FIFTEENTH KERALA LEGISLATIVE ASSEMBLY

COMMITTEE
ON
PUBLIC ACCOUNTS
(2021-2023)

FOURTH REPORT

(Presented on 16th March, 2022)

SECRETARIAT OF THE KERALA LEGISLATURE
THIRUVANANTHAPURAM

2022

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on

Paragraphs relating to Public Works Department contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015 (Economic Sector).

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INTRODUCTION

I, the Chairman, Committee on Public Accounts, having been authorised by the Committee to present this Report, on their behalf present the Fourth Report on paragraphs relating to Public Works Department contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015 (Economic Sector).

The Report of the Comptroller and Auditor General of India for the year ended 31st March 2015 (Economic Sector) was laid on the Table of the House on 28th June 2016.

The Committee considered and finalised this Report at the meeting held on 11th March, 2022.

The Committee place on records their appreciation of the assistance rendered to them by the Accountant General in the examination of the Audit Report.

SUNNY JOSEPH,

CHAIRMAN,

COMMITTEE ON PUBLIC ACCOUNTS.

Thiruvananthapuram,

16th March, 2022.

REPORT
PUBLIC WORKS DEPARTMENT

[Audit paragraph 5.5 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Inadmissible payment to contractor on balance items of bridgework

Irregular revision of rate of items mentioned in the agreement schedule by treating them as extra items and non-availing of agreed tender rebate while making payments thereon to the contractor resulted in undue benefit of ₹1.09 crore to the contractor.

As per clause 23 (e) of Notice Inviting Tenders (NIT), extra items of work are those which are not expressly or impliedly described in the schedule, plans or specification. Those items of work which though highly necessary for the proper execution of the work and its completion, if not provided for in the original contract, can be treated as 'extras'.

Further, as per Clause 3 (b) of NIT, the overall percentage rate accepted and specified in the agreement shall not be varied on any account whatsoever.

The Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) had awarded[2] (April 2009) the work "construction of bridge at Varamkadavu in Chelora Grama Panchayat in Kannur district (balance work)" to a contractor[3] at 21.80 per cent below estimated amount of ₹2.64 crore.

2 SE (K) 5/2009-2010 dated 17April 2009

3 Sri TA Abdulrahiman, Kasaragod

The items of work included in the original agreement schedule for formation of approach roads to the bridge structure which was completed in March 2005 consisted of earthwork for forming high embankment for approach roads, and ground improvement works using non-woven geo-textiles, woven geo-textiles and Pre-fabricated Vertical Drain (PVD).

During execution of the work, these items were treated as extra items and their rates enhanced, by executing (November 2009/March 2010) Supplementary agreements by the SE with the contractor. The contractor had agreed to execute these extra items at 21.80 per cent below estimate rate. The work was completed in May 2011. The contractor was paid an amount of ₹ 3.81 crore in five part bills as of December 2015.

Audit scrutiny revealed that:

• The above items of work were expressly mentioned in the Agreement executed by the contractor for the balance work. So, as per clause 23 (e) of NIT, they could not be treated as extra items. However, in violation of this provision, SE had treated them as extra items and revised (November 2009/March 2010) their rates.

• The Executive Engineer, PWD Roads Division, Kannur, (EE) did not apply tender rebate from the payments made to the contractor on the extra items, even though it was agreed in the supplementary agreements executed. This was in violation of the rules on application of overall tender percentage contained in the NIT.

The above violations resulted in inadmissible payment of ₹1.09 crore to the contractor, which amounted to undue benefit extended to him, as shown in the table below:

Description item in Agreement	Up to date quantity	Agreed rate after	Revised rate used for	Undue benefit to the

	executed	applying tender rebate	payment without tender rebate	contractor (in ₹)
(1)	**(2)**	**(3)**	**(4)**	**[2 x (4-3)]**
Earth work filling with all classes of soil suitable for forming high embankment...	54174.38 m^3	₹ 1516/10m3 (1939, less 21.80 %)	2,424/10 m^3	49,19,033.70
Providing and laying non-woven geo-textile fabric...	6332.08 m^2	₹ 55.91/m2 (71.5, less 21.80%)	88 m^2	2,03,196.45
Providing and laying woven geo-textile fabric...	4380.78 m^2	₹ 59.82/m2 (76.5, less 21.80%)	89.78 m^2	1,31,248.17
Providing and laying non-woven geo-textile fabric under water...	800 m^2	₹ 55.91/m2 (71.5, less 21.80%)	88 m^2	25,672.00
Providing and installing flexible pre-fabricated vertical drain...	130392.10 m	₹ 66.47/m (85, less 21.80%)	109.92/m	56,65,536.75
Total undue benefit to the contractor				**1,09,44,687.07**

When the matter was pointed out (June 2013), Government replied (October 2014) as under-

- revision of rates in earthwork was in lieu of wastage of earth during execution. Further, the estimate rate for earth work was adopted without applying tender rebate, as it was an extra item, and;
- the ground improvement materials viz., geo-textiles and PVD, were brought from abroad and that an approximate rate taken from earlier

executed work was adopted in the estimate. But, when order was placed for these materials at the time of execution, their rates had increased. Further, these were not items included in the Schedule of Rates, but were market rate components for which tender variation was not applied.

The reply of Government was not tenable due to the following reasons:

- Earthwork for formation of approach roads was an item expressly provided in the original agreement schedule. Hence, revision of its rate by treating it as an extra item was a violation of the condition of NIT. Moreover, the contractor had clearly agreed in the supplementary agreement that the tender rebate of 21.80 per cent was applicable for this extra item.
- Similarly, the items for ground improvement work were also expressly provided for in the schedule of the balance work. So, the contractor had quoted his rates accordingly with tender rebate. Hence, classifying them as extra items of work and enhancing their rates was a clear violation of the NIT provision.
- Further, as per NIT, it was the duty of the contractor to ensure availability of materials before quoting his rates. Hence, the contractor was not eligible for rate revision on account of non-availability of materials and variation in market rates. In this case also, the department failed to avail the benefit of tender rebate agreed by the contractor.

Thus, the action of the Department in enhancing the rates of items expressly mentioned in the agreement schedule by treating them as extra items in violation of the NIT provisions and non-availing of agreed tender

rebate on those items resulted in extending an undue benefit of ₹1.09 crore to the contractor.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

1) Regarding the audit objection on inadmissible payment of ₹1.09 crore to the contractor by treating the items mentioned in the agreement schedule for the construction of Varamkadavu bridge as extra items and non availing of agreed tender rebate, the Committee enquired why the soil investigation had not been conducted and how the TS had been issued without considering the conditions of soil and the length of approach road. The Chief Engineer (NH), PWD answered that the original administrative sanction was issued on the total amount based on a rough cost estimate for the work without any detailed investigation. He added that the technical sanction was issued based on a detailed estimate but the length of approach road was not considered.

2) The Committee noticed that a higher cost had been incurred as the approach road was built at marshy areas. To a query regarding the action of the department in granting administrative sanction to the second work, the Chief Engineer (N.H) PWD, replied that the work of bridge proper was done by KSCC in 2005 but the work for raising up the approach road was terminated due to the sinkage of soil. Later agreement was executed by arranging the work of the approach road as balance work excluding the bridge proper.

3) He added that provision for the approach road was incorporated in the original work estimate. But minimum abutment height was specified in it. In technical sanction, a higher amount than that in the administrative sanction was provided for the work of bridge. But minimum provision for the approach road was given in the T.S. as the details of the work were not prepared. At the time of building the approach road the sinkage of soil was happened and KSCC demanded additional amount for the same and hence they were terminated from the work. The Committee expressed its displeasure over the attitude of the officials for not citing these matters in the RMT and for not submitting the concerned file at the time of audit.

4) The official from the office of Accountant General informed that audit observation was only on the balance work that was done without proper estimation and proper investigation. The Committee expressed its dissatisfaction over the termination of KSCC from the original work at risk and cost.

5) The Committee pointed out that the TS was issued without considering even the soil condition and the length of approach road, and the work which were expressely mentioned in the agreement schedule were treated as an extra item of work. Besides, non-availing of agreed tender rebate while making payments thereon to the contractor resulted in undue benefit to the contractor. The Committee directed the Department that a detailed report should be submitted within one month regarding the urgent situation behind issuing of TS, without considering the soil condition and in violation of NIT rules. The Joint Secretary, PWD assured to do so.

6) When enquired about the already worked out rate in the detailed estimate and the revised rate, the Chief Engineer, replied that the second work had done after 5 years from the original tendering and later when the

balance work was tendered there was a provision for using modern technologies like Prefabricated Vertical Drains with Geo textiles for soil treatment. He added that when the earth filling was done for the completion of embankment construction, unaccounted sinkage of soil had occured and subsequently an expert opinion from a Chennai based Geo-tech agency had been sought. The Chief Engineer also stated that since the material for PVD was imported from Malasia, the rates were varied in tune with the exchange rates. The contractor approached the Government to get it done at market rate. Subsequently the work was treated as extra items and revised their rates and the same was approved by the government.

7) The Committee directed the department to submit a detailed report on the matters deliberated above and the Joint Secretary, PWD agreed that it would be furnished within one month.

[The additional information submitted by the government on the above audit paragraph was considered by the Committee at its meetings held on 14.01.2020 and 22.01.2020]

Excerpts from Committee's discussion with department officials.

8) Regarding the construction of Varamkadavu bridge, the Committee enquired about the sanctioning of T. S. before completing soil investigation and revision of rates by considering earth works as additional work which was a clear violation of terms and conditions. The Secretary, PWD replied that rates were increased because new technology was used for the construction of vertical drains and fender piles.

9) The Chief Engineer (Bridges) explained the construction work of the Varamkadavu bridge. The work consisting of 476 m length bridge proper and approach road was under taken by Kerala State Construction Corporation Ltd.

The Construction of bridge structure was based on sub soil investigation done at abutment and pier points. Though the approach road was passing through water logged, marshy areas no sub soil investigation was done. The administrative sanction for the construction of bridge was obtained on the basis of rough cost estimate without any detailed sub soil investigation in respect of approach road. As the proposed site was found unable to bear extra weight, KSCCL not only comply the direction put forth for soil investigation but also requested to increase the estimate rate as well. When detailed investigation was conducted, there was a change in design parameters and in addition to this, pre-fabricated drains, woven and Nonwoven Geo Textile materials etc. had to be provided, thereby increasing the estimate rate.

10) The committee enquired whether there was any provision in PWD norms to tender a work based on rough estimate. The Chief Engineer informed the Committee that earlier, work was tendered with a rough estimate and the detailed design was submitted later. He further informed that this particular issue was in 2005 and now work cannot be tendered using rough estimate.

11) The Committee wanted to know how the detailed project report and detailed estimate was prepared. The Chief Engineer informed that it was prepared after conducting investigation and in this case investigation was done for Bridge proper and immediate approach construction.

12) When Committee enquired whether soil testing and detailed investigation was done as per PWD norms in this case, the Secretary, PWD replied that technical sanction was given only after all these procedure, and in this case detailed investigation was done for bridge proper and immediate approach road. The question of the Committee to clarify whether soil investigation was conducted as a part of investigation, the witness Executive

Engineer (Bridges), Public Works Department answered that detailed investigation was done for the place allotted for bridge proper but soil testing was not done for approach road construction.

13) The Committee acknowledged the fact that sometimes administrative sanction was provided considering rough estimate, and it was not unusual that AS amount may increase when soil testing is done due to presence of rocks or water logged area. The Committee also opined that estimate could be revised in cases where the land could not be acquired within the agreement period due to some unexpected works. But the Committee strongly commended that sanctioning TS according to a rough estimate cannot be justified and criticized the department for not following proper tender procedure.

14) The Committee wanted to know whether separate estimate was prepared for bridge proper and approach road for which Executive Engineer (Bridges) replied that both could be completed within a single estimate. He further informed the Committee that changes in foundation and piller of bridge may affect the estimate amount and the rate difference is usually rectified through revised estimate.

15) The Committee pointed out that the mentioned work was carried out violating PWD norms, without proper investigation or detailed estimate.

16) When enquired about the bill payment details, the Executive Engineer apprised the Committee that final bill had not been produced and that payment for the remaining amount is pending. The Committee then asked about the reason for not producing the final bill, the amount remaining to be settled; the total estimated amount and the difference in amount when the estimate was revised. The Executive Engineer informed that the total estimate was 21.15 crore which included 18 crore for bridge proper and 3.15

crore for approach road which later increased to 22.50 crore. To the question of the Committee when the construction of bridge was completed, the witness Executive Engineer (Bridges) replied that the work was completed in 2010 and that the bill was submitted in the same year itself.

17) The Committee expressed its displeasure to know that some files related to the above case seems missing as all files were not handed over to PWD from KSCCL. The Secretary, Public Works Department informed the Committee about the fact that the construction of Varamkadavu bridge was taken up by Kerala State Construction Company Limited and that they had not completely claimed their amount. He added that the work had been completed within 7 months as per the order of Hon'ble Highcourt and Chief Engineer had approved the design and there was no objection regarding the procedure of the work.

18) The Secretary, Public work department informed the Committee that the discrepancy came up as they used the latest technology available at that time for the construction, which accordingly increased the total estimate cost. The Committee enquired whether new technology was applied after the work was awarded and the agreement was signed.

19) The Chief Engineer (Bridges) Public Works Department informed the Committee that the total cost increased when land spanning has to be conducted due to deficiency of soil as well as when construction work had to be done through wet land. He added that similar instance could be identified in KIIFB project, Konnayil Kadavu where the construction work was dropped due to miscalculation in selection of appropriate site for construction.

20) Expressing dissatisfaction in the reply furnished by the department, the Committee criticised the department in according administrative sanction for construction of Varamkadavu Bridge and approach road without proper soil

investigation and in allowing inadmissible payment to contractor by treating the earth works as extra item. The Committee directed the department to avoid such delinquencies and to take strict measures not to repeat such instances in future.

Conclusions/Recommendations

21) The Committee criticised the department in according administrative sanction for construction of Varamkadavu Bridge and approach road without proper soil investigation and in allowing inadmissible payment to the contractor by treating the earth works as extra item. The Committee directs the department to avoid such delinquencies and to take strict measures not to repeat such instances in future.

[Audit Paragraph 5.6 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Disallowance of re-imbursement claim by MoRTH

Execution of original works without prior approval of MoRTH by treating them as ordinary repair works resulted in rejection of reimbursement claim of ₹68.10 crore besides foregoing agency charges of ₹6.13 crore.

The Ministry of Road Transport and Highways (MoRTH) is primarily responsible for development and maintenance of National Highways (Nhs). The activities are monitored by the Regional Office of MoRTH in each State. The actual work of construction of NH is entrusted to State Government on agency basis under the provisions of Article 258 of the Constitution of India for which nine per cent agency charges are claimed by State Government from MoRTH. The role of State Government is confined mainly to maintain,

upgrade and improve the riding quality of existing NHs and carry out ordinary annual repairs.

Up to 31 March 2003, the State Government was to initially incur expenditure on construction and maintenance of NHs and then get it reimbursed from MoRTH. With effect from 1 April 2003, the system was changed to Direct Payment Procedure (DPP) by MoRTH for all NH works under the major head 5054 and Special repair and periodical renewal / Improvement of Riding Quality works under major head 3054. The transactions under DPP, therefore, do not involve the State Government budgetary system. For Ordinary Repairs (ORs) and Flood Damage Repairs (FDRs), the previous system was continuing. As such, the NH works undertaken as ORs and FDRs do not require prior sanction by MoRTH before execution.

Scrutiny of records (between December 2011 and October 2015) in five offices[4] of NH wing of Public Works Department (PWD) revealed that 17 works were executed during the period 2011-12 and 2014-15 treating them as ORs, based on the sanctions of State Government only and claimed reimbursement from MoRTH (between January 2012 and June 2014) projecting them as ORs. The MoRTH disallowed (between March 2012 and September 2014) the claim for reimbursement stating that the works executed were not ORs but Original Works requiring prior sanction of MoRTH before execution. The claims thus disallowed amounted to ₹68.10 crore which the State Government had to bear from its own budgetary resources. Besides, the State also could not claim agency charges amounting to ₹6.13 crore.

Thus, the department failed to adhere to the guidelines of MoRTH

4 NH Division Kannur, Kodungallur, Kozhikode, Moovattupuzha and NH North Circle Kozhikode.

while making claim for reimbursement of expenditure incurred on the maintenance of NHs and consequently burdening the State exchequer to the extent of ₹74.23 crore.

Government replied that the department had arranged the works due to poor condition of NHs in the State and inadequacy of funds/sanction from Government of India. It was also stated that the works undertaken were ORS not requiring prior sanction from MoRTH. The reply is not tenable as the works executed were not Ordinary Repair works but were Original Works as remarked by MoRTH while scrutinising the claim for reimbursement. Further, these Original Works required prior sanction from MoRTH.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

22) The Chief Engineer (N.H) informed that during the period 2011-12 and 2014-15, there had been public protest over deplorable conditions of NH in the state, and the work were arranged on the basis of two G.Os charging to state exchequer and later of claim of ₹68.10 crore was submitted to MoRTH for re-imbursement. But the claim was rejected by MoRTH stating that the works executed were not ordinary repairs but original works requiring prior sanction of MoRTH before execution. Later the amount was written back as per C&AG's direction. Then the AG directed for the additional authorisation in the head of account '3054' when the chances of reimbursement became rare. Then the government additionally authorised ₹20 crore during 2013, and the remaining ₹40 Crore during the last year. For a query of the Committee on the amount of Central government allocation for NH maintenance, the witness replied that Central Government

allotted ₹12 crore for ordinary repair and ₹77 crore for major repair. He added that the department had arranged works due to poor condition of NHs and inadequacy of funds recieved from Government of India and the works undertaken were ORs not requiring prior sanction from MoRTH. The Committee remarked that a procedural lapse was vivid in the whole process. When a meeeting was convened by the Principal Secretary, PWD no representative of NHAI was invited. The issue could have been avoided had proper communications with the central government authorities were carried out.

Conclusion/Recommendation

23) No Comments.

[Audit Paragraph 5.7 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Awarding work without tender and providing undue benefit to a contractor

The execution of work without tender process and unwarranted revision of agreed rates by PWD extended undue benefit of ₹ 92.32 lakh to the contractor.

As per Para 2003 of Kerala Public Works Department Manual, works shall normally be awarded through open tenders after getting administrative and technical sanction and ensuring provisions of funds in the Budget.

Secretary to Government, PWD sanctioned (December 2012) re-construction of the partially collapsed Menonpara bridge across Korayar river in Nattukal- Velanthavalam State Highway in Roads Division,

Palakkad through M/s. Kerala State Construction Corporation Limited (KSCC) without inviting tender at an estimated cost of ₹ 10.15 crore to avoid delay in tendering process. The Superintending Engineer (Roads and Bridges), North circle, Kozhikode(SE), awarded (January 2013) the work to KSCC at a cost of ₹9.31 crore. The site was handed over (January 2013) to the contractor for completion of work in 18 months. PWD revised (March 2013) the sanction to ₹18.30 crore after including road improvement work of nine kms in place of three kms originally estimated. The work was completed in May 2014. The contractor was paid ₹17.49 crore up to June 2015.

One of the items of work included in the agreement schedule for the construction of bridge was “Boring through all classes of soil for cast in situ bored piles with concrete mix M25, 1.20 metre internal diameter anchoring of pile in rock for a minimum depth of 50 centimetres etc”. The work involved construction of 28 piles, 12 piles for piers each having an average depth of nine metre and 16 piles for abutment each having an average depth of 10 metre. The total length of piles was estimated to be 270 m and the agreed rate was ₹16,344 per metre. However, during actual execution, Chief Engineer, PWD Roads and Bridges (CE) revised (May 2013) the rate of the above item from ₹16,344 to ₹34,017 per metre citing reasons such as increase in average depth of piles from nine to 19 m due to non availability of hard rock at the estimated depth, error in calculation of hire charges for piling plant and use of M Sand[5] due to scarcity of river sand. CE sanctioned (May 2013) the rate of above item as 'extra item’ and SE executed (June 2014) a SupplementaryAgreement for a total length of 549.85 m. An amount of ₹1.87 crore was paid (July 2014) to the contractor for the 'extra item.

5 Mineral sand – This is at times used as an alternate for river sand.

Audit scrutiny (February 2014) revealed the following:

- The bridge had collapsed in August 2010 and the Government decided to take up re-construction work only after a lapse of two-and-a-half years of collapse. Awarding of work to KSCC only without inviting open tenders after two-and-a-half years was lacking not only in justification but it was also against manual provisions which advocate transparency in selection of bidders through open competition.

- Items of work which do not form part of the original Agreement Schedule are treated as “Extra items”. In this case, the item “boring cast in situ piles”, was already existing in the Agreement Schedule. As such, it cannot be subsequently treated as an “extra item.

- The contractor is expected, before quoting his rates, to inspect the site of the proposed work and assess the availability of specified materials. He is also expected to get himself acquainted with the sanctioned estimate, approved plans and drawings. Once his rates have been accepted and agreement finalized and signed, he is bound by the same and cannot claim its revision on grounds of errors in sanctioned estimates, un-availability or scarce availability of the specified materials etc.

- In the name of approving an “extra item”, the Department has resorted to revision of rates and specifications, after the award of work, on grounds of “scarce availability of river-sand”, “error in calculation of hire charges of piling plant” and made an extra payment of ₹97.17 lakh to KSCC. The action of the department was wrong as the ground cited for their action were not valid.

Thus, undue revision of rate resulted in extra payment of ₹97.17 [6]lakh to the contractor.

Government replied (October 2015) that the work was entrusted to KSCC to avoid delay as the tendering procedure would have taken long time. Further, the rates for piling were revised as the depth of piling work had to be increased from 270 m to 549 m during execution. Besides, due to non availability of good quality of river sand, the M sand was substituted and that there was some mistake in preparation of data.

The reply of the Government was not acceptable because the period of two-and-a-half years between the date of collapse of bridge and award of work for re-construction was reasonably adequate for completing all open tender formalities including invitation of competitive tenders so that the work could be awarded without compromising transparency instead of giving to KSCC only. Further, the revision of rates for piling was also not acceptable as the rate agreed by the contractor for piling was per metre and not for casting entire pile for a specific length. Besides, rate once concluded in the agreement signed by both the parties, was not required to be revised.

Thus, unwarranted revision of rate resulted in extension of undue benefit of ₹92.32 [7]lakh to the sub-contractor of KSCC.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

6 (₹ 34,017 - ₹ 16,344) x 549.85m

7 ₹ 97.17 lakh less `4.85 lakh being five per cent margin of KSCC.

Excerpts from Committee's discussion with department officials.

24) Regarding the audit objection, the CE (NH) apprised that the work entrusted to the KSCC was as per government order. Though the old Menonpara bridge was collapsed on 2010, the government accorded AS in 2012 for the re-construction work without tender. During actual execution the Chief Engineer, revised the rate of the item due to error in calculation of hire charges. The Committee noted that once the rates had been accepted and the agreement was finalised and signed, the revision of rates on grounds of errors in sanctioned estimates should not be permitted. It opined that the enhancement of rates from Rs. 16344/m to Rs. 34017/m had no basis and the original rate should have been applied for the increased length of piles. The awarding of work to KSCC without inviting open tender against manual provision had no justification. The Committee viewed it as a fraudulent act and directed the department to look into the matter seriously and take disciplinary action against the officials responsible for it.

Conclusion/Recommendation

25) The Committee understands that the old Menonpara bridge collapsed in 2010, and the Government accorded AS in 2012 for the reconstruction work without inviting open tenders. During the actual execution, the Chief Engineer revised the rate of the extra item due to error in calculation of hire charges for piling plant. The Committee noted that once the rates had been accepted and the agreement was finalised and signed, the revision of rates on the grounds of errors in sanctioned estimates could not be permitted. The Committee opines that the revisions of agreed rates had no basis and the original rates should have been applied for the increased length of piles and the awarding of work to KSCC without inviting open tender against

PWD manual provisions had no justification. The Committee observes it as a fraudulent act and directs the department to look into the matter seriously and take disciplinary action against the officials responsible for it.

[Audit paragraph 5.8 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Wasteful expenditure on construction of fender piles in a bridge work

Department constructed “fender piles” for protecting a bridge from the impact of collision with barges even though bridge did not have scope for navigation of heavy vessels resulting in wasteful expenditure of ₹3.12 crore.

The Public Works Department (PWD) awarded the work of the construction of 'Thadikkakadavu Bridge’ across Periyar river by Roads division, Ernakulam for ₹27.51 crore. The site was handed over (June 2012) to the contractor for completion of work in 18 months (December 2013). The work remained incomplete (July 2015) and the contractor had been paid ₹15.71 crore (July 2015).

The bridge was designed to rest on a foundation of bored cast-in-situ piles, for which 2,650 metres of piles at a unit rate of ₹27,056 per metre were planned. During execution, the length of piles was increased to 3,220 metres of which 729.79 metres were provided as ‘fender piles'[8] in a separate pile group, upstream and downstream of the bridge. The

8 Fender piles are provided in ports and harbours to absorb the impact of berthing vessels and to avoid damage both to the vessels and the structure which are made of shock absorbing materials.

department stated that the fender piles were required to protect the bridge from the impact of collision from heavily loaded cargo boats moving from Nedumbassery airport to Kochi city. The cost of construction of fender piles was ₹3.12 crore[9].

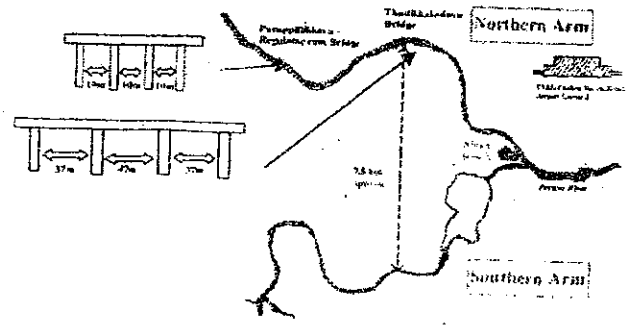
Audit observed that though the original design of the bridge was approved (March 2012) by the Design Research and Investigation Quality Control wing (DRIQ), under the control of Chief Engineer (Designs) as stipulated in the PWD manual, the design of fender piles was approved (November 2012) by the CE himself, which means that the DRIQ was not involved in the change of design of fender piles.

