

**Report of the
Comptroller and Auditor General of India
on
Performance Audit on
Construction of Major Bridges in Madhya Pradesh
by Public Works Department**



SUPREME AUDIT INSTITUTION OF INDIA
लोकहितार्थ सत्यनिष्ठा
Dedicated to Truth in Public Interest



Government of Madhya Pradesh
Report No. 3 of the year 2023

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PREFACE

This Report of the Comptroller and Auditor General of India for the year ending on 31 March 2020 has been prepared for submission to the Governor of Madhya Pradesh under Article 151 of the Constitution of India, for being laid before the Legislature of the State.

The Report contains significant results of Performance Audit on 'Construction of Major Bridges in Madhya Pradesh by Public Works Department', covering the period 2015-16 to 2019-20.

The instances mentioned in this Report are among those which came to notice in the course of test audit.

The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

Executive Summary

Bridges are symbols of culture and are often the iconic part of infrastructure, both fascinating and appealing to the imagination. Bridges are instrumental in making the surface transport infrastructure more robust to geographical factors such as weather and terrain. In hinterlands, the Bridges are often the last missing piece in connecting the remote villages. In cities, the Bridges are the catalysts for reducing the travel time, thereby making the urban landscape more functional.

Thus punctual completion of Bridges within the estimated cost including all the necessary features and also adhering to extant rules and regulations is expected from the Public Works Department. In our audit, we observed that the main lacunae in the construction of Bridges was the time and cost overrun. In 72 audited Bridge works, only nine works were completed within the period stipulated in the Agreements. There were delays ranging from one to 68 months in the remaining 63 bridge works. The major reason for the time and cost overrun was inadequate planning.

The construction of an important structure like a Bridge necessitates adequate planning, analysis and survey starting from the Block level to the State level culminating to a Master Plan for construction and upgradation of Bridges. Having a Master Plan is crucial to achieve the best possible output with the limited available resources. However, the Madhya Pradesh Public Works Department failed to prepare any Master Plan or a Long Term Plan for the construction of Bridges either at State level or at District level.

The integral part of the planning process is the coordination with multiple agencies viz. Madhya Pradesh State Electricity Companies, respective Municipal Corporations, Indian Railways and Narmada Hydroelectric Development Corporation. However, the Department in several instances has failed to coordinate with these agencies for ensuring timely project completion.

Proper planning also involves conducting a detailed survey and investigations before preparation of the Detailed Project Reports, so as to ensure timely and economical completion of the projects. As the Survey and Investigation, especially the sub-soil investigation was inadequate, multiple major changes in the Design and Drawings were necessitated during the execution such as change of site, location of abutment, foundation type, variation in number of piers and length of spans, etc. In a particular case, the type of Bridge was changed from High Level Bridge to Submersible Bridge during the construction due to incorrect assessment of the flood level resulting in cost and time overrun. Similar changes were noticed during the execution of 12 Bridge works, and it resulted in an additional expenditure of ₹ 101.83 crore.

To internalize planning in the Department's construction activities and to have a systemic approach to the same, the Department should ensure utilization of

planning tools and techniques such as Critical Path Method/ Programme Evaluation Review Technique Chart, etc. There was lack of application of the Critical Path Method by the Department in all the Bridge works which resulted in failure in identifying the reasons for delay in project completion and also in locating the areas where additional efforts were required to effect the timely completion of projects.

An efficient contract management is important for a cost effective project execution, it involves prudent recoveries, avoidable expenditures and due adherence to the extant rules. The shortcomings of the Department in the management of its contracts are detailed in Chapter 3 of this Report. Audit noticed in many instances that the royalties amounting to ₹ 63.73 lakh were less recovered, besides, the works costing ₹ 101.95 crore were finalized without obtaining the “No Dues Certificate” of Mineral Resources Department from the contractors.

The Department’s lack of financial prudence in contract management was also found in many instances where it failed to avoid extra expenditures. In a particular case, the delay in acceptance of the rate of a non-SOR item had resulted in an avoidable extra cost of ₹ 2.54 crore.

An effective contract management also involves adherence to the rules, regulations and the codal provisions. In several Bridge works, utilization of fly ash was not considered in construction of embankments and was not provisioned in the estimates even though the Thermal Power Plants were within 300 km of the construction sites in which it is mandatory as per the extant rules to utilize the fly ash. In another case, in two Bridge works a total of 22 items amounting to ₹ 1.76 crore which did not exist in the Bill of Quantity were executed without obtaining the revised Administrative Approval and Technical Sanction.

Quality Control is another important aspect of the contract management as it ensures the safety of the bridge structure and Audit observed a few lacunae in this regard. The purchase of Steel, which is one of the major component in the construction of Bridges, has to be from Primary Steel Producers or Integrated Steel Plants. When we audited the 22 Bridge works’ steel purchase invoices amounting to ₹ 98.39 crore, the same could not be ensured. In seven out of those 22 works, the Steel was procured from the local dealers.

Also the Elastomeric Bearings were used in the Bridges without inspection, testing and certification as prescribed in the specifications. The Department has also failed to execute sufficient exploratory borings on each location of foundation which is needed to confirm the soil characteristics and to assess the safe bearing capacity of the soil, thereby compromising on the safety of the foundation.

In addition to planning and contract management, another important aspect of the Bridge to be ensured by the Department is the Bridge's functionality, both in respect of its utility to the larger segments of the public and in respect of the safety of the commuters using the Bridge. It is observed that in many instances the Approach Roads were not constructed simultaneously with the construction of Bridges, but instead was constructed with delays up to 41 months. In several Bridges, the provision of footpaths was not appropriate in accordance with the pedestrian traffic on the Bridges. For example, in the six Bridge works costing ₹ 81.73 crore which were though eligible for construction of footpaths but the same was neither provided in the estimates nor was executed.

In many Bridges, safety of road users was also not ensured because proper road furniture such as retro-reflective road signs, crash barriers, protective wire mesh, road marking, warning signs, flood gauge, etc. was either provided in the estimates but not executed or not provided at all. Also, the safety kerb was not provided in many Bridges for occasional pedestrians' movement, removable/collapsible railings were not provided in case of Submersible Bridges. Importantly the Bridges were electrified only in the urban areas and in case of Railway Over Bridges.

Thus, the Department did not have adequate systemic planning and coordination with the other Departments before execution of the Bridge works. The Department could not ensure water-tight adherence to the provisions of the contracts and failed to guarantee a safe and convenient movement also for the pedestrians post the construction.

Chapter 1

Introduction

Chapter 1

Introduction

1.1 Introduction

Roads are the key to the development of an economy. A good road network constitutes the basic infrastructure that propels the development through connectivity and opening up the backward regions to trade and investment, and Bridges provide connectivity between the road network itself. They allow hindrance-free transport to local communities and vehicles for movement from one side to another. Besides providing connectivity, bridges reduce the travel time and ensure safe journey as well. Based on their length, there are two categories of bridges, Major Bridges and Minor Bridges. As per Indian Road Congress, a Major Bridge is a bridge having length of 60 meter or more and a Minor Bridge is a bridge whose length is less than 60 meter. The Major Bridges are generally built over railroad tracks, roads, rivers, etc.

During the period 2015-16 to 2019-20, the Government of Madhya Pradesh had sanctioned total 1,977 bridge works in the State, of which 1,630 bridge works are Minor Bridges and 347 Major Bridges.

1.2 Organisational set up

Public Works Department is the premier agency of Government of Madhya Pradesh engaged in Planning, Designing, Construction and Maintenance of Government assets like Roads, Bridges, Railway Over Bridges (ROBs), Flyovers and Buildings.

The Principal Secretary is the administrative head at the state level while the Engineer-in-Chief is the technical head of the Department. The entire Bridge Zone¹ is divided into three² Circle Offices which are further divided into seven³ Divisional Offices. The Engineer-in-Chief is assisted by a Chief Engineer who is further assisted by the Superintending Engineers of the Circle Offices and by the Executive Engineers of the Division Offices. The Divisions are mainly responsible for construction, and repairs and maintenance of the bridges.

¹ Bridge Zone of Public Works Department is responsible for Planning, Designing, Construction and Maintenance of Bridges, ROBs and Fly Overs and is headed by a Chief Engineer.

² Bhopal, Jabalpur, and Gwalior.

³ Bhopal, Indore, Ujjain, Sagar, Gwalior, Rewa and Jabalpur.

- Guidelines and orders issued by the Government of Madhya Pradesh for construction of bridges, and
- Terms and conditions of the contracts and instructions issued by the Department.

1.6 Scope and Methodology of Audit

In this Performance Audit, records related to construction of major bridges pertaining to the period from 2015-16 to 2019-20 were scrutinised in five Divisions⁴ selected out of the total of seven Divisions⁵. The relevant records were also checked in the offices of Engineer-in-Chief and the Chief Engineer. On the basis of completion and expenditures, the Bridge works were divided into following three categories for the purpose of selection.

Category A: Bridge works completed between 2015-16 and 2019-20

Category B: Bridge works scheduled for completion between 2015-16 and 2019-20 but are still ongoing.

Category C: Ongoing bridge works (whose scheduled completion period is beyond 2019-20) on which 50 *per cent* expenditure has been incurred.

The details of expenditure incurred by the Divisions are mentioned in **Table 1.2** below:

Table 1.2: Expenditure incurred on completed and ongoing bridge works

(₹ in crore)

Sl. No.	Divisions	Category A		Category B		Category C		Total	
		Number	Amount	Number	Amount	Number	Amount	Number	Amount
1	Ujjain	31	306.00	18	95.29	2	30.32	51	431.61
2	Bhopal	41	299.15	14	119.88	0	0	55	419.03
3	Indore	49	324.34	14	72.20	3	13.67	66	410.22
4	Gwalior	15	197.28	14	183.50	1	4.22	30	385.00
5	Rewa	39	184.49	14	82.72	2	54.42	55	321.62
6	Jabalpur	34	233.71	16	46.03	2	38.27	52	318.00
7	Sagar	34	192.41	4	30.33	0	0	38	222.74
Total		243	1737.38	94	629.95	10	140.90	347	2508.22

(Source: Public Works Department)

Out of 279 major bridges taken up for construction in the five selected Divisions by Public Works Department during the period 2015-16 to 2019-20, 72 bridge works were selected using stratified random sampling method through IDEA Software⁶, as detailed in **Appendix 1.1**.

1.7 Previous audit

A Performance Audit on 'Construction of Bridges' was conducted during 2012-13 with the objective of assessment of the performance of the Department on

⁴ Bhopal, Indore, Jabalpur, Rewa, and Ujjain.

⁵ Bhopal, Gwalior, Indore, Jabalpur, Rewa, Sagar, and Ujjain.

⁶ Interactive Data Extraction and Analysis (IDEA) software is a Computer Assisted Audit Technique tool.

planning, contract management, monitoring and control system in construction of bridges. The Performance Audit featured in the Audit Report of Economic Sector (Non-Public Sector Units) for the year ended 31 March 2013. The above Report is under consideration of the Public Accounts Committee.

1.8 Acknowledgement

The audit commenced with an Entry Conference on 13 August 2021 and concluded with an Exit Conference with the Government on 27 July 2022.

Office of the Accountant General (Audit-II), Madhya Pradesh, Bhopal acknowledges the co-operation and assistance extended by the staff and officers of the Public Works Department, Government of Madhya Pradesh during the conduct of this Performance Audit.

Chapter 2

Planning

Chapter 2

Planning

2.1 Introduction

A long term or annual plan should be prepared to prioritise the work of construction of Bridges. Planning for bridge construction is based on the assessment of needs for Bridges, the characteristics of the desired bridge, the site details, and the availability of resources. This involves a chain of activities, such as

- Selection of sites after Survey and Investigation,
- Selection of type of structure and Design of structural elements,
- Preparation and evaluation of estimates,
- Determination of time required for construction,
- Preparation of contract documents, etc.

