to the river on the 8th mile have been much in d, and the gravel on the 1st, 2nd, and 8th and 10th miles has been displaced, and the side slo and berms injured. The 16th and 17th miles were also breached.

An estimate (Rupees 544) has just been received from the Sub-divisional officer for repairing the damages. Most part of this estimate can be met from the ordinary reduced maintenance grant (Rupees 2,050) of the road.

12. ROAD FROM ANAKAPALLE TO CHODAVARAM.—The 1st, 2nd, 3rd, and 10th miles are badly damaged and almost require renewal. The 7th mile is also breached in a few places. On the 10th mile six arches out of a nine arch bridge across the Sarada river have been totally destroyed and three arches only remain on the south side. The 4th, 5th, 6th, 8th, 9th, and 11th miles are not much damaged; no other masonry works have been damaged.

An estimate amounting to Rupees 3,403 has just been received from the Sub-divisional officer for repairing the damages to the road only. No funds are available. The reduced maintenance grant, Rupees 1,950, of the road has been expended.

13. ROAD FROM NARSAPATAM TO POLARUM.—Partial breaches on the miles from 3rd to 20th of greater or less dimensions; road dams extensively damaged throughout. The probable cost of repairing these damages will be Rupees 10,000, but no estimate has yet been received from the Sub-divisional officer. No funds are available, the ordinary reduced maintenance grant having been expended.

14. ROAD FROM NARSAPATAM TO GOLGONDA.—One small breach in 1st mile and one large breach in 2nd mile. Gravel washed off extensively in the last five miles, but it does not obstruct traffic. The probable cost of repairs will be Rupees 300. No estimate has yet been received. No funds are available. There is no maintenance grant in the revised budget for this road.

15. ROAD FROM VIZIANAGRAM TO THE JUNCTION OF TRUNK ROAD AT MADAVALASAH.—The road has been damaged in the 7th, 8th, 9th, 10th, 11th, 14th, 15th, and 16th miles. An estimate of Rupees 189 has been sanctioned by the Local Fund Board for repairing the road, and funds have been allotted to the extent of the estimated amount.

16 and 17. GAMBERAM BRANCH ROAD AND ROAD FROM BIMLIPATAM TO CHITTIVALASAH.—On the above two roads the damages done are insignificant, and their existence do not in any way interrupt the traffic. The only damage worth mentioning is that done to the south slope of the road near the culvert in the 7th furlong of the 18th mile on the Gamberam branch road. This slope and the revetment wall for a length of 54 running yards have been washed away, but the road has not been much injured. This damage is being repaired.

An estimate (Rupees 340) has been sanctioned by the Local Fund Board for repairing the damages done to the road between Bimlipatam and Chittivalasah and Rupees 300 have been allotted. A sum of Rupees 100 has also been allotted by the Local Fund Board for repairing the road between Bimlipatam and Gamberam.

18. ROAD FROM CHICACOLE TO PALKONDA.—Twenty-fourth mile 5th furlong (from Chicacole), gravelling destroyed.

Twenty-fourth mile, 2nd furlong, two large breaches, the whole of this furlong destroyed.

Twenty-fourth mile, 1st furlong, large breach.

From 21st mile to 24th mile the roadway is continuously cut up, gravel and metal have been carried away, and the whole road is very rough and in extremely bad state.

From 21st mile to 14th mile (where the Vizagapatam District ends) the road is excellent, also to within four miles of Chicacole, but these four miles are badly damaged.

An estimate amounting to Rupees 704 has just been received from the Sub-divisional officer for repairing the above-mentioned damages, but no funds are available. The reduced maintenance grant of the road has been expended.

19. ROAD FROM PALKONDA TO VEERAGOTTUM.—In 2nd furlong 14th mile parapets of 6 feet vent culvert carried away. In 4th and 5th furlongs 12th mile slopes of the road slightly damaged by deep side drains, the water in which has also partially undermined a small tunnel in 4th furlong.

Metalling damaged in last half of 3rd mile.

From 11½ miles to 3 miles and 2 miles to Palkonda the road is in excellent condition.

An estimate amounting to Rupees 1,138 has been sanctioned by the Local Fund Board for repairing these damages, but owing to want of funds I have authorised the Sub-divisional officer to proceed with the work to the extent as far as the expenditure can be met by savings from grants for other works. There is no maintenance grant for this road in the revised budget.

20. ROAD BETWEEN PARVATIPUR AND VEERAGOTTUM.—In the first quarter of the 13th mile the road has been breached in two places for a length of 56 yards and 42 yards, and the gravelling has been damaged in two places for a distance of 10 yards and 92 yards.