It was further noticed that there was no specific request from various stakeholders / departments (KSINC, SWTD, IND etc.) regarding provision for fender piles. Moreover, the route identified for connecting Nedumbassery airport with Kochi city passes through the southern arm of river Periyar, whereas the bridge was constructed on the northern arm as shown in the sketch attached.

Further, there was no infrastructure for anchoring of cargo boats anywhere near the Nedumbassery airport. Therefore, the construction of fender piles by adducing to safety concerns from barges/cargo boats was not tenable.

9 Floating platform for working `25.61 lakh (+) anticorrosive treatment to reinforcement ₹ 4.51 lakh (+) boring and concreting `197.45 lakh (+) providing casing pipe ₹75.90 lakh (+) providing reinforcement to concrete ₹ 43.24 lakh = ₹ 346.71 lakh less tender rebate ₹ 34.95 lakh = ₹ 311.76 lakh say ₹ 3.12 crore.

Sketch of Location of Thadikkakaadavu Bridge



Audit also observed that the fender piles were made of concrete with no impact absorbing quality to provide protection either to the bridge structure or to the vessels in the event of a collision. Further, the top level[10] of fender piles constructed was much below the Maximum Flood Level (MFL)[11] of the river. The fender piles would not be visible during flood, making it likely to cause damage to the piers of the bridge as well as the barges. Thus, the purpose of protecting the piers with the help of fenders was doubtful.

On being asked, the Secretary, PWD replied (October 2015) that on account of concerns of polluting the drinking water projects at Chowara and Aluva, Cochin International Airport Limited (CIAL) shelved a proposal to develop the Southern branch of Periyar river as a waterway connecting CIAL to Kochi Seaport for cargo movement. An alternative proposal of developing the Northern branch was under consideration of CIAL, and hence, the fender piles were constructed in anticipation of movement of heavy cargo vessels through the same.

The reply was not tenable in view of the confirmation provided by

10 49.8000 metres

11 51.825 metres

Irrigation Department that there were no plans of developing the Northern branch of Periyar River over which the Thadikkakadavu bridge is constructed, as a waterway connecting CIAL with the Kochi Seaport. Irrigation Department further confirmed that there were bottlenecks for large scale cargo movement from CIAL to Kochi city/seaport through the Northern branch, like insufficient vertical clearance of existing cross structures, insufficient width and depth in a five km stretch between CIAL and Chengal thodu.

Thus, the decision to change the designs for providing fender piles was taken without assessing actual requirement and approval of the DRIQ Board which led to wasteful expenditure of ₹3.12 crore on construction of fender piles.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

26) Regarding the audit paragraph, Executive Engineer, PWD informed that, it was decided to construct fender piles for protecting the pier of the Thadikkadavu bridge came up during the execution of work in view of an alarming incident of vessel hit to Venduruthy Bridge. The Committee questioned the purpose behind the construction of fender piles when the same would not be visible above the water level during floods.

27) The witness continued that the fender piles were constructed to protect the bridge, not the barge, and the possibility of occuring flood was rare. The Executive Engineer (Design & Bridges) added that the irrigation department confirmed that there was no navigable water ways connecting

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Nedumbassery Airport to Periyar River, and thus the audit objection occurred, but they had constructed a locking system in Purappillykavu bridge in the northern arm of Periyar for navigation purpose. The Committee noted that the irrigation department gave an impression through the construction of Purapillykavu bridge that the northern arm was also navigable and the fender piles constructed at Thadikkakadavu Bridge was necessary. The Committee had requested Accountant General to verify the issue with the irrigation department and to furnish a reply in this regard.

[The additional information from the government on the above audit paragraph was considered in the meeting of the Committee held on 14.01.2020 and 22.01.2020. The Committee also considered verification report submitted by Accountant General upon the request of the Committee.]

Excerpts from Committee's discussion with department officials.

28) The chairman explained the background for the discussion. Audit para 5.8 is regarding the loss sustained to the tune of 3.12 crores by unnesssessary construction of fender piles for Thadikkakadavu Bridge. In earlier discussion PWD Officials had drawn attention of the Committee to the fact that similar fender piles were constructed for Puramppallykavu Bridge too. As per request of the Committee, Accountant General conducted a joint verification with Irrigation Department team and submitted a verification report before the Committee. In the report it is stated that Purappillykavu Bridge is actually a regulator-cum-bridge with navigation lock and dimension of navigation lock indicates that any bridges with a span of more than 10 meter either upstream or downstream would no way facilitate navigation due to bottleneck at Purappillykavu RCB. The report clearly states that since Purappillykavu RCB is suitable for movement of

small vessels only, need of fender piles at Thadikkakadvu Bridge was unwarranted.

29) Regarding the construction of bridge over water ways, the Secretary apprised that new guidelines had been issued for fixing minimum height for bridges included in State Water ways system and hence cost will increase for land acquisition and construction. The Committee pointed out that these guidelines was also compulsory for National Water Ways.

30) The Committee understands that regarding the construction of Thadikkadavu bridge, audit observation points out the extra expenditure of ₹3.12 Crore for construction of safe guard pillars, which was not included in estimate. The Chief Engineer (Bridges), PWD replied that the work was done as piling was about to be completed. The Committee pointed out that such a construction was done in a place which was not at all navigable and was clearly an unwarranted work.

31) The Committee considered the verification report submitted by Accountant General on Committee's request. In the report Accountant General strongly refuted the Department's stand, that fender piles were constructed at Thadikkakadavu bridge across Periyar for protecting the bridge from collusion by barges, by clearly showing specific evidence that the particular stretch of waterway is not suitable for navigation because of the bottleneck upstream at Purappillykavu RCB which makes passage of heavy or medium size vessels impossible. Also the portion of river is not included in national water ways and no plans are there for developing the stretch for navigation. The Committee, analysing Accountant General's report, observed that it was clearly an unnecessary work to construct fender

piles at Thadikkakadavu Bridge which resulted in the loss of ₹3.12 crore to exchequer. The Committee suspects collusion between contractor and department officials in undertaking and completing such an unnecessary work. The Committee decided to drop the audit para with a stern warning to the Department to make sure that such flaws are not repeated in future, which if repeated, will force the Committee to make strong recommendations.

Conclusion/Recommendation

32) The Committee observes that it was clearly a wasteful expenditure to construct fender piles at Thadikkakadavu Bridge which resulted in the loss of ₹3.12 crore to the exchequer. The Committee suspects collusion between contractor and department officials in undertaking and completing such an unnecessary work. The Committee decided to warn the Department and to make sure that such flaws are not repeated in future, which if repeated, will force the Committee to make strong recommendations.

[Audit paragraph 5.9 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Avoidable payment on sinking of wells for foundation of four bridges

Separate payment amounting to ₹2.28 crore was made to the contractors by PWD outside the agreed rate for removing obstacles encountered during sinking of wells for foundation of four bridges.

The special conditions of contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule which covers the incidental work necessary for such operations. The conditions further stated that all items should be carried as per the relevant specification in the Madras Detailed Standard Specification (MDSS) which specifies that when the well has reached the required level care should be taken to see that it is seated properly.

Superintending Engineer, Roads and Bridges, North Circle, Kozhikode (SE), had awarded[12] (March 2011 to July 2012) four bridge works under PWD Roads Division, Manjeri at an estimated cost of ₹24.65 crore in Malappuram district. As per the agreement schedule, one of the items of work was sinking of reinforced cement concrete circular well in all classes of soil other than rock. The sinking process includes scooping of earth to line, level and plumb from inside and below steining with dredgers and other appliances including removal of obstacles. The EE made extra payments of ₹2.28 crore to the contractors of four bridge works towards charges for cutting and breaking down boulders having the size of more than 40 dm^3 during sinking of wells and for seating of wells as shown below:

Table 5.1: Details of works showing extra payments made

Sl. No.	Name of work	Particulars of estimated cost and extra payments for well sinking			
		Item (as per	Estimated cost (₹ in lakh)	Extra payment on	Percentage of extra

12 Shri.V.P.Mohammed Ayub, Eranhikode, Edavana, Malappuram, M/s Ernad Engineering Enterprises Ltd., Kodur P.O, Malappuram, M/s Thrimathy Contracting, CPC Centre, Hospital Road, Nilambur.

		agreement)		(₹ in lakh)	payment on estimated cost
(1)	(2)	(3)	(4)	(5)	[(5)/(4)]x100
1.	Construction of Mythrakadavu bridge Construction	5	6.36	96.12	1,511.32
2.	Construction of Valippadam-Alungalkadavu bridge	6, 7	15.15	63.49	419.08
3.	Construction of Thayyilakkadavu bridge	6, 7	11.57	30.00	259.29
4.	Construction of Umminikadavu bridge	6, 7	15.01	38.51	256.56
Total			**48.09**	**228.12**	**474.36**

Source: Agreements and vouchers

As can be seen from the above table, the percentage of extra payment comes to nearly four times the estimated cost of the agreed item of well sinking and this payment was made without following the usual tender procedure.

In this connection Audit observed the following:

All works except the extra items were put to tender on ‘percentage rate basis’in which the 'quoted rate’ was inclusive of all operations contemplated in the specifications and tender schedules including incidentals. The workable rate quoted by the bidder was inclusive of charges for removing boulders irrespective of their size. Therefore, the payment for cutting and breaking down boulders of more than 40 dm^3 size during sinking of abutments and pier wells and for seating of wells on base,

over and above the estimated cost was contrary to the provisions contained in the agreement.

Secretary, PWD stated (October 2015) that the approved design of bridges insisted seating of well foundation upon a levelled hard rock stratum and well kerbs were to be anchored to a minimum 60 cm depth into hard rock and that in order to seat the well foundations, the top layers of rock formations were to be cut and removed as mentioned in design and that the rates for the above rock cutting works were not included in the agreed specifications. Further, the reply stated that the general note in Standard Data Book permitted the payment for cutting down boulders of size above 40 dm^3 and wooden logs of size above 100 dm^3 if encountered during well sinking.

The reply of the Government was not tenable as the quoted rate was inclusive of all operations contemplated in the specifications and tender schedules including incidentals. The specification in the tender schedule and agreement schedule for the item of well sinking included ‘removal of obstacles’. As notes in the Standard Data Book were not made part of the agreements, extra payment for cutting down boulders of size above 40 dm3 was not permissible. Thus, due to its failure to adhere to the specifications in the tender schedules, the Department had extended undue benefit of ₹2.28 crore to the contractors.

[Note submitted by the Government on the above audit paragraph is included as Appendix II.]

Excerpts from Committee's discussion with department officials.

33) The Committee noted that the special conditions of contract stipulated that the rate quoted was inclusive of all the operations

contemplated in specification and tender schedules including incidentals. The Executive Engineer (Design & Bridges) informed that the approved design of bridges insisted seating of well foundation upon a levelled hard rock stratum and well kerbs were to be anchored to a minimum 60 cm depth into hard rocks and that inorder to seat the well foundations, the top layers of rock formations were to be cut and removed as mentioned in design and that the rates for the rock cutting works were not included in the agreed specifications. The Committee remarked that the specification in the tender schedule and agreement schedule for the item of well sinking included 'removal of obstacles'. As notes in the standard Data Book were not made part of the agreements, extra payment for cutting down boulders of size above 40dm3 was not permissible. The Committee remarked that the agreement executed for a work should be comprehensive enough to include all the incidental items that were essential for proper execution of the work.

Conclusion/Recommendation

34) The Committee opines that the special conditions of contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule which covers the incidental work also. The Committee directs the department to ensure that the agreement to be executed for a work should be comprehensive enough to include all the incidental items that are essential for the proper execution of work.

[Audit Paragraph 5.10 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Extra expenditure due to non-finalisation of tender within the firm period

Lapse of the department in adhering to PWD Manual instructions and Government orders regarding finalisation of tender within firm period resulted in avoidable financial implication of ₹1.56 crore.

According to the provisions of Kerala PWD Manual, consideration of tenders and the decision thereon should be completed well before the date of expiry of the firm period noted in the tender so that the selection notice is sent on or before the expiry of the firm period[13]. In case, selection notice is not issued before the expiry of the firm period, the bidder's offer would stand nullified automatically. In order to avoid such delays, Government had issued (May 2007) instructions prescribing time frame for completion of processing of tenders at various stages. Accordingly, the department shall place the tender before the Government within six weeks from the date of opening of tender followed by its submission before the Government Tender Committee (GTC) within seven days. After approval of proposal by GTC, order shall be issued within one week. The GOK, Finance Department had issued orders (January 2010) that in cases where tender amount is in excess of 10 per cent of Local Market Rate[14] (LMR), justification should be submitted along with the tenders.

The Secretary (PWD) issued (December 2011) Administrative

13 The firm period of a tender is the period from the date of opening of the tender to the date upto which the offer given in the tender is binding on the bidder. The firm period is fixed as the maximum time required within which a decision can be taken on the tender and order of acceptance issued in writing to the bidder, which shall be prescribed in the NIT.

14 The Local Market Rate for materials and labour shall be fixed by the EE twice every year for preparing LMR justification for the purpose of estimates for tender approval.

Sanction (AS) to the work ‘Improvements to Kodumba-Padalikkadu Canal bund road from km 0/000 to 8/200’ in Palakkad district at a cost of `5.10 crore. Based on Technical Sanction (TS) given by CE, the Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) invited (January 2012) pre- qualification-cum-tenders (PQ) for works from eligible contractors, fixing date of opening as 6 March 2012. The firm period of tender was 120 days i.e. up to 3 July 2012. Of the two bids received, one was pre-qualified (2 April 2012) by the Chief Engineers’ Committee. The SE opened (10 April 2012) the financial bid of the pre-qualified contractor[15] whose quoted rate was 14.89 per cent above the estimate rate. After processing the tender, the department accepted (April 2013) the tender rate quoted by the contractor after delay of eight months. In the meantime, the firm period had expired due to which the contractor was not willing (May 2013) to take up the work.

After failing to award the work due to the contractor’s unwillingness, the department re-tendered (July 2013) the work which evoked no response. However, citing urgency of the work, the department invited (November 2013) negotiated quotations from ‘A’ class registered contractors for the work at the same estimate rates in terms of instructions contained in PWD manual. The only quotation received from a contractor [16] was at 48.50 per cent above the estimate rate which was accepted (May 2014) by the Department at 45.43 per cent above the estimate rate as recommended by the Committee of Secretaries. The work was awarded (May 2014) to the contractor for ₹7.24 crore. The work which was scheduled for completion by May 2015 had been extended up to February

15 M/s PK Construction Company, Muvattupuzha.

16 M/s P.G Constructions, Pullani, Oarambil, Thrithala, Mezhathur P.O, Palakkad.

2016. An amount of ₹5.05 crore had been paid for the work done till September 2015.

Audit scrutiny relating to the first tender revealed that though the tenders were opened on 6 March 2012, the SE had furnished LMR justification only on 3 December 2012, after a delay of eight months as against six weeks as per guidelines. The delay in furnishing the LMR by SE resulted in delayed approval of tender by PWD and GTC. The LMR justification (December 2012) was 43.65 per cent above estimate rate. Audit observed that had the tender been accepted within the firm period, the work would have been executed by the first contractor at a cost of ₹ 5.68 crore as against agreed value of ₹7.24 crore.

On this being pointed out, the SE stated (August 2014) that the delay in forwarding tenders to PWD was due to the delayed response of the first contractor to negotiations. The reply was not tenable due to the reason that had the SE prepared LMR justification soon after the opening of financial bid, it would have been evident that the tender excess of 14.89 per cent above the Estimated Probable Amount of Contract offered by the first contractor was far below the LMR (December 2012) of 43.65 per cent.

Thus, the non-approval of the first tender by the department within the firm period due to non-preparation of LMR in time and delay in submission of tender documents adhering to the time schedules as per guidelines resulted in avoidable financial implication of ₹1.56[17] crore which call for fixing of responsibility of the officials at fault for the inordinate delay in finalising the tender and initiate appropriate action

17 ₹7.24 crore - ₹5.68 crore = ₹1.56 crore

against them.

[Note furnished by the Government on the above audit paragraph is included as Appendix II.]

35) Regarding the audit paragraph, the executive Engineer (Design & Bridges) PWD admitted that the first tender work was not finalised within the firm period due to the delay occurred in the preparation and submission of LMR Comparison Statement. He added that PWD had modernised the system of LMR justification estimate through 'PRICE Software' and the delay would be eliminated in future by the implementation of the new system. But the Committee was not satisfied with the explanation given by the department on the particular case and decided to recommend that disciplinary action should be taken against the officers responsible for the delay and resulted in loss to public exchequer and to report it to the Committee within one month.

Conclusion/Recommendation

36) The Committee observes that the first tender work was not finalised within the firm period due to delay occured in the preparation and submission of LMR comparison statement resulted in huge lose to the exchequer to the tune of ₹1.56 Crore. Hence the Committee opines that it could not be condoned and recommends that disciplinary action should be taken against the officers responsible for the delay.

[Audit Paragraph 5.11 contained in the report of the Comptroller and Auditor General of India (Economic Sector) for the year ended 31st March 2015.]

Double payment to the contractor for same work through

Hand Receipts

Failure to exercise required verification by PWD resulted in double payment for executing an item of work in the construction of Mythrakadavu bridge across river Chaliyar in Malappuram District.

Article 40 (b) of the Kerala Financial Code provides that every Government servant who incurs or authorises the incurring of any expenditure from public funds should see that the expenditure should not be prima facie more than the occasion demands. He is expected to exercise the same diligence and care in respect of all expenditure from public money under his control as a person of ordinary prudence would exercise in respect of the expenditure of his own money.

Superintending Engineer, Roads & Bridges, North Circle, Calicut, (SE) had executed an agreement (March 2011) with Shri.V.P.Mohammad Ayub, contractor, Erahikode, Edavana, Malappuram District, for the construction of Mythrakadavu bridge across river Chaliyar in Malappuram District. The work was executed by the Executive Engineer, Roads Division, Manjeri (EE).

Audit of vouchers (July 2015) of Public Works Department transactions (PWD) in the office of the EE revealed that the EE had made (July 2015) a payment of ₹14.93 lakh through a Hand Receipt (HR) prepared by the Assistant Engineer, Bridges Section, Manjeri (AE) and verified by the Assistant Executive Engineer, Bridges Sub Division, Manjeri (AEE) for an item of work “cutting and breaking into small pieces of boulders size during sinking of wells and seating of well – pier-2”. The

payment recorded at page 35 of Measurement Book No.7732, was made through the Bill Discounting System (BDS) and adjusted in the Monthly Account of July 2015 through a Transfer Entry (July 2015). The EE made (July 2015) payment based on the sanction accorded in respect of an item of work in the Daily Labour Report by the Chief Engineer, Roads & Bridges (CE), Thiruvananthapuram.

As the sanction was more than two years old, a further scrutiny in Audit revealed that a total amount of ₹55.12 lakh (including the amount of ₹14.93 lakh related to the work) was paid during July 2015 for executing the item and that the amount of ₹14.93 lakh had already been paid earlier during May 2013 (CBV 150Dn of May 2013) based on the same sanction for executing the same item. Both the payments, i.e. May 2013 and July 2015 were made through HR prepared by the then AE and verified by the then AEE and recorded on Page 6 of Measurement Book No.9360.

Further Audit investigation revealed that only one Daily Labour Report (DLR) was sanctioned in the Divisional records to support the payment of ₹14.93 lakh (May 2013). No DLR was available to support the second payment of July 2015 which confirmed that payment of ₹14.93 lakh made to the contractor during July 2015 through the BDS was double payment. On this being pointed out by Audit (December 2015), the EE admitted the double payment and got the amount remitted from the contractor in December 2015.

Audit of Internal Control Mechanism of the office of the EE, further revealed that the office was neither maintaining nor monitoring the requisite Control Registers as stipulated in Kerala Public Works Account Code Para No.10.5 (Works Abstract), Para Nos.10.6 and 5.3.3 (Works

Register), Para No.10.7 (Contractors' Ledger) and Para No.22.2.7 (Miscellaneous Sanction Register). The AE was, thus, not exercising any preliminary checks on the contractors' claims. Thus, disregard for the mandatory checks of consulting previous records by the EE led to double payment of ₹14.93 lakh for the same work.

Further, the double payment of July 2015 was made through the newly introduced Bill Discounting System (BDS). The Finance Department (FD) transfers the details of only those Bills into the BDS database which are processed and recommended by the CE in 'EMLI[18] software and for which the FD had agreed to issue a Letter of Credit (LoC). The fact that the LoC for the payment of ₹14.93 lakh was issued by the FD in July 2015 and that the payment of July 2015 occurred through BDS, confirmed that the claim of the contractor was processed and recommended throughout the entire chain of authorities from the AE level to the CE level and that none of the authorities could detect the double payment being attempted. This revealed as under.

- a weak Internal Control Mechanism in the Roads and Bridges wing of the PWD;
- recovery of double payment in this case was at the instance of Audit but no action has been taken against the officials responsible for this. Besides, the present system gives scope for such double payments escaping detection in future; and
- The software EMLI was not able to detect the fact that a Letter of Credit had already been generated against the same sanction at an earlier date.

In this respect, Audit recommends as under:

18 EMLI-Effective Management of Letter of Credit Issuance

1. The commission of double payment coupled with the weakness of the Internal Control Mechanism of the Department requires thorough investigation, preferably by Vigilance authorities to pre-empt any intentional negligence/fraud;
2. The software 'EMLI' may be modified so that only one Letter of Credit is generated against a sanction and any further attempt to generate Letter of Credit on the same sanction would be rejected by the system automatically; and
3. The payment of huge amounts through HRs (KPW Form 24), instead of the Forms KPW 22 (for making first and final payment to contractor) or KPW 23 (for making running payments), may be discouraged as the HRs lack the basic control measures and accountability provisions as compared to Forms KPW 22 or 23 which help to pre-empt irregular payments.

During Exit Conference, the Chief Engineer stated that this was the first instance and no other case of double payment was currently known to the Department. As regards enquiry about such instances taken place in other Divisions also, the Secretary to Government stated that assurance could be furnished only after an investigation in the matter. Thus, thorough investigation is required in the matter to guard against the recurrence of such serious lapses in future.

[Note furnished by the Government on the above audit paragraph is included as Appendix II.]

37) Regarding the audit objection, the Executive Engineer (Design & Bridges) PWD informed that when the duplication in payment was detected, immediately the department issued an order to recover the excess amount paid and the contractor remitted the excess payment on the same day. Hence

no financial loss was sustained by government and departmental action was taken against the officials responsible for this.

38) With regard to the program of rectification of the software EMLI the Joint Secretary PWD, informed that they had discussed the matter with finance department and NIC.

39) The Committee observed that double payment and weak internal control mechanism existed in the Roads and Bridges wing of the PWD and needed a thorough investigation. The Committee directed the inspection wing of the Finance Department to conduct an enquiry for such instances that might have taken place in other PWD divisions. The Committee also directed the Public Works department to look into the matter seriously and the recurrances of such serious lapses should be avoided in future.

Conclusion/Recommendation

40) The Committee observes that double payment and weak internal control mechanism exists in Roads and Bridges wing of the Public Works Department that needs to be investigated thoroughly. The Committee directs the inspection wing of the Finance department to conduct an enquiry for such double payment that might have taken place in other PWD divisions. The Committee also directs the Public Works department to look into the matter seriously and the recurrences of such serious lapses should be avoided in future.

SUNNY JOSEPH,

Thiruvananthapuram, **CHAIRMAN,**

16th March, 2022. **COMMITTEE ON PUBLIC ACCOUNTS.**

APPENDIX I
SUMMARY OF MAIN CONCLUSION/RECOMMENDATION

Sl. No.	Para No.	Department concerned	Conclusion/ Recommendation
1	21	Public works	The Committee criticised the department in according administrative sanction for construction of Varamkadavu Bridge and approach road without proper soil investigation and in allowing inadmissible payment to the contractor by treating the earth works as extra item. The Committee directs the department to avoid such delinquencies and to take strict measures not to repeat such instances in future.
2	25	Public works	The Committee understands that the old Menonpara bridge collapsed in 2010, and the Government accorded AS in 2012 for the reconstruction work without inviting open tenders. During the actual execution, the Chief Engineer revised the rate of the extra item due to error in calculation of hire charges for piling plant. The Committee noted that once the rates had been accepted and the agreement was finalised and signed, the revision of rates on the grounds of errors in sanctioned estimates could not be permitted. The Committee opines that the

			revisions of agreed rates had no basis and the original rates should have been applied for the increased length of piles and the awarding of work to KSCC without inviting open tender against PWD manual provisions had no justification. The Committee observes it as a fraudulent act and directs the department to look into the matter seriously and take disciplinary action against the officials responsible for it.
3	32	Public works	The Committee observes that it was clearly a wasteful expenditure to construct fender piles at Thadikkakadavu Bridge which resulted in the loss of ₹3.12 crore to the exchequer. The Committee suspects collusion between contractor and department officials in undertaking and completing such an unnecessary work. The Committee decided to warn the Department and to make sure that such flaws are not repeated in future, which if repeated, will force the Committee to make strong recommendations.
4	34	Public works	The Committee opines that the special conditions of contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule which covers the incidental work also. The Committee directs the department

			to ensure that the agreement to be executed for a work should be comprehensive enough to include all the incidental items that are essential for the proper execution of work.
5	36	Public works	The Committee observes that the first tender work was not finalised within the firm period due to delay occured in the preparation and submission of LMR comparison statement resulted in huge lose to the exchequer to the tune of ₹1.56 Crore. Hence the Committee opines that it could not be condoned and recommends that disciplinary action should be taken against the officers responsible for the delay.
6	40	Public works	The Committee observes that double payment and weak internal control mechanism exists in Roads and Bridges wing of the Public Works Department that needs to be investigated thoroughly. The Committee directs the inspection wing of the Finance department to conduct an enquiry for such double payment that might have taken place in other PWD divisions. The Committee also directs the Public Works department to look into the matter seriously and the recurrences of such serious lapses should be avoided in future.