2.2 Improper planning

2.2.1 Selection of bridges without any Master Plan

The Government of Madhya Pradesh had accorded approval for construction of 277 major bridges in the State against the proposal of 324 bridges during the period 2015-16 to 2019-20. Division-wise details are given in **Table 2.1** below:

Table 2.1: Details of proposed and approved Major Bridges

Division	Year	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Bhopal	Proposed	32	26	7	8	0	73
	Approved	21	15	3	3	0	42
Ujjain	Proposed	9	13	8	14	12	56
	Approved	7	11	7	11	9	45
Jabalpur	Proposed	23	17	6	5	4	55
	Approved	23	17	6	3	2	51
Rewa	Proposed	12	18	2	4	2	38
	Approved	12	18	2	4	1	37
Indore	Proposed	20	16	14	8	6	64
	Approved	20	16	14	8	6	64
Gwalior	Proposed	3	4	1	10	1	19
	Approved	3	4	1	10	1	19
Sagar	Proposed	3	5	5	6	0	19
	Approved	3	5	5	6	0	19
Total	Proposed	102	99	43	55	25	324
	Approved	89	86	38	45	19	277

(Source: Information furnished by Public Works Department)

Audit noticed that no Master Plan was prepared of future years for construction of major bridges. For selection of the bridges, proposals were sent to the Government on *ad hoc* basis, based on the recommendations of the public representatives. Audit further noticed that no uniform procedure existed for

making proposal for construction of bridges for the purpose of its selection and inclusion in the budget.

In reply, the Government stated (August 2022) that the bridges are constructed by the Department on the basis of State Government's policy keeping in view the technical requirement of the site, recommendations of the public representatives, demands of local people and traffic census within the available financial resources.

2.2.2 Non-coordination with other Departments

According to the circular issued (October 1984) by the Ministry of Road Transport and Highways, it is essential to have coordination with the concerned utility agencies for ascertaining the magnitude of rehabilitation of existing service lines and for providing space in the road for future development of these services, at the time of preparation of the alignment plan¹.

Audit noticed (between March 2021 and September 2021) in 10 bridge works² of five Divisions³, that the Department failed to co-ordinate with other Departments such as MP Public Works Division (Electrical/Mechanical), MP State Electricity Board, Municipal Corporation, Indian Railways, Land Revenue Department, Local Administration, Narmada Hydroelectric Development Corporation.

Few illustrative cases are given below:

Case 1: Cost and time over-run due to adoption of incorrect high flood level

As per Clause 5.3.7 of Indian Road Congress Special Publication 54, Flood Flow Data, a reliable assessment of flood discharge and corresponding water levels are the basics for proper designing of a bridge and its approaches. The magnitude, the area flooded, flood water levels, flood marks or other positive evidence of the height of historical flood, etc. should be collected from all the available sources. To make available such data, cooperation from the concerned authorities/ agencies is essential. Flood discharge data at the nearest gauging station and other flood related data that may be available from records of irrigation or other authorities/agencies shall be collected. A critical analysis of the reliability of such data is of paramount importance.

In Indore Division, a High Level Bridge⁴ was to be constructed at Nagar Ghat which is at 1200 meter downstream from Omkareshwar Dam. After the survey and investigation (June 2016), the bridge was decided to be constructed with the

¹ The plan shows the details of the existing road with respect to the road-side development giving *inter alia* the right-of-way available, extra land required for widening the position of avenue, trees, utility lines, etc.

² Six Railway Over Bridges, three High Level Bridges and one Flyover of which two bridge works were completed and eight bridge works are ongoing with the expenditure incurred of ₹ 161.54 crore.

³ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

⁴ High Level Bridge is a bridge, which carries the roadway above H.F.L. of the channel.

high flood level⁵ of 177m and formation level⁶ of 180.725 m, and the General Arrangement Drawing (GAD) was approved.

But, owing to protests at the local village, the site was relocated to 2.1 km away from the dam in the down-stream. The work was awarded (July 2017) to a contractor for ₹17.68 crore. Audit noticed that a fresh GAD was submitted (August 2017) to the Chief Engineer for approval without considering historical water discharge of the dam and arbitrarily fixing the high flood level at 175 m and formation level at 179.175 m.



(Source: Photograph taken by Audit Party on 04.08.2021)

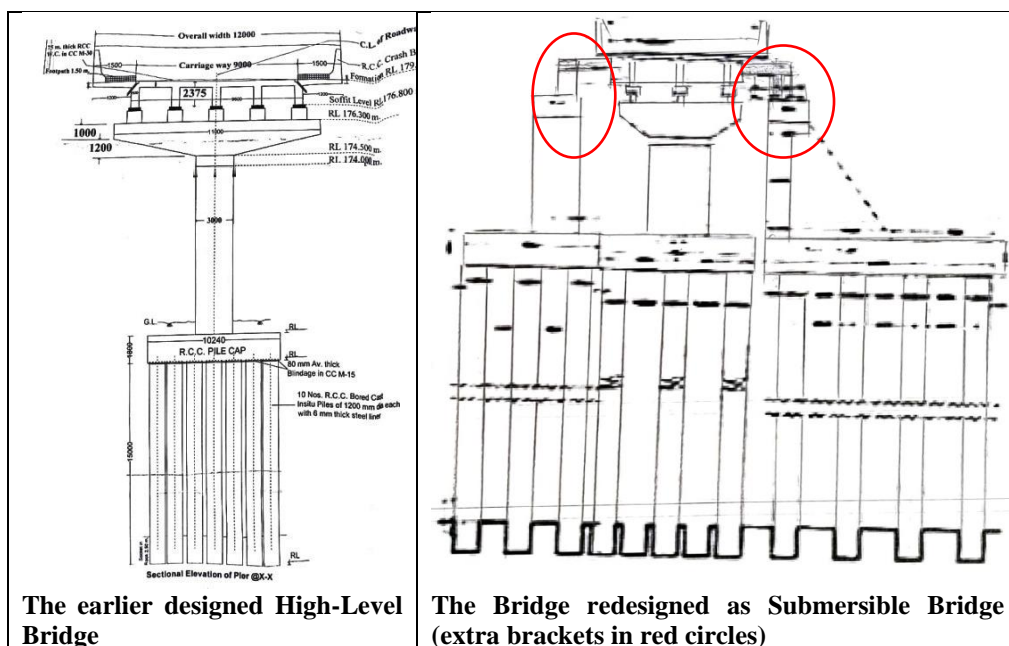
In the rainy season (August 2020) the high flood level reached to 176.45 m and the work had to be stopped. Thereafter, the Department obtained (September 2020) water discharge data from the Narmada Hydroelectric Development Corporation and calculated the high flood level as 182.84 m at the site during the maximum discharge conditions. Till then (October 2020), 60 *per cent* of the work was completed and it was not possible to increase the formation level of the bridge. Hence, the Department decided (February 2021) to redesign the bridge as a Submersible Bridge⁷. An amount of ₹ 10.62 crore had been paid to the contractor so far (February 2021).

A modified GAD with revised estimate of ₹ 46.53 crore for construction of a Submersible Bridge was submitted (March 2021) to the Chief Engineer for approval. This GAD contained some extra brackets and to support these extra brackets, extra piles and piers were also proposed. This design was very unique as has been shown below:

⁵ Highest Flood Level is the level of highest flood ever recorded or the calculated level for designed discharge.

⁶ Formation Level is the lowest level of the bridge super structure.

⁷ Submersible Bridge is a bridge designed to be over-topped during floods.



(Source: Records of Public Works Department)

An expenditure of ₹17.17 crore has been incurred on the under-construction work so far (February 2022). The incorrect assessment of flood level data has resulted in increase of the cost of bridge (likely ₹ 28.85 crore) and time over-run (likely 19 months).

In reply, the Government stated (August 2022) that HFL is determined by the laid down procedure of Indian Road Congress i.e., by local enquiry, from nearby villagers' observations during the floods in the last 40 to 50 years, catchment area of the river, velocity, and discharge of river, scour depth, etc. In the last few years, due to the change in the rainfall pattern at some places and high intensity of rainfall in a short period of time, there has been an unexpected increase in the HFL of the rivers.

The reply is not acceptable because as per the information provided to Audit by the Narmada Hydroelectric Development Corporation, the high flood levels had already reached to 178 m and 179 m during the years 2012 and 2013, respectively in comparison to 177.5 m during August 2020, after which the Bridge design was proposed to be changed. Had the HFL been correctly assessed during the DPR stage by considering multiple parameters including the dam discharge data mentioned above, the bridge could have been built without major design change during execution and within the scheduled time. Responsibility needs to be fixed on the concerned engineers in this regard.

Case 2: Construction of Railway Over Bridge in lieu of level crossing

The work order for the work of construction of Railway Over Bridge (ROB) in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal ⁸

⁸ Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Pathak at Subhash Nagar in Bhopal, PAC: ₹ 23.16 crore and Contract value: ₹ 21.50 crore, Work order was issued on 07.06.2016.

was issued (June 2016) to the contractor for completion of the work in 22 months (April 2018). The ROB and its approach road were completed in March 2019 after delay of 11 months.

Audit noticed that the Department had approached (February 2017) Bhopal Municipal Corporation for shifting of an existing water supply pipeline and made payment in this regard after eight months of the issue of work order (June 2016). The pipeline was shifted in December 2018.

Similarly, the Railways had to fill the portion between the two edges of the ROB. They, however started the work two months before the date of scheduled completion and took nine months to complete (January 2019) the work.

There was no evidence of correspondence in the records by the Department with the above entities to expedite the work.

In reply, the Government stated (August 2022) that the work of Subhash Nagar ROB was not delayed due to shifting of pipeline. Shifting of utilities coming in the alignment of structure is carried out parallel with the progress of work. In the case of ROB, Railways constructs the bridge in their ROW. The work of Railways was delayed due to non-performance of the deployed agency. Railways completed their part after about one and half year, so bridge could not be utilised. PWD does not owe any responsibility for non-utilisation of the Bridge due to delay in its completion.

The reply is not acceptable because the work of shifting of pipeline had delayed the progress of work as shifting of pipeline was completed (December 2018) with delay of eight months from the date of scheduled completion of the work. Further, no correspondence with the Railways for expediting the work was shown to Audit by the Department.

2.2.3 Award of works without acquisition of land

Paragraph 2.104 of MP Works Department Manual, Volume-I stipulates that as soon as the estimate for a work is sanctioned and the fund is allotted, an application for acquisition of land be submitted to the Collector. Further, Appendix 1.25 (vi) of this Manual stipulates that it is the responsibility of Executive Engineer to draw up programme for land acquisition/ land transfer with a view to ensure transfer of required land before the target set for starting of work.

Audit noticed (between March 2021 and September 2021) in 25 Bridge works⁹ of five Divisions¹⁰ with expenditure of ₹ 231.45 crore as detailed in **Appendix 2.1**, the process of land acquisition was not completed before award of the work to the contractors. There were delays ranging from two to 52 months in initiation of land acquisition process after award of the works. The delay in

⁹ Out of these, 15 bridge works were completed and 10 bridge works were ongoing.

¹⁰ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

final award of land ranged from five to 92 months and there were delays of three months to 68 months in completion of the works. Some of the cases have been mentioned in **Table 2.2** below:

Table 2.2: Details of works delayed due to delay in land acquisition process.

Sl. No.	Name of Bridge work	Date of Work Order	Delay in land acquisition (in months)	Delays in completion of work (in months)	Present status
1	ROB near Lal Bagh railway station on Burhanpur Bhusawal railway section	19-07-2013	92	68	Ongoing
2	Box type Bridge across Umar River at Khobi – Deori – Mohas - Akola Road, Narsinghpur	01-04-2010	24	67	Completed
3	High level bridge across Narmada River near Awalighat, Sehore	15-02-2013	13	51	Ongoing
4	High Level Bridge across Pench River on Charaikala - Darbai Road, Chhindwara	14-12-2012	45	44	Completed
5	High Level Bridge across Tawa River at Rajdhog on Sarni - Loniya Road, Betul	08-12-2015	52	38	Ongoing
6	High Level (Box Type) Bridge across Jhappar River on Barkachh Beohari Road, Shahdol	17-10-2016	52	37	Ongoing
7	High Level Bridge across Ajnar River on Rajgarh-Kalipith Road, Rajgarh	21-11-2016	52	36	Ongoing
8	Submersible Bridge across Newaj River on Bolda Hariai Kala Road, Shajapur	25-09-2013	30	34	Completed
9	ROB in lieu of level crossing. no 177 Ratlam - Chanderia rail section, Jaora, Ratlam	28-09-2018	33	33	Ongoing
10	Submersible Bridge Myar River on Chachar - Kulhai (Kulhaniya) Road, Singrauli	05-02-2016	65	32	Ongoing

In reply, the Government stated (August 2022) that the process of land acquisition was started after according the Administrative Approval so that the land could be acquired during the execution of the works and the works could be completed within the stipulated period. The main reason in delay in land acquisition was revision of Land Acquisition Act by the Government of India in the year 2013. Some other reasons cited for the delay were pendency of cases in the courts, encroachments on work site, houses lying in approach alignment, coordination with various departments, etc.