In the 21st mile the gravel has been damaged for a length of 47 yards and in the 24th mile for a length of 110 yards.

An estimate amounting to Rupees 387 has just been received from the Sub-divisional officer for repairing the above-mentioned damages. No funds are available. There is no maintenance grant for this road.

21. ROAD FROM VIZIANAGRAM TO PARVATIPUR.—There are large breaches in the 13th, 14th, 15th, and 16th miles. Between 19th mile and 26th mile no damage has been done to the road. In the last quarter of the 27th mile the road has been denuded of gravel over half of its breadth for a length of 25 yards and has been breached for a length of 8 yards.

An estimate amounting to Rupees 828 for repairing this section (from 8th to 30th mile) has just been received from the Sub-divisional officer.

At 30⅝ miles, there is a large breach, and the road has been carried away over half its breadth for about 20 yards.

At 31¾ miles there is a breach close to a tunnel, one of whose wing walls (previously slightly damaged) has been half carried away. Much of the backing and filling in has also been destroyed.

At 32⅝ miles the road has been half carried away, and close by is a large breach.

At 33¼ miles there is a large breach 40 yards long. At 36 miles half the road has been destroyed for a short distance. At 37 miles 3 furlongs the road slopes have been washed away, also in the 4th and 6th furlongs of the same mile.

In the 6th furlong of the 41st mile there is a breach, also in the 5th furlong of the 43rd mile, and another breach in the 6th furlong of the same mile.

In the 44th and 45th miles the gravel has been washed off in two places. In this section (from 30th to 45th miles) an estimate amounting to Rupees 870 has just been received.

In the section (from 45th to 53rd miles) no appreciable damage has been done.

The total probable cost of repairing the damages done to the Vizianagram-Parvatipur road will be Rupees 1,698, but no funds are available for these repairs.

The reduced maintenance grant for this road is Rupees 5,238, of which Rupees 1,835 have been expended up to December 1878. After the estimate for repairing the damages has been sanctioned by the Local Fund Board the Sub-divisional officer will be asked to go on with the work, provided he can meet the outlay from the unexpended maintenance grant of the road.

22. ROAD FROM SALUR TO RAMABADRAPURAM.—No damage has been done to this road except in a couple of places in the 3rd mile where the gravel has been washed away, leaving the metal bare.

An estimate amounting to Rupees 54 has just been received from the Sub-divisional officer for repairing the damages, but no funds. The reduced maintenance grant of the road has been almost expended.

WALTAIR,
February 1879.

(Signed) F. BRICKWELL,
Executive Engineer, Vizagapatam Division.

VIZAGAPATAM DIVISION.

List showing the names of roads, the cost of repairing damages, and the amount provided for them.

No.	Name of Road.	Amount of Estimate.	Amount provided.	Balance to be provided.	Remarks.
		Rs.	Rs.	Rs.	
1	Trunk road from Anakapalle to Tuni	4,486	1,000	..	
2	Do. from Anakapalle to Rampore ..	2,900	..	..	
3	Do. from Rampore to Chittivalasah ..	..	..	..	
4	Do. from Chittivalasah to Kondivalasah river.	4,845	447	..	Estimate under preparation.
5	Road from Anakapalle to Agnumpudy ..	769	200	..	
6	Do. from Agnumpudy to Vizagapatam ..	302	..	..	
7	Do. from Vizagapatam to Chittivalasah *via* Vamulevalasah.	377	300	..	
8		397	200	..	
9	Do. from Anakapalle to Pudimadaka ..	..	..	..	
10	Do. from Sabbanam to Venkannapalem ..	1,224	..	..	
11	Do. from Narsapatam to Thallapalem ..	219	..	..	
		514	..	..	
12	Do. from Anakapalle to Chodavaram ..				Most part of the estimate can be met from the maintenance grant of the road.
13	Do. from Narsapatam to Polarum	3,403	..	..	
14	Do. from Narsapatam to Golcondah ..	1,000	..	..	
15	Do. from Vizianagram to the junction of trunk road at Madavalasah.	300	..	..	Estimate not yet received.
16	Do. from Bimlipatam to Gamberam ..	189	189	..	Do. do.
17	Do. from do. to Chittivalasah	100	100	..	
18	Do. from Chicacole to Palkonda	340	300	..	Do. do.
19	Do. from Palkonda to Veeragottum	704	..	..	
20	Do. from Veeragottum to Parvatipur	1,138	..	..	
21	Do. from Parvatipur to Vizianagram	387	..	..	
22	Do. from Ramabadrapuram to Salur	1,698	..	..	
		54	..	..	
	Total ..	25,176	2,706	..	