APPENDIX II

Notes Furnished By Government

RMT ON RECOMMENDATION ON PARA 5.6 -Report of PAC (2014-16) for the year ended March 2015 (Economic Sector)- REGARDING

PARA	REPORT	RMT
5.6 Report of PAC (2014-16) for year ended March 2015 (Economic Sector)	MoRTH is responsible primarly for development and maintenance of National Highways (NHs). The activities are monitored by the Regional Office MoRTH in each State. The actual work of construction of NH is entrusted to State Government on agency basis under the provisions of Article 258 of the Constitution of India for which nine percent agency charges are claimed by State Government from MoRTH. The role of State Government is confined mainly to maintain, upgrade and improve the riding quality of existing NHs and carry out ordinary annual repairs. Up to 3 1 s t March 2003, the State Government was to initially incur expenditure on construction and maintenance of NHs and then get it reimbursed from MoRTH. With effect From 1 April 2003, the system was changed to Direct Payment Procedure (DPP) by MoRTH for all NH works under the major head 5054 and Special repair and periodical renewal / improvement of Riding Quality works under major head 3054. The transactions under DPP, therefore, do not involve the State Government budgetary sanction. For Ordinary Repairs (ORs) and Flood Damage Repairs (FDRs), the previous system was continuing. As such, the NH works undertaken as Ors and FDRs do not require prior sanction by MoRTH before execution. Scrutiny of records (between December 2011 and October 2015) in, five offices of NH wing of Pubic Works Department(PWD) revealed that 17	The para relates to disputed misrepresentation of works as ordinary repairs and subsequent non reimbursement of amounts involved by MoRTH. First four works in Sl.NO.5,6,7,8,9,10 and 11 were arranged on the basis of GO(Rt) No.1540/2011/PWD dated 09.11.2011 charging to state exchequer. The works noted in Sl.No 15 was also arranged following the issue of GO(Rt)1139/2013/PWD dated 23.08.2013. The works no.10,12,13, 14,16 and 17 were arranged by Departmental officers due to grave circumstances similar to calming situations which gave rise to Government order cited above. During the period 2011-12 and 2014--2015 there had been public protest over deplorable conditions of NH in the State. The protests were mostly justifiable. Execution of work through established procedure in NH to restore the roads in a meaningful way seemed almost unfeasible.

works(appendix 5.1) were executed during the period 2011 -12 and 201 4-I5 treating them as ORs, based on the sanctions of State Government only and claimed reimbursement from MoRTH (between January 2012 and June 2014) projecting them as ORs. The M o R T H disallowed (between March 2012 and Sep 2014) the claim for reimbursement stating that the works executed were not ORs but Original Works requiring prior sanction of MoRTH before execution. The claims thus disallowed amounted to 68.10 crore which the State Government had to bear from its own budgetary resources. Besides, the State also could not claim agency charges a mounting to 6.13 crore.

Thus, the department failed to adhere to the guidelines of MoRTH while making claim for reimburs ement o f expenditure incurred on the maintenance of NHs and consequently burdening the State exchequer to the extent of 74.23 crore

Government replied that the department had arranged the works due to poor condition of NHs in the State and inadequacy of fund / sanction from Government of India it was also stated that the works undertaken were ORs not requiring prior sanction from MoRTH. The reply is not tenable as the works executed were not Ordinary Repair works but were Original Works as remarked by MoRTH while scrutinizing the claim for reimbursement. Further, these Original Works required prior sanction from MoRTH

A high level meeting convened by Principal Secretary PWD on 29.10.2011 and 09.11.2011 to sort out the issue at hand. Decision emerged was to arrange unavoidable works as state works and later submit them to MoRTH to see if reimbursement could be obtained.

The MoRTH returned the claim without reimbusement. The State was not sure about getting the money back.At the outset the State was prepared to bear the cost if MoRTH reimbursement had not materialized.The intention was to make NH traffic worthy. The thinking was " if MoRTH reimburses, well and good" otherwise the state will bear the cost'.

The disallowed amount is not so in normal sense. It is only an expectation coming to get the shape of reality. Hence it is requested to drop the para.

Reekala

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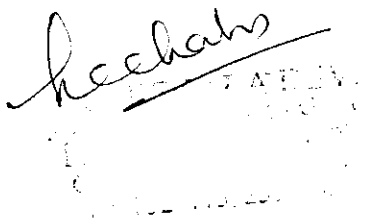
PUBLIC WORKS (PS) DEPARTMENT

REMEDIAL MEASURES TAKEN STATEMENT ON THE REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA FOR THE YEAR ENDED 31st MARCH 2015 (ECONOMIC SECTOR)

Para No	Recommendation	Remedial Measures Taken
5.10	**Extra expenditure due to non-finalisation of tender within the firm period.** Lapse of the department in adhering to PWD Manual instructions and Government orders regarding finalisation of tender within firm period resulted in avoidable financial implication of ₹1.56 crore. According to the provisions of Kerala PWD Manual, consideration of tenders and the decision thereon should be completed well before the date of expiry of the firm period noted in the tender so that the selection notice is sent on or before the expiry of the firm period. In case, selection notice is not issued before the expiry of the firm period, the bidder's offer would stand nullified automatically. In order to avoid such delays, Government had issued (May 2007) instructions prescribing time frame for completion of processing of tenders at various stages. Accordingly, the department shall place the tender before the Government within six weeks from the date of opening of tender followed by its submission before the Government Tender Committee (GTC) within seven days. After approval of proposal by GTC, order shall be issued within one week. The GOK, Finance Department had issued orders (January 2010) that in cases where tender amount is in excess of 10 per cent of Local Market Rate(LMR), justification should be submitted along with the tenders. The Secretary (PWD) issued (December 2011)	Pre-qualification tender for the work "NABARD RIDF XVII - Improvements to Kodumba - Padalikkad Canal Bund Road Km 0/000 to 8/200" in Palakkad District was invited by the Superintending Engineer, PWD North Circle, Kozhikode on 06.03.2012. Financial bid of the pre-qualified bidder was opened on 10/04/2012 and the rate quoted by the bidder M/s. P K Construction Company was 14.89% above estimate rate. With the intention to reduce the quoted rate further on negotiation, efforts were made to get it reduced vide Superintending Engineer's office communication to the bidder on 13/04/2012 and 04/05/2012. But the bidder responded to that only on 17/05/2012 and reported that they were not willing to reduce the rate further. The tender documents were submitted by the Chief Engineer (Roads & Bridges) to Government on 26.06.2012. The delay in submitting the tender for acceptance was due to the efforts taken to negotiate with the bidder to get reduced the quoted rate. Government directed the Chief Engineer (Roads & Bridges) to submit the LMR comparison statement for the work vide letter dated 31.07.2012 and the Chief Engineer (Roads & Bridges) submitted the same to Government on 18.12.2012. As per G.O (Rt) No. 519/2013/PWD dated 08.04.2013, the tender in favour of M/s. P.K. Construction Company

	Administrative Sanction (AS) to the work 'Improvements to Kodumba - Padalikkadu Canal bund road from km 0/000 to 8/200' in Palakkad District at a cost of ₹5.10 crore. Based on Technical Sanction (TS) given by CE, the Superintending Engineer, PWD,Roads and Bridges, North Circle, Kozhikode (SE) invited (January 2012) pre-qualification-cum-tenders (PQ) for works from eligible contractors, fixing date of opening as 6 March 2012. The firm period of tender was 120 days i.e. up to 3 July 2012. Of the two bids received, one was pre-qualified (2 April 2012) by the Chief Engineers' Committee. The SE opened (10 April 2012) the financial bid of the pre-qualified contractor whose quoted rate was 14.89 per cent above the estimate rate. After processing the tender, the department accepted (April 2013) the tender rate quoted by the contractor after delay of eight months. In the meantime, the firm period had expired due to which the contractor was not willing (May 2013) to take up the work. After failing to award the work due to the contractor's unwillingness, the department re-tendered (July 2013) the work which evoked no response. However, citing urgency of the work, the department invited (November 2013) negotiated quotations from 'A' class registered contractors for the work at the same estimate rates in terms of instructions contained in PWD manual. The only quotation received from a contractor was at 48.50 per cent above the estimate rate which was accepted (May 2014) by the Department at 45.43 per cent above the estimate rate as recommended by the Committee of Secretaries. The work was awarded (May 2014) to the contractor for ₹7.24 crore. The work which was scheduled for completion by May 2015 had been extended up to February 2016. An amount of ₹5.05	was accepted at 14.89% above estimate rate (Revised SOR 2010). But the firm period of the work was expired and the contractor was not willing to extend the firm period and to take up the work. The work was re-tendered by the Superintending Engineer but there was no response from contractors. Meantime schedule of rates was revised twice ie., SOR 2012 and DSR 2013. Considering the delay on revising the estimate based on prevailing SOR and poor response from bidders, negotiated quotations were invited and the quotation received from M/s. P.G Construction, Mezhathur, Thrithala, Palakkad was accepted by Government @ 45.43% above estimate rate vide G.O (Rt) No. 370/2014/PWD dated 04.03.2014. Audit observes that though the tenders were opened on 06.03.2012, the Superintending Engineer furnished LMR justification only on 03.12.2012, after a delay of eight months as against six weeks as per guidelines. The delay in furnishing the LMR by Superintending Engineer resulted in delayed approval of tender by the Government. The LMR justification (December 2012) was 43.65 per cent above estimate rate. If the tender had been accepted within the firm period, the work would have been executed by the first contractor at a cost of ₹ 5.68 crore as against agreed value of ₹7.24 crore. The first tender for the work in favour of M/s. P.K. Construction Company @ 14.89% above estimate rate was not finalized within the firm period due to the delay occurred in the preparation and submission of LMR comparison statement by the Superintending Engineer as observed by the audit. But it may be noted that the LMR

	crore had been paid for the work done till September 2015. Audit scrutiny relating to the first tender revealed that though the tenders were opened on 6 March 2012, the SE had furnished LMR justification only on 3 December 2012, after a delay of eight months as against six weeks as per guidelines. The delay in furnishing the LMR by SE resulted in delayed approval of tender by PWD and GTC. The LMR justification (December 2012) was 43.65 per cent above estimate rate. Audit observed that had the tender been accepted within the firm period, the work would have been executed by the first contractor at a cost of ₹5.68 crore as against agreed value of ₹7.24 crore. On this being pointed out, the SE stated (August 2014) that the delay in forwarding tenders to PWD was due to the delayed response of the first contractor to negotiations. The reply was not tenable due to the reason that had the SE prepared LMR justification soon after the opening of financial bid, it would have been evident that the tender excess of 14.89 percent above the Estimated Probable Amount of Contract offered by the first contractor was far below the LMR (December 2012) of 43.65 per cent. Thus, the non-approval of the first tender by the department within the firm period due to non-preparation of LMR in time and delay in submission of tender documents adhering to the time schedules as per guidelines resulted in avoidable financial implication of ₹1.56 crore which call for fixing of responsibility of the officials at fault for the inordinate delay in finalising the tender and initiate appropriate action against them.	comparison statement was prepared manually by the Assistant Engineer at the section office level, then it is scrutinized by the Assistant Executive Engineer at Sub Division level, Executive Engineer at Division level, Superintending Engineer at Circle Level and then by the Chief Engineer before submitting it to Government. For speedy preparation of LMR justification estimate, PWD started publication of those rates in the website from 01.07.2014. The above work was tendered and LMR preparation was done prior to this period. Considering time delay caused due to routine works of field staff and to avoid recurrence of such incidents in future, PWD has now modernized the system of LMR justification estimate through "PRICE" Software". The time delay associated with the preparation of LMR comparison statement could be eliminated by the implementation of the new system. 

GOVERNMENT OF KERALA
PUBLIC WORKS (D) DEPARTMENT
Remedial Measures Taken Statement on Para no. 5.5,5.7,5.8,5.9 &5.11
in the Report of the Comptroller and Auditor General of India on economic Sector for the year ended in March 2015

Para No.	Recommendation	Action Taken by the Government
5.5	**Inadmissible payment to contractor on balance items of bridge works.** Irregular revision of rate of items mentioned in the agreement scheduled by treating them as extra items and non - availing of agreed tender rebate while making payments thereon to the contractor resulted in undue benefit of Rs. 1.09 Crore to the contractor. As per clause 23 (c) of Notice Inviting Tenders (NIT) extra items of work are those which are not expressly or impliedly described in the schedule, plans or specification. Those items of work which though highly necessary for the proper execution of the work and its completion. If not provided for in the original contract, can be treated as 'extras'. Further, as per Clause 3(b) of NIT, the overall percentage rate accepted and specified in the agreement shall not be varied on any account whatsoever. The Superintending Engineer, PWD, Roads and Bridges, North Circle, Kozhikode (SE) had awarded (April 2009) the work "construction of bridge at Varamkadavu in Chelora Grama Panchayat in Kannur district (balance work)" to a contractor at 21.80 percent below estimated amount of Rs.2.64 Crore.	The original estimate of work of Varamkadavu bridge consists of bridge proper which includes the construction of bridge structure such as foundation, sub structure and superstructure based on the detailed design after conducting sub soil investigation only at abutment and pier points. No sub soil investigation was conducted along approach connections which is passing through waterlogged, marshy areas and also through places submerging during tidal effects. The original Administrative Sanction was issued based on a rough cost estimate for the work without any detailed sub soil investigations done at site. So the Administrative Sanction amount was not sufficient to cover all the provisions for the construction of bridge proper, whose estimate was as per design prepared after obtaining the Administrative Sanction. The balance amount left from the Administrative Sanction amount was given for the construction of approach roads. So only minimum provision of earth filling for forming approach roads based on tape measurements were given in the original estimate. The first estimate submitted was for the construction of the bridge and its approaches that got TS only for Rs.225.50 Lakh, which was not sufficient for the complete raising of the approach road after provisions for the bridge proper was given. Hence the earth quantity was reduced by reducing the height of the formation. The quantity in the estimate was arrived to 14380 m3 . Later when the revised estimate was submitted, the

The items of work included in the original agreement schedule for formation of approach roads to the bridge structure which was completed in March 2005 consisted of earthwork for forming high embankment for approach roads and ground improvement works using non-woven geo - textiles, woven geo - textiles and Pre -fabricated Vertical Drain (PVD).

During execution of the work, these items were treated as extra items and their rates enhanced, by executing (November 2009/March 2010) Supplementary agreements by the SE with the contractor. The contractor had agreed to execute these extra items at 21.80 per cents below estimate rate. The work was completed in May 2011. The contractor was paid an amount of Rs.3.81 Crore in five part bills as of December 2015.

Audit scrutiny revealed that:

* The above items of work were expressly mentioned in the Agreement executed by the contractor for the balance work. So as per clause 23 (c) of NIT they could not be treated as extra items. However, in violation of this provision, SE had treated them as extra items and revised (November 2009/March 2010) their rates.

** The Executive Engineer, PWD Roads division, Kannur (EE) did not apply tender rebate from the payments made to the contractor on the extra items, even though it was agreed in the supplementary agreements executed. This was in violation of the rules on application of overall tender percentage contained in the NIT.

The above violations resulted in inadmissible payment of Rs.1.09Crore to the contractor, which amounted to undue benefit extended to him, as shown in the table below.

provision for the improvement of the approach road was increased by giving proper provisions like increasing the height of the embankment over the MFL and also by providing more width to the embankment to enable smooth and safe flow of traffic over the embankment. Thus the quantity of the earth was increased to 21254 m3. Further during the progress of the work, it was decided to extend the approach road on Varam side to a further 500m. This has led to an increase in quantity of 12600m 3 . Viz: 1x 500 x (13+8)/2 x 2.4 = 12600m3 . This was added up to the earlier submitted quantity of 21254 m3 and the final quantity in that estimate was arrived to be 33854 m3 that was rounded to 34000 in the estimate. When the K.S.C.C. failed to form approach road without doing any ground improvement works at the site, the opinion of Geo-tech expert was sought. He studied the sub soil conditions at site which consists of deep layer of soft, highly compressible clay with high water content and proposed ground improvement works using prefabricated vertical drains (PVD) with Geo textiles in order to accelerate the primary settlement due to consolidation process dissipating pore water pressure from clayey strata and thereby attaining rapid strength increase in the sub soil. The initial levels were taken before commencing the ground improvement works. The settlement of the clayey sub soil underneath the ground level will start only after preloading over the embankment portion and the settlements were measured using settlement gauges fixed at interval installed at the ground level. The design of the ground improvement is based on achieving 90% consolidation in the time prescribed and the final settlement is measured using settlement gauges. So the final quantity of earth filling could be known only after completion of the settlement after a time interval and completion of the final embankment construction. This could not be assessed by while estimation. The

Description of item in Agreement	Up to date quantity executed	Agreed rate after applying tender rebate	Revised rate used for payment without tender rebate	Undue benefit to the contractor (in Rs.)
Earth work filling with all classes of soil suitable for forming high embankment	54174.38 m2	1516/10 m2 (1939, less 21.80%)	2,424/10 m2	49,19,033.70
Providing and laying non-woven geo - textile fabric	6332.08 m2	55.91/ m2 (71.5, less 21.80%)	88/ m2	2,03,196.45
Providing and laying non-woven geo - textile fabric	4380.78 m2	59.82/ m2 (76.5. less 21.80%)	89.78/ m2	1,31,248.17
Providing and laying non-woven geo - textile fabric under water	800 m2	` 55.91/ m2 (71.5, less 21.80%)	88/ m2	25672
Providing and installing flexible pre - fabricated vertical drain	130392.10 m2	` 66.47/ m (85, less 21.80%)	109.92/ m2	56,65,536.75
Total undue benefit to the contractor				1,09,44,687.07

when the matter was pointed out (June 2013). Government replied (October 2014) as under:

behaviour of the clayey strata is highly complex in nature and depends on the properties of the clayey soil which varies from point to point. So study of the extract quantity of the settlement and behaviour of the clay underneath the fomation and its design will take more time and involves serious task for conducting detailed study of the various properties of the clayey strata on the entire formation areas.

Later during execution when the case of heaving of soil occurred it was decided to opt for PVD installation on the approaches. This required compaction of the earth fill to accelerate the primary settlement by dissipating pore water pressure from clayey strata through the PVD. This led to unaccounted sinkage of the earth that was filled for embankment formation. This could not be accounted through level calculation, as the sinkage was happening exorbitantly to drain out the water from the clay beneath . So in order to account for this, some sinkage quantities weré included in the estimate. Due to this natural phenomena the contractor was not willing to continue with the work unless his desired compensation was given.

The approach road alignment is through marshy waterlogged portions having tidal effects. So while progress in the earth filling, there was loss of earth dumped filling, due to initial mixing with loose marshy top clay layer and losses due to tidal effect and this quantity was calculated as 25%. The loss of dumped earth on sides could not be stopped as it was not possible to do side protection works at the toe of embankments before attaining the final settlement. This 25% loss in quantity was approved by Chief Engineer.

The Government sanctioned 25% increase in rate for earth filling after Chief Engineer recommended the

*revision of rates in earth work was in lieu of wastage of earth during execution. Further, the estimate rate for earth work was adopted without applying tender rebate, as it was an extra item and,

**the ground improvement materials viz, geo-textiles and PVD were brought from abroad and that an approximate rate taken from earlier executed work was adopted in the estimate. But, when order was placed for these materials at the time of execution, their rates had increased. Further, these were not items included in the Schedule of rates, but were market rate components for which tender variation was not applied.

The reply of Government was not tenable due to the following reasons:-

* Earthwork for formation of approach roads was an item expressly provided in the original agreement schedule.Hence, revision of its rate by treating it as an extra item was a violation of the condition of NIT. Moreover, the contractor had clearly agreed in the supplementary agreement that the tender rebate of 21.80 per cent was applicable for this extra item.

**Similarly, the items for ground improvement work were also expressly provided for in the schedule of the balance work.So, the contractor had quoted his rates accordingly with tender rebate. Hence, classifying them as extra items of work and enhancing their rates was a clear violation of the NIT provision.

**Further, as per NIT, it was the duty of the contractor to ensure availability of materials before quoting his rates. Hence, the contractor was not eligible for rate revision on account of non-availability of

revised rate in lieu of wastage of earth during execution. The 25% excess rate was allowed as per order No.CE/R&B/KNR/ 16956/2002 dated, 22.10.2009 and in this order it was sanctioned as extra item. As per order No CE/R&B/KNR/ 16956/2002 dated, 09.10.2009 of Chief Engineer(copy enclosed) it was ordered to give estimate rate for all extra items. Hence the original rate of Rs. 1939/ 10m3 was revised to Rs.2424/ 10m3 and this was in order. Meanwhile the excess rate increase by 25% of its application without applying tender rebate was as per the order of Government approved after recommendation of Chief Engineer .

The reasons that attributed for the enhancement of the quantities of earth filling is different in each situation starting from the original estimate preparation till the end of final formation of embankment. There is no loss to Government due to this, as correct stable and more advanced technology which was also a new technology in the stage PVD was adopted in the construction. An alternative to this method is by increasing the length of bridge spaning over the entire water logged marshy portions which will be more expensive than the ground improvement works. At the time of execution the availability of good earth become a serious issue due to high public protest against cutting hill slopes garden lands etc. Hence it became a difficult task for the contractor to obtain good quality and the source mentioned, in the sanctioned estimate has to be changed and additional conveyance even from remote places were sought for.

Hence the earth filling was approved by Chief Engineer as extra items. The earlier proposal that was put forward by
the soil investigation team in their report was for driving the PVD at a spacing of 1.3m length wise and

materials and variation in market rates. In this case also, the department failed to avail the benefit of tender rebate agreed by the contractor. Thus, the action of the Department in enhancing the rates of items expressly mentioned in the agreement schedule by treating them as extra items in violation of the NIT provisions and non-availability of agreed tender rebate on those items resulted in extending an undue benefit of Rs.1.09 Crore to the contractor.

1.12 in breadth wise. But even after the installation of the same, slight sinkage was found in the embankment. Hence the site was inspected by the Superintending Engineer and he proposed to provide with closer intervals of PVD of the range of 60 to 70cm. It was also verified by him that the actual depth of the PVD driven was in the range of 14m than the earlier estimated length of 10m. This has been clearly stated in the SE's certificate and the CE's order. These variations during the execution have led to the abnormal deviation from the estimate quantity. Moreover the rates of the PVD and Geotextiles were got approved by the Chief Engineer as per order No.CE/R&B/KNR/16956/02 dated 18/03/2010(copy enclosed). In the order it was clearly stated that these may be treated as extra items. Moreover as per an earlier order of the same number and dated 09/10/2009, it was stated that the extra items can be given market rate without applying the tender below, which was as per the tender conditions. PVD technology had just arrived in India during those times and there were not many agencies that dealt with this. The materials for the same were to be imported from foreign countries. Hence the rates for the same depended on the daily variations of the dollar rate of rupee rate. Hence when the quotation was called for the PVD, only one agency had quoted with an acceptable rate. Hence the rate of this item could only be taken as market rate, for which the item was made, as extra item, since the market rate varied exorbitantly. The quotation rate was approved as said earlier, by the Chief Engineer.

The close watching of the site execution of PVD driving has also resulted in informing in the higher authority of the insufficient spacing and thus changing the pacing for better result. Considering, all the above reasons, the audit objection may please be dropped.

5.7	**Regarding the work without tender and providing undue benefit to contractor.** The exectuion of work without tender process and unwarranted revision of agreed rates by PWD extended undue benefit of Rs.92.32 lakh to the contractor. As per para 2003 of Kerala Public Works Department Manual, works shall normally be awarded through open tenders after getting administrative and technical sanction and ensuring provisions of funds in the Budget. Secretay to Government, PWD sanctioned (December 2012) reconstruction of the partially collapsed Menonpara bridge across Korayar river in Nattukal-Velanthavalam State Highway in Roads Division; Palakkad through M/s. Kerala State Construction Corporation Limited (KSCC) without inviting tender at an estimated cost of Rs.10.15 crore to avoid delay in tendering process. The Superintending Engineer (Roads and Bridges), North Circle, Kozhikode (SE). awarded (January 2013) the work to KSCC at a cost of Rs.9.31 Crore. The site was handed over (January 2013) to the contractor for completion of work in 18 months. PWD revised (March 2013) the sanction to Rs.18.30 Crore after including road improvement work of nine kms in place of three kms originally estimated. The work was completed in May 2014. The contractor was paid Rs.17.49 crore up to June 2015. One of the items of work included in the agreement schedule for the construction of bridge was 'Boring through all classes of soil 'for cast in situ bored piles with concrete mix M25, 1.20 metre internal diameter anchoring of pile in rock for a minimum depth of 50 centimeters etc. The work involved construction of 28 piles, 12 piles for piers each having an average depth of	The old Menonpara bridge was collapsed on 26.08.2010. At this juncture the public made hue and cry to reconstruct the bridge and facilitate smooth traffic. The matter was taken up with the Government by the people's representatives and the CE. But considering the urgency in restoring the traffic, Government accorded Administrative Sanction for the construction of diversion road through the river bed. Then the reconstruction of the collapsed bridge was thought of by the Government. Considering the demand of the public and urgency pointed out by the people's representatives, it was decided to entrust the work to the KSCC which is a Government owned PSU under PWD, without tender. No other bad intentions behind this act of the Government and it was done in good faith. As per estimate the depth of pile to be driven is only 9.00m to 10m. But as per the site condition the hard rock strata had been found only at the depth of 19.00mbelow the bed level. Hence fresh bore hole details have been taken as directed by the higher authority. The abutment and pier positions fixed now is not at the place were bore hole details had been taken at investigation time. Proposal was for four 20M spans during investigation. But as per estimate it is only three 25.32m spans. Hence the positions of substructure got changed. The additional depth of piles may lead to additional financial commitment also. Revised Estimate amounting to Rs.1830 Lakhs was sanctioned by Government vide G.O(Rt)No.386/2013/PWD dated. 19-3-2013. Due to scarcity of good river sand M.Sand is used for pile concreting otherwise work will be delayed and will have to be stopped. Also, due to oversight rate provided in the approved data of boring (Item No.4) Higher charges of piling rig and bentonite pump with accessories are wrongly entered as 275 per hour

nine metre and 16 piles for abutment each having an average depth of 10 metre. The total length of piles was estimated to be 270 in and the agreed rate was Rs.16,344 per metre. However, during actual execution, Chief Engineer PWD Roads and Bridges (CE) revised (May 2013) the rate of the above item from Rs.16,344 to Rs.34,017 per metre citing reasons such as increase in average depth of piles from nine to 19 in due to non availability of hard rock at the estimated depth, error in calculation of hire charges for piling plant and use of M Sand due to scarcity of river sand. CE sanctioned (May 2013) the rate of above item as 'extra item' and SE executed (June 2014) a Supplementary Agreement for a total length of 549.85 m. An amount of Rs.1.87 Crore was paid (July 2014) to the contractor for the 'extra item'.