2.3 Survey and Investigation

The Department has to carry out adequate Survey and Investigation as mentioned in the specifications before preparation of the Detailed Project Reports for the bridge works. But during the audit the following issues were

noted wherein it was observed that adequate Survey and Investigations was not done.

2.3.1 Inadequate Survey and unrealistic initial estimation led to major changes in drawing and design during execution of work.

As per Clause 3 of IRC SP:54(2000), the stages in project preparation are specified as Prefeasibility Report, Feasibility Report or Preliminary Project Report and thereafter the Detailed Project Report. At the stage of Prefeasibility Report, the site selection is an important factor. Detailed survey and investigation of the final site is to be conducted to prepare the General Arrangement Drawings and estimate for tendering and execution.

Audit noticed (between October 2020 and September 2021) in 12 Bridge works¹¹ of five Divisions¹² that major changes in the drawing and design of the bridges such as change of site, abutment location, foundation type, variation in number and length of spans, type of the bridge, etc. were carried out after award of the work. This has also resulted in increase in the costs of the works ranging from five to 137 *per cent* as detailed in **Appendix 2.2**. This resulted in net additional expenditure of ₹ 101.83 crore.

In reply, the Government stated (August 2022) that General Arrangement Drawing is prepared after preliminary hydraulic and soil investigation. After award of work the contractor has to carry out detailed soil investigation. On the basis of detailed soil exploration by the contractor the type of foundation is sometimes required to be reviewed. On the basis of change in foundation, changed geometry of site and some new hydraulic features, other changes are required in the structures; but they are always examined by the Competent Authority.

The reply is not acceptable because neither the Department nor the contractors had investigated the soil by drilling the prescribed number of boreholes. The details in this respect have been mentioned in **Paragraph 2.3.2** and **Paragraph 3.4.2** of this Report. Further, the Government has accepted the fact that inadequate soil investigation has also led to major variations in the quantities. Therefore, responsibility of concerned officials needs to be fixed.

2.3.2 Inadequate sub-soil investigation before preparation of drawing and design

As per Clause 5.3.8 of IRC SP:54, information on the soil in bed and bank is necessary for evaluation of sediment, movement, and the stability of bed and banks in general. Borings for foundation-soil exploration will yield data regarding scour, sound founding strata, Safe Bearing Capacity (SBC), settlement characteristics, etc. Further, as per Clause 704 of IRC:78, at the

¹¹ Four Railway Over Bridges, six High Level Bridges and two Flyovers in which seven works were completed and five works are ongoing.

¹² Bhopal, Indore, Jabalpur, Rewa and Ujjain.

detailed investigation stage, sub-soil investigation is essential to determine the characteristics of the existing geo-materials, like, soil, rock, bed material in water courses, etc. in the zone of influence of the proposed bridge sites in such a way as to establish the design parameters which influence the choice and design details of the various structural elements, especially the foundation type.

As per Clause 6.1.2 of IRC SP:54, on finalisation of layout of the work, it is necessary to carry out a detailed sub-soil investigation based on the actual layout. It is at this stage that the requirement of various tests to be conducted as well as their location at site becomes essential. At least one bore hole on each foundation location should be made in case of Major Bridges. When rock is found in the strata, the number of bore holes may be increased suitably depending upon the dip¹³ of rocky strata. The tests should provide adequate information required to carry out the engineering design.

Audit noticed (between October 2020 and September 2021) in 45 bridge works of five Divisions¹⁴ as against the required 696 numbers of bore holes, only 82 bore holes were made. Thus, there was shortage of 88.22 *per cent* in the execution of bore holes. This indicates that the estimates were prepared without having sufficient data on sub-soil investigation. Post agreement changes in design/drawing, foundation, type of bridges, length of bridges and span were noticed due to insufficient bore tests during preparation of Detailed Project Report as mentioned in previous paragraph. The details are given in **Appendix 2.3.**

Extra expenditure due to non-conducting of sub-soil investigation

The work of “Construction of High-Level Bridge across Narmada River near Awalighat on Salkanpur-Dharamkundi road” was awarded in February 2013.

Audit noticed that the Department did not make any bore holes out of the required 17 bore holes as per the specifications before award of the work. During execution of the work, a 15-meter-deep gorge was noticed near the proposed pier number 11. This necessitated omission of one pier and construction of a 75-meter-long span between Chainage 315 M to Chainage 390 M. This resulted in extra expenditure of ₹1.52 crore.

Audit further noticed that the Technical Sanction of the work was revised three times¹⁵ by the Chief Engineer on the basis of the test results of the bore holes executed by the contractor. Had the tests been conducted timely by the Department during the DPR preparation stage, such frequent revisions in the Technical Sanction could have been avoided, which also resulted in delay in

¹³ Slope or inclination.

¹⁴ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

¹⁵ For ₹ 30.11 crore on January 2015 and for ₹ 30.57 crore on February 2015 for which the revised Administrative Approval of ₹ 49.57 crore was granted by the Government of Madhya Pradesh on March 2015.

completion of the work. The last Technical Sanction was accorded in July 2021 i.e., after 57 months of the agreement; the work was still in progress.

In reply, the Government stated (August 2022) that the Department prepares the DPR and after Administrative Approval, tender is invited, and the work site is handed to the contractor. After detailed soil investigation by the contractor at the location of each pier and abutment, founding levels and SBC are finalised based on which structures are designed.

The reply is not acceptable because as per the above Clause it is mandatory to execute bore holes on each foundation location during preparation of DPR, which was not done by the Department.

2.3.3 Construction of approach roads without approved design and drawing

IRC:37¹⁶ and IRC:58¹⁷ provide design for construction of approach roads. Apart from this, the Chief Engineer has also issued (July 2012) instructions¹⁸ for deciding the thickness of the different layers of approach roads to be constructed for the bridges in urban as well as rural areas.

Audit noticed (October 2020 to September 2021) in 26 Bridge works¹⁹ of five Divisions²⁰ that in the cases of all the 26 bridges, approach roads worth ₹ 34.42 crore were constructed with different thickness of layers of cross-section. The thickness of cross-section was not in conformity with the above specifications and the instructions of the Chief Engineer. Also, in Detailed Project Reports, no design and drawings of approach roads were found as per the IRC Specifications. The chance of execution of approach roads below the required standard and their early damage cannot be ruled out. The details are given in **Appendix 2.4**.

¹⁶ As per IRC:37, the appropriate design of flexible pavement could be chosen for the given traffic and soil strength using the parameters such as design traffic in terms of cumulative number of standard axels and CBR value of subgrades.

¹⁷ As per IRC:58, the factors governing the design are wheel load, design period, design traffic, temperature differentials, characteristics of sub-grade and sub-base, characteristics of concrete.

¹⁸ Technical Circular No. 1303/TC/ Design Bhopal dated 09-07-2012

Type of Bridges	Type of Roads	Provisions
High Level Bridge	State road/ Major District Road	GSB-300 mm, WMM-225 mm, BM-50 mm, SDBC-25 mm
High Level Bridge	Village Road/ Main Road	GSB-200 mm, G2 and G3-225 mm, OGPC-20 mm, Seal coat
Submersible Bridge	State road/ Major District Road	GSB-300 mm, DLC-100 mm, PQC M-40 300 mm
Submersible Bridge	Village Road/ Main Road	GSB-200 mm, DLC-100 mm, PQC M-30 300 mm

¹⁹ Four Railway Over Bridges, 10 High Level Bridges, 10 Submersible Bridges and two Flyovers of which 18 bridges were completed and eight bridges works were ongoing with total expenditure of ₹ 408.96 crore including expenditure of ₹ 34.42 crore on road works.

²⁰ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

In reply, the Government stated (August 2022) that Technical Sanctions were given after considering the available soil strata, traffic intensity and loading at the individual sites.

The reply is not acceptable because the thickness of cross-sections was not in conformity with the above specifications. Further, the documents related to road design as per India Traffic Census Data and design data of connecting roads were not produced to Audit.

2.3.4 Injudicious provision of bituminous approach roads

According to the circular issued by the Chief Engineer (June 2008 and July 2012)²¹, cement concrete approach roads should always be constructed for the Submersible Bridges. The bituminous roads are not suitable as their wearing coat would get damaged when flood overtops the submersible approaches.

Audit noticed (in October 2020 and August 2021) in two works of Submersible Bridges²² in Bhopal and Indore Divisions that instead of cement concrete approach roads bituminous approach roads were constructed. An expenditure of ₹ 29.38 lakh was incurred on construction of these roads. The details are given in **Appendix 2.5**.

In reply, the Government stated (August 2022) that in the case of Bah River Bridge, although it is a Submersible Bridge, the bridge has not been overtopped in the last five years and the approaches are intact, ultimately leading to savings in cost to the Government. In case of Khan River Bridge, the adjoining road was bituminous road so approaches, were also constructed bituminous.

The reply is not acceptable because construction of bituminous approach roads on submersible bridge was not in conformity with the instructions issued by the Chief Engineer.

2.4 Scheduling of Bridge Projects

As per IRC SP:14, for all the important bridge projects, it is essential to have a Critical Path Method (CPM)/ Programme Evaluation Review Technique (PERT) Chart for the entire project. The CPM indicates and emphasises the likely activities which may be the cause of trouble and delay in the project. It indicates, in case some activities are delayed, the points where extra efforts have to be applied to restore the progress and effect timely completion. Considerable saving in time and money is possible with application of CPM.

Audit noticed (between March 2021 and September 2021) that in 65 bridge works²³ of five Divisions²⁴ on which an expenditure of ₹ 744.71 crore had been

²¹ Circular No. Technical/Drawing/1303 Dated 10.07.2012.

²² Two submersible bridges, both works were completed with total expenditure of ₹ 11.06 crore including ₹ 29.38 lakh expenditure on road works.

²³ Three flyovers, 13 Railway Over Bridges, 18 High Level Bridges and 31 Submersible Bridges; out of these, 37 works were completed, and 28 works are ongoing.

²⁴ Bhopal, Indore, Jabalpur, Rewa and Ujjain

incurred as detailed in **Appendix 2.6**, neither CPM nor PERT Chart was adopted/ prepared and included in the Detailed Project Reports. In the above 65 works, it was noticed that there were delays in completion of these works between one month and 68 months.

In reply, the Government stated (August 2022) that in future works, use of CPM and PERT techniques for project management shall be incorporated.

2.5 Conclusion

Audit noticed that

- Plans for construction of bridges in the State were not being prepared by the Department. In the absence of planning and non-coordination with the other Departments the works were delayed abnormally.
- Inadequate survey and investigation led to changes in site, location of abutment/ piers, foundation type, variation in number and length of spans, the type of the bridges, etc.
- Approach roads were constructed without approval of design and drawings. Instead of cement concrete approach roads, bituminous approach roads were constructed for Submersible Bridges.

2.6 Recommendations

Audit recommends the following:

1. The Department may introduce a comprehensive planning at two stages. First at the micro level i.e., requirement of new bridges and upgradation/ renewal of old one should be reviewed initially at the Division/ Sub-Divisions level and at macro level, by preparation of the Departmental Master Plan or as part of any other State Development Plan to set priorities for taking up for construction from the preliminary selected bridges at the micro level.
2. The Department may adopt such mechanism as to prepare the Detailed Project Reports on realistic survey and investigation for site selection, land acquisition, on reliable data of traffic, high flood level, characteristics of water body so as to avoid any change in alignment/ design, and also to avoid cost-escalation and unwarranted delay in project completion.
3. The Department may review all the cases of delayed completion of works, major deviations, extra expenditure to public exchequer due to faulty planning etc., and fix responsibility of the officials concerned and initiate appropriate action.