List showing the names of buildings damaged and the probable cost of damage.

No.	Name of Work.	Probable Amount of Damage.	Remarks.
	BUILDINGS.		
	Provincial.	Rs.	
1	Sub-Magistrate's Cutcherry at Anakapalle.	100	This building was flooded with water 1½ feet in depth. Tiles were displaced in a few places and mats were ruined. The parapets to culvert under construction at entrance gate were washed away.
2	Tahsildar's Cutcherry at Yellamanchelly.	250	The roof to ryots' shed fell in. The tiles to roof of main building and out-houses were displaced in a few places. The mud walls to latrine have partially fallen in.
3	Range Officer's bungalow at Yellamanchelly.	118	Kajans to roof partly blown away of bungalow and out-houses. Roof of stables fell in altogether.
4	Overseer's shed at Yellamanchelly.	150	End walls to bungalow partly destroyed. Roof is much damaged. Materials are partly blown away. In its present state the building is uninhabitable. The out-houses are mostly unroofed and walls much damaged.

List showing the names of buildings damaged and the probable cost of damage—*continued.*

No.	Name of Work.	Probable Amount of Damage.	Remarks.
	BUILDINGS—*continued.*		
	Provincial—continued.	Rs.	
5	Sea-Custom house and Superintendent's office at Pentacottah.	95	Damage is confined to the destruction of flat and pan tiles from a portion of the roofs and the disfigurement of the walls from rain water.
6	Police station at do. ...	46	
7	Master Attendant's office at Pentacottah.	35	
8	Sub-Jail at Salur	54	The east compound wall of the jail has been completely undermined by a drain running underneath it. The drain should be converted into a covered stone one and the earth banked up against the wall again. This would cost 35 or 40 Rupees.
9	Police lines and station-house at Maduravada.	218	
	Total, Provincial ...	1,066	
	Local.		
10	Travellers' bungalow at Sabbavaram.	150	25 yards in length of compound wall adjacent to cook-room destroyed. The tiling of roof of bungalow and out-houses has been displaced to some extent.
11	Civil Dispensary at Anakapalle.	50	Upwards of two feet of water came inside of this building; damage is confined to the sinking of the verandah pavement on the south side, and the displacement of a few tiles.
12	School-house at Anakapalle ...	50	About three feet of water came into this building. Damage is confined to plaster of verandah floor and disfigurement of white-washed walls.
13	Travellers' bungalow at Nakkapilly.	148	Tiling to cook-room and stable slipped for the greater portion.
14	Bungalow at Ramabhadrapuram.	34	This building has been slightly damaged in the bath-room, wall and four verandah pillars have suffered slightly, and also the cook-room rear wall has partially fallen down. The cost of repairing these damages will not be more than Rupees 20. The building has just been repaired at a cost of Rupees 300. The walls, however, are perfectly rotten in many places owing to the attacks of white-ants. In Bobbili and Parvatipur a large quantity of materials collected for repairs and construction of buildings have been damaged, but no buildings have suffered any damage except the Police quarters at Parvatipur, a wall of which has partially fallen down owing to the roof having been taken off for reconstruction.
	Total, Local ...	432	
	Total, Buildings ...	1,498	

(Signed) F. BRICKWELL,
Executive Engineer, Vizagapatam Division.

COPY forwarded to the Chief Engineer for Roads and Buildings for information.

(Signed) B. H. YOUNG, Asst. Engr.,
Asst. to the Supg. Engineer,
for Ag. Supg. Engr., First Circle.

No. 88. ORDER THEREON, 5th March 1879, No. 669 W.

RECORDED with reference to G.O., No. 422, dated 19th February 1879, in the Revenue Department.

(True Extract.)

Colonel, R.E.,
Ag. Secy. to Govt., P.W.D.

To the Superintending Engineer, First Circle.
" Revenue Department.
" Financial do.

Exd. C. Howarth.
Spare Copies

Revenue Deptt
No 3041

BUILDINGS AND ROADS.
CIVIL WORKS.

Mis

Govt. of (1879) Madras.

PUBLIC WORKS.

To

The SUPERINTENDING ENGINEER,
FIRST CIRCLE,
&c., &c., &c.

Dated March 1879.

Issued

Recd. 9th April 1879.

G. O., 5th March 1879, No. 666 W.

MADRAS.

Nos. 67-96.

5814

1000 Rupees.

Damages done to Roads, Buildings, and Irrigation Works in the Vizagapatam District by the Cyclone of December 1878.—Report on the —, received.

No 1450
Communicated to
The Revenue Board
9-4-79. S.M.V.R.

16 Letter to Revenue Dept. No. 1450 - 79.

No 1450