Audit scrutiny (February 2014) revealed the following:

*The bridge had collapsed in August 2010 and the Government decided to take up re-construction work only after a lapse, of two-and-a-half years of collapse. Awarding of work to KSCC only without inviting open tenders after two and-a-half years was lacking not only in justification but it was also against manual provisions which advocate transparency in selection of bidders through open competition.

* Items of work which do not form part of the original Agreement Schedule are treated as Extra items". In this case, the item "boring cast in situ piles'', was already existing in the Agreement Schedule. As such, it cannot be subsequently treated as an "extra item".

* The contractor is expected, before quoting his rates, to inspect the site of the proposed work and assess the availability of specified materials. He is also expected to get himself acquainted with the sanctioned estimate approved plans and drawings. Once his rates have been instead of 5126 per hour in the SOR 2012 (MORTH). As the above work was awarded not on the bask of competitive tender and there is no contractor's profit allowed to the contractor, the data for the above item was submitted to the Chief Engineer and the rate is got approved.

The above facts may kindly be got convinced and the objection raised may kindly be dropped.

accepted and agreement finalized and signed, he is bound by the same and
cannot claim its revision on grounds of errors in sanctioned estimates, un-availability or scarce availability of the specified materials etc.

* In the name of approving an 'extra item", the Department has resorted to revision of rates and specifications, after the award of work, on grounds of 'scarce availability of riversand', "error in calculation of hire charges of piling plant" and
made an extra payment of Rs.97.17 lakh to KSCC. The action of the department was wrong as the ground cited for their action were not valid.

Thus, undue revision of reate resulted in extra payment of Rs.97.17lakh to the contractor

Government replied (October 2015) that the work was entrusted to KSCC to avoid delay as the tendering procedure would have taken long time Further, the rates for piling were revised as the depth of piling work had to be increased from 270 m to 549 m during execution. Besides due to non availability of good quality of river sand, the M sand was substituted and that there was some mistake in preparation of data.

The reply of the Government was not acceptable because the period of two and a half years between the date of collapse of bridge and award of work for reconstruction was reasonably Adequate for completing all open tender formalities including invitation of competitive tenders so that the work could be awarded without compromising transparency instead of giving to KSCC only. Further, the revision of rates for piling was also not
acceptable as the rate agreed by the contractor for piling was per metre and not for casting entire pile for a

specific length. Besides, rate once concluded in the agreement signed by both the parties, was not required to be revised.

Thus, unwarranted revision of rate resulted in extension of undue benefit of Rs.92.32 lakh to the sub contractor of KSCC.

5.8 **Wasteful Expenditure on construction of tender piles from bridgework**

Department constructed tender piles for protecting a bridge from the impact collision with bargers even though bridge did not have scope for navigation of heavy vessels resulting in wasteful expenditure of Rs.3.12 Crore.

The Public Works Department (PWD) awarded the work of the construction of 'Thadikkakadavu Bridge' across Periyar river by Roads division, Ernakulam for Rs.27.51 crore. The site was handed over (June 2012) to the contractor for completion of work in 18 months (December 2013). The work remained incomplete (July 2015) and the contractor had been paid Rs.15.71 crore (July 2015).

The bridge was designed to rest on a foundation of bored cast-insitu piles, for which 2,650 metres of piles at a unit rate of Rs.27,056 per metre were planned. During execution, the length of piles was increased to 3,220 metres of which 729.79 metres were provided as tender piles in a separate pile group, upstream and downstream of the bridge. The department stated that the fender piles were required to protect the bridge from the impact of collision from heavily loaded cargo boats moving from Nedumbassery airport to Kochi city. The cost of construction of tender piles was Rs.3.12 crore

In the original design for the construction of Thadikkaddavu Bridge, there was no provision for Fender Piles. It is reported by the then officers that the proposal for providing Fender Piles for protecting the pier of the bridge came up during the execution of work in view of the alarming incidents of vessel hits to Venduruthy Bridge Kochi in the past. The most convenient pier protection system used all over the world is the Fender Piles. With the increasing volume of water transport, it was a common practice to protect the bridges from vessel impact with pier protection system. Hence a proposal for providing Fender Piles was included and the estimate for the work had been revised. It is also seen from report that the work for the bridge was nearing completion during that lime. The design for the entire bridge had been completed by DRIQ and it is seen reported that considering the volume of work of design of other bridges pending in DRIQ, and as piling work for the bridge was nearing completion, it was necessary to submit the proposal for Fender Piles urgently so that it could be constructed immediately after the piling of the bridge, if the proposal is approved. It is also seen reported that since Fender Piles are not an integrated part of the bridge structure and as it is constructed 15m away from the pile cap of the bridge structure, the design of the Fender Piles was made by a reputed structural consultant. The drawing is approved by the Technical Sanction Authority for the work and the proposal is seen included in the revised estimate for

Audit observed that though the original design of the bridge was approved (March 2012) by the Design Research and Investigation Quality Control Wing (DRIQ), under the control of Chief Engineer. (Designs) as stipulated in the PWD manual, the design of fender piles was approved (November 2012) by the CE himself, which means that the DRIQ was not involved in the change of design of fender piles.

It was further noticed that there was no specific request from various stakeholders/departments (KSINC, SWTD, IND etc.) regarding provision for fender piles. Moreover, the route identified for connecting Nedumbassery - airport with Kochi city passes through the southern arm of river Periyar, whereas the bridge was constructed on the northern arm as shown in the sketch attached.

Further, there was no infrastructure for anchoring of cargo boats anywhere near the Nedumbassery airport. Therefore, the construction of fender piles by adducing to safety concerns from barges/cargo boats was not tenable.

Audit also observed that the fender piles were made of concrete with no impact absorbing quality to provide protection either to the bridge structure or to the vessels in the event of a collision. Further, the top levelof fender piles constructed was much below the Maximum Flood Level (MFL) of the river. The fender piles would not be visible during flood, making it likely to cause damage to the piers of the bridge as well as the barges. Thus, the purpose of protecting the piers with the help of fenders was doubtful.

On being asked, the Secretary, PWD replied (October 2015) that on account of concerns of polluting the drinking water projects at Chowara and Aluva, Cochin

the work. In view of the above facts, the audit objection may please be dropped.

	International Airport Limited (CIAL) shelved a proposal to develop the Southern branch of Periyar river as a waterway connecting CIAL to Kochi Seaport for cargo movement. An alternative proposal of developing the northern branch was under consideration of CIAL, and hence, the fender piles were constructed in anticipation of movement of heavy cargo vessels through the same. The reply was not tenable in view of the confirmation provided by Irrigation Department that there were no plans of developing the Northern branch of Periyar River over which the Thadikkakadavu bridge is constructed as a waterway connecting CIAL with the Kochi Seaport. Irrigation Department further confirmed that there were bottlenecks for large scale cargo movement from CIAL to Kochi city/seaport through the Northern branch, like insufficient vertical clearance of existing cross structures, insufficient width and depth in a five km stretch between CIAL and Chengalthode. Thus, the decision to change the designs for providing fender piles was taken without assessing actual requirement and approval of the DRIQ Board which led to wasteful expenditure of Rs. 3.12 crore on construction of fender piles.	
5.9	**Avoidable payment of sinking of wells for foundation of four bridges.** Separate payment amounting to Rs 2.28 Crore was made to the contractors by PWD outside the agreed rate for removing obstacles encountered during sinking of wells for foundation of four bridges. The special conditions or contract stipulate that the rate quoted shall be inclusive of all the operations contemplated in the specification and tender schedule	The detailed estimate of all bridge works under audit enquiry were prepared adopting PWD standard data and specification item No.701 to 706 of chapter XV in the PWD data book were approved for well sinking of abutment and piers of the bridges. The specification of these items is given here under. Sinking well in all soils other than rock to lines and levels ad plumb by scooping out from inside and below the staining including use of dredgers or any other appliance hire and labour for knetledge, jetting,

which covers the incidental work necessary for such operations. The conditions further stated that all items should be carried as per the relevant specification in the Madras Detailed Standard Specification (MDSS) which specifies that when the well has reached the required level care should be taken to see that it is seated properly.

Superintendent Engineer. Roads and Bridges, North Circle, Kozhikode (SE), had awarded - (March 2011 to July 2012) four bridge works under PWD Roads Division, Manjeri at an estimated cost of Rs.24.65 crore in Malappuram district. As per the agreement schedule one of the items of work was sinking of reinforced cement concrete circular well in all classes of soil other than rock. The sinking process includes scooping of earth to line, level and plumb from inside and below steining with dredgers and other appliances including removal of obstacles. The EE made extra payments of Rs.2.28 crore to the contractors of four bridge works towards charges for cutting and breaking down boulders having the size of more than 40 dm3 during sinking of wells and for seating of wells as shown below:

dewatering blasting, vibrating or any other method including removal of obstacles and dumping the spoils within a distance of 150m. The size of obstacles, which were to be removed together with well sinking operation has not been mentioned in the specification. But in the general note 5 given in the chapter XV of standard data book, the size of the obstacles are clearly mentioned that the unit rate for item 701 to 706 includes provision for removal of all obstacles except the following.

1. Boulders more than 40dm3 and logs of wood of more than 100dm3 in size which come under the cutting edge and inside the well and which have to be cut down or broken into small pieces for removal.

2. In the case of obstacles mentioned under note (1) extra shall be paid only for cutting down or breaking the obstacles into small pieces.

It is very clear from the specification and general note given in the standard data book that the rate for cutting down obstacles of size above 40dm3, wooden logs, of size above 100dm3 and sinking well in rocks have not been included in item No.701 to 706 of well sinking. And sinking wells through rock if any encountered during well sinking operation simultaneously together with well sinking operation, otherwise the contractor cannot continue well sinking operation and complete the work within time as this item of work is beyond scope of approved specification and terms of agreement provisions. This general note S in Chapter XV of standard data book was included in the agreement schedule from long back ago and all contractors are well aware about this item and they had considered this during the time of tender quoting.Copies of the agreement schedule of bridges constructed during the period of 2013 is enclosed.

Details of works showing extra payments made

Sl. No	Name of work (item as per agreement)	Particulars of estimated cost and extra payments for well sinking			
		Estimated cost (Rs. in lakh)	Extra payment (Rs.in lakh)	Percentage of extra payment on estimated cost)	
1	Construction of Mythrakadavu bridge	5	6.36	96.12	1511.32
2	Construction of Vallipadam Alungalkadavu bridge	6.7	15.15	63.49	419.08
3	construction of Thayyilakadavu bridge	6.7	11.57	30	259.29

The quantity of nature of work to be done of such items cannot be assessed while preparing either the estimate or agreement schedule since these items are invisible. Lump-sum provision are included in the sanctioned estimate and these items are executed on actual DLR basis by the department as and when encountered during well sinking. Approved detailed estimate and other design details etc are verified by the contractors and they are well known about these items of removal of obstacles other than included in well sinking items and considering this while quoting rate for the tender. No contractor's profit or tender variations are allowed for executing these items of work. Hence the contractor has no monitory benefit of implementing these items and has not deviated/violated the agreed specifications.

Approved design of bridges insists seating of well foundation upon a levelled hard rock strata and well kerbes are to be anchored to a minimum 60 cm depth into hard rock. Undulated, soft and unweathered top layers of rock formations found in river beds are to be cut and removed to seat the well foundations as insisted in design. It is very clear from the agreed specification of well sinking items that the rate for cutting and removing rock has not been included in these items and these quite essential and inevitable items are to be carried out by the department separately on actual DLR basis simultaneously together with well sinking operation. Though the presence of obstacle can be noticed on core boring during sub soil investigation, exact Number, size,quantity and nature of work to be carried out for cutting and breaking down into pieces of these invisible obstacles can not be assessed for including the sanctioned estimate. Hence these items are being executed on actual DLR basis as and when encountered during well sinking. The work actually

4	construction Umminikadavu bridge	6.7	15.01	38.51	256.56
	Total		48.09	228.12	474.36

As can be seen from the above table, the percentage of extra payment comes to nearly four times the estimated cost of the agreed item of well sinking and this payment was made without following the usual tender procedure.

In this connection, Audit observed the following;

All works except the extra items were put to tender on 'percentage one basis' in which the quoted rate was inclusive of all operations contemplated in the specification and tender schedules including incidentals. The workable rate quoted by the bidder was inclusive of charges for removing boulders irrespective of their size. Therefore, the payment for cutting and breaking down boulders of more than 40 cm3size during sinking of abutments and pier wells and for sealing of wells on base, over and above the estimated cost was contrary to the provisions contained in the agreement.

Secretary. PWD stated (October 2015) that the approved design of bridges insisted seating of well foundation upon a leveled hard rock stratum and well kerbs were to be anchored to a minimum 60 cm depth into hard rock and that in order to seat the well foundations. the top layers of rock formations were to be cut and removed as mentioned in design and that the rates for the above rock cutting works were not included in the agreed specification. Further, the reply stated that the general note in Standard Data Book done are often exceeded from nominal lump sum provision as there are limitations to include lump sum provision in sanctioned estimate. After preparing the DLR, it is submitted to higher authorities for according sanction. Revised estimate incorporating all the deviated items are prepared and got approved and regularized from the competent authorities before final payment.

After adopting the MORTH data in Kerala PWD, this DLR item is changed to rate for sinking in soft rock and rate for sinking in hard rock as per MORTH specification.

In view of the above facts the audit objection may please be dropped.

permitted the payment for cutting down boulders of size above 40cm3 and wooden logs of size above 100 cm3 encountered during well sinking.

The reply of the Government was not tenable as the quoted rate was inclusive of all operations contemplated in the specifications and tender schedules including incidentals. The specification in the tender schedule and agreement schedule for the item of well sinking included removal of obstacles. As notes in the Standard Data book were not made part of the agreements. extra payment for cutting down boulders of size above 40 cm3 was not permissible. Thus, due to its failure to adhere to the specifications in the tender schedules,the Department had extended undue benefit of Rs.2.28 crore to the contractors.

5.11 **Double payment to the contractor for same work through Hand Receipts.**

Failure to exercise required verification by PWD resulted the double payment for executing an item of work in the construction of Mythrakkadavu bridge across river Chaliyar in Malappuram district.

Article 40 (b) of the Kerala Financial Code provides that every Government servant who incurs or authorizes the incurring of any expenditure from public funds should see that the expenditure should not be prima facie more than the occasion demands. He is expected to exercise the same diligence and care in respect of all expenditure from public moneys under his control as it person of ordinary prudence would exercise in respect of the expenditure of his own money

The payment of actual on bridge works was resorted on the basis of provision in the Data Book. The DLR prepared by the Assistant Engineer was submitted to the Chief Engineer through proper channel and on the basis of the proceedings issued by the Chief Engineer; an HR would be prepared and recorded in the M Book. This HR is presented at the Division office for payment. Since the item is not included in the Agreement Schedule(copy enclosed). CC Bill forms cannot be used for this purpose and HR payment is resorted to. The genuineness of the claim can be ensured only by the Assistant Engineer in such HR claims.

On 31.03.2014 2 Nos. of HR for the actual DLRs for cutting and breaking down boulders and wooden logs more than 40 dm3 in size for an amount of

Superintending Engineer. Roads&Bridges, North Circle, Calicut.(SE) had executed an agreement (March 2011) with Shri.V.P.Mohammed Ayub, contractor, Erahikode, Edavana, Malappuram District, for the construction of Mythrakadavu bridge across river Chaliyar in Malappuram District. The work was executed by the Executive Engineer, Roads Division, Manjeri (EE).

Audit of vouchers (July 2015) of Public Works Department transactions (PWD) in the office of the EE revealed that the EE had made (July 2015) a payment of Rs.14,93 lakh through a Hand Receipt (HR) prepared by the Assistant Engineer, Bridges Section, Manjeri (AEE) and verified by the Assistant Executive Engineer. Bridges Sub Division, Manjeri (AEE) for an item of work "cutting and breaking into small pieces of boulders size during sinking of wells and seating of well pier-2". The payment recorded at page 35 of Measurement Book No.7732, was made through the Bill Discounting System (BDS) and adjusted in the Monthly Account of July 2015 through a Transfer Entry (July 2015). The EE made (July 2015) payment based on the sanction accorded in respect of an item of work in the Daily Labour Report by the Chief Engineer, Roads & Bridges (CE), Thiruvananthapurarm.

As the sanction was more than two years old, a further scrutiny in Audit revealed that a total amount of Rs.55.12 lakh (including the amount of Rs 14.93 lakh related to the work) was paid during July 2015 for executing the item and that the amount of Rs 14.93 lakh had already been paid earlier during May 2013 (CBV 150 of May 2013) based on the same sanction for executing the same item. Both the payments. i.e. May 2013 and July 2015 were made through HR prepared by the then AE and verified by the then AEE and recorded on Page 6 of Measurement Book No.9360.

Rs.14,92,714/- and Rs. 40,19,740/- were submitted by the PWD Bridges Sub division, Manjeri to the Executive Engineer, Manjeri as per No. D2-328/2002 dated 31.03.2014. These HRs were supported by 2 sanction letters of the Chief Engineer (No. CE/R&B/MNJ/9986/09 dated 30.01.2013 for Rs.14,92,714.50/-) and No.CE/R&B/MNJ/9986/2009 dated 22.03.2014 for Rs. 40,19,740/-). The bill received from the Sub division is registered as Bill No. 917 dated 31.03.2014. There are eight constituency areas coming under Bridges Section, Manjeri. The staff under Manjeri Bridges Section is very limited with 2 Overseers and Assistant Engineer. Also the number of works are very high during that period (7 ongoing works) and the whole works are scattered through out the nook and corner of Malappuram district. Hence supervising and monitoring under this Section and traveling from one site to another will require a lot of time. So as a result the time available for the preparation of bills and the scrutiny of the same was done in an urgent manner which lead to the duplication of the payments which was later corrected.

As the Bill is prepared by a responsible Assistant Engineer who Supervised the work the genuineness was not suspected. More over no evidence of previous payment is seen in the audit file. The detailed scrutiny of HR payment would be conducted at the time of final payment in work slip. Hence the amount of Rs.55,12,454/- was passed under good faith from the Division office in June 2014. It is true, that the work register was not and action in the Division for a long period. But a new Register was opened in 2014-15 taken to the inspection furnish the details of previous payments on all ongoing works. After the inspection of Accountant General the work Register is maintained properly The miscellaneous sanction register is also maintained.

Further Audit investigation revealed that only one Daily Labour Report (DLR) was sanctioned in the Divisional records to support the payment of Rs.14.93 lakh (May 2013). No DLR was available to support the second payment of July 2015 which confirmed that payment of Rs.14.93 lakh made to the contractor during July 2015 through the BDS was double payment. On this being pointed out by Audit (December 2015), the EE admitted the double payment and got the amount remitted from the contractor in December 2015.

Audit of Internal Control Mechanism of the office of the EE, further revealed that the office was neither maintaining nor monitoring the requisite Control Registers as stipulated in Kerala Public Works Account Code Para No.10.5 (Works Abstract), para Nos. 10.6 and 5.3.3 (Works register), Para No.10.7 (Contractors' Ledger) and Para No.22.2.7 (Miscellaneous Sanction Register). The AE was, thus, not exercising any preliminary checks on the contractors claims. Thus, disregard for the mandatory checks of consulting previous records by the EE led to double payment of Rs.14.93 lakh for the same work.

Further, the double payment of July 2015 was made through the newly introduced Bill Discounting System (BDS). The Finance Department (FD) transfers the details of only those Bills into the BDS database which are processed and recommended by the CE in EMLI software and for which the FD had agreed to issue a letter of Credit (LoC). The fact that the LoC for the payment of Rs.14.93 lakh was issued by the FD in July 2015 and that the payment of July 2015 occurred through BDS, confirmed that the claim of the contractor was processed and recommended throughout the entire chain of authorities from the AE level to the CE level and that none of the authorities could detect the double payment being attempted. This revealed as under:

During the special inspection conducted by the Accountant General in December 2015, the duplication in payment was detected. Immediately the Division issued order to recover the excess amount paid as per Order No.E4/A3/3255/2011 dated 31.12.2015 and the contractor remitted the excess payment of Rs. 14,92,714, on the same day. Hence no financial loss is sustained by Government at present. At that time the Contractor had completed 85% of work and an approximate amount of One Crore was to be billed. The completion and final payment was still pending at that time. Now the final bill amount of Rs.1.84 Crore is still pending for payment.

Normally all major bridge Works require revised estimate. At the time of preparation of Revised Estimate the actual paid through HR would also be included and the duplicate payment would be surely detected. The detailed Scrutiny on all payments would be conducted at the time of final payment. Hence the discrepancy will surely be detected at the time of final payment. Now, the registers are maintained properly and will be more vigilant in auditing work bills.

With regard to this suggestion to modify the software EMLI, the FD has been requested to do the same in accordance with the recommendation of the C&AG. In view of the above facts, the audit objection may be dropped.

* weak Internal Control Mechanism in the Roads and Bridges wing of the PWD;

*recovery of double payment in this case was at the instance of Audit but no action has been taken against the officials responsible for this. Besides, the present system gives scope for such double payments escaping detection in future: and

*the software EMLI was not able to detect the fact that a Letter of Credit had already been generated against the same sanction at an earlier date.

In this respect, Audit recommends as under:

1. The commission of double payment coupled with the weakness of the Internal Control Mechanism, of the Department requires thorough investigation, preferably by Vigilance authorities to pre-empt any intentional negligence/fraud

2. The software 'EMLI' may be modified so that only one Letter of credit is generated against a sanction and any further attempt to generate Letter of Credit on the same sanction would be rejected by the system automatically;

3. The payment of huge amounts through HRs (KPW Form 24), instead of the Forms KPW 22 (for making first and final payment to contractor) or KPW 23 (for making running payments), may be discouraged as the HRs lack the basic control measure; and accountability provisions as compared to Forms KPW 22 or 23 which help to pre-empt irregular payments.

During Exit Conference, the Chief Engineer stated that

this was the first instance and no other Case or double payment was currently known to the Department. As regards enquiry about such instances taken place in other Divisions also, the Secretary to Government stated that assurance could be furnished only after an investigation in the matter. Thus, thorough investigation is required in the matter to guard against the recurrence of such serious lapses – in future.

Sreekala

R. SREEKALA DEVI
Special Secretary to Govt.
Public Works Department
Govt. Secretariat, Tvpm.
Ph: 2327175, 2518465

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No. CE/R&B/KNR/16956/2009

Office of the Chief Engineer.
PWD Roads & Bridges
Thiruvananthapuram
Dated 31.10.2009.

From

The Chief Engineer

To

The Superintending Engineer,
R&B North Circle,
Kozhikode.

Sir,

Sub:- NABARD RIDF XII - Construction of bridge at Varamkadavu in Chelora Grama Panchayat in Kannur district.

Ref:- That office Letter No. DC2/2526/98 dated 15.09.2009

Under the circumstances explained by you vide your letter cited, the proposal is approved (About 25% of earth as mentioned as extra items). Necessary data incorporating the item may be submitted immediately.

Yours faithfully,

For **CHIEF ENGINEER**

Copy to the Executive Engineer, Roads Division, Kannur

Fc3

Attachment No. 2 – Related to Para No.5.5

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1[illegible]534/2017/OS-PWD

No. CE/R&B/KNR/16956/2002.

Office of the Chief Engineer,
PWD Roads & Bridges & IT,
Thiruvananthapuram,
Dated 09-10-2009.

16/10/09 From

The Chief Engineer.

EC To

The Superintending Engineer,
Roads & Bridges North Circle,
Kozhikode.

Sir,

Sub:- NABARD RIDF XIII – Construction of a bridge at Varamkadavu in Chelora Grama Panchayat in Kannur District (Balance work) –

Ref:-1. Lr. No. DC2-2526/98 dated 22-09-2009 of SE, R&B North Circle, Kozhikode.

Under the circumstances explained by you vide your letter cited since there is change of specification the item of work" Installing ~~PWD~~ PVD" can be treated as extra items (as per agreement conditions). The rate of Rs.85/M of as per agreement schedule can be allowed in this case. Regarding the application of tender variation, It is presumed that in the tender schedule the rate of 85/M is based on market rate. Hence in this case for the extra item it can be given market rate subject to a maximum of 85/M without applying tender variation. This is as per agreement condition.

Yours faithfully,

For Chief Engineer

Copy to the Executive Engineer, PWD Roads Division, Kannur.

1400[illegible]/2017/OS-PWD

No. CE/R&B/KNR/16956/02

Office of the Chief Engineer,
PWD Roads & Bridges
Thiruvananthapuram
Dated : 18.03.2010.

From

The Chief Engineer

To

The Superintending Engineer,
R &B North Circle,
Kozhikode.

Sir,

Sub:- PWD - NABARD RIDF XII – Construction of Bridge at Varamkadavu – Chelora Panchayat at Kannur District (Balance work)

Ref:- Letter No. DC 14/2526/09 dated 15.03.2010 of Suptdg. Engineer, R&B North Circel, Kozhikode.

Under the circumstances explained by you vide letter cited, the following extra items and rates are approved. You are requested to limit the total expenditure with the A.S. amount.