Chapter 3

Execution

Chapter 3

Execution

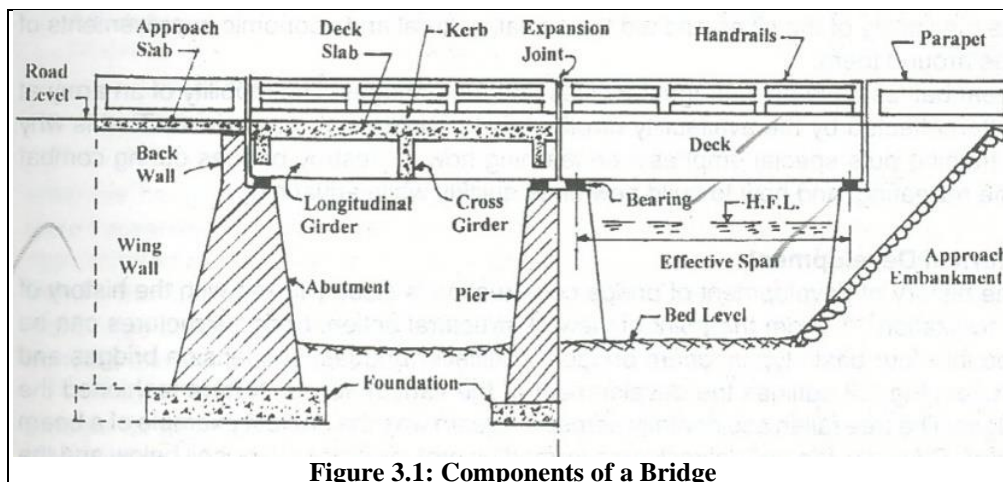


Figure 3.1: Components of a Bridge

(Source: International Journal of Advance Engineering and Research Development)

3.1 Introduction

The bridge design that best serves the public interest has to be efficient and economical. An efficient bridge design is one that puts value on reducing the materials while increasing the performance. An economical bridge design is one that puts value on reducing the costs of construction and maintenance while retaining efficiency.

3.2 Contract Management

Bridges are to be constructed in accordance with the Specifications for construction of Roads and Bridges issued by the Ministry of Road Transport and Highways and the Specifications issued by the Indian Road Congress. The Engineer-in-Chief, Public Works Department has issued Schedule of Rates for bridge works which assists in estimation of cost for the Bridges.

3.2.1. Short recovery of royalty and final payment without No Dues Certificate from Mineral Resources Department

According to Clause 2 of Madhya Pradesh Gazette (March 2013) and Government of Madhya Pradesh, PWD's order (February 2003), the royalty charges for extracting the minor mineral for government work will be paid by the contractor. Contractor's final bill shall be paid only when he submits the "No Dues Certificate" issued by the Collector (Mining) to the Department.

Audit noticed (from October 2020 to September 2021) in six bridge works of Bhopal and Ujjain Divisions that against the amount of ₹ 1.02 crore, only ₹ 37.72 lakh had been deducted on account of royalty for the materials consumed, from contractors' Running Bills. This resulted in short recovery of royalty of ₹ 63.73 lakh as detailed in **Appendix 3.1**. Furthermore, these works costing ₹ 101.96 crore had been finalised without obtaining the "No Dues Certificate" of Mineral Resources Department from the contractors.

In reply, the Government stated (August 2022) that the amount of royalty will be recovered from the contractors' deposit available with the Department.

3.2.2 Extra expenditure due to delayed acceptance of rate

Clause 21 of the Agreement provided that the rates of the altered or substituted work, which are not provided in the Schedule of Rates (SOR) are to be determined by the Competent Authority, as defined in the Contract Data, on the basis of the rate analysis derived out of prevailing market rates when the work was done.

In Rewa Division, the work of "Construction of Flyover at Semariya Chowk on Nowgaon Satna-Rewa Road, Satna" was awarded (January 2016) to a contractor for ₹ 36.91 crore¹. The work was to be completed upto 17.05.2018 but was still under progress.

Audit noticed (September 2021) that the rate of the item of "Composite Steel Girder at span" was not available in the SOR. Hence, the contractor had submitted (January 2018) the rate of ₹1,34,285 per metric tonne which was approved (September 2018) by the Superintending Engineer, Jabalpur Circle after a delay of eight months. Owing to this delay, the contractor had refused to accept the approved rate and re-submitted (October 2019) revised rate of ₹1,58,757 per metric tonne which was approved (November 2019) by the Chief Engineer. This led to an extra expenditure of ₹ 2.54 crore² up to the 48th Running Account Bill.

In reply, Government stated (August 2022) that the proposal for approval of rate (₹ 134,285) was sent to the SE in January 2018 and was approved by him in September 2018. Since the price of mild steel had increased due to increase in WPI (111.8 to 122) during the months of January to September the contractor had refused to accept this rate and submitted (October 2019) a new rate (₹ 158,757 per MT) which was approved (November 2019).

The reply is not acceptable because the WPI has been on a declining trend (122 to 102.2) during the period from September 2018 to November 2019. In October 2019, when the contractor submitted the revised rate for the said item the WPI was 103.3, which was lesser than the WPI (111.8) of January 2018. Further, the fact remains that due to delayed acceptance of the first rate by the SE, department had to approve the second rate quoted by the contractor which led to extra expenditure of ₹ 2.54 crore.

3.2.3 Mismatch in the width of Bridge and width of Approach Road

According to Para 120.1 of IRC:5, the approach roads on either side of a straight bridge shall have a minimum straight length of 15 metre which shall be suitably

¹ Probable amount of contract of ₹ 37.66 crore.

² (₹ 1,58,757 - ₹ 1,34,285) = ₹ 24,472 × 1036.270 metric tonne.

increased wherever necessary and the width of approaches shall be equal to the width of the bridge.

Audit noticed (between March 2021 and September 2021) that in 17 works³ of five Divisions⁴, the width of approach roads was not kept equal to the width of the Bridges. The width of Bridges was 7.5 meters whereas the width of approaches was between seven meter and 12 meters. The Department has ignored the above specification as the construction of approach roads was not in conformity with the specifications. This could lead to accidents due to sudden change in road width. The approach roads were also not built in the required length. The details are given in **Appendix 3.2**.

The Government did not reply.

3.2.4 Irregular execution of steel liner

As per the instructions issued (May 2016) by the Engineer-in-Chief, use of “Permanent Steel Liner⁵” is permissible for use in construction of Railway Over Bridges as per requirement of the site after prior approval of the Engineer-in-Chief on the justification submitted by the Chief Engineer in this regard.

Audit noticed (between March 2021 and September 2021) that in the works of five Railway Over Bridges⁶ of three Divisions⁷ that 583.65 metric tonne of “Permanent Steel Liner” was used without proper justification and the prior approval of the Engineer-in-Chief. This resulted in unjustified expenditure of ₹ 4.31 crore. The details are given in **Appendix 3.3**.

In reply, the Government stated (August 2022) that the process of permission from the Engineer-in-Chief takes time meanwhile the item of “Permanent Steel Liner” is executed after discussion with the higher authorities since the piling work may not be stopped due to higher rent of the heavy machinery and to avoid the collapsing of soil.

However, it is ensured that payment of liner is made to the contractor only after accord of required permission. So, there is no irregular execution of “Permanent Steel Liner” without permission.

³ Two Railway Over Bridges, seven High Level Bridges and eight Submersible Bridges, of which eleven bridge works were completed and six bridge works are ongoing with expenditure of ₹ 182.07 crore.

⁴ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

⁵ Cast in-situ concrete piles may be cast in metal shells (Steel liner) which may remain permanently in place. However, the other types of reinforced concrete cast in-situ piles, cased or uncased, may be used if in the opinion of the Engineer the soil conditions permit their use and if their design and the methods of placing are satisfactory. (Clause 1107 of MORTH Specifications).

⁶ Two bridge works were completed and three bridge works were ongoing.

⁷ Bhopal, Jabalpur and Ujjain.

The reply is not acceptable because the permission of the Engineer-in-Chief which was a prerequisite for execution of “Permanent Steel Liner” was not shown to Audit.

3.2.5 Execution of extra items without revised Technical Sanction

As per the circular⁸ issued (January 2011) by the Government, in case of any change or addition of a new item in the Bill of Quantity, a revised Technical Sanction in this respect must be obtained from the Competent authority. Another Circular⁹ (May 2011) stipulated that if there is the possibility of increment in cost of the work against the Administrative Approval, then the work will be executed only after revised Administrative Approval and Technical Sanction.

Audit noticed (between March 2021 and September 2021) in respect of two bridge works of Indore and Rewa Divisions that 22 items which were not included in the Bill of Quantity, had been executed without obtaining revised Administrative Approval and Technical Sanction. An expenditure of ₹ 1.76 crore was incurred on these extra items. The details are given in **Appendix 3.4**.

In reply, the Government stated (August 2022) that during the construction work, according to the nature of the work site, many items are increased or decreased, so that the work is kept in progress without interruption and later the revised technical approval is issued. The said works have been technically sanctioned by the competent authority.

The reply is not acceptable because the revised Technical Sanctions along with the approval on item-wise details of executed non-BOQ items were not shown to Audit.

3.2.6 Non-utilisation of fly ash in construction of embankment

As per the notification of Ministry of Environment, Forest and Climate Change dated 03-11-2009, fly ash shall be used in the embankment of roads and flyovers being constructed within a distance of 300 KM of coal/ lignite based Thermal Power Plants. No agency, person or organisation shall within a radius of 300 KM of the said plant, allow reclamation and compaction of low-lying area with soil only and accordingly some items of use of fly ash are introduced in Chapter 2 of the SOR.

Audit noticed (between March 2021 and September 2021) in four bridge works of Ujjain and Rewa Divisions that despite the presence of Thermal Power Plants¹⁰ within 300 KM of the construction sites, the Department did not consider fly ash in the construction of embankments (Item no. 3.12: Construction of embankment)

⁸ Circular no. F-52/1/10/P/19-45/ Bhopal Dated 03-01-2011.

⁹ Circular no. F-52/1/10/P/19/2277/ Bhopal Dated 08-05-2011.

¹⁰ M/s Grasim Industries Ltd., Nagda, Shree Singaji Power Plant, Mundi, Khandwa; Vindhyachal Thermal Power Station, Singrauli: M/s Sanjay Gandhi Thermal Power Project, Umaria

in the estimates/ Detailed Project Reports. The details are given in **Appendix 3.5**. Audit also noticed that a huge quantity of unutilised fly ash was available with Shree Singaji Thermal Power Plant, Khandwa and it had to pay a penalty of ₹ 15.83 crores for its non-utilisation, as mentioned in **Para no. 4.14.2** of the Report of the Comptroller and Auditor General of India on Compliance Audit (Report No. 2 of 2023) of the State of Madhya Pradesh.

In reply, the Government stated (August 2022) that instructions shall be issued in this regard.

3.3 Adherence to Timeliness

3.3.1 Non-achievement of timelines in completion of work

As per Clause 15.1 of the Agreements, the time allowed for carrying out the work, as entered in the Agreement, shall be strictly observed by the Contractor.

Audit noticed (between October 2020 and September 2021) out of 72 sampled bridge works of five Divisions¹¹ that only nine works were completed on time as stipulated in the Agreements. as detailed in **Appendix 3.6**. In respect of 63 bridge works, it was noticed that there were delays ranging from one month to 68 months as shown in **Table 3.2** below:

Table 3.2: Statement showing the status of Major Bridges constructed by the PWD.

Sl. No.	Divisions	Total number of works selected	Number of works completed on time	Number of works delayed	Extent of delays in months
1	Bhopal	12	0	12	8 to 51
2	Indore	15	2	13	2 to 68
3	Jabalpur	15	2	13	1 to 67
4	Rewa	15	1	14	3 to 55
5	Ujjain	15	4	11	1 to 36
Total		72	9	63	1 to 68

(Source: Records of Public Works Department)

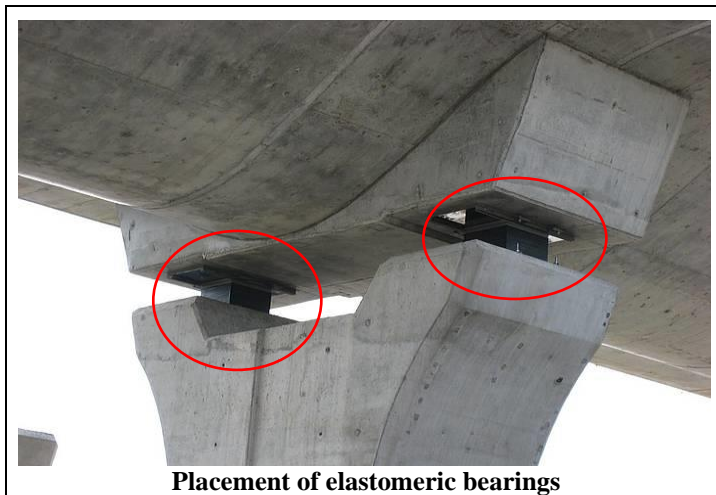
Further, in Bhopal Division, none of the 12 works under its jurisdiction, was completed within the stipulated period. The details are given in **Appendix 3.7**.