Extra Items

1. Providing and laying non wooven Geo Textile fabrics	: 88/m2 (Rupees Eighty eight only)
2. Providing and laying non wooven Geo Textile under water	: 88/m2 (Rupees Eighty eight only)
3. Providing and laying wooven Geo Textile fabrics (Polyster or Proplylen materials of minimum 3 m width excess directed by the deptl. officers at site.	: 89.78/m2 (Rupees Eighty nine and seventy eight paise only)
4. Providing and installing of flexible pre fabricated vertical drain etc as directed by the deptl. officers at site.	: 109.92/m (Rs. One hundred nine and Ninety two paise only)

Yours faithfully,

for CHIEF ENGINEER

Fc3

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1400/56/2017/OSD RWD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

A.N. 45/11-12

Bidder Name:	M/s Eranad Engineering Enterprises, Kodur PO, Malappuram	Less (-)	7.90	%

SCHEDULE OF WORKS

Sl. No.	Description of work	No.or Qty.	Unit	Estimated Rate		AMOUNT Rs P
				Figure	Words	
	Appendix A: Bridge Proper					
1	Forming island of size 16.5 mx10.5m outer side for an average height of 3 m with 75cm above water level by driving down teak wood posts class III of girth 41 to 52cm to an average depth of 2m below bed level at 60cm c/c for posts and 2m c/c for struts and tying with teak wood posts 50cm c/c to vertical posts already driven down and screening with double bamboo mat with necessary bamboo reaper provided at required intervals and filling inside with earth including all cost, conveyance hire and labour charges and all other incidental expenses etc complete including maintaining the the island till the completion of work and demolition and clearing the same after completion of work as per standard specifications and as directed by the departmental officers	3	Nos	460014.00	Rupees Four Lakh Sixty Thousand &Fourteen Only	1380042.00
2	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for and depositing with all leads and lifts for abutments and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming all labour charges,incidental expenses etc complete as per standard specification and as directed by the departmental officers					
	2a) Initial depth 1.50m	540	M3	94.00	Rupees Ninety Four Only	50760.00
	2 b)First depth 1.50m	462	M3	106.70	Rupees One Hundred & Six - Paise Seventy Only	49295.40
	2c)Second depth 1.50m	286	M3	119.40	Rupees One Hundred & Nineteen - Paise Forty Only	34148.40
3	Supplying and fixing MS angles of size 150 x 150 x 12 mm for cutting edge of well curb including cost and conveyance of materials cutting bending for required shade welded and bonded to concrete using 12mm dowel bars welding, drilling and fixing charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers.	32	Qtl	7182.00	Rupees Seven Thousand One Hundred & Eighty Two Only	229824.00

Signature of Tenderer with seal

Name of work:-NABARD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

14/0534/2017/DSC WD	M25 design mix for moulding well kerb using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	106.25	M3	8850.00	Rupees Eight Thousand Eight Hundred & Fifty Only	940312.50
5	VRCC M 20 design mix for moulding well steining using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as per the direction of departmental officers	574.48	M3	7950.00	Rupees Seven Thousand Nine Hundred & Fifty Only	4567116.00
6	Sinking of RCC circular well 8.5 m outer dia 6.5m inner dia (M25 mix) for foundation of abutments in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges, labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers					
	6a)Initial depth 3 m	6	M	24872.00	Rupees Twenty Four Thousand Eight Hundred & Seventy Two Only	149232.00
	6b) First depth 3.00m to 4.50m	3	M	28175.00	Rupees Twenty Eight Thousand One Hundred & Seventy Five Only	84525.00
	6c) Second depth 4.50m to 6.0m	3	M	31478.00	Rupees Thirty One Thousand Four Hundred & Seventy Eight Only	94434.00
	6d) Third depth 6.0 m to 7.50m	3	M	34781.00	Rupees Thirty Four Thousand Seven Hundred & Eighty One Only	104343.00
	6e) Fourth depth 7.50m to 9.0m	3	M	38084.00	Rupees Thirty Eight Thousand &Eighty Four Only	114252.00
	6f) Fifth depth 9.0m to 10.50m	2.3	M	41387.00	Rupees Fourty One Thousand Three Hundred & Eighty Seven Only	95190.10
	6g) Sixth depth 10.5m to 12.0m	0.4	M	44690.00	Rupees Fourty Four Thousand Six Hundred & Ninety Only	17876.00

Signature of Tenderer with seal

SE

1400534/2017/SB/PWD

	RCC circular well 6.5 m outer dia 4.9m inner dia (M25 mix) for foundation of abutments in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges, labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers					
	7a)Initial depth 3 m	9	M	21673.00	Rupees Twenty One Thousand Six Hundred & Seventy Three Only	195057.00
	7b) First depth 3.00m to 4.50m	4.5	M	24708.00	Rupees Twenty Four Thousand Seven Hundred & Eight Only	111186.00
	7c) Second depth 4.50m to 6.0m	1.9	M	27743.00	Rupees Twenty Seven Thousand Seven Hundred & Fourty Three Only	52711.70
	7d) Third depth 6.0 m to 7.50m	4.5	M	30778.00	Rupees Thirty Thousand Seven Hundred & Seventy Eight Only	138501.00
8	Providing MS dowell bars with 25 mm M.S rods 2.50 m long plugging 1.0m in the hard rock and 1.50 m in to concrete @ 1 m c/c after drilling 50 mm dia holes in granite rock including cost and conveyance of all materials, all labour charges including cutting the rods in to required length and fixing the rod in to position. incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	223	Nos	907.00	Rupees Nine Hundred & Seven Only	202261.00
9	C.C. M15 Grade mix for bottom plugging of well using 20mm hard granitre broken stone including cost and conveyance of all materials, labour for pumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and as directed by the departmental officers .	348	M3	6500.00	Rupees Six Thousand Five Hundred Only	2262000.00
10	Chipping and removing extra projection of well steining without damaging the remaining portion including all labour charges, hire charges, incidental expenses etc complete as per Std. Specification and as directed by the departmental officers .	35	M3	5900.00	Rupees Five Thousand Nine Hundred Only	206500.00
11	Filling inside the wells with clean dry river sand including all leads and lifts, cost and conveyance of sand, consolidating and finishing the top to the required levels. all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	867	M3	1264.00	Rupees One Thousand Two Hundred & Sixty Four Only	1095888.00

Signature of Tenderer with seal

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	C.C. M15 Grade mix using 20mm hard granite broken stones Grade mix for top plugging of well including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and the direction of the dept. officers.	37	M3	6250.00	Rupees Six Thousand Two Hundred & Fifty Only	2312500
13	VRCC M 30 design mix for moulding well cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregute, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	430	M3	7150.00	Rupees Seven Thousand One Hundred & Fifty Only	3074500
14	VRCC M 20 design mix for moulding abutment and solid wing wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	377	M3	7300.00	Rupees Seven Thousand Three Hundred Only	2752100.00
15	VRCC M 30 design mix for moulding pier and pier cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	225	M3	7600.00	Rupees Seven Thousand Six Hundred Only	1710000.00
16	VRCC M 25 design mix for moulding abutment cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	8	M3	7900.00	Rupees Seven Thousand Nine Hundred Only	63200.00
17	VRCC M 25 design mix for moulding dirt wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	22	M3	9400.00	Rupees Nine Thousand Four Hundred Only	206800.00

Signature of Tenderer with seal

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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400034/2017/OS-PWD Name of Work: NABARD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

18	VRCC M-30 design mix for moulding pedestal using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	3	M3	8550.00	Rupees Eight Thousand Five Hundred & Fifty Only	25650 00
19	VRCC M 25 design mix for moulding T beam, deck slab, kerb etc using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	468	M3	21300.00	Rupees Twenty One Thousanc Three Hundred Only	9968400 00
20	VRCC M 20 design mix for moulding handrail using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compecting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	20.001	M3	12400.00	Rupees Twelve Thousand Four Hundred Only	248012 40
21	VRCC M 20 design mix for moulding footpath using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	27.888	M3	7450.00	Rupees Seven Thousand Four Hundred & Fifty Only	207765 60
22	Supplying and fixing draingae spouts with 63 mm dia PVC pipe 60 cm long with GI gratings of 150x150 mm size for deck slab including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	96	Nos	92.50	Rupees Ninety Two - Paise Fifty Only	8880 00
23	Providing reinforcement for RCC work using TMT steel, fusion bonded and epoxy coated bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	1766	Qtl	6855.00	Rupees Six Thousand Eight Hundred & Fifty Five Only	12105930 00

Signature of Tenderer with seal

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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/OS-PWD

Name of Work - NABARD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

24	Providing expansion joint between spans with Aluminium sheet 16 gauge 7.50 cm long and 55 cm wide(weight of sheet 7.50x0.5xx3.40 kg/m2)packing in position, cutting the same in position with slot and 10x6mm at 30cm centre to centre and filling the joints with mixture of bitumen, sand and saw dust including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	56	M	1182.00	Rupees One Thousand One Hundred & Eighty Two Only	66192.00
25	Providing 20mm pre mixed chipping carpet over the new metalled surface with departmental broken stone after thoroughly cleaning the base with wire brushes, brass brooms and applying a priming coat of 7.50Kg of bitumen/10 m2 and spreading the premix(formed of 0.27m3 of 12mm metal and 12.96kg of bitumen/ 10m2) rolling to a dense surface then spreading the seal coat (comprising of a hot premix of 0.09m3 of 6mm departmental metal and 8.64 kg of bitumen / 10 m2) again rolling including cost and conveyance of bitumen, oil, fuel etc, all labour charges, hire charges of brass brooms , camber board , roller and other machineries, watching, lighting, incidental expenses etc, complete (total usage of bitumen 29.10 Kg/10 m2,) as per IRC specification and as directed by the departmental officers	670	M2	162.00	Rupees One Hundred & Sixty Two Only	108540.00
26	Providing and erecting retro-reflectorised cautionary, mandatory and informatory sign as per IRC: 67-2001 made of high intensity prismatic lens reflective sheeting with 7 years gurantee mounted over hard and corrosion resistant aluminium alloy sheet, 2mm thick confirming to IS: 736 and clause 1:2:5 of approved specification supported by frames made of mild steel angle iron of designed size and supported on two posts of mild steel angle iron 75mm x 75mm x 6mm, firmly fixed to the ground by means of foundation with M15 grade cement concrete 45cm X 45cm X 60cm, 60cm below ground level as per approved drawing etc.complete including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as directed by the departmental officers. (30*90 cm rectangular)	2	Nos	3777.00	Rupees Three Thousand Seven Hundred & Seventy Seven Only	7554.00
27	Providing and erecting retro-reflectorised cautionary, mandatory and informatory sign as per IRC: 67-2001 made of high intensity prismatic lens reflective sheeting with 7 years gurantee mounted over hard and corrosion resistant aluminium alloy sheet, 2mm thick confirming to IS: 736 and clause 1:2:5 of approved specification supported by frames made of mild steel angle iron of designed size and supported on two posts of mild steel angle iron 75mm x 75mm x 6mm, firmly fixed to the ground by means of foundation with M15 grade cement concrete 45cm X 45cm X 60cm, 60cm below ground level as per approved drawing etc.complete including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as directed by the departmental officers. (60*80 cm rectangular)	2	Nos	5181.00	Rupees Five Thousand One Hundred & Eighty One Only	10362.00

Signature of Tenderer with seal

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

14/053/2017/TCSPWD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

28	Providing and erecting retro-reflectorised direction and place identification sign with size more than 0.9 Sqm as per IRC: 67-2001 made of high intensity prismatic lens reflective sheeting with 7 years gurantee mounted over hard and corrosion resistant aluminium alloy sheet, 2mm thick confirming to IS: 736 and clause 1:2:5 of approved specification supported by frames made of mild steel angle iron of designed size and supported on two posts of mild steel angle iron 75mm x 75mm x 6mm, firmly fixed to the ground by means of foundation with M15 grade cement concrete 45cm X 45cm X 60cm, 60cm below ground level as per approved drawing etc.complete including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as directed by the departmental officers.	6	M2	9263.00	Rupees Nine Thousand Two Hundred & Sixty Three Only	55578.00
29	Painting with synthetic enamel paint of suitable colour with approved quality two coats including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	500	M2	86.60	Rupees Eighty Six - Paise Sixty Only	43300 00
30	Bailing out water in trenches using 5 HP pump including cost and conveyanve of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	10000	HP hr	30.50	Rupees Thirty - Paise Fifty Only	305000 00
	Total for Appendix A= 43374469.10					
	Appendix B Approach road					
1	Earth work filling with contractor's own earth cut and conveyed from sources of availability and forming embankment with all leads and lifts by spreading in horizontal layers of uniform thickness over the full width, drying or watering as the case may be, scarfying to get uniform OMC compacting the filled earth using power roller in layers not exceeding 25cm (loose thickness) satisfying compaction tests, including trimming slopes to lines and levels including cost of oil , fuel etc, hire charges of roller Including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	5000	M3	312.80	Rupees Three Hundred & Twelve - Paise Eighty Only	1564000 00
2	Collection and supply of quarry muck including stacking on the road sides in standard heaps for measurement for filling the low lying portions of the road and compacting with power roller including cost and conveyance, all labour charges,incidental expenses etc complete as per standard specification and as directed by the departmental officers	778	M3	643.30	Rupees Six Hundred & Fourty Three - Paise Thirty Only	500487 40

Signature of Tenderer with seal

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Name of work: NABARD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

3	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of retaining wall and depositing on bank with all lead and lifts and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming and sectioning of spoil bank including all conveyance charges, labour charges,incidental expenses etc complete as per standard specifications and as directed by the departmental officers	820	M3	94.00	Rupees Ninety Four Only	77080.00
4	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying properly and compacting for foundation of retaining wall including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	369	M3	4213.00	Rupees Four Thousand Two Hundred & Thirteen Only	1554597.00
5	Cement Concrete 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for retaining wall and drain including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers					
	5a) For footing and super structure of quadrant wall	675	M3	5153.00	Rupees Five Thousand One Hundred & Fifty Three Only	3478275.00
	5b) For footing and super structure of retaining wall	536	M3	5465.00	Rupees Five Thousand Four Hundred & Sixty Five Only	2929240.00
6	Dry rubble masonry using hard blasted quarry rubble for foundation and super structure of retaining walls including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	80	M3	1328.00	Rupees One Thousand Three Hundred & Twenty Eight Only	106240.00
7	Cement concrete1:2:4(One cement,Two sand and Four Metal) using 20mm hard granite broken stones,mixing, laying properly and compacting for top belt including cost and conveyance of all materials, all labour charges,formwork charges,watering, curing, incidental expenses etc, complete, excluding cost of reinforcement as per standard specifications and as directed by the departmental officers	10	M3	6450.00	Rupees Six Thousand Four Hundred & Fifty Only	64500.00
8	Collection and supply of 60 mm hard granite graded metal in the ratio of 7:3 of 60mm and 36 mm metal by volume respectively and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	162	M3	951.00	Rupees Nine Hundred & Fifty One Only	154062.00

Signature of Tenderer with seal

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1400[illegible]/2017/OS PWD

Name of Work: NABARD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

9	Collection and supply of 36 mm hard granite broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	158	M3	1043.00	Rupees One Thousand &Fourty Three Only	164794.00
10	Supplying and stacking good gravelly red earth for binding and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	57	M3	374.00	Rupees Three Hundred & Seventy Four Only	21318.00
11	Metalling the roadway 100 mm thickness compacted to 75 mm using broken stone(graded granite stone in the ratio 7:3 of 60 mm and 36 mm size respecively) 1m3 per 10m2 and departmental binding material at 0.20m3 per 10 m2, bed rolling, spreading broken stones to template, rolling dry to compaction from sides to centre until the movement of broken stone cease. watering profusely and re rolling until the fines cream up and fill the voids of the stone,then spreading the gravelly earth and sweeping in to the joints, watering and re rolling until the gravelly earth has worked in to all crevices and a thin coat of slurry remains, then take off the roller and allow the surface to set to harden for 24 hours and re rolling next day until any deformity is rectified including fencing,lighting, watching, hire charges, cost and conveyance of all materials, all labour charges, incidental expenses etc complete and maintaining the surface free from ruts for 15 days after completion as per standard specification and as directed by the departmental officers(for sub base)	1619 1575	M2	62.90	Rupees Sixty Two - Paise Ninety Only	[illegible]
12	Metalling the roadway 100 mm thickness compacted to 75 mm using broken stone 36 mm size, 1m3 per 10m2 and departmental binding material at 0.15m3 per 10 m2, bed rolling, spreading broken stones to template, rolling dry to compaction from sides to centre until the movement of broken stone cease. watering profusely and re rolling until the fines cream up and fill the voids of the stone,then spreading the gravelly earth and sweeping in to the joints, watering and re rolling until the gravelly earth has worked in to all crevices and a thin coat of slurry remains, then take off the roller and allow the surface to set to harden for 24 hours and re rolling next day until any deformity is rectified including fencing,lighting, watching, hire charges,cost and conveyance of all materials, all labour charges, incidental expenses etc complete and maintaining the surface free from ruts for 15 days after completion for sub base as per standard specification and as directed by the departmental officers(for base course)	1575	M2	62.90	Rupees Sixty Two - Paise Ninety Only	99067.50
13	Collection and supply of 12 mm size hard granite broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	43	M3	1524.00	Rupees One Thousand Six Hundred & Twenty Four Only	69832.00

Signature of Tenderer with seal

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14/053/2017/OS-PWD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

	Collection and supply of 6 mm size hard granite broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	15	M3	1333.00	Rupees One Thousand Three Hundred & Thirty Three Only	[illegible]
15	Providing 20mm pre mixed chipping carpet over W.B.M surface with departmental broken stone after thoroughly cleaning the base with wire brushes, brass brooms and applying a priming coat of 7.50Kg of bitumen/10 m2 and spreading the premix(formed of 0.27m3 of 12mm metal and 12.96kg of bitumen/ 10m2) rolling to a dense surface then spreading the seal coat (comprising of a hot premix of 0.09m3 of 6mm departmental metal and 8.64 kg of bitumen / 10 m2) again rolling including cost and conveyance of bitumen, oil, fuel etc, all labour charges, hire charges of brass brooms , camber board , roller and other machineries, watching, lighting, incidental expenses etc, complete (total usage of bitumen 29.10 Kg/10 m2,) as per IRC specification and as directed by the departmental officers	1575	M2	162 00	Rupees One Hundred & Sixty Two Only	[illegible]
16	Provding precast guard stones of 20x20x90 cm made of CC M 20 using 20mm hard granite broken stone with 4nos HYSD bars 10mm dia and 6mm stirrups @15cm c/c for reinforcement and fixing in line and levels 60 cm below the ground level with CC 1:4:8 (45cm x 45cm x 60cm) including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	114	Nos	1043 00	Rupees One Thousand &Fourty Three Only	[illegible]
17	Providing road markings with hot applied thermo plastic compound 2.50 mm thick including reflectorising glass beads@250 grams per square metre area at the centre line and pedestrian crossings of road ,(thickness of 2.50mm is exclusive of surface applied glass beads) and finishing the surface level and uniform free from streaks and holes including cost and conveyance of all materials all labour charges, incidental expenses etc complte as per standard MORTH specifications and as directed by the departmental officers.	64	M2	384 00	Rupees Three Hundred & Eighty Four Only	24576 00
	Total for Appendix B= 11303951					
	Appendix C-Construction of culverts					
1	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of culvert and depositing on bank with all lead and lifts and using the spoil for filling and forming of road wherever necessary. including breaking clods, watering, ramming and sectioning of spoil bank including all conveyance charges, labour charges,incidental expenses etc complete as per standard specifications and as directed by the departmental officers	108	M3	94 00	Rupees Ninety Four Only	10152 00

Signature of Tenderer with seal

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Name of work:-NABARD RIDF XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District

	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying properly and compacting for foundation of culvert including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	46	M3	4213.00	Rupees Four Thousand Two Hundred & Thirteen Only	193798.00
3	Cement Concrete 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for footing and abutment of culvert including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	118	M3	5191.00	Rupees Five Thousand One Hundred & Ninety One Only	612538 00
4	Reinforced cement concrete1 11/2:3(One cement,One and half sand and Three Metal) using 20mm hard granite broken stones,mixing, laying properly and compacting for culvert including cost and conveyance of all materials, all labour charges.formwork charges,watering, curing, incidental expenses etc, complete but excluding the cost of reinforcement, as per standard specifications and as directed by the departmental officers	42	M3	6650.00	Rupees Six Thousand Six Hundred & Fifty Only	279300.00
5	Providing reinforcement for RCC work using TMT steel, fusion bonded and epoxy coated bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	54	Qtl	6855.00	Rupees Six Thousand Eight Hundred & Fifty Five Only	370170.00
	Total for Appendix C= 1465958					
	Appendix D-River Side Protection Works					
1	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of retaining wall and depositing on bank with all lead and lifts and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming and sectioning of spoil bank including all conveyance charges, labour charges,incidental expenses etc complete as per standard specifications and as directed by the departmental officers	1600	M3	94.00	Rupees Ninety Four Only	150400 00
2	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying properly and compacting for foundation of retaining wall including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	141	M3	4213.00	Rupees Four Thousand Two Huncred & Thirteen Only	594033.00

Signature of Tenderer with seal

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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

	Name of Work:-KIIDP XVII- Construction of Thayyilakkadav Bridge across Kadalundi river in Malappuram District					
3	Cement Concrete 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for foundation and super structure of retaining wall including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	1080	M3	5111.00	Rupees Five Thousand One Hundred & Eleven Only	5519880 00
4	Providing reinforcement for RCC work using TMT steel, fusion bonded and epoxy coated bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental efficers	193	Qtl	6855.00	Rupees Six Thousand Eight Hundred & Fifty Five Only	1323015 00
5	Providing weep holes with 63mm dia PVC pipes for retaining walls including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	160	M	74.00	Rupees Seventy Four Only	11840 00
6	Bailing out water in trenches using 5 HP pump including cost and conveyanve of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	10000	HP hr	30.50	Rupees Thirty - Paise Fifty Only	305000 00
	Total for Appendix D= 7904168					
	DEDUCTION FOR DEPARTMENTAL MATERIALS AND HIRE CHARGES OF T&P					
	6.533MT Bitumen VG 10 @ Rs 37073/ MT =Rs 242198.00					
	23 Days Roller @ Rs 2392/ Day =Rs 55016.00					
	3 Days Boiler & Sprayer @ Rs 35.65/ Day =Rs 107.00					
	9 Days Wheel Barrow @ Rs 3.45/ Day =Rs 31.00					
	3 Days HM plant @ Rs 830/ Day =Rs 2490.00					
	Total Amount =Rs 299842.00					
	Deduct Cost of Department Materials and Hire Charges for Department Machineries					299842.00
	Net PAC					63748704.10
Total estimated cost in Figures						64048546.10

Net PAC---------	Rs	63748704	
Deduct tend percentage 7.90% below est rate----	Rs	5036148	
	Rs	58712556	
Add depti materials and hire of T&P---------	Rs	299842	
AGREED PAC------	Rs	59012398	

Signature of Tenderer with seal

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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/QS-PWD

Name of Work:- NABARD-RIDF-XV- Construction of Thayyilakkadavu Bridge across Kadalundi river in Malappuram District

I/We agree to undertake to execute the work at (1) M/S Ernad Engineering Enterprises, P.O. Kodur, Malappuram District

(a) estimate rate

(a) ..... 7.90 % below .....% below estimate rate.

(c) .....% above estimate rate.

less cost of Departmental materials and all hire charges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed"

I / we also agree that the tender excess/reduction may be applied on the amount calculated after deducting the cost of all Departmental materials and all hire charges for departmental tools and plant from the total amount of the work worked out at the rate given in the schedule attached to the tender.

NOTE: 1. *Strike out which is not applicable.

2. The rate may be quoted in words and figures.

No. of Correction

No. of Overwriting

Sd/-

Contractor

Sd/-

SUPERINTENDING ENGINEER,
P.W.D(ROADS & BRIDGES)
NORTH CIRCLECalic'ut-1

Forwarded/ by Order

Personal Assistant

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/OS-PWD

SCHEDULE

Name of Work- Construction of Vallippadam-Alungaikadavu Bridge across Kadalundi river in Malappuram District

	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
1	3 Nos	Forming island of size 16.5 mx10.5m outer side for an average height of 2 m with 30cm above water level by driving down teak wood posts to an average depth of 2m below bed level at 1m c/c for posts and 2m c/c for struts and tying with teak wood posts 50cm c/c to vertical posts already driven down and screening with double bamboo mat with necessary bamboo reaper provided at required intervals and filling inside with earth including all cost, conveyance hire and labour charges and all other incidental expenses etc complete including maintaining the the island till the completion of work and demolition and clearing the same after completion of work as per standard specifications and as directed by the departmental officers	517496.00	Rs Five Lakhs Seventeen Thousand Four Hundred and Ninety Six only	Each	1552488
2		Earth work excavation in all classes of soil except hard and medium rock, which require blasting for and depositing with all leads and lifts for abutments and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming all labour charges,incidental expenses etc complete as per standard specification and as directed by the departmental officers				
2a	540 Cubic metre	Initial depth 1.50m	1063.00	Rs One Thousand and Sixty Three only.	Ten Cubic metre	57402
2b	462 Cubic metre	First depth 1.50m	1190.00	Rs One Thousand One Hundred and Ninety only	Ten Cubic metre	54978
2c	338 Cubic metre	Second depth 1.50m	1317.00	Rs One Thousand Three Hundred and Seventeen only	Ten Cubic metre	44515
3	32 Quintals	Supplying and fixing MS angles of size 150 x 150 x 12 mm for cutting edge of well curb including cost and conveyance of materials cutting bending for required shade welded and bonded to concrete using 12mm dowel bars welding, drilling and fixing charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers.	6562.00	Rs Six Thousand Five Hundred and Sixty Two only	One Quintal	209984
4	107000 Cubic deci metre	VRCC M 25 design mix for moulding well kerb using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	82.00	Rs Eighty Two only	Ten Cubic deci metre	877400

Contractor

Superintending Engineer

Name of Work- Construction of Vallippadam-Alungalkadavu Bridge across Kadalundi river in Malappuram District

	Probable Quantity	Description of Work		Rate in	Unit in Words	Amount (Rupees)
5	796000 Cubic deci metre	VRCC M 20 design mix for moulding well steining using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as per the direction of departmental officers	79.50	Rs Seventy Nine and paise Fifty only	Ten Cubic deci metre	6328200
6		Sinking of RCC circular well 8.5 m outer dia 6.5m inner dia (M25 mix) for foundation of abutments in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges; labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers				
6a	6 metre	Initial depth 3 m	24701.00	Rs Twenty Four Thousand Seven Hundred and One only	One metre	148206
6b	3 metre	Second depth 3.00m to 4.50m	28004.00	Rs Twenty Eight Thousand and Four only	One metre	84012
6c	3 metre	Third depth 4.50m to 6.0m	31306.00	Rs Thirty One Thousand Three Hundred and Six only	One metre	93918
6d	3 metre	Fourth depth 6.0 m to 7.50m	34609.00	Rs Thirty Four Thousand Six Hundred and Nine only	One metre	103827
6e	2.6 metre	Fifth depth 7.50m to 9.0m	37912.00	Rs Thirty Seven Thousand Nine Hundred and Twelve only	One metre	98571
6f	1.5 metre	Sixth depth 9.0m to 10.50m	41215.00	Rs Forty One Thousand Two Hundred and Fifteen only	One metre	61823
6g	1.5 metre	Seventh depth 10.5m to 12.00m	44518.00	Rs Forty Four Thousand Five Hundred and Eighteen only	One metre	66777

Contractor

Superintending Engineer

Name of Work- Construction of Vallippadam-Alungalkadavu Bridge across Kadalundi river in Malappuram District

	Probable Quantity	Description of Work		Rate in	Unit in Words	Amount (Rupees)
6h	0.9 metre	Eighth depth 12.00m to 13.50m	47821.00	Rs Forty Seven Thousand Eight Hundred and Twenty One only	One metre	43039
7		Sinking of RCC circular well 6.5 m outer dia 4.9m inner dia (M25 mix) for foundation of piers in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges, labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers				
7a	9 metre	Initial depth 3 m	21679.00	Rs .Twenty One Thousand Six Hundred and Seventy Nine only	One metre	195111
7b	4.5 metre	Second depth 3.00m to 4.50m	24714.00	Rs Twenty Four Thousand Seven Hundred and Forteen only	One metre	111213
7c	4.5 metre	Third depth 4.50m to 6.0m	27749.00	Rs Twenty Seven Thousand Seven Hundred and Forty Nine only	One metre	124871
7d	4.5 metre	Fourth depth 6.0 m to 7.50m	30784.00	Rs Thirty Thousand Seven Hundred and Eighty Four only	One metre	138528
7e	4.5 metre	Fifth depth 7.50m to 9.0m	33819.00	Rs Thirty Three Thousand Eight Hundred and Nineteen only	One metre	152186
7f	2.20 metre	Sixth depth 9.0m to 10.50m	36855.00	Rs Thirty Six Thousand Eight Hundred and Fifty Five only	One metre	81081

Contractor

Superintending Engineer

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Name of Work- Construction of Vallippadam-Alungalkadavu Bridge across Kadalundi river in Malappuram District

	Probable Quantity	Description of Work	Rate in		Unit in Words	Amount (Rupees)
7g	0.30 metre	Seventh depth 10.5m to 12.00m	39890.00	Rs Thirty Nine Thousand Eight Hundred and Ninety only	One metre	11967
8	223 Nos	Providing MS dowell bars with 25 mm M.S rods 2.50 m long plugging 1.0m in the hard rock and 1.50 m in to concrete @ 1 m c/c after drilling 50 mm dia holes in granite rock including cost and conveyance of all materials, all labour charges including cutting the rods in to required length and fixing the rod in to position, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	737.00	Rs Seven Hundred and Thirty Seven only	Each	164351
9	350000 Cubic deci metre	C.C. M15 Grade mix for bottom plugging of well using 20mm hard granitre broken stone including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and as directed by the departmental officers .	66.00	Rs Sixty Six only	Ten Cubic deci metre	2310000
10	28000 Cubic deci metre	Chipping and removing extra projection of well steining without damaging the remaining portion including all labour charges, hire charges, incidental expenses etc complete as per Std. Specification and as directed by the departmental officers .	38.00	Rs Thirty Eight only	Ten Cubic deci metre	106400
11	1269 Cubic metre	Filling inside the wells with clean dry river sand including all leads and lifts, cost and conveyance of sand, consolidating and finishing the top to the required levels, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	1217.00	Rs One Thousand Two Hundred and Seventeen only	One Cubic metre	1544373
12	37000 Cubic deci metre	C.C 1:2:4 (One Cement, Two sand, Four metal) using 20mm hard granite broken stones Grade mix for top plugging of well Including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and the direction of the deptl. officers.	62.50	Rs Sixty Two and paise Fifty only	Ten Cubic deci metre	231250
13	460000 Cubic deci metre	VRCC M 30 design mix for moulding well cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	71.00	Rs Seventy One only	Ten Cubic deci metre	3266000
14	377000 Cubic deci metre	VRCC M 20 design mix for moulding abutment and solid wing wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	68.00	Rs Sixty Eight only	Ten Cubic deci metre	2563600

Contractor

Superintending Engineer
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Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/OS-PWD

Name of Work- Construction of Vallippadam-Alungalkadavu Bridge across Kadalundi river in Malappuram District

	Probable Quantity	Description of Work	Rate In		Unit in Words	Amount (Rupees)
15	203000 Cubic deci metre	VRCC M 30 design mix for moulding pier and hammer head using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	87.50	Rs Eighty Seven and paise Fifty only	Ten Cubic deci metre	1776250
16	8000 Cubic deci metre	VRCC M 25 design mix for moulding abutment cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	79.00	Rs Seventy Nine only	Ten Cubic deci metre	63200
17	22000 Cubic deci metre	VRCC M 25 design mix for moulding dirt wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate ,mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	94.00	Rs Ninety Four only	Ten Cubic deci metre	206800
18	6000 Cubic deci metre	VRCC M 30 design mix for moulding pedestals using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	77.00	Rs Seventy Seven only	Ten Cubic deci metre	46200
19	468000 Cubic deci metre	VRCC M 25 design mix for moulding deck slab, girders and kerb using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	223.00	Rs Two Hundred and Twenty Three only	Ten Cubic deci metre	10436[illegible]
20	20000 Cubic deci metre	VRCC M 20 design mix for moulding handrails using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	152.00	Rs One Hundred and Fifty Two only	Ten Cubic deci metre	304000
21	28000 Cubic deci metre	VRCC M 20 design mix for moulding footpath using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	80.00	Rs Eighty only	Ten Cubic deci metre	224[illegible]
22	96 Nos	Supplying and fixing draingae spouts with 63 mm dia PVC pipe 60 cm long with GI gratings of 150x150 mm size for deck slab including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	57.00	Rs Fifty Seven only	Each	[illegible]

Contractor

Superintending Engineer
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Name of Work- Construction of Vallippadam-Alungalkadavu Bridge across Kadalundi river in Malappuram District

	Probable Quantity	Description of Work		Rate in	Unit in Words	Amount (Rupees)
23	1893 Quintal	Providing reinforcement for RCC work using TMT steel, fusion bonded and epoxy coated bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers.	6855.00	Rs Six Thousand Eight Hundred and Fifty Five only	One Quintal	12976515
24	56 metre	Providing expansion joint between spans with Aluminium sheet 16 gauge 7.50 cm long and 55 cm wide(weight of sheet 7.50x0.5xx3.40 kg/m2)packing in position, cutting the same in position with slot and 10x6mm at 30cm centre to centre and filling the joints with mixture of bitumen, sand and saw dust including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	193.00	Rs One Thousand One Hundred and Ninety Three only	One metre	66808
25	670 Square metre	Providing and laying 60mm average thick bituminous concrete wearing coat over the carriageway with heavy seal coat using 24mm broken stone 0.36 m3, 18mm broken stone 0.245 m3, 6mm broken stone .09 m3premixed with hot bitumen (48Kg/m3) 71.86Kg/m2 including a tack coat of 2.95Kg /10m2, rolling to a dense surface including cost and conveyance of all materials, all labour charges, hire charges of roller, mixer, wheel barrows , incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	467.00	Rs Four Thousand Six Hundred and Seventy One only	Ten Square metre	312957
26	640 Square metre	Painting with synthetic enamel paint of suitable colour with approved quality two coats including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	90.00	Rs Nine Hundred only	Ten Square metre	57600
27	10000 HP/Hr	Bailing out water in trenches using 5 HP pump including cost and conveyanve of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	3.00	Rs Thirty One only	One Hp/hr	310000
		TOTAL PAC				Rs 47612273
		DEDUCTION FOR DEPTL MATERIALS & HIRE CHARGES OF T&P				Rs 0
		NET PAC				Rs 47612273
				Dedut 5.3 % below esimate rate		2523450
				Agreed PAC		Rs 45088823

Contractor

Superintending Engineer

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/QS-PWD Name of Work: Construction of Vellippalam Alungal Kadavu Bridge across Kadalundi river in Malappuram District

M/s Prasad Engineering Enterprises, PWD Contractors, Kodur P.O, Malappuram District

"I / We agree to undertake to execute the work at (*)

(a) ~~estimate rate~~

(a) 5.30% (Five point Three zero percentage below) % below estimate rate.

(c) ~~% above estimate~~ rate.

less cost of Departmental materials and all hire charges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed"

I / we also agree that the tender ~~excess~~/reduction may be applied on the amount calculated after deducting the cost of all Departmental materials and all hire charges for departmental tools and plant from the total amount of the work worked out at the rate given in the schedule attached to the tender.

NOTE: 1. *Strike out which is not applicable.

2. The rate may be quoted in words and figures.

No. of Correction

No. of Overwriting

Sd/-

Contractor

Sd/-

Forwarded/ by Order

Personal Assistant

SUPERINTENDING ENGINEER,
P.W.D(ROADS & BRIDGES)
NORTH CIRCLECalicut-1

1400534/2017/OS-PWD

SCHEDULE

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
	APPENDIX A - BRIDGE PROPER					
1	6 Nos	Forming island of size 16.50x 10.50 m outer side for an average height of 6 m with 30cm above water level by driving down teak wood poles 150 mm dia at 50 cm c/c horizontally to the vertical posts provided at 60cm c/c and provide teak wood struts 150mm c/c at 180cm c/c all round and screening with double bamboo mat with necessary bamboo reaper provided at required intervals and filling inside with earth including all cost, conveyance hire and labour charges and all other incidental expenses etc complete including maintaining the the island till the completion of work and demolition and clearing the same after completion of work as per standard specifications and as directed by the departmental officers	319150.00	RS Three Lakhs Nineteen Thousand One Hundred and Fifty only	Each	1914900
2	34 Quintals	Supplying and fixing MS angles of size 150 x 150 x 12 mm for cutting edge of well curb including cost and conveyance of materials cutting bending for required shade welded and bonded to concrete using 12mm dowel bars welding, drilling and fixing charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers.	5511.00	Rs Five Thousand Five Hundred and Eleven only	One Quintal	187374
3	97000 Cubic Deci Metres	VRCC M 25 design mix for moulding well curb using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	55.50	Rs Fifty Five and paise Fifty only	Ten Cubic Deci Metres	538350
4	496000 Cubic Deci Metres	VRCC M 20 design mix for moulding well steining using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	53.50	Rs Fifty Three and paise Fifty only	Ten Cubic Deci Metres	2653600
5		Sinking of RCC circular well 6.50 m outer dia 4.90m inner dia (M25 mix) in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges, labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers				
a)	18 Metres	a) Initial depth 3 m	13392.00	Rs Thirteen Thousand Three Hundred and Ninety Two only	One Metre	241056

Contractor

Superintending Engineer

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
	9 Metres	b) 2nd depth 3.00m to 4.50m	15162.00	Rs. Fifteen Thousand One Hundred and Sixty Two only	One Metre	136458
	9 Metres	c) 3rd depth 4.50m to 6.0m	16901.00	Rs Sixteen Thousand Nine Hundred and One only	One Metre	152109
	4.6 Metres	d) 4th depth 6.0 m to 7.50m	18640.00	Rs Eighteen Thousand Six Hundred and Forty Only	One Metre	85744
	1 Metres	e) 5th depth 7.50m to 9.0m	20380.00	Rs Twenty Thousand Three Hundred and Eighty only	One Metre	20380
6	186 Nos	Providing MS dowell bars with 25 mm M.S rods 3.50 m long plugging 1.0m in the hard rock and 1.50 m in to concrete @ 1 m c/c after drilling 50 mm dia holes in granite rock including cost and conveyance of all materials, all labour charges including cutting the rods in to required length and fixing the rod in to position, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	484.00	Rs Four Hunderd and Eighty Four only	Each	90024
7	308000 Cubic Deci Metres	C.C. M20 Grade mix for bottom plugging of well using 20mm hard granitre broken stone including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and the direction of the deptl. officers.	50.50	Rs Fifty and paise Fifty only	Ten Cubic Deci Metres	1555400
8	46000 Cubic Deci Metres	Chipping and removing excess length of RCC well steining without damaging the remaining portion up to the point where clear and fine concrete is visible and upto cut off level of the pile including all labour charges, all hire charges for equipments required, incidental expenses etc complete as per standard specifications and as per the direction of deptartmental officers.	34.50	Rs Thirty Four and paise Fifty only	Ten Cubic Deci Metres	158700
9	551 Cubic Metres	Filling inside the wells with clean dry river sand including all leads and lifts, cost and conveyance of sand, consolidating and finishing the top to the required levels, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	462.00	Rs Four Hundred and Sixty Two only	One Cubic Metre	254562

Superintending Engineer

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
10	57 Cubic Metres	C.C 1:2:4 (One Cement, Two sand, Four metal) using 20mm hard granite broken stones Grade mix for top plugging of well including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and the direction of the deptl. officers.	4020.00	Rs Four Thousand and Twenty only	One Cubic Metre	229140
11	765 Cubic Metres	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of abutments and depositing with all leads and lifts including breaking clods, watering, ramming, sectioning of spoil bank, all labour charges,incidental expenses etc complete as per standard specification and as per the direction of departmental officers	1155.00	Rs One Thousand One Hundred and Fifty Five only	Ten Cubic Metres	88358
12	180 Metres	Providing MS circular liner using 6 mm thick MS sheet for outer casing for 1000mm internal dia bored cast in situ piles including cost of MS sheet, conveyance, all labour charges for cutting , bending to the required shape, welding, fabricating and placing in position after applying one coat iron primer and driving down the welded circular tube stage by stage to the required depth including cost and hire charges of driving plant and all other equipments required for proper completion of the work, incidental expenses etc; complete as per standard specification and as per the direction of departmental officers .	8715.00	Rs Eight Thousand Seven Hundred and Fifteen only	One Metre	1568700
13	300 Metres	Providing bored cast in situ RCC piles of size 1000 mm dia for foundation of abutments in RCC M35 design mix using 20mm hard granite broken stone as coarse aggregate and clear river sand as fine aggregate as per drawing and technical specification of MOST including cost and conveyance of all materials, all labour charges, hire charges for 50 HP engine and 30HP vertical pump, tremie pipe, mixer,trippod and accessories including hire and running charges of piling rig,bentonite pump including repair and renewal charges, other incidental expenses for mobilisation of special equipments and transferring and reinstalling the above from one location to another etc., complete as per standard specification and as per the direction of departmental officers but excluding cost of reinforcement.	6183.00	Rs Six Thousand One Hundred and Eighty Three only	One Metre	1854900
14	10 Metres	Bored cast in situ reinforced piles of size 1000 mm dia, M35 mix, as per drawing and technical specification of MOST including filling Cement Concrete M35 using 20 mm broken stone including cost and conveyance of all material required for the work including all labour charges and hire charges for winch 50 HP engine 30 HP vertical pump hire and running charges of piling rig, bentonite pump including repair and renewal charges, other incidental charges for mobilisation of special equipments and transferring and reinstalling the above from one location to another etc., with std. specification as per the direction of the departmental officers using OPC 43 or PFC cement in the rock portion for foundation of abutments (rock penetration of 50 cm depth in each bore hole)	10660.00	Rs ten Thousand Six Hundred and Sixty only	One Metre	106600

Contractor

Superintending Engineer

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/OS-PWD

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
15	7850 Cubic Deci Metres	Chipping and removing excess length of RCC pile M 35 without damaging the remaining portion up to the point where clear and fine concrete is visible and upto cut off level of the pile including all labour charges, all hire charges for equipments required, incidental expenses etc complete as per standard specifications and as per the direction of deptartmental officers.	34.50	Rs Thirty Four and paise Fifty only	Ten Cubic Deci Metres	27083
16	390 Tonne	Test loading on bored cast in situ piles for a total load of 140 MT for abutments and 185 MT for piers by means of hydraulic jack of 500 MT capacity placing over the test piles properly seated over the piles by placing a thick MS Sheet in between jack and pile and placing 2 nos of MS girders of suitable length and section 250x600 mm as first tier and over which second tier of girders of suitable length and section 150x300 mm at 60 cm c/c properly cut and welded providing platform with MS plate over the second tier of girders and loading over this by stacking sand bags carefully to the required weight including cost and conveyance of all materials like sand and empty sand bags, hire and conveyance of loading platform and equipments such as hydraulic jack MS sheet,pressure gauge, dial gauge, etc. all incidental expenses and unloading carefully after test loading and removing the platform etc complete as per the specifications in relevant IS codes and as directed by the departmental officers .	321300.00	Rs Three lakhs Twenty One Thousand and Three Hundred only	Each	642600
17	17 Cubic Metres	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying and compacting for the base of pile cap and well cap up to a thickness of 100mm including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	2570.00	Rs Two Thousand Five Hundred and Seventy only	One Cubic Metre	43690
18	538000 Cubic Deci Metres	VRCC M 25 design mix for moulding pile cap and well capusing 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	46.50	Rs Forty Six and paise Fifty only	Ten Cubic Deci Metres	2501700
19	107000 Cubic Deci Metres	VRCC M 20 design mix for moulding abutment and solid wing wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	49.00	Rs Forty Nine only	Ten Cubic Deci Metres	524300

Superintending Engineer

Contractor

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2010/OS-PWD

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
20	470000 Cubic Deci Metres	VRCC M 30 design mix for moulding piers & pier cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	61.50	Rs Sixty One and paise Fifty only	Ten Cubic Deci Metres	2890500
21	9000 Cubic Deci Metres	VRCC M 30 design mix for moulding abutment cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	51.00	Rs Fifty One only	Ten Cubic Deci Metres	45900
22	17000 Cubic Deci Metres	VRCC M 30 design mix for moulding dirt wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	54.50	Rs Fifty Four and paise Fifty only	Ten Cubic Deci Metres	92650
23	5700 Cubic Deci Metres	VRCC M 35 design mix for moulding pedestals using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	56.00	Rs Fifty Six only	Ten Cubic Deci Metres	31920
24	42 Nos	Supplying and fixing elastometric bearing of size 500 mm x 360 mm x 99 mm compressed in three layers of mixture laminations each 3mm thick and two layers of elastometric pads 12mm thick in between metal plates and with 3mm thick outer elastometric cover at top and bottom and 6mm thick elastometric cover alround including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete. as per standard specifications and as directed by the departmental officers	8500.00	Rs Eight Thousand and Five Hundred only	Each	357000
25	816000 Cubic Deci Metres	VRCC M 25 design mix for moulding T beam deck slab, kerb etc using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	161.00	Rs One Hundred and Sixty One only	Ten Cubic Deci Metres	131376(

Superintending Engineer

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit In Words	Amount (Rupees)
26	26000 Cubic Deci Metres	VRCC M 20 design mix for moulding hand rail slab and posts using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	120.00	Rs One Hundred and Twenty only	Ten Cubic Deci Metres	312000
27	36000 Cubic Deci Metres	Reinforced cement concrete1:2:4(One cement,Two sand and Four Metal) using 20mm hard granite broken stones,mixing, laying properly and compacting for foot path slab including cost and conveyance of all materials, all labour charges,formwork charges,watering, curing, incidental expenses etc,excluding the cost of reinforcement, complete as per standard specifications and as directed by the departmental officers	52.00	Rs Fifty Two only	Ten Cubic Deci Metres	187200
28	168 Nos	Supplying and fixing draingae spouts with 63 mm dia PVC pipe 60 cm long with GI gratings of 150x150 mm size for deck slab including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	99.00	Rs Ninety Nine only	Each	16632
29	3031 Quintal	Providing reinforcement for RCC work using TMT steel bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	4571.00	Rs Four Thousand Five Hundred and Seventy One only	One Quintal	13854701
30	165 Quintal	Providing reinforcement for RCC work using TMT steel for pile works with lap welding, spot welding, bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	5405.00	Rs Five Thousand Four Hundred and Five only	One Quintal	891825
31	89 Metres	Providing expansion joint between spans with Aluminium sheet 16mm gauge 7.50 cm long and 55 cm wide(weight of sheet 7.50x0.5xx3.40 kg/m2)packing in position, cutting the same in position with slot and 10x6mm at 30cm centre to centre and filling the joints with mixture of bitumen, sand and saw dust including cost and conveyance of all materials, all labour charges, incidental,expenses etc complete as per standard specifications and as directed by the departmental officers	1071.00	Rs One Thousand and Seventy One only	One Metre	95319
32	4110 Square Metres	Providing and applying primer coat with bitumen emulsion on prepared surface of granular base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as per MORTH specification No 502 and as per the direction of departmental officers	16.80	Rs Sixteen and paise Eighty only	One Square Metre	69048

Contractor

Superintending Engineer

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1400534/2017/OS-PWD

70/128

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in		Unit in Words	Amount (Rupees)
			Figures (Rupees)	Words		
33	822 Cubic Metres	Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density,including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc, complete as per clause 401 of standard MORTH specifications and as directed by the departmental officers	960.00	Rs Nine Hundred and Sixty only	One Cubic Metre	789120
34	1028 Cubic Metres	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc, complete as per clause 406 of standard MORTH specifications and as directed by the departmental officers	1112.00	Rs One Thousand One Hundred and Twelve only	One Cubic Metre	1143136
35	5282 Square Metres	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as per MORTH specification No 503 and as per the direction of departmental officers	6.25	Rs Six and paise twenty Five only	One Square Metre	33013
36	265 Cubic Metres	Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as per MORTH specification No 504 and as per the direction of departmental officers	4171.00	Rs Four Thousand One Hundred and Seventy One only	One Cubic Metre	1105315
37	133 Cubic Metres	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as per MORTH specification No 509 and as per the direction of departmental officers	5558.00	Rs Five Thousand Five Hundred and Fifty Eight only	One Cubic Metre	739214

Superintending Engineer

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
38	4 Nos	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign (90 cm equitorial triangle) as per IRC :67 made of wide angle micro prismatic lens reflective sheeting conforming to type IX table 3, of ASTM D 4956-01 fixed over aluminium sheeting, 1.5 mm thick conforming to IS 736 clause 1.2.5 supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including cost and conveyance of all materials all labour charges, incidental expenses etc complte as per standard MORTH specifications and as directed by the departmental officers.(retro reflectorised traffic signs 30° 90 cmrectangular hazard marker)	2547.00	Rs Two Thousand Five Hundred and Forty Seven only	Each	10188
39	4 Nos	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign (90 cm equitorial triangle) as per IRC :67 made of wide angle micro prismatic lens reflective sheeting conforming to type IX table 3, of ASTM D 4956-01 fixed over aluminium sheeting, 1.5 mm thick conforming to IS 736 clause 1.2.5 supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including cost and conveyance of all materials all labour charges, incidental expenses etc complte as per standard MORTH specifications and as directed by the departmental officers.(retro reflectorised traffic signs 60*80 cm rectangular for single chevron)	3795.00	Rs Three Thousand Seven Hundred and Ninety Five only	Each	15180
40	6 Square Metres	Providing and erecting direction and place identification retro-reflectorised sign with size more than 0.9 Sqmm as per IRC:67 made of wide angle micro prismatic lens reflective sheeting conforming to type IX table 3, of ASTM D 4956-01 fixed over aluminium sheeting, 2 mm thick conforming to IS 736 clause 1.2.5 with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing including cost and conveyance of all materials all labour charges, incidental expenses etc complte as per standard MORTH specifications and as directed by the departmental officers.	8843.00	Rs Eight Thousand Eight Hundred and Forty Three only	One Square Metre	53058
41	2450 Nos	Welding V cut joints for the MS rods after cleaning the V cut ends including cost of electrodes, electricity charges , hire for welding plant, all labour charges,incidental expenses etc complete as per standard specifications and as per the direction of departmental officers	162.00	Rs One Hundred and Sixty Two only	Each	396900
42	186 Cubic Metres	Filling with clean dry river sand between wings and abutments including all leads and lifts, cost and conveyance of sand, consolidating and finishing the top to the required levels, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	381.00	Rs Three Hundred and Eighty One only	One Cubic Metre	70866

Superintending Engineer

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in		Unit in Words	Amount (Rupees)
			Figures (Rupees)	Words		
43	686 Square Metres	Finishing hand rail and posts with ready mixed plastic emulsion paint over a priming coat after cleaning the surface including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	629.00	Rs Six Hundred and Twenty Nine only	Ten Square Metres	43149
44	294 Square Metres	Painting with synthetic enamel paint of suitable colour with approved quality two coats including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	610.00	Rs Six Hundred and Ten only	Ten Square Metres	17934
45	10000 HP/Hr	Bailing out water in trenches using 5 HP pump including cost and conveyanve of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	21.00	Rs Twenty One only	One Hp/hr	210000
		TOTAL FOR APPENDIX A				52185096
	APPENDIX B -APPROACH ROAD					
1	15130 Cubic Metres	Earth work filling with contractor's own earth cut and conveyed from sources of availability and forming embankment with all leads and lifts by spreading in horizontal layers of uniform thickness over the full width, drying or watering as the case may be, scarfying to get uniform OMC compacting the filled earth using power roller in layers not exceeding 25 cm (loose thickness) satisfying compaction tests, including trimming slopes to lines and levels including cost of oil , fuel etc, hire charges of roller including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	2013.00	Rs Two Thousand and Thirteen only	Ten Cubic Metres	3045669
2	1140 Cubic Metres	Collection and supply of quarry muck containing aggregates of size 40% of 60mm metal ,25% of 36mm metal, 10 % of 12mm metal and 25% quarry dust, for raising the low lying portions of the road and deep berms spreading,watering, ramming compacting with power roller etc including cost and coveyance of all materials, all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	692.00	Rs Six Hundred and Ninety Two only	One Cubic Metre	788880
3	2130 Cubic Metres	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of retaining walls and depositing with all leads and lifts and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming all labour charges,incidental expenses etc complete as per standard specification and as per the direction of departmental officers	1155.00	Rs One Thousand One Hundred and Ffty Five only	Ten Cubic Metres	246015
4	675 Cubic Metres	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying properly and compacting for foundation of quadrant wall including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	2570.00	Rs Two Thousand Five Hundred and Seventy only	One Cubic Metre	1734750