In reply, the Government stated (August 2022) that the delays were caused due to the issues related to land acquisition, Covid-19, utility shifting, permission from the Forest Department, non-availability of funds, un-timely rains, non-availability of labour, delay by the Railway Department, etc.

¹¹ Bhopal, Indore, Jabalpur, Rewa and Ujjain

3.4 Quality Control and Monitoring

3.4.1 Use of untested and uncertified Elastomeric Bearings



Placement of elastomeric bearings

(Source: Photograph taken by Audit Party on 06.07.2021)

Clauses 913 to 918 of IRC:83 (Part-II) 1987 stipulate the provisions for inspection, testing and certification of Elastomeric Bearings¹² prior to their installation under the spans. As per Clause 919.1, bearings shall be transported to the

construction site after final acceptance by authorised Inspector of the Department and shall be accompanied by an authenticated copy of the certificates to that effect.

Audit noticed (between March 2021 and September 2021) in 23 bridge works of five Divisions¹³ that the contractors had used 21.37 Cu m Elastomeric Bearing in construction of Bridges and that no documentary evidence as to inspection, testing and certification of these bearings by authorised Inspector of the Department, as prescribed in the IRC norms, were available in the divisional records. Thus, use of untested bearings in the above bridge works cannot be ruled out. An amount of ₹ 2.08 crore was paid to the contractors for these untested bearings as detailed in **Appendix 3.7**.

In reply, the Government stated (August 2022) that in the past, the bearings brought to the site for bridge work were tested by DGS & D, but at present, DGS & D, has been closed. Hence, the bearings are tested by the manufacturer and supplier in the presence of departmental officers and contractor's representative as per IS Specification. Bearings are used at the work site only after the test results conform to the standard.

The reply is not acceptable because the bearings were not certified in accordance with the IRC Specification. Furthermore, the evidence of inspection, testing and

¹² Elastomeric Bridge Bearing, also known as a Pot Bearing or Elastomeric Bearing, is a commonly used modern bridge bearing. The purpose of the Elastomeric Bearings is to support a bridge or other heavy structure in a way that permits the load to shift slightly, in a horizontal direction, relative to the ground or foundation. Without such bearings, the bridge support might crack or fracture when it moves due to ground movements or thermal expansion and contraction.

¹³ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

certification of the bearings by an Inspector authorised by the Department was not produced to Audit.

3.4.2 Execution of insufficient numbers of Exploratory Boring

As per Clause 704 of IRC:78, one of the objectives of sub-surface exploration during construction stage is to confirm the characteristics of geo-materials established in detailed investigation stage based on which the design choices are made and to re-confirm the same or modify to suit the conditions met at specific foundation locations. In case of the Major Bridges, the contractor is required to execute exploratory borings on each foundation location of the proposed bridge for confirmation of soil characteristics and safe bearing capacity of soil.

Audit noticed (between March 2021 and September 2021) in the BOQ of 16 bridge works of five Divisions¹⁴ that there were provisions for exploratory boring¹⁵ at 277 locations (piers and abutments) but the contractors had made exploratory boring only at 98 locations as detailed in **Appendix 3.8**. This shows that contractual obligations were not fulfilled by the contractors and to that extent sub-soil investigations were not done during the execution.

In reply, the Government stated (August 2022) that as per Clause 5.6.5 (Sub-soil investigation) of IRC SP 54:2018, at the feasibility stage, for the Major Bridges, the sub-soil investigation at every 100 m or part thereof in riverbed and one in approach should be carried out. At some locations, exposed rock was found in the riverbeds. In case of ROBs, the type of strata normally remains unchanged. In view of the above, foundation levels were finalised and approved by the competent authority.

The reply is not acceptable because the exploratory boring at 277 locations were provisioned during the exploratory stage and not for the feasibility stage as replied by the Government. Moreover, the reply is also silent about the non-fulfilment of the contractual obligations as provisioned in the BOQ.

3.4.3 Non purchase of steel from Primary Producers

As per Chief Engineer's circular (March 2015), all "Steel" to be consumed in the works should be procured only from the Primary Steel Producers or Integrated Steel Plant as per the specifications.

Audit noticed (between March 2021 and September 2021) in 22 Bridge works of five Divisions¹⁶ as detailed in **Appendix 3.9**, that 17,544 metric tonne of Steel was used in construction of these Bridges and an amount of ₹ 98.39 crore was paid to the contractors. In the case of 15 Bridges, invoices of purchase of Steel were not available in the records whereas in seven cases, the available

¹⁴ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

¹⁵ Boring of 100 mm dia at the location of piers and abutments.

¹⁶ Bhopal, Indore, Jabalpur, Rewa and Ujjain.

invoices revealed that the Steel was purchased from the local dealers instead of the Primary Steel Producers or Integrated Steel Plants.

In reply, the Government stated (August 2022) that the Steel used for bridge construction is mainly procured from the original producers who manufacture and produce Steel directly from iron ores and have fully automatic arrangements for the same. Besides, the Steel brought to the site, again gets tested by NABL affiliated laboratories as a third-party check and if found as per specification, then only the use is permitted.

The reply is not acceptable due to non-availability invoices of Steel procured for 15 Bridges works and because in the cases of seven Bridge works, the invoices shown to Audit disclosed that the contractors had indeed procured the Steel from the local dealers.

3.5 Conclusion

Audit noticed instances of Department not complying with IRC Specifications and provisions of the Agreement. Delayed acceptance of rate for an item by the Department caused extra expenditure of ₹ 2.54 crore. Department could not ensure that Bridge works are completed timely, and Audit noticed that out of 72 sampled Bridge works, only nine works were completed on time and in 63 Bridge works there were delays ranging from one month to 68 months.

3.6 Recommendations

Audit recommends the following:

1. Department may ensure compliance of the provisions of MP Works Department Manual and contract Agreements.
2. Department may ensure that IRC Specifications for Bridge works are followed strictly during execution of the works.

Chapter 4

Functionality

Chapter 4

Functionality

4.1 Introduction

The bridges play a special role in the daily life of people. They connect places across the valleys, rivers, lakes, cliffs, and rail tracks that are inaccessible either throughout the year or at any particular period of the year. Functionality of the bridges can be said to be excellent if sufficient provisions for users' safety such as safety kerbs, footpaths, lights, warning signs, road furniture, etc. are provided.

4.2 Functionality of Major Bridges

4.2.1 Approach roads were not built in tandem with the bridge structures.

According to the orders issued by the Madhya Pradesh Works Department (April 2005), approaches shall be constructed simultaneously with the construction of bridges so as to ensure the utility of the bridges.

Audit noticed (between March 2021 and September 2021) in six¹ Bridge works, of three Divisions² that the approach roads were not constructed simultaneously with the construction of Bridges. As a result, the Bridges constructed with a cost of ₹ 64.30 crore could not be opened for public use for a period from eight to 41 months and to that extent the expenditure became wasteful. The details are given in **Appendix 4.1**.

In reply, the Government stated (August 2022) that the work of approach roads could not be completed along with the Bridges due to the reasons such as non-availability of adequate space, delay in award of land acquisition by Revenue Department, local hindrances, legal issues, etc.

4.2.2 Non-execution of furniture items on the Bridges

The Chapter 8 - Traffic Signs, Markings and Other Road Appurtenances of the Schedule of Rates for Road and Bridge works issued by the Engineer-in-Chief, PWD provides for items related to road safety and furniture. These safety measures are very important to guide, caution and protect the road users. The road furniture includes the retro-reflective road signs, thermoplastic pavement markings, crash barriers, protective wire mesh, etc. No road should be considered to be fit for use, unless it has been provided with the adequate system of traffic signs and road markings.

Audit noticed (between March 2021 and September 2021) that in seven Bridge works out of 16 Bridge works³ of the selected five Divisions, although the items of road furniture and safety were provided in the estimates, the same were not executed. In the remaining nine Bridge works, neither the provisions of such items existed in the estimate nor were these executed by the contractors. The

¹ Agreement Nos. 111/2012-13 and 104/2017-18 of Bridge Division, Bhopal, Agreement Nos. 24/2015-16 and 17/2015-16 of Bridge Division, Rewa, and Agreement Nos. 22/2013-14 and 13/2013-14 of Bridge Division, Ujjain.

² Bhopal, Rewa and Ujjain.

³ 13 Bridge works were completed and three Bridge works were ongoing.

expenditure incurred on these 16 Bridge works worked out to ₹ 175.77 crore as given in **Appendix 4.2**.

In reply, the Government stated (August 2022) that the length of approaches of the Bridges are generally small and are kept in straight alignment to join the existing roads. However, the necessary road furniture is provided.

The reply is not acceptable as all the bridges under consideration were Major Bridges, therefore, the furniture items should have been executed/ installed on them.

4.2.3 Non-provision of footpath

As per Clause 112.5 of IRC:5 (1998), when a footpath is provided, its width shall not be less than 1.5 meter. For urban and populated areas having large concentration of pedestrian traffic, the width of footpath shall be suitably increased. Further, as per Clause 112.1 (i), for two lane Bridges having total length more than 60 meter in non-urban situation, the width of Bridge shall provide for 7.5 meter carriageway plus a minimum of 1.5 meter wide footpath on either side, wherever required.



High Level Bridge on Awalighat to Salkanpur Road, Sehore without footpath

(Source: Photograph taken by Audit Party on 06.07.2021)

Audit noticed (between March 2021 and September 2021) in six⁴ Bridge works of three Divisions⁵, on which expenditure of ₹ 81.73 crore had been incurred, that despite being eligible for construction of footpaths the same were neither provided in the estimates of these works nor were executed. The details are given in **Appendix 4.3**.

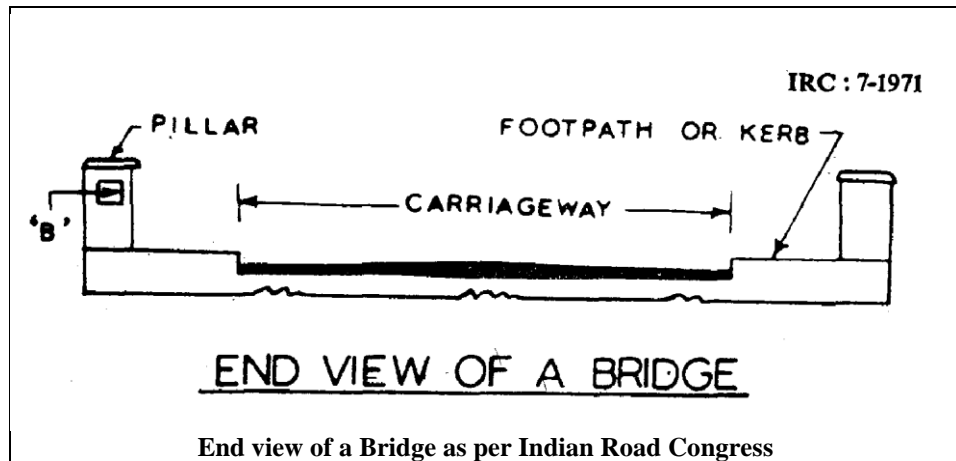
⁴ Four Bridges constructed in the urban areas/ city portions, one Bridge constructed in the tribal area, footfall of 40,000 people connecting the 15 villages and one Bridge not in urban area but having religious importance due to *Salkanpur* Temple.

⁵ Bhopal, Indore and Ujjain, (one Railway Over Bridge, two High Level Bridges and three Submersible Bridges; four Bridge works were completed, and two Bridge works were ongoing.

In reply, the Government stated (August 2022) that in urban areas footpaths could not be provided on the Bridges due to lack of space and the river Bridges not being in urban areas, footpaths were not required.

The DPR of the above six Bridges did not contain such justification for non-provision of footpaths. Therefore, footpaths should have been provided as per the provisions of Clause 112 of IRC:5 (1998), keeping in view the safety of the pedestrians.