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Page 10

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in		Unit in Words	Amount (Rupees)
			Figures (Rupees)	Words		
5	3035 Cubic Metres	Cement Concrete 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for quadrant wall including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	3293.00	Rs Three Thousand Two Hundred and Ninety Three only	One Cubic Metres	9994255
6	80 Cubic Metres	Random rubble masonry in cement mortar 1:6 (One cement, Six sand) using hard blasted quarry rubble for foundation and super structure of retaining walls including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	1546.00	Rs One Thousand Five Hundred and Forty Six only	One Cubic Metre	123680
7	10000 Cubic Deci Metres	Plain cement concrete1:2:4(One cement,Two sand and Four Metal) using 20mm hard granite broken stones,mixing, laying properly and compacting for top belt of toe wall including cost and conveyance of all materials, all labour charges,formwork charges,watering, curing, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	40.00	Rs Forty only	Ten Cubic Deci Metres	40000
8	333 Nos	Provding guard stones of 20x20x120 cm made of CC 1:11/2:3 reinforced with 4 nos HYSD bars and 6mm dia stirrups at 150mm c/c and fixing in line and levels 60 cm below the ground level with CC 1:3:6 (45cm x 45cm x 60cm) including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	1794.00	Rs One Thousand Seven Hundred and Ninety Four only	Each	597402
9	150 Nos	Applying and fixing high intensity diamond reflectory tiles of size IRC specification 20cm x 10cm for nearest available size fixed on glazed tiles of approved quality fixing to guard stone parapet and median using 1:3 , 12mm thick including costs and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	99.00	Rs Ninety Nine only	Each	14850
10	187.50 Square Metres	Providing road markings with hot applied thermo platstic compound 2.50 mm thick incuding reflectorising glass beads@250 grams per square metre area at the centre line and pedestrian crossings of road ,(thickness of 2.50mm is exclusive of surface applied glass beads) and finishing the surface level and uniform free from streaks and holes including cost and conveyance of all materials all labour charges, incidental expenses etc compite as per standard MORTH specifications and as directed by the departmental officers.	401.00	Rs Four Hundred and One only	One Square Metre	75188
11	18 Cubic Metres	Rough stone dry packing using hard blasted quarry rubble for berm portion of approach road near bridge including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	795.00	Rs Seven Hundred and Ninety Five only	One Cubic Metre	14310

Superintending E

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
12	2160 Square Metres	Plastering with cement mortar1:4 (One Cement and Four sand) 12 mm thick one coat floated hard and trowelled smooth for the drain including cost and conveyance of all materials,all labour charges,watering, curing, incidental expenses etc,complete as per the standard specifications and as directed by the departmental officers	998.00	Rs Nine Hundred and Ninety Eight only	Ten Square Metres	215568
		TOTAL FOR APPENDIX B				16890567
		APPENDIX C -CONSTRUCTION OF CULVERTS				
1	290 Cubic Metres	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of culvert and depositing with all leads and lifts and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming all labour charges,incidental expenses etc complete as per standard specification and as per the direction of departmental officers	619.00	Rs Six Hundred and Nineteen only	Ten Cubic Metres	17951
2	111 Cubic Metres	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying properly and compacting for foundation of culvert including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	2570.00	Rs Two Thousand Five Hundred and Seventy only	One Cubic Metre	285270
3	315 Cubic Metres	C.C 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for culvert including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	3463.00	Rs Three Thousand Four Hundred and Sixty Three only	One Cubic Metre	1090845
4	42000 Cubic Deci Metres	VRCC M 20 design mix for culvert using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. completeas per standard specifications and as per the direction of departmental officers but excluding the cost of reinforcement	51.50	Rs Fifty One and paise Fifty only	Ten Cubic Deci Metres	216300
5	105 Quintals	Providing reinforcement for RCC work using TMT steel bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	4571.00	Rs Four Thousand Five Hundred and Seventy One only	One Quintal	479955
6	18 Cubic Metres	Rough stone dry packing using hard blasted quarry rubble for bed of culvert including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	795.00	Rs Seven Hundred and Ninety Five only	One Cubic Metre	14310

Superintending Engineer

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in		Unit in Words	Amount (Rupees)
			Figures (Rupees)	Words		
7	2 Cubic Metres	Random rubble masonry in cement mortar 1:6 (One cement, Six sand) using hard blasted quarry rubble for curtain wall including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	1546.00	Rs One Thousand Five Hundred and Forty Six only	One Cubic Metre	3092
		TOTAL FOR APPENDIX C				2107723
	APPENDIX D-RIVER TRAINING WORKS					
	A-River protection works					
1	1908 Cubic Metres	Rough stone dry packing using hard blasted quarry rubble for bed of river near bridge including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	795.00	Rs Seven Hundred and Ninety Five only	One Cubic Metre	1516860
		TOTAL FOR APPENDIX D(A)				1516860
	B-Side protection works					
1	3200 Cubic Metres	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of side protection wall and depositing with all leads and lifts and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming all labour charges,incidental expenses etc complete as per standard specification and as per the direction of departmental officers	619.00	Rs Six Hundred and Nineteen only	Ten Cubic Metres	198080
2	1280 Metres	Supplying and stacking coconut piles of size 200 to 300mm diameter on the site including costs nd conveyance, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	90.00	Rs Ninety only	One Metre	115200
3	1280 Metres	Driving down coconut piles 200 mm to 300 mm diameter to approved lines and levels through various strata after pointing the bottom and up to 8 m depath below the ground level including all labour charges and hire charges for fixing staging platform and all other appliances necessary for pile driving, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	245.00	Rs Two Hundred and Forty Five only	One Metre	313600
4	281 Cubic Metres	Filling with clean dry river sand over the piles including all leads and lifts, cost and conveyance of sand, consolidating and finishing the top to the required levels, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	370.00	Rs Three Hundred and Seventy only	One Cubic Metre	103970
5	156 Cubic Metres	Reinforced cement concrete1:2:4(One cement,Two sand and Four Metal) using 20mm hard granite broken stones,mixing, laying properly and compacting for foundation including cost and conveyance of all materials, all labour charges,formwork charges,watering, curing, incidental expenses etc,excluding the cost of reinforcement, complete as per standard specifications and as directed by the departmental officers	3955.00	Rs Three Thousand Nine Hundred and Fifty Five only	One Cubic Metre	616980

Name of Work- Stimulus Package- Construction of Mythrakkadavu bridge across Chaliyar river in Malappuram District

Item No	Probable Quantity	Description of Work	Rate in Figures (Rupees)	Rate in Words	Unit in Words	Amount (Rupees)
6	2160 Cubic Metres	C.C 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for super structure of retaining wall including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	2934.00	Rs Two Thousand Nine Hundred and Thirty Four only	One Cubic Metres	6337440
7	526 Quintals	Providing reinforcement for RCC work using TMT steel bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	4571.00	Rs Four Thousand Five Hundred and Seventy One only	One Quintal	2404346
8	600 Metres	Supplying and fixing weep holes in the CC retaining wall with 63 mm dia PVC pipe (6kgf/cm2) including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	63.00	Rs Sixty Three only	Each	37800
9	30000 HP/Hr	Bailing out water in trenches using 5 HP pump including cost and conveyanve of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	21.00	Rs Twenty One only	One Hp/hr	630000
		TOTAL FOR APPENDIX D(B)				10757416
		TOTAL PAC (A+B+C+D)				Rs 83457662
		DEDUCTION FOR DEPTL MATERIALS & HIRE CHARGES OF T&P				Rs 1127349
		NET PAC				Rs 82330313

DEDUCTION FOR DEPARTMENTAL MATERIALS AND HIRE CHARGES OF T&P

1 15.67 MT Bitumen NRMB @ Rs 28773.00/ MT =Rs 450873.00
2 3.52 MT Bitumen Emulsion @ Rs 24950.00/ MT =Rs 87824.00
3 19.20 MT Bitumen 80/100 @ Rs 26260.00/ MT =Rs 504192.00
4 41 Days Road Roller @ Rs 2060/Day = Rs 84460.00
Total Amount =Rs 1127349.00

Net PAC

Add tender excess 17% above Estimate Rate — Rs.1,39,96,153-00

Add cost of departmental materials and hire charges of T&P — 11,27,349-00

Agreed PAC — Rs.9,74,53,815-0

Forwarded/By order

Contractor

Assistant

Superintending Engineer

1400534/2017/OS-PWD

Name of work:- Stimulus-Package- Construction of Nythrakkadavu bridge across Chaliyar river in Malappuram District

"I / We agree to undertake to execute the work at (-) Sri. V.P. Mohammed Arsh, Govt. Contractor, P.O. Kanhikode, Kavanna, Malappuram District

(a) ~~*estimate rate~~

(a) ..... ~~% below estimate rate.~~

(c) ..... Seventeen Percentage Above ..... 17 ..... % above estimate rate.

less cost of Departmental materials and all hire charges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed"

I / we also agree that the tender excess/reduction may be applied on the amount calculated after deducting the cost of all Departmental materials and all hire charges for departmental tools and plant from the total amount of the work worked out at the rate given in the schedule attached to the tender.

NOTE: 1. *Strike out which is not applicable.

2. The rate may be quoted in words and figures.

No. of Correction

No. of Overwriting

Sd/-

Contractor

Sd/-

SUPERINTENDING ENGINEER,
P.W.D(ROADS & BRIDGES)
NORTH CIRCLECalic'ut-1

Forwarded/ by order
xxxx
Sd
Personal Assistant

Name of work:Construction of Umminikkadavuv Bridge across Kadalundi river in Malappuram District

SCHEDULE OF WORKS

Sl. No.	Description of work	No.or Qty.	Unit	Estimated Rate		AMOUNT Rs. P
				Figure	Words	
	Appendix A: Bridge Proper					
1	Forming island of size 16.5 mx10.5m outer side for an average height of 2 m with 75cm above water level by driving down teak wood posts class III of girth 41 to 52cm to an average depth of 2m below bed level at 60cm c/c for posts and 2m c/c for struts and tying with teak wood posts 50cm c/c to vertical posts already driven down and screening with double bamboo mat with necessary bamboo reaper provided at required intervals and filling inside with earth including all cost, conveyance hire and labour charges and all other incidental expenses etc complete including maintaining the the island till the completion of work and demolition and clearing the same after completion of work as per standard specifications and as directed by the departmental officers	3	Noe	446710.00	Rupees Four Lakh Fourty Six Thousand Seven Hundred & Ten Only	1340130.00
2	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for and depositing with all leads and lifts for abutments and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming all labour charges,incidental expenses etc complete as per standard specification and as directed by the departmental officers					
	2a) Initial depth 1.50m	540	M3	106.30	Rupees One Hundred & Six - Paise Thirty Only	57402.00
	2 b)First depth 1.50m	462	M3	119.00	Rupees One Hundred & Nineteen Only	54978.00
	2c)Second depth 1.50m	338	M3	131.70	Rupees One Hundred & Thirty One - Paise Seventy Only	44514.60

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

[redacted]

1[redacted]0534/2017/OS-PWD Construction of Umminikkadavuv Bridge across Kadalundi river in Malappuram District

3	Supplying and fixing MS angles of size 150 x 150 x 12 mm for cutting edge of well curb including cost and conveyance of materials cutting bending for required shade welded and bonded to concrete using 12mm dowel bars welding, drilling and fixing charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers.	32	Qtl	6562.00	Rupees Six Thousand Five Hundred & Sixty Two Only	209984.00
4	VRCC M 25 design mix for moulding well kerb using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	107	M3	8350.00	Rupees Eight Thousand Three Hundred & Fifty Only	893450.00
5	VRCC M 20 design mix for moulding well steining using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as per the direction of departmental officers	796	M3	8100.00	Rupees Eight Thousand One Hundred Only	6447600.00
6	Sinking of RCC circular well 8.5 m outer dia 6.5m inner dia (M25 mix) for foundation of abutments in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges, labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers					
	6a)Initial depth 3 m	6	M	24701.00	Rupees Twenty Four Thousand Seven Hundred & One Only	148206.00
	6b) First depth 3.00m to 4.50m	3	M	28004.00	Rupees Twenty Eight Thousand &Four Only	84012.00
	6c) Second depth 4.50m to 6.0m	3	M	31306.00	Rupees Thirty One Thousand Three Hundred & Six Only	93918.00

Contractor

Superintending Engineer

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

Construction of Ummanikkadavuv Bridge across Kadalundi river in Malappuram District

1[redacted]0534/2017/OS-PWD

	6d) Third depth 6.0 m to 7.50m	3	M	34609.00	Rupees Thirty Four Thousand Six Hundred & Nine Only	103827.00
	6e) Fourth depth 7.50m to 9.0m	2.6	M	37912.00	Rupees Thirty Seven Thousand Nine Hundred & Twelve Only	98571.20
	6f) Fifth depth 9.0m to 10.50m	1.5	M	41215.00	Rupees Fourty One Thousand Two Hundred & Fifteen Only	61822.50
	6g) Sixth depth 10.5m to 12.0m	1.5	M	44518.00	Rupees Fourty Four Thousand Five Hundred & Eighteen Only	66777.00
	6h) Seventh depth 12m to 13.5m	0.6	M	47821.00	Rupees Fourty Seven Thousand Eight Hundred & Twenty One Only	28692.60
7	Sinking of RCC circular well 6.5 m outer dia 4.9m inner dia (M25 mix) for foundation of piers in all classes of soil other than rock to lines and levels and plumb by scooping out earth from inside and below steining with dredgers or any other appliances including hire charges, labour charges, dewatering, casting, vibrating, removal of obstacles, dumping the spoil at suitable places with all leads and lifts, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers					
	7a)Initial depth 3 m	9	M	21679.00	Rupees Twenty One Thousand Six Hundred & Seventy Nine Only	195111.00
	7b) First depth 3.00m to 4.50m	4.5	M	24714.00	Rupees Twenty Four Thousand Seven Hundred & Fourteen Only	111213.00
	7c) Second depth 4.50m to 6.0m	4.5	M	27749.00	Rupees Twenty Seven Thousand Seven Hundred & Fourty Nine Only	124870.50

Contractor

Superintending Engineer

	7d) Third depth 6.0 m to 7.50m	4.5	M	30784.00	Rupees Thirty Thousand Seven Hundred & Eighty Four Only	138528.00
	7e) Fourth depth 7.50m to 9.0m	4.5	M	33819.00	Rupees Thirty Three Thousand Eight Hundred & Nineteen Only	152185.50
	7f) Fifth depth 9.0m to 10.50m	2.2	M	36855.00	Rupees Thirty Six Thousand Eight Hundred & Fifty Five Only	81081.00
	7g) Sixth depth 10.5m to 12.0m	0.3	M	39890.00	Rupees Thirty Nine Thousand Eight Hundred & Ninety Only	11967.00
8	Providing MS dowell bars with 25 mm M.S rods 2.50 m long plugging 1.0m in the hard rock and 1.50 m in to concrete @ 1 m c/c after drilling 50 mm dia holes in granite rock including cost and conveyance of all materials, all labour charges including cutting the rods in to required length and fixing the rod in to position, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	223	Nos	737.00	Rupees Seven Hundred & Thirty Seven Only	164351.00
9	C.C. M15 Grade mix for bottom plugging of well using 20mm hard granitre broken stone including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and as directed by the departmental officers .	350	M3	6600.00	Rupees Six Thousand Six Hundred Only	2310000.00
10	Chipping and removing extra projection of well steining without damaging the remaining portion including all labour charges, hire charges, incidental expenses etc complete as per Std. Specification and as directed by the departmental officers .	28	M3	3800.00	Rupees Three Thousand Eight Hundred Only	106400.00
11	Filling inside the wells with clean dry river sand including all leads and lifts, cost and conveyance of sand, consolidating and finishing the top to the required levels, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	1269	M3	1333.00	Rupees One Thousand Three Hundred & Thirty Three Only	1691577.00

12	C.C. M15 Grade mix using 20mm hard granite broken stones Grade mix for top plugging of well including cost and conveyance of all materials, labour for dumping concrete, hire of mixer and vibrator and finishing the surface to required levels with all charges etc. complete as per Std. Specification and the direction of the deptl. officers.	37	M3	6400.00	Rupees Six Thousand Four Hundred Only	236800.00
13	VRCC M 30 design mix for moulding well cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. comple but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	460	M3	7250.00	Rupees Seven Thousand Two Hundred & Fifty Only	3335000.00
14	VRCC M 20 design mix for moulding abutment and solid wing wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	377	M3	6950.00	Rupees Six Thousand Nine Hundred & Fifty Only	2620150.00
15	VRCC M 30 design mix for moulding pier and pier cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	203	M3	10100.00	Rupees Ten Thousand One Hundred Only	2050300.00
16	VRCC M 25 design mix for moulding abutment cap using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	8	M3	8100.00	Rupees Eight Thousand One Hundred Only	64800.00

	VRCC M 25 design mix for moulding dirt wall using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers					
17		22	M3	9550.00	Rupees Nine Thousand Five Hundred & Fifty Only	210100.00
18	VRCC M 30 design mix for moulding pedestal using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	6	M3	7900.00	Rupees Seven Thousand Nine Hundred Only	47400.00
19	Supplying and fixing elastometric bearing of size 500mm x 360mm x 99mm compressed in three layers of mixture laminations each 3mm thick and two layers of elastometric pads 12mm thick in between metal plates and with 3mm thick outer elastometric cover at top and bottom and 6mm thick elastometric cover alround including cost and conveyance of all materials, all labour charges, hire charges, incidental expenses etc complete. as per standard specifications and as directed by the departmental officers	24	Nos	15000.00	Rupees Fifteen Thousand Only	360000.00
20	VRCC M 25 design mix for moulding T beam, deck slab, kerb etc using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	364	M3	22800.00	Rupees Twenty Two Thousand Eight Hundred Only	8299200.00
21	VRCC M 20 design mix for moulding handrail using 20mm hard granite graded broken stone as coarse aggregate and river sand as fine aggregate, mixing , laying in position and compacting including cost and conveyance of all materials,all labour charges, watering, curing, formwork charges, incidental expenses etc. complete but excluding the cost of reinforcement as per standard specifications and as directed by the departmental officers	20	M3	12000.00	Rupees Twelve Thousand Only	240000.00

	Supplying and fixing draingae spouts with 63 mm dia PVC pipe 60 cm long with					
22	GI gratings of 150x150 mm size for deck slab including cost and conveyance of all materials, all labour charges, incidental expenses etc. complete as per standard specifications and as directed by the departmental officers	48	Nos	57.00	Rupees Fifty Seven Only	[illegible]
23	Providing reinforcement for RCC work using TMT steel, fusion bonded and epoxy coated bend, tied and placed in position including cost and conveyance of all materials, all labour charges, incidental expenses, complete as per standard specifications and as directed by the departmental officers	1554	Qtl	6855.00	Rupees Six Thousand Eight Hundred & Fifty Five Only	[illegible]
24	Welding V cut joints for the MS rods after cleaning the V cut ends including cost of electrode,current charges,hire for welding plant etc.complete as per standard cspecifications and as per the direction of departmental officers	192	Nos	252.00	Rupees Two Hundred & Fifty Two Only	[illegible]
25	Providing expansion joint between spans with Aluminium sheet 16 gauge 7.50 cm long and 55 cm wide(weight of sheet 7.50x0.5xx3.40 kg/m2)packing in position, cutting the same in position with slot and 10x6mm at 30cm centre to centre and filling the joints with mixture of bitumen, sand and saw dust including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	42	M	1193.00	Rupees One Thousand One Hundred & Ninety Three Only	[illegible]
26	Providing and laying 60mm average thick bituminous concrete wearing coat over the carriageway with heavy seal coat using 24mm broken stone 0.36 m3, 18mm broken stone 0.245 m3, 6mm broken stone .09 m3premixed with hot bitumen (48Kg/m3) 71.86Kg/m2 including a tack coat of 2.95Kg /10m2, rolling to a dense surface including cost and conveyance of all materials, all labour charges, hire charges of roller, mixer, wheel barrows , incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	670	M2	474.90	Rupees Four Hundred & Seventy Four Paise Ninety Only	[illegible]
27	Painting with synthetic enamel paint of suitable colour with approved quality two coats including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	640	M2	90.00	Rupees Ninety Only	[illegible]
28	Bailing out water in trenches using 5 HP pump including cost and conveyanve of fuel, oil all labour charges, hire charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	10000	HP hr	31.00	Rupees Thirty One Only	[illegible]

Contractor

Superintending Engineer

29	Rough stone dry packing using hard blasted quarry rubble for berm portion of approach road near bridge including all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	1320	M3	1479.00	Rupees One Thousand Four Hundred & Seventy Nine Only	195228.00
	Total for Appendix A= 45676877.90					
	Appendix B-Approach road					
1	Earth work filling with contractor's own earth cut and conveyed from sources of availability and forming embankment with all leads and lifts by spreading in horizontal layers of uniform thickness over the full width, drying or watering as the case may be, scarfying to get uniform OMC including trimming slopes to lines and levels including cost and conveyance of all materials, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	1110	M3	303.00	Rupees Three Hundred & Three Only	336330.00
2	Comapcting the filled earth with power roller in layers not exceeding 25 cm (loose thickness) satisfying compaction tests, including trimming slopes to lines and levels including cost of oil , fuel etc, hire charges of roller, all labour charges, incidental expenses etc complete as per standard specifications and as directed by the departmental officers	550	M3	9.80	Rupees Nine - Paise Eighty Only	5390.00
3	Collection and supply of quarry muck including stacking on the road sides in standard heaps for measurement for filling the low lying portions of the road and compacting with power roller including cost and conveyance, all labour charges,incidental expenses etc complete as per standard specification and as directed by the departmental officers	269	M3	871.00	Rupees Eight Hundred & Seventy One Only	234299.00
3	Earth work excavation in all classes of soil except hard and medium rock, which require blasting for foundation of retaining wall and depositing on bank with all lead and lifts and using the spoil for filling and forming of road wherever necessary including breaking clods, watering, ramming and sectioning of spoil bank including all conveyance charges, labour charges,incidental expenses etc complete as per standard specifications and as directed by the departmental officers	513	M3	106.30	Rupees One Hundred & Six - Paise Thirty Only	54531.90
4	Cement concrete1:4:8(One cement,Four sand and Eight Metal) using 40mm hard granite broken stones,mixing, laying properly and compacting for foundation of retaining wall including cost and conveyance of all materials, all labour charges,watering, curing, formwork charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	200	M3	4379.00	Rupees Four Thousand Three Hundred & Seventy Nine Only	875800.00

Contractor

Superintending Engineer

5	Cement Concrete 1:3:6(One Cement,Three Sand and Six Metal) using 60 % of 40mm and 40% 20mm hard granite broken stone, mixing, laying properly and compacting for rquadrant wall including cost and conveyance of all materials, all labour charges, form work charges, watering, curing, incidental expenses etc.complete as per standard specifications and as directed by the departmental officers	754	M3	5228.00	Rupees Five Thousand Two Hundred & Twenty Eight Only	3941912.00
6	Collection and supply of 60 mm hard granite graded metal in the ratio of 7:3 of 60mm and 36 mm metal by volume respectively and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	78	M3	1067.00	Rupees One Thousand &Sixty Seven Only	83226.00
7	Collection and supply of 36 mm hard granite broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	75	M3	1160.00	Rupees One Thousand One Hundred & Sixty Only	87000.00
8	Supplying and stacking good gravelly red earth for binding and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	27	M3	374.00	Rupees Three Hundred & Seventy Four Only	10098.00
9	Metalling the roadway 100 mm thickness compacted to 75 mm using broken stone(graded granite stone in the ratio 7:3 of 60 mm and 36 mm size respecively) 1m3 per 10m2 and departmental binding material at 0.20m3 per 10 m2, bed rolling, spreading broken stones to template, rolling dry to compaction from sides to centre until the movement of broken stone cease. watering profusely and re rolling until the fines cream up and fill the voids of the stone,then spreading the gravelly earth and sweeping in to the joints, watering and re rolling until the gravelly earth has worked in to all crevices and a thin coat of slurry remains, then take off the roller and allow the surface to set to harden for 24 hours and re rolling next day until any deformity is rectified including fencing,lighting, watching, hire charges, cost and conveyance of all materials, all labour charges, incidental expenses etc complete and maintaining the surface free from ruts for 15 days after completion as per standard specification and as directed by the departmental officers(-for sub base)	772	M2	62.90	Rupees Sixty Two Paise Ninety Only	48558.80

10	Metalling the roadway 100 mm thickness compacted to 75 mm using broken stone 36 mm size, 1m3 per 10m2 and departmental binding material at 0.15m3 per 10 m2, bed rolling, spreading broken stones to template, rolling dry to compaction from sides to centre until the movement of broken stone cease, watering profusely and re rolling until the fines cream up and fill the voids of the stone,then spreading the gravelly earth and sweeping in to the joints, watering and re rolling until the gravelly earth has worked in to all crevices and a thin coat of slurry remains, then take off the roller and allow the surface to set to harden for 24 hours and re rolling next day until any deformity is rectified including fencing,lighting, watching, hire charges,cost and conveyance of all materials, all labour charges, incidental expenses etc complete and maintaining the surface free from ruts for 15 days after completion for sub base as per standard specification and as directed by the departmental officers(for base course)	750	M2	62.90	Rupees Sixty Two - Paise Ninety Only	47175.00
11	Collection and supply of 12 mm size hard granite broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	21	M3	1740.00	Rupees One Thousand Seven Hundred & Fourty Only	36540.00
12	Collection and supply of 6 mm size hard granite broken stone and stacking on the sides of road in standard heaps for pre-measurement including cost, conveyance, all labour charges, incidental expenses etc complete as directed by the departmental officers	7	M3	1449.00	Rupees One Thousand Four Hundred & Fourty Nine Only	10143.00
13	Providing 20mm pre mixed chipping carpet over W.B.M surface with departmental broken stone after thoroughly cleaning the base with wire brushes, brass brooms and applying a priming coat of 7.50Kg of bitumen/10 m2 and spreading the premix(formed of 0.27m3 of 12mm metal and 12.96kg of bitumen/ 10m2) rolling to a dense surface then spreading the seal coat (comprising of a hot premix of 0.09m3 of 6mm departmental metal and 8.64 kg of bitumen / 10 m2) again rolling including cost and conveyance of bitumen, oil, fuel etc, all labour charges, hire charges of brass brooms , camber board , roller and other machineries, watching, lighting, incidental expenses etc, complete (total usage of bitumen 29.10 Kg/10 m2,) as per IRC specification and as directed by the departmental officers	750	M2	161.90	Rupees One Hundred & Sixty One - Paise Ninety Only	121425.00

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

14	Providing precast guard stones of 20X20X90 cm made of CC M 20 using 20mm hard granite broken stone with 4nos HYSD bars 10mm dia and 6mm stirrups @15cm c/c for reinforcement and fixing in line and levels 60 cm below the ground level with CC 1:4:8 (45cm x 45cm x 60cm) including cost and conveyance of all materials, all labour charges, incidental expenses etc, complete as per standard specifications and as directed by the departmental officers	20	Nos	1809.00	Rupees One Thousand Eight Hundred & Nine Only	36180.00
	Total for Appendix B= 5928608.7					
	TOTAL PAC (APPX A+B+)					51605486.60
	Deduct Cost of Department Materials and Hire Charges for Department Machineries					93766.00
	Net PAC					51511720.60
	Tender variation (@ Estimate rate)					Nil
	Add Cost of Department Materials and Hire Charges for Department Machineries					93766.00
	AGREED PAC					51605486.60
						51605487.00
	DETAILS OF DEDUCTION FOR DEPARTMENTAL MATERIALS AND HIRE CHARGES OF T&P					
	2.183MT Bitumen VG 10 @ Rs 37073/ MT =Rs 80930.00					
	5 Days Roller @ Rs 2392/ Day =Rs 11960.00					
	1 Days Boiler & Sprayer @ Rs 35.65/ Day =Rs 36.00					
	3 Days Wheel Barrow @ Rs 3.45/ Day =Rs 10.00					
	1 Days HM plant @ Rs 830/ Day =Rs 830.00					
	Total Amount =Rs 93766.00					

Attachment to Para No.5.9 &5.11 (page 44-89 of the attachment related to Para No.5.9 and page 64-77 related to para 5.11)

1205[illegible]/2017/OS-PWD Name of Work:- Construction of Umminikadavu Bridge across Kadalundi river in Malappuram district.