4.2.4 Execution of Safety Kerb with an inadequate width



As per Clause 101.10 of IRC:5 (1998), Safety Kerb is a roadway kerb for occasional use by the pedestrians. Further, Clause 111.3 stipulates that a Safety Kerb will have the same outline as that of a roadway kerb except the top width shall not be less than 0.75 meter.

Audit noticed (March 2021 to October 2021) in five Bridge works of four Divisions⁶ that the width of the Bridges was 8.4 meter, out of which 7.5 meter was carriageway and kerb was provided on 0.90 meter, i.e., 0.45 meter on each side against the provision of 0.75 meter.

⁶ Bhopal, Jabalpur, Rewa and Ujjain.



Submersible Bridge on Rinmukteshwar to Ranjeet Hanuman Road (Ujjain) with insufficient kerb width.

(Source: Photograph taken by Audit Party on 25.03.2021)

The kerb width was further reduced to 0.25 meter to 0.30 meter due to installation of iron railings on the kerbs. Thus, the effective kerb width was inadequate and unsafe for pedestrian movement. The details are given in **Appendix 4.4.**

In reply, the Government stated (August 2022) that these Bridges are situated in remote areas where very negligible pedestrians' movement is noticed. Hence, the design was approved accordingly.

The reply is not acceptable as safety issues of the public cannot be overlooked.

4.2.5 Irregularities in installation of railings

As per Clause 115.2.1 of IRC:5 (1998), railings of Submersible Bridges shall be either collapsible or removable. Clause 115.2.2 stipulates that collapsible railings shall be used where it is necessary to put up the railings immediately when the Bridge is opened to traffic after a submerging flood has receded. Further, as per Clause 115.2.3, removable railings may be adopted when there is no danger to the traffic using the Bridge for short period without railings.

Audit noticed (between October 2020 and September 2021) during the physical inspection of two completed Submersible Bridges⁷ in Bhopal and Ujjain Divisions that the Department had installed fixed type railings in violation of the above provisions. As the fixed railings while creating an obstruction to the flow of water may lead to damage to the super structure of the Bridge during the flood.

⁷ Soya-Chaupal to Housing Board Colony Road in Sehore under Bhopal Division and at Rinmukteshwar to Ranjeet Hanuman on Khsipra River in Ujjain under Ujjain Division.



(Source: Photograph taken by Audit Party)

Further, on the Submersible Bridge across *Paisuni* River on *Rajola-Mohakamgrah Hanuman Dhara* Bypass Road near Chitrakoot, instead of providing collapsible railings, the Department had installed removable railing. It is pertinent to mention that the above mentioned Bridge one with high traffic flow, as removable railings cannot be easily placed after the receding of the floods, hence immediate opening of the Bridge to traffic may not be possible. Even if the Bridge is opened to traffic immediately after receding of floods, safety of the public cannot be ensured without the railings.

In reply, the Government stated (August 2022) that the above Bridges are High Submersible Bridges constructed in city area over the nalla where the flow of water is quite below the Bridge level. Hence, fixed railings were provided.

The reply is not acceptable because the above Bridges had been designed only as Submersible Bridges. Moreover, the IRC:5 does not specify anything regarding the provisioning of the fixed railings with regard to High Submersible Bridges, hence, either collapsible or removable railings should have been installed.

4.2.6 Users safety overlooked in construction of Submersible Bridges.

As per Clause 8.3.6 of IRC SP:82, Flood Gauges⁸ should be installed on all the submersible structures and the approaches likely to be submerged. Clause 8.3.7 provides for installation of two Information / Cautionary Signboards⁹ on either

⁸ Signboard to indicate the depth of water over the road surface/deck along with danger level.

⁹ Warnings: such as slow down. submersible structure 200 m ahead, speed limit 15 km per hour, dead slow submersible structure 50 m ahead, do not cross when flood water overtops the carriageway, etc.

side of the submersible structures. Further, Clause 8.3.8 provides for fixing of Rumble Strips¹⁰ along with cautionary signs conforming to Specification 99 issued by Indian Road Congress on either side of the approach roads.

Audit noticed (between March 2021 and September 2021) in 31 Submersible Bridge works of five Divisions¹¹ that the items of Flood Gauge, Warning Sign Boards and Rumble strips were neither provided in the estimates nor were executed in any of these works. The details are given in **Appendix 4.5**.

In reply, the Government stated (August 2022) that to ensure safety of users in submerged bridges, warning boards are installed on both side of the Bridges as well as drop gates are installed every year by the Department to block the traffic during floods so that any possible loss of life can be avoided.

The reply is not acceptable because the items such as Flood Gauge, Warning Sign Boards and Rumble Strips are permanent installations and were neither provided in the estimates nor were executed in any of the above works.

4.2.7 Non-electrification of Bridges and Approach Roads

As per IRC:5 (1998), wherever required, provisions shall be made for traction wire supports, poles or pillars for lights, trenches or other suitable places for installation of electric or telephone conduits, water or gas pipes and other similar utilities or services with due care for durability and serviceability of the Bridges and their approaches. All the proposals for construction of Bridges, submitted to the Government for Administrative Approval, should include the provisions for appropriate Electrification work.

Audit noticed (between March 2021 and June 2021) in three completed Bridge works of Bhopal and Ujjain Divisions that Electrification works were neither provided in the estimates nor were executed. Out of these three Bridges, one was a Submersible Bridge and two were High Level Bridges. The details are given in **Appendix 4.6**.

In reply, the Government stated (August 2022) that generally, the Bridges constructed in urban areas are provided with provision of electrification especially in ROBs and river Bridges. Since the Bridges were in rural areas, the electrification was not done.

4.3 Conclusion

Audit observed that Madhya Pradesh Public Works (Bridge) Department had not complied with the specifications issued by Indian Road Congress with respect to construction of Bridges thereby reducing the efficacy of the Bridges constructed as follows:

- Approach roads and carriageways were not built-in tandem with the bridge structures.
- Functionality of the Bridges constructed in urban areas and at other important places was affected due to non-provision of footpaths, inadequate width of the safety kerbs and non-electrification.

¹⁰ At 30 meters ahead of the Submersible Bridge.

¹¹ Bhopal, Indore, Jabalpur, Rewa and Ujjain.


- Submersible Bridges were fitted with fixed type railings instead of collapsible or removable railings in violation of the IRC Specifications.
- Users' safety has been overlooked in construction of Submersible Bridges by non-provision of road/ bridge furniture items and items such as Flood Gauge, Cautionary Signboards and Rumble Strips.

4.4 Recommendations

Audit recommends the following:

1. The Department may review all the cases where the approach roads were not built in tandem with the bridge structure and fix responsibility of the concerned officials.
2. The Department may consider provisioning of footpaths and electrification of the Bridges on which heavy pedestrians' movements are anticipated, irrespective of their location. Road furniture and other appurtenances for the safety and protection of users should also be included in the estimates of bridge works.
3. The Department may ensure provisioning of removable/ collapsible railings in case of Submersible Bridges. Safety of road users must also be ensured by provisioning adequate road markings, cautionary signs and flood gauge signboards as recommended by the Indian Road Congress.

Bhopal
The 3 April 2023



(PRIYA PARIKH)
Accountant General (Audit-II)
Madhya Pradesh

Countersigned

New Delhi
The 10 April 2023



(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India

Appendices

Appendix 1.1

Bridge works selected for audit

(Reference: Paragraph No. 1.6)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Period of Schedule completion (Including/Excluding Rainy Season)	Amount paid to contractor up to audit (₹ in lakh)
1	2	3	4	5	6	7	8	9
1	Bhopal	Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	ROB	22/2016-17	2,149.59	06-07-2016	22 months (including)	1,967.00
2	Bhopal	Construction of High level bridge across Betwa river on Ashapuri Khasrod Salkani to Wardhmn	High level	132/2013-14	1,630.46	23/07/2013	24 months (excluding)	1,197.00
3	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	High level	111/2012-13	3,350.61	15/02/2013	30 months (excluding)	4,178.00
4	Bhopal	Construction of Submersible bridge across Tenduni River in km 4/350 on the Guradia Panjra Vijay Singh Purohit pipariya road District Raisen	Submersible	06/2018-19	352.52	11-09-2018	08 month (excluding)	42.00
5	Bhopal	Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	Submersible	30/2015-16	911.51	31-12-2015	18 months (excluding)	916.35
6	Bhopal	Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore	Submersible	104/2017-18	498.88	27-04-2017	12 months (excluding)	372.14
7	Bhopal	Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge	Submersible	134/2013-14	280.80	08-08-2013	16 months (excluding)	198.49
8	Bhopal	Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	ROB	03/2015-16	3,883.12	15.10.2015	24 months (excluding)	3,386.61
9	Bhopal	Construction of High Level Bridge across Tawa river at Rajdhog on Sarni-Loniya Road including approach road in Betul District (MP)	High level	29/2015-16	972.85	23-12-2015	18 months (excluding)	961.76
10	Bhopal	Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on Bairasiya-Dhakupur-Chatehedi-Godakala road in Bhopal District	Submersible	26/2015-16	700.00	23-12-2015	18 month (excluding)	655.53

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Period of Schedule completion (Including/Excluding Rainy Season)	Amount paid to contractor up to audit (₹ in lakh)
1	2	3	4	5	6	7	8	9
11	Bhopal	Construction of Submersible Bridge including approach road Across Tenduni river on Magardha-Sirawada road in Raisen District	Submersible	11/2016-17	537.36	12-05-2016	12 month (excluding)	438.55
12	Bhopal	Construction of Submersible bridge from Shuthar to Andia Road on Newan River Dist- Vidisha	Submersible	13/2015-16	134.50	05-10-2015	08 months (excluding)	101.85
13	Indore	Construction of ROB near lal bagh railway station on Burhanpr Bhusawal railway section	ROB	17/2013-14	1,519.07	19-07-2013	24 months (including)	981.91
14	Indore	Construction of ROB LC No.250 km 494-03-04 Ratlam Khandwa Section on Raoi Bazar, Loha Mandi near Gadiadda, Indore	ROB	02/2015-16	3,278.06	11-05-2015	24 months (including)	2,175.33
15	Indore	Construction of High submersible bridge across Maheshwari river at Maheshwar District Khargone	Submersible	08/2014-15	629.99	29-01-2015	12 month (excluding)	575.57
16	Indore	Construction of Submersible bridge across Temi Nalla in km 13/4 on Khandwa Kalmukhi Road Distt. Khandwa	Submersible	25/2013-14	227.70	02-08-2013	12 month (excluding)	182.49
17	Indore	Construction of Submersible bridge across Khan river near on Guran Darjekaradiya Tarana road near village Darjekaradiya Tehsil aswer Distt. Indore. Under C.R.F.	Submersible	06/2015-16	277.36	18-04-2016	12 month (excluding)	189.51
18	Indore	Construction of third leg of Rail Over Bridge in lieu of LC. No. 250 KM 494/03-04 of Ratlam-Khandwa section near Gadi Adda in Indore Dist	ROB	03/2018-19	598.40	09-05-2018	12 month including rainy season	372.87
19	Indore	Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar	High level	17/2016-17	572.13	01-02-2017	18 month (excluding)	701.51
20	Indore	Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	Submersible	02/2013-14	248.70	16-05-2013	12 month (excluding)	184.48
21	Indore	Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. Khandwa	High level	08/2017-18	1,767.77	06-07-2017	18 month (excluding)	1,062.31
22	Indore	Construction of High Level Bridge across Susari River on Bandariya- Rakhibujurg road Dist. Badwani	High level	02/2018-19	624.03	09-05-2018	14 month (excluding)	540.00
23	Indore	Construction of submersible bridges across Tapti river near Jainabad village (at Rajghat Burhanpur) district Burhanpur (NABARD)	Submersible	13/2016-17	1,114.47	21.07.2016	18 month (excluding)	1,191.86

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Period of Schedule completion (Including/Excluding Rainy Season)	Amount paid to contractor up to audit (₹ in lakh)
1	2	3	4	5	6	7	8	9
24	Indore	Construction of Submersible Bridge Across GOI River On Kalapt-Ghudchal-Pipliyagoi Road Distt, Badwani	Submersible	06/2018-19	316.43	08-09-2018	12 month (excluding)	137.53
25	Indore	Construction of Road Fly over Bridge at Teen Imli Squair (Ring Road) District Indore	Fly over	23/2012-13	2,861.93	05-10-2012	24 month including rainy season	3,035.92
26	Indore	Construction of High level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone.	High level	25/2018-19	850.37	30-01-2018	18 month (excluding)	736.09
27	Jabalpur	Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	Submersible	03/2015-16	566.56	15-10-2015	18 month (excluding)	464.93
28	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaob Road, District Balaghat	Submersible	41/2013-14	1,108.47	03-09-2013	21 month (excluding)	1,049.26
29	Jabalpur	Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi- Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	ROB	06/2017-18	1,510.03	16-08-2017	18 month (including)	1,613.23
30	Jabalpur	Construction of additional works for Shakkar river HL bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road)(NABARD)	High level	13/2013-14	636.26	16-09-2013	18 months (excluding)	574.29
31	Jabalpur	Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	ROB	08/2018-19	5,467.34	21-12-2018	28 months (including)	6,327.72
32	Jabalpur	Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district	High level	06/2018-19	1,642.44	13-08-2018	18 months (excluding)	1,419.80
33	Jabalpur	Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	Submersible	12/2015-16	666.84	22-12-2015	18 months (excluding)	563.44
34	Jabalpur	Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	Submersible	06/DL/2013-14	284.54	08-08-2013	12 Month (excluding)	308.61
35	Jabalpur	Construction of Submersible Bridge across Budner River on Ghughri- Sailwara road in Mandla Dist.	Submersible	02/2018-19	728.87	19-04-2018	14 months (excluding)	688.25
36	Jabalpur	Construction of Box type Bridge including approach road Across Umar River at Khobi-Deori-Mohas-Akola Road In Distt, Narsinghpur	Submersible	01/DL of 2010-2011	105.08	01-04-2010	11 Month (excluding)	129.22

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Period of Schedule completion (Including/Excluding Rainy Season)	Amount paid to contractor up to audit (₹ in lakh)
1	2	3	4	5	6	7	8	9
37	Jabalpur	Construction of Submersible Bridge and approach road Across Wainganga-river in Bakhari-Barra-Sadak Seoni Road including approach road & Protection work Distt Seoni.	Submersible	34/DL /2013-14	481.43	11-07-2013	18 Month (excluding)	431.40
38	Jabalpur	Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	High level	08/2012-13	529.28	14-12-2012	20 months (excluding)	629.79
39	Jabalpur	Construction of Submersible Bridge across Narmada River near Barman Mela Place on Barman Khurd-Barman Kareli road in Narsinghpur Dist	Submersible	15/DL/2017-18	1,057.91	23-01-2018	18 months (excluding)	1,350.58
40	Jabalpur	Construction of ROB on Railway Km 997/3-4 across LC no. 319 A between Jabalpur and Adhartal station on Jabalpur Katni Section	ROB	03/2016-17	1,635.48	15-09-2016	18 months (including)	1,847.96
41	Jabalpur	Construction of High level Bridge across Narmada River on Narsinghpur- Kerpani Road i/c Approach road & Protection Work (CRF)	High level	07/2016-17	1,993.29	06-07-2016	23 months (excluding)	2,323.27
42	Rewa	Construction of fly over bridge at Sirmour Chouraha Rewa on Varanasi-Nagpur road at Km 234/6 in Rewa city NH-7	Fly over	23/2012-13	2,246.32	14-01-2013	24 months (including)	2,032.95
43	Rewa	Construction of submersible bridge including approach road across myar river on Chachar-Kulhai (Kulhaniya) road district Singrauli	Submersible	24/2015-16	574.31	05-02-2016	18 months (excluding)	629.44
44	Rewa	Construction of high level bridge including approach road across umrar river on baran mahgwan sutari kharahata road district Katni	High level	17/2015-16	428.54	17-12-2015	24 months (excluding)	307.42
45	Rewa	Construction of Submersible Bridge including approach road across Kunuk River on Bhatiya – Bhogoda Road, District Shahdol	Submersible	06 /2010-11	160.63	23-12-2010	21 month (including)	161.90
46	Rewa	Construction of High Level (Box Type) Bridge excluding approach road Across Jhapar River on Barkachh Beohari Road Distt, Shahdol	High level	24/2016-17	249.45	17-10-2016	12 month (excluding)	209.42
47	Rewa	Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	ROB	02/2017-18	682.24	24-04-2017	18 months (excluding)	675.76
48	Rewa	Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	Submersible	11/2016-17	216.78	31-05-2016	12 months (excluding)	221.96

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Period of Schedule completion (Including/Excluding Rainy Season)	Amount paid to contractor up to audit (₹ in lakh)
1	2	3	4	5	6	7	8	9
49	Rewa	Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	High level	27/2012-13	548.82	23-03-2013	24 months excluding rainy season	831.98
50	Rewa	Construction of Fly Over Bridge at Semariya Chowk on Nowgaon Satna-Rewa Road, District Satna	Fly over	23/2015-16	3,691.35	18-01-2016	28 month (including)	5,067.69
51	Rewa	Construction of work of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	High level	01/2011-12	208.67	02-02-2011	16 month (including)	93.48
52	Rewa	Construction of (Balance) work of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	High level	14/2014-15	227.93	29-10-2014	12 month (excluding)	282.30
53	Rewa	Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umaria	Submersible	24/2012-13	1,148.44	16-01-2013	24 month (including)	1,049.26
54	Rewa	Construction of ROB on Varanasi- Nagpur Road (NH7) near Railway Station Rewa at Railway Chainage 890 meter across Rewa-Sidhi, new Railway line at Godhar, Rewa	ROB	01/2018-19	3,401.35	04-05-2018	28 months (including)	2,514.24
55	Rewa	Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	Submersible	04/2010-11	159.86	23-12-2010	16 Month (including)	158.57
56	Rewa	Construction of high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	High level	01/2020-21	142.65	17-07-2020	08 Month (excluding)	14.65
57	Rewa	Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	High level	10/2016-17	364.66	19-05-2016	12 Month (excluding)	217.56
58	Rewa	Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	Fly over	22/2018-19	4,350.25	19-12-2018	24 months (including)	4,234.32
59	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	ROB	15/2013-14	1,777.95	25-09-2013	20 months (excluding)	2,697.08
60	Ujjain	Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	ROB	28/2013-14	1,928.96	27-01-2014	20 months (excluding)	3,490.50

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Period of Schedule completion (Including/Excluding Rainy Season)	Amount paid to contractor up to audit (₹ in lakh)
1	2	3	4	5	6	7	8	9
61	Ujjain	Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	Submersible	01/2015-16	1,103.93	04-05-2015	10 month (including)	946.35
62	Ujjain	Construction of Railway over bridge in lieu of LC No.30 Dewas Barlai Rail Section km 42/17-19 Mendki Phatak at Dewas district Dewas	ROB	18/2018-19	1,615.32	23-04-2018	22 month (including)	1,331.94
63	Ujjain	Construction of High level Bridge across Chambal River on Birlagram Nayan- Bhikampur Road, District Ujjain.	High level	17/2018-19	1,146.27	23-04-2018	18 month (excluding)	396.21
64	Ujjain	Construction of High Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	High level	15/2015-16	1,289.30	05-11-2015	24 months (excluding)	1,531.65
65	Ujjain	Construction of High Level Bridge across Ajnar River on RajgarhKalipith Road in Km 8/10 of district Rajgarh	High level	13/2016-17	389.07	21-11-2016	12 months (excluding)	290.91
66	Ujjain	Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur.	Submersible	22/2013-14	505.63	25-09-2013	20 month (excluding)	451.56
67	Ujjain	Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	Submersible	10/2013-14	936.12	22-07-2013	20 months (excluding)	1,373.33
68	Ujjain	Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist.	Submersible	21/2013-14	804.15	25-09-2013	24 months (excluding)	845.89
69	Ujjain	Construction of Submersible Bridge including approach road across kalisindh river in Km 12/10 of Bercha- Sundarshi-Akodia road	Submersible	09/2016-17	594.50	24-06-2016	18 months (excluding)	291.27
70	Ujjain	Construction of railway over bridge in lieu of l.c. no 177 (ratlam chandaria rail section km 341/6-7) at jaora city district Ratlam	ROB	10/2016-17 34/2018-19	1,358.06	08-07-2016	24 months (including)	758.77
71	Ujjain	Construction of High level bridge across Kalisindh river at Kamlapur Samangi road at district Dewas	High level	13/2013-14	425.84	12-08-2013	20 months (excluding)	491.88
72	Ujjain	Construction of High Level Bridge across Jamner River near Barda village on Barda-Kankariya road Dist Dewas	High level	29/2018-19	358.70	06-09-2018	12 month (excluding)	215.52
Total					81,738.48			

Appendix 2.1

Details of works in which award of work is prior to initiation of land acquisition process

(Reference: Paragraph No. 2.2.3)

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
1	Ujjain	Construction of railway over bridge in lieu of l.c. no 177 (Ratlam-Chandaria rail section km 341/6-7) at Jaora city district Ratlam (10/2016-17 34/2018-19)	1,358.06	08-07-2016 28-09-2018	08-07-2018 27-09-2020	Ongoing	17	33	33	Heavy Populated area. Many Pakka structures lying in the ROW, Some part of the bridge approaches fall under the railway jurisdiction. It was very difficult to obtain the land from the railway. Again some part bridge approaches fall under the revenue and Police Department.	93.98
2		Construction of High level Bridge across Chambal River on Birlagram Nayan-Bhikampur Road, District Ujjain (17/2018-19)	1146.27	23-04-2018	22-02-2020	Ongoing	22	33	13	There were many process which takes time for LA from the revenue department. The revenue court has to give separate time to each case of LA, which took time	396.21
3		Construction of High Level Bridge across Ajnar River on RajgarhKalipith Road in Km 8/10 of district Rajgarh (13/2016-17)	389.07	21-11-2016	20-03-2018	Ongoing	52	52	36	There were many process which takes time for LA from the revenue department. The revenue court has to give separate time to each case of LA, which took time	290.91

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
4		Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur (22/2013-14)	505.63	25-09-2013	15-02-2016	31-12-2018	30	30	34	There were many process which takes time for LA from the revenue department. The revenue court has to give separate time to each case of LA, which took time	451.56
5		Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist (21/2013-14)	804.15	25-09-2013	22-05-2016	22-08-2017	6	6	15	There were many process which takes time for LA from the revenue department. The revenue court has to give separate time to each case of LA, which took time	845.89
6		Construction of High level bridge across Kalisindh river at Kamlapur Samangi road at district Dewas (13/2013-14)	509.22	12-08-2013	15-03-2016	31-12-2016	32	32	10	land for construction of approach road was not acquired, though the bridge was completed.	491.88
7	Bhopal	Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on Bairasiya-Dhakupur-Chatehedi-Godakala road in Bhopal District (26/2015-16)	700	08-12-2015	08-02-2018	02-12-2018	21	21	10	Delay in initiation land acquisition case	655.53

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
8		Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore (111/2012-13)	3,351	15-02-2013	15-12-2016	Ongoing	13	13	51	Delay in acquired hindrance free land for approach road	4,178.00
9		Construction of High Level Bridge across Tawa river at Rajdhog on Sarni-Loniya Road including approach road in Betul District (MP) (29/2015-16)	972.85	08-12-2015	08-02-2018	Ongoing	52	52	38	Delay in initiation land acquisition case	961.76
10		Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore (104/2017-18)	498.88	27-04-2017	27-12-2018	Ongoing	47	47	27	Approach road of one side is passing through campus of a Temple	372.14
11		Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge (134/2013-14)	280.8	08-08-2013	15-05-2015	31-12-2017	11	11	32	Initially forest clearance is required and later and it was found on 04-07-2014 that the above said bridge was a revenue land	198.49

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
12	Indore	Construction of ROB near Lal Bagh railway station on Burhanpur Bhusawal railway section (17/2013-14)	1519.07	19-07-2013	19-07-2015	Ongoing	27	92	68	Dispute of land acquisition	981.91
13		Construction of ROB LC No.250 km 494-03-04 Ratlam Khandwa Section on Raoi Bazar, Loha Mandi near Gadiadda, Indore (02/2015-16)	3278.06	05-11-2015	05-10-2017	15-10-2018	10	10	12	Dispute of land acquisition	2,175.34
14		Construction of High level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone (25/2018-19)	850.37	30-01-2018	29-03-2020	13-06-2021	8	17	14	Delay in submission of land acquisition proposal.	736
15		Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar (17/2016-17)	572.13	01-02-2017	31-10-2018	31-08-2020	2	19	22	Houses and encroachment were to be demolished/shifted in approaches and the public residing in houses do not want to vacate their houses	701.51
16	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaon Road, District Balaghat (41/2013-14)	1,108.47	03-09-2013	14-03-2016	31-12-2016	12	51	10	Late submission of land acquisition proposal.	1,049.26