M/s Thrimathy Contracting Company, V.P.Ca.Centre, Hospital Road, Nilambur.

X) / We agree to undertake to execute the work at (*)

(a) estimate rate

.....%,below estimate rate.

(a) .....

.....%,above estimate rate.

(c) .....

less cost of Departmental materials and all hire charges for departmental tools and plant specified to be supplied and recovered at the rates given in the conditions enclosed"

I / we also agree that the tender ~~deduction~~ may be applied on the amount calculated after deducting the cost of all Departmental materials and all hire charges for departmental tools and plant from the total amount of the work worked out at the rate given in the schedule attached to the tender.

NOTE: 1. *Strike out which is not applicable.

2. The rate may be quoted in words and figures.

No. of Correction

No. of Overwriting

sd/-
Contractor.

Forwarded/By Order
Personal Assistant

sd/-
SUPERINTENDING ENGINEER,
P.W.D(ROADS & BRIDGES)
NORTH CIRCLECalicut-1

Additional details to PAC regarding Para 5.5 of Audit Report of the year 2015-16 of PWD

Draft para 5.5 is regarding the inadmissible payment to Contractor on balance item of Bridge work- "Construction of Varamkadavu Bridge and Approach Road in Chelora Panchayath" in Kannur District.

The Original work "Construction of Bridge at Varamkadavu in Chelora Panchayath in Kannur District was awarded for execution to M/S Kerala State Construction Corporation Limited vide agreement No SE(K)-33/2002-03 dated 21.2.03 and site hand over on 04/04/2002. The work consists of construction of Bridge proper and approach Road totaling 476 meters. Contractor of this works M/S Kerala State Construction Corporation Ltd completed the work of Bridge Proper in March 2005 and could not done forming the approach Road due to the reason of sub soil failure.

As already mentioned above, the original estimate of work Varamkadavu Bridge consists of bridge proper which included the construction of bridge structure such as foundation, sub structure and superstructure based on the detailed design prepared as per the result of sub soil investigation done only at abutment and pier points. No sub soil investigation was conducted along approach connections which are passing through waterlogged, marshy areas and also through areas submerging under water during tidal actions. The original Administrative Sanction was accorded based on a rough cost estimate for the work without any detailed sub soil investigations done at site in respect of the approach road. So the Administrative Sanction amount received was not sufficient to cover all the provision for the construction of bridge proper, whose estimate was as per design prepared after obtaining the

Administrative Sanction. The balance amount left from the Administrative Sanction amount only was available for the construction approach roads. So only minimum provision of earth filling for forming approach roads based on tape measurements were given in the original work entrusted to M/S Kerala State Construction Corporation Ltd.

When M/S Kerala State Construction Corporation Ltd. Failed to form approach road owing to sub soil failure. The opinion of Geo Technical expert was sought. He studied the sub soil conditions at site which consists of deep layer of soft, highly compressible clay with high water content and proposed ground improvement works using Pre fabricated Vertical Drains (PVD) with woven and nonwoven Geo Textiles in order to accelerate the primary settlement due to consolidation process dissipating pore water pressure from clayey strata and thereby attaining rapid increase in the strength of sub soil.

The Revised estimate in corporating those items necessary for ground improvement which are included as per the suggestion made by Geo Technical Experts and based on SOR 1999 was sanctioned by Government on June 2008. But Kerala State Construction Corporation Ltd did not résumé the work as they demanded enhancement of Agreed Rate. Meanwhile one Mr. D.V.Muhammed Ashik from the locality approached the Hon'ble High Court of Kerala praying for directing PWD to complete the work in all respect and the Hon'ble High Court of Kerala in the order in WP©No.8266 of 2008 directed PWD to complete the work within 9 months and later extended the date to 10.2.2010. Hence, after several communication between PWD and Kerala State Construction Corporation Ltd, and also based on the decision taken during the meeting by the Hon'ble Minister for Public Works Department on 29/11/2008 and taking into account the order in the judgment by the Hon'ble High Court of

Kerala, the contract agreement with M/S Kerala State Construction Corporation Ltd was terminated at the Risk and cost of contractor by the Superintending Engineer vide Order No. DCE -2524/98 dated 30.10.2008.

a) **Audit Note:-Unjustified revision of Quantity of earthy work and rates:-**

After terminating the contact, with M/S Kerala State Construction Corporation Ltd., the balance estimate according to the sanctioned revised estimate was prepared for the construction of approach roads. By the time of preparing balance Estimate: ie, some changes took place along the surroundings of the river portions. These marshy portions, along which the approach road is to be formed, got changes due to continuous submergence under water and due to tidal effects. In the balance estimate for construction of approach roads also no detailed level calculation was done towards arriving Earth work quantity due to peculiar site condition and only lumpsom provision towards embankment settlement given as it was not possible to know the exact final settlement of embankment prior to the completion of ground improvement works. A Provision of 34000m^3 earth filling was proposed in the balance estimate. This quantity increased to 38141m^3 when initial levels were taken at close intervals on awarding the work. One of the reasons for this was due to changes in the topography of the marshy and tidal affected areas where embankment was to be formed since the termination of the original contract with M/s. Kerala State Construction Corporation Ltd. Another reason was that the LS provision given to account for settlement after ground improvement. Also the bottom width of formation at high embankments were increased from that in the original proposal so that the area subject to submergence will increase and that will reduce the

over burden pressure at the ground level. These were the reasons for the increase in the quantity to 38141m^3 . Further it was decid[illegible] construct/improve the approach road at Varam side for an additional length of 50 meters, so as to complete the work properly, this necessitated additional earth work and thus, the final quantity of earth filling was increased to 54174.38m^3." The initial levels were taken before commencing the ground improvement works. The settlement of the clayey sub soil underneath the ground level will start only after preloading over the embankment portion and the settlements were measure using settlement gauges fixed at interval installed at the ground level. The design of the ground improvement is based on achieving 90% consolidation in the time prescribed and the final settlement is measure using settlement gauges. So the final quantity of earth filling could be known only after completion of the settlement after a time interval and completion of the final embankment construction. The behavior of the clayey strata is highly complex in nature and deepens on the properties of the clayey soil which varies from point to point. So study of the exact quantity of the settlement and behavior of the clay soil underneath the formation and its design will take more time and involves tedious task for conducting detailed study of the various properties of the clayey strata on the entire formation areas.

The approach road alignment is through marshy, water logged portions subjected to tidal actions. So while progressing the earth filling, there were heavy loss of earth dumped on the approach alignment due to initial mixing with loose and soft marshy top soil & losses due to tidal effect and due to initial settlement. The loss of dumped earth along the sides could not be arrested as it was not possible to do side protection works at the toe of embankments

before attaining the primary settlement. This is being the situation at site, the contractor claimed a wastage of 50 % total earth work quantity. But the department considering all the facts limited the percentage of wastage to 25 % of the total filling quantity with the approval of Chief Engineer. Further, since embankment formation for approach road is done along submerged and loose and marshy soil subject to tidal action, it was not possible to qualify and measure the earth lost. It was finally decided to allow 25% increase on the agreed date revising the agreed rate to Rs.2424/10m^3 and approved vide order No. CE/R&B/KNR/16956/2002 dated 09/10/2009 as extra items. It was also ordered to give estimate rate for all the sanctioned extra items and this was subsequently upheld vide Govt. letter No. 25592/D1/09/PWD dated 18/2/2010.

The reason that attributed for the enhancement of the quantities of earth filling is different in each situations starting from the original estimate preparation till the end of final formation of embankment. There is no loss to Government due to this, as correct stable and more advanced technology which was also a new technology in PWD had been adopted in the construction. An alternative to this method is by increasing the length of bridge spanning over the entire water logged marshy portions which will be more expensive than the ground improvements works. Hence considering all the above, Chief Engineer has revised the rate for earth work filling.

b) <u>Unjustified change of design, quantity, rates for ground improvement works.</u>

In the estimate of balance work, the quantity of installation of PVD was 47500 m where as the executed quantity was 130392.10m. The Geo-

technical expert after studying the behavior of the deep clayey strata underneath proposed to provide Pre-Fabricated Vertical drains along with Geo textiles. A deep study of the compete area of the embankment portions on each side of bridge proper could not done due to lack of facilities then. There were no research or lab facilities for designing this new advanced technology in the construction field at that time. Sub soil exploration at some points along the embankment portions only were not sufficient as they give only an approximate idea of the application of new technology.

Due to very loose and deep soft clay, with high water content, the average residual settlement in this portion is very high. In order to accelerate the primary settlement due to consolidation by dissipating the pore water pressure, the pre fabricated vertical drain (PVD) was adopted. The use of PVD's for ground improvements is a modern technique well accepted internationally and adopted recently in the Country. At the time of execution research studies were still going on towards the application and hence in the balance estimate preparations the provisions given for PVD were not exactly the quantity as required at the site conditions. It needs more study about the soil conditions considering all parameters at the site. The PVD's were installed together with pre loading by surcharge embankments creating drainage paths which are inserted in to soft clayey sub soil. Thus the pore water squeezed out during the consolidation of the clay due to hydraulic gradients created by preloading can flow faster in the horizontal directions towards the PVD's and then it flows along the PVD's vertically upwards. It consequently accelerates the consolidation process and allows the clay to gain rapid strength. PVD is installed by using an installation rig by penetrating the mandrel which penetrates vertically in to compressible soils to the desired depth. After completion of

the PV Drain, the geotechnical instrument consisting the settlement gauges and piezo meters were installed. Settlement gauges used for measurement of settlement of the ground and piezo meters are used for the measurement of changes in pore-pressure. By closely watching the settlement and its speed, modifications in the spacing of PVD were done. If the settlement rate is fast and if development of cracks noticed on top of embankments PVD's at closer intervals are provided. Similar situations arised during the execution of embankment close to abutment portions in Varamkadavu site where a sign of failure of the embankment noticed with cracks spread widely on top extending downwards. Hence after consultation with Geo-Technical expert installation of PVD at closer intervals were provided. This was considering the height of embankments and increased water content in embankment portions close to abutments. Also the depth of installation of PVD was increased depending upon the depth of soft clayey strata till a refusal strata (stiff soil) was reached. Hence the quantity of PVD provided originally in the estimate based on a rough design had to be modified as per the changes noticed in the behavior of the embankment during construction carefully noting the surface condition on top of formation, noting the readings in settlement gauges and piezo meters. So the quantity of items of ground improvements increased for the proper completion of embankment.

The construction of pre fabricated vertical drains needs, sophisticated machineries such as installation rig consisting a mandrel for driving the PVD, anchor plate, PVDs, geo textiles imported and also instruments such as the settlement gauges, piezo meters etc. All the items used in the constructions are highly sophisticated and not included in the PWD schedule of rates. Hence the items of PVD and geo textiles were treated as extra items and no tender variation was applied.

The rates towards the ground improvements works in the sanctioned estimate and agreement schedule was based on market rates. The entire item related to ground improvement works using PVD etc were executed by contractor collaborating with firm experienced in this filed having foreign technical expertise. Payments towards all items were done by this as per then prevailing market rates. Moreover, since there is change in specification of PVD from the original agreement specification, and change in the data rate which was purely based on market rate. Competent authority revised the items and approved revised rate and increase in quantity. Then supplementary agreement executed with the Contractor to this sanctioned extra item with revised quantity and revised rate which was based on market rate. This was also subsequently approved by Govt. vide letter No. 25592/D1/09/PWD dated 18/2/2010 and allowed sanctioned rate (Estimate Rate). Hence no Tender variations affected.

All decision right according to the circumstances were taken whenever warranted by all the concerned officers in charge of this work towards proper completion of the work and also to adhere to the direction of the Hon'ble High Court of Kerala. The work completed, formally inaugurated and open to public traffic in appropriate manner.

In view of the above facts the audit objection may be dropped.

R. SREEKALA DEVI
Special Secretary to Govt.
Public Works Department
Govt. Secretariat, Tvpm.
Ph: 2327175, 2518465

VERIFICATION REPORT

Sub: Committee on Public Accounts 2016-19 meeting on 30.05.2018

Ref: Para 5.8 of Audit Report on Economic Sector for the year ended March 2015- Report No. 4 of the year 2016

Audit has observed that Public Works Department had constructed fender piles along with construction of Thadikkakkadavu Bridge across Periyar River. The fender piles constructed at a cost of Rs. 3.12 crore were meant for protecting the Bridge against the impact of collusion by barges. The requirement for fender piles was not there since that particular stretch of waterway was considered not suitable for navigation. The Irrigation Department also did not have any plans for developing the stretch for navigable purposes. The Irrigation Department has also confirmed there was no navigable water way connecting the Nedumbassery Airport to Periyar River. The said Thadikkakkadavu Bridge was constructed in the northern arm of Periyar River by including fender piles to facilitate navigable purpose. The Irrigation Department has stated that the southern arm of Periyar is the shortest and economically feasible route for cargo movement from Nedumbassery Airport to Kochi Seaport. However, even this route was having bottlenecks due to insufficient clearance and requirement of widening of about 5 Kms length between Nedumbassery Airport and Chenkalthodu.

During Course of discussion of this observation, an official from the PWD had informed that Irrigation Department had constructed a locking system in Purapillykavu Bridge in the northern arm for navigation purpose. This gave an impression that the northern arm is also navigable and the fender piles constructed at Thadikkakkadavu Bridge is necessary and probably constructed with foresight. The Committee had requested Accountant General to verify this issue and give a report.

Accordingly, an audit team was deputed to verify the facts, it was found that the Purapillykavu Bridge was actually a regulator-Cum-bridge (RCB) with a navigation lock. The dimensions of navigation lock were 35-metres-long shutter to shutter and inner width of 10 metres suitable for vessels having lesser dimensions and up to 1.20-metres draft. This indicates that vessels which are having a length of less

than 33 metres width less than 9 metres and require draft of less than 1.20 metres alone only can pass through the Purapillykavu RCB. This also indicates that any bridges with a span of more than 10 metres either downstream or upstream would in no way facilitate navigation due to the bottleneck at Purapillykavu RCB. Incidentally during physical verification of the Purapillykavu RCB, the audit party witnessed the operation of RCB for allowing passage for a small boat pulling a barge of size of 12-metres length and 6.5-metres width used for conveying construction activities (photos enclosed). The entire operation took more than half an hour for completion. The operation of the navigation lock is rare and done at the request of parties who are in need of such service. It was also seen that the depth level of RCB was restricted to plus 6.6-metres similar to that of the Manjali Bridge constructed by PWD 1.5 Km downstream of RCB. This part of river was not included in the National Waterways as decided in the meeting dated 11th June 2013 in the chamber of Minister of Water Resources (copy of minutes enclosed). Thus, it is apparent the horizontal as well as vertical clearance of Purapillykavu RCB was not suitable for passage of heavy or medium size vessels. Consequent to this verification, it is reaffirmed that construction of fender piles at a cost of Rs. 3.12 Crore at Thadikkakkadavu Bridge was unwarranted since the stretch was not suitable for navigation purpose in view of the bottlenecks. It is also apparent that the decision to construct the fender piles was a decision taken by the concerned Chief Engineer (Roads & Bridges) without the concurrence of Design, Research and Investigation, Quality Control wing (DRIQ) which had originally approved the design of Thadikkakkadavu Bridge.

Thus it is apparent the Purapillykavu RCB is suitable for movement of smaller vessels only. Hence the need for fender piles at Thadikkakkadavu Bridge which is having a span of more than three times that of Purapillykavu RCB was unwarranted resulting in wasteful expenditure of Rs. 3.12 Crore.

Audit Objection / Rep Civil/PAC

By Fax. No. 0471 - 2320891

भारतीय लेखा तथा लेखापरीक्षा विभाग
INDIAN AUDIT AND ACCOUNTS DEPARTMENT
प्रधान महालेखाकार (
लेखापरीक्षा) का कार्यालय, केरल,
OFFICE OF THE PRINCIPAL ACCOUNTANT GENERAL
(ECONOMIC & REVENUE SECTOR AUDIT),
KERALA, BRANCH, THRISSUR - 680020

No. ESII/DP Cell (Works)/1B 2834/2015-16/ 38 Date: 6.11.2015

To

Shri Harinarayanan NS,
Chief Engineer (Irrigation & Administration),
Irrigation Department, Government of Kerala,
Thiruvananthapuram

Sir,

Sub: Details of Periyar river-structures built across the river and route followed.

It has been reported by Public Works Department that there is a water transport route through the northern branch of Periyar, from Neduvannur via Purapillykavu and Kadmakkudy, and the said route was being actively considered for connecting Kochi port with Nedumbassery airport. In this connection, the following information relating to Periyar river may please be furnished:

1. The river Periyar splits into two branches, viz., Managalapuzha and Varappuzha, near Aluva manappuram. Please confirm whether structures like bridge at Thadikkakadavu and Regulator-cum-bridge at Purapillykavu, currently under construction, are located on the "Managlapuzha branch" in the 'northern arm' of Periyar.
2. Whether there is any navigable waterway connecting the Nedumbassery airport to Periyar river. If yes, details of the same may be furnished. If not, please name the location nearest to the airport through which Periyar passes.
3. Whether there is any proposal to develop the "northern arm" of Periyar as a waterway connecting Nedumbassery airport to Kochi city/seaport for cargo transportation? If yes, please furnish the details.

दूरभाष /Telephone : 0487-2331400 फैक्स / Fax : 0487-2325898 ई-मेल / e-mail

4. Whether there are any drinking water projects in Periyar between the portion of river that passes nearest to the Nedumbassery airport and the point where the northern arm of the river connects with the Chalakkudy river.
5. Which of the routes, i.e northern or southern arm of Periyar, is economically feasible for transporting cargo from Nedumbassery airport to Kochi city/seaport?
6. Details regarding the type of cargo vessels/boats/barges that can navigate through the 10 metres wide lock forming part of the Regulator-cum-bridge at Purapillykavu may be furnished. Expected volume of cargo movement through the lock may be stated.
7. Whether there are any bottlenecks for large-scale cargo movement from Nedumbassery airport through the northern arm of Periyar to Kochi city/airport?

The information cited may please be furnished by 12.11.2015.

Yours faithfully,

6/11/2015

(N. Subramanian)

Deputy Accountant General (ES II)

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No. F4/36713/15.

Office of the Chief Engineer,
Irrigation & Administration,
Thiruvananthapuram,
Dated: 11.11.2015.

24 NOV 2015

From

The Chief Engineer.

To

Sri. N. Subramanian,
Deputy Accountant General (ES II),
O/o the Accountant General,
Thrissur.

Sir,

Sub:- Details of Periyar River structures built across the river and route followed – Report submitting of – reg:

Ref.- Letter No. ESII/DP Cell (Works)/1-B 2834/2015-16/38 dated 06.11.2015 of the Deputy AG (ES II).

Your kind attention is invited to the reference cited and I may submit herewith the report as follows.

1. Yes, the structures like bridges at Thadikkadavu and RCB at Purappilly kavu currently under construction are located on the 'Mangalappuzha branch' in the northern arm of Periyar.

2. There is no navigable waterway connecting the Nedumbassery Airport to Periyar River. Chenkalthodu near Kanjoor is the nearest location to the airport through which Periyar passes.

3. Presently there is no proposal has been taken upto develop the "northern arm of Periyar as a waterway connecting Nedumbassery airport to Kochi City/Seaport for cargo transportation, from this office.

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4. Yes, Chowara Drinking Water Scheme (KWA) near Aluva is the existi nearest to the Nedumbassery Airport. More details may be obtained from Kerala Water Authority, Aluva.

5. Southern arm of Periyar is the shortest and economically feasible for importing cargo from Nedumbassery Airport to Kochi City seaport.

6. Can not specify the types of vessels that can pass through the lock of Purappillykavu Regulator Cum Bridge. But vessels having 29 mtr long and 9 mtr wide with 1.20 mtr draft can pass through the lock.

7. Yes. There are bottle necks due to insufficient clearance under the existing bridge across Periyar. Also approximately 5 km length between Nedumbassery Airport and Chengal Thodu require widening and deepening.

Yours faithfully,

N.S. Harinarayanan
Chief Engineer (I&A)

BS/11.11.

Report on the joint inspection of site of Regulator cum Bridge at Purappillikkavu across Periyar river in Ernakulam district, conducted by PW Party-V, along with Sri.KK Syamkumar, Assistant Executive Engineer, Irrigation Investigation Sub-division Aluva on 05-06-2018.

The Audit team along with the departmental engineers reached the site at 11.00 am. The RCB was constructed with 22 spans including the navigation lock. The civil and mechanical works were seen completed and electrical work not carried out.

The AEE informed that the electrification work was arranged, agreement executed and work started. The operation of shutters was presently being carried out according to necessity by hiring generators on hourly basis through tender.

The AEE informed that the navigation lock was constructed with dimensions 35.00m long (shutter to shutter) and inner width of 10m and those vessels having lesser dimensions with 1.20m draft alone could be passed through the Lock.

It was also seen that the deck level of the RCB was restricted to +6.65m, similar to that of the Manjali bridge (constructed by PWD) 1.5 km downstream of the RCB since this part of the river was not included in National waterways, as decided in the meeting dated 21-06-13 in chamber of Minister of Water Resources. Hence the horizontal as well as the vertical clearance of the Lock was not suitable for passage of heavy or medium sized cargo vessels.

Shutters of navigation lock are being lifted occasionally based on the request by the parties. But, by chance, the Party could witness the operation of the navigation lock for allowing passage for small boat pulling a barge of size 12m x 6.5m (approximately) and photos were taken.

K K Syamkumar,
Assistant Executive Engineer

Bismi Shafna U S
Assistant Engineer

M P Hamsa, Senior Audit Officer

Joy Antu P, Asst Audit Officer

C S Precy, Asst. Audit Officer

Office of the Assistant Executive Engineer
ALUVA
Date.....
Irrigation (Inv) Sub Division

APPENDIX III
Appendix From Audit Report

Statement showing the works executed during the period 2011-15 treating as ordinary repairs
(Reference: paragraph 5.6; Page: 52)

Sl. No.	Name of work	Division	Total claim disallowed (₹ in lakh)
1.	Renewal/IRQP from km 231/000 to km 263/444 of NH-17	Kozhikode	1251.14
2.	Resurfacing NH-212 km 66/00 to km 76/00	Kozhikode	656.18
3.	Periodical renewal (PR) of NH-17 providing 50mm BM and 25mm BC km 194/610 to km 206/500	Kozhikode	1,042.86
4.	Repairs to Railway overbridge at Vengali, Vengalam and Chengathukavu on NH-17	Kozhikode	179.82
5.	PR 2010-11, providing BM and BC in km 29/000 to km 41/000 of NH-17	Kannur	664.56
6.	Resurfacing of NH-17 from km 58/000 to km 63/000	Kannur	464.05
7.	Improvements to Kondotty town km 27/500 to km 29/150 of NH-213	Malappuram	330.90
8.	Widening of NH-213 between Angadipuram and Perinthalmanna	Malappuram	336.46
9.	Monsoon work NH-49 Madurai-Kochi road 40mm BC between km 279/000 to km 286/610	Muvattupuzha	349.99
10.	NH-17 2013-14 providing 1.20 x 1.50 span slab culvert and drainage facilities (km 331/500 to km 331/750)	Malappuram	19.93
11.	NH-212 – resurfacing work between km 97/600 to km 117/600 in Wayanad district	Kozhikode	580.53
12.	NH-213 for 2013-14 extension of culvert drain (km 41/040 and km 40/700) and (km 42/800 and km 43/200)	Malappuram	4.62
13.	NH-213 for 2013-14 extension of culvert drain at km 79/200 (left side)	Malappuram	4.98
14.	NH-213 for 2013-14 extension of culvert at km 46/800	Malappuram	4.95
15.	NH-47 Resurfacing work from Vadakkancherry to Vaniyampara (km 240/000 to km 249/000 and Vazhukumpara to Mannuthy)	Kodungallur	1,526.00
16.	Repairs to damaged drain in providing cover slabs between km 70/800 to km 70/900 (right side)	Malappuram	2.99
17.	Repairs to damaged drain in providing cover slabs between km 70/900 to km 71/000 (right side)	Malappuram	3.00
Total			**7,422.96**