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
17		Construction of additional works for Shakkar river HL bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road)(NABARD) (13/2013-14)	636.26	16-09-2013	15-12-2015	15-02-2017	21	32	14	Late submission of land acquisition proposal.	574.29
18		Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district (06/2018-19)	1642.44	13-08-2018	15-12-2020	10-06-2021	6	14	6	Late submission of land acquisition proposal.	1,419.80
19		Construction of Box type Bridge including approach road Across Umar River at Khobi-Deori-Mohas-AkolaRoad In Distt, Narsinghpur (01/2010-11)	105.08	01-04-2010	31-10-2011	10-06-2017	9	24	67	Late submission of land acquisition proposal.	129.22
20		Construction of Submerssible Bridge and approach road Across Wainganga-river in Bakhari-Barra-Sadak Seoni Road including approach road & Protection work Distt Seoni (34/2013-14)	481.43	11-07-2013	15-12-2015	30-07-2017	26	38	19	Late submission of land acquisition proposal.	431.4

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
21		Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara (08/2012-13)	529.28	14-12-2012	13-04-2015	30-12-2018	3	45	44	The department took 42 months to pay the required amount for land acquisition. It can be noticed here that as per schedule, the bridge was to be completed by 13-04-2015, and department paid final amount for land acquisition on 29-09-2016	629.79
22	Rewa	Construction of submersible bridge including approach road across myar river on Chachar-Kulhai (Kulhaniya) road district Singrauli (24/2015-16)	574.31	05-02-2016	05-08-2018	Ongoing	20	65	32	Delay in initiation of land acquisition and process of land acquired from farmers	629.44
23		Construction of high level bridge including approach road across umrar river on baran mahgwan sutari kharahata road district Katni (17/2015-16)	428.54	17-12-2015	16-12-2018	Ongoing	13	51	27	Delay in initiation of land acquisition and process of land acquired from farmers	307.42
24		Construction of High Level (Box Type) Bridge excluding approach road Across Jhapar River on Barkachh Beohari Road	249.45	17-10-2016	16-02-2018	Ongoing	26	52	37	Delay in initiation of land acquisition and process of land acquired from farmers	209.42

Sl. No.	Name of Division	Name of Bridge Work Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Delay in initiation of land acquisition (in months)	Delay in land acquisition (in months)	Delays in months up to audit	Reason for delay in land acquisition	Amount of work done finally paid to contractor (₹ in lakh)
		Distt, Shahdol (24/2016-17)									
25		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF 22/2018-19	4350.25	19-12-2018	18-12-2020	31-03-2021	5	5	3	Delay in initiation of land acquisition process, there were encroachment, for which advance action was not taken	4,234.32
		Total									23,145.47

Appendix 2.2

Details of works having major changes in drawing and design during execution of bridge works

(Reference: Paragraph No. 2.3.1)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Original TS (₹ in lakh)	Revised TS (₹ in lakh)	Percentage Increase in cost	Extra Cost (₹ in Lakh)
1	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	2248.73	2248.73	3134.82	39	886.09
2	Indore	Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. Khandwa	08/2017-18	1623.45	1767.77	4189.58	137	2421.81
3	Jabalpur	Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi- Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	06/2017-18	1,591.18	1591.18	1,911.85	20	320.67
4	Jabalpur	Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	08/2012-13	423.8	425.11	536.55	26	111.44
5	Jabalpur	Construction of ROB on Railway Km 997/3-4 across LC no. 319 A between Jabalpur and Adhartal station on Jabalpur Katni Section	03/2016-17	1770.11	1770.11	2179.32	23	409.21
6	Jabalpur	Construction of High level Bridge across Narmada River on Narsinghpur-Kerpani Road i/c Approach road & Protection Work (CRF)	07/2016-17	1739.3	1769.76	2210.1	25	440.34
7	Rewa	Construction of Fly Over Bridge at Semariya Chowk on Nowgaon Satna-Rewa Road, District Satna	23/2015-16	3,765.53	3,765.53	5,657.75	50	1892.22
8	Rewa	Construction of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	01/2011-12 and 14/2014-15	224.13	224.13	236.34	5	12.21
9	Rewa	Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7	22/2018-19	3733.3	4350.25	5357.95	23	1007.7
10	Rewa	Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	27/2012-13	446.56	446.56	675.94	51	229.38
11	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	15/2013-14	1506.74	1506.7	2470.26	64	963.56
12	Ujjain	Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	28/2013-14	1622.34	1622.34	3110.86	92	1488.52
Total				20,695.17	21,488.17	31,671.32		10183.15

Appendix 2.3

Details of works having insufficient Sub Soil Investigation before preparation of DPR

(Reference: Paragraph No. 2.3.2)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Minimum Number of bore required for preparation of Estimate/ DPR	Number of bore done	Short number of bore
1	Ujjain	Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	01/2015-16	12	4	8
2		Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	10/2013-14	7	3	4
3	Bhopal	Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on Bairasiya-Dhakupur-Chatehedi-Godakala road in Bhopal District.	26/2015-16	11	1	10
4		Construction of Submersible Bridge including approach road Across Tenduni river on Magardha-Sirawada road in Raisen District.	11/2016-17	7	2	5
5		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	03/2015-16	14	3	11
6		Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge	134/2013-14	6	0	6
7		Construction of Submersible bridge from Shuthar to Andia Road on Newan River Dist- Vidisha	13/2015-16	3	0	3
8		Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shaj Road in Bhopal	30/2015-16	13	0	13
9		Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	17	0	17
10		Construction of ROB near lal bagh railway station on Burhanpr Bhusawal railway section	17/2013-14	38	2	36
11	Indore	Construction of ROB LC No.250 km 494-03-04 Ratlam Khandwa Section on Raoi Bazar, Loha Mandi near Gadiadda, Indore	02/2015-16	21	0	21
12		Construction of High submersible bridge across Maheshwari river at Maheshwar District Khargone	08/2014-15	12	2	10
13		Construction of Submersible Bridge across Gambhir River on Betma – Kalmer Road, District Indore	16/2015-16	10	2	8
14		Construction of Road Fly over Bridge at Teen Imli Squair (Ring Road) District Indore	23/2012-13	22	1	21
15		Construction of High level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone	25/2018-19	14	2	12
16		Construction of Submersible bridge across Khan river near on Guran Darjekaradiya Tarana road near village Darjekaradiya Tehsil aswer Distt. Indore. Under C.R.F.	06/2015-16	6	0	6

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Minimum Number of bore required for preparation of Estimate/ DPR	Number of bore done	Short number of bore
17		Construction of third leg of Rail Over Bridge in lieu of LC. No. 250 KM 494/03-04 of Ratlam-Khandwa section near Gadi Adda in Indore	03/2018-19	6	0	6
18		Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road, Dhar	17/2016-17	11	0	11
19		Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	02/2013-14	6	0	6
20		Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. khandwa	08/2017-18	38	2	36
21		Construction of High Level Bridge across Susari River on Bandariya- Rakhibujurg road Dist. Badwani	02/2018-19	9	0	9
22		Construction of submersible bridges across Tapti river near Jainabad village (at Rajghat Burhanpur) district Burhanpur (NABARD)	13/2016-17	18	3	15
23	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaon Road, District Balaghat	41/2013-14	15	6	9
24		Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	03/2015-16	12	0	12
25		Construction of ROB in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi-Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	06/2017-18	14	1	13
26		Construction of additional works for Shakkar river bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road)(NABARD)	13/2013-14	10	2	8
27		Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	08/2018-19	44	6	38
28		Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district	06/2018-19	17	4	13
29		Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	12/DL/2015-16	16	7	9
30		Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	06/DL/2013-14	11	0	11
31		Construction of Submersible Bridge across Budner River on Ghughri- Sailwara road in Mandla Dist.	41/SAC/2018-19	20	0	20
32		Construction of Box type submersible Bridge including approach road Across Umar River at Khobi-Deori-Mohas-Akola Road In Distt, Narsinghpur	01/DL of 2010-2011	6	0	6

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Minimum Number of bore required for preparation of Estimate/ DPR	Number of bore done	Short number of bore
33		Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	08/2012-13	5	0	5
34		Construction of Submersible Bridge across Narmada River near Barman Mela Place on Barman Khurd-Barman Kareli road in Narsinghpur Dist	15/DL/2017-18	20	0	20
35		Construction of ROB on Railway Km 997/3-4 across LC no. 319 A between Jabalpur and Adhartal station on Jabalpur Katni Section	03/DL/2016-17	23	0	23
36		Construction of High level Bridge across Narmada River on Narsinghpur- Kerpani Road i/c Approach road & Protection Work (CRF)	07/DL/2016-17	16	4	12
37	Rewa	Construction of fly over bridge at Sirmour Chouraha Rewa on Varanasi-Nagpur road at Km 234/6 in Rewa city NH-7	23/2012-13	13	2	11
38		Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	11/2016-17	8	2	6
39		Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	27/2012-13	12	0	12
40		Construction of Fly Over Bridge at Semariya Chowk on Nowgaon Satna-Rewa Road, District Satna	23/2015-16	38	5	33
41		Construction of (Balance) work of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	14/2014-15	10	4	6
42		Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umaria	24/2012-13	8	4	4
43		Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	04/2010-11	11	4	7
44		Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	01/2020-21	16	2	14
45		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	22/2018-19	50	2	48
		Total		696	82	614

Appendix 2.4

Details of works having approach roads without approved design and drawing

(Reference: Paragraph No. 2.3.3)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Type of road	Agreement No.	Upto date payment to contractor (₹ in lakh)	Whether Completed or Ongoing	Provision of cross section as per TC dated 09-07-12	Details of execution of Cross section	Amount Paid for Approach road (₹ in Lakh)
1	Ujjain	Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	Submersible	SR/MDR	01/2015-16	946.35	Completed	300 mm GSB, 100 mm DLC and 300 mm M-40 and in remaining length of approach road BT road with 300 mm GSB, 225 mm WMM, 50 mm BM and 25 mm SDBC	CRM 250 mm, DLC 100 mm and CC pavement M-40 300 mm in full length of approach road	82.56
2		Construction of High Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	High level	SR/MDR	15/2015-16	1,531.65	Completed	300 mm GSB, 225 mm WMM, 50 mm BM and 25 mm SDBC.	CRM 250 mm, DLC of 100 mm and Rigid pavement of 300 mm	133.49
3		Construction of Submersible Bridge including approach road across kalisindh river in Km 12/10 of Bercha-Sunsdarshi-Akodia road	Submersible	SR/MDR	09/2016-17	291.27	Ongoing	200 mm GSB, 100 mm DLC and 300 mm M-30 and in remaining length of approach road BT road with 200 mm GSB, G2 150 mm, 75 mm G3 and 20 mm) OGPC	CRM 250 mm, DLC 100 mm and CC pavement M-40 300 mm in full length of approach road	144.94
4		Construction of Submersible Bridge and Approach Road across Kshipra River on	Submersible	SR/MDR	10/2013-14	1,373.33	Completed	300 mm GSB, 100 mm DLC and 300 mm M-40 and in remaining length of	GSB 200 mm, DLC 100 mm, CC M-30in 300 mm	276.41

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Type of road	Agreement No.	Upto date payment to contractor (₹ in lakh)	Whether Completed or Ongoing	Provision of cross section as per TC dated 09-07-12	Details of execution of Cross section	Amount Paid for Approach road (₹ in Lakh)
		Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)						approach road BT road with 300 mm GSB, 225 mm WMM, 50 mm BM and 25 mm SDBC		
5	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	High level	VR/ODR	111/2012-13	4,178.00	ongoing	GSB 200MM, G-II&III 225 MM, OGPC 20MM, Seal coat	CRM 180 mm, WMM 225 mm and BM 50 mm, and BC 30 mm	105.91
6		Construction of Submersible Bridge including approach road Across Tenduni river on Magardha-Sirawada road in Raisen District.	Submersible	VR/ODR	11/2016-17	438.55	Completed	300 mm GSB, 100 mm DLC and 300 mm M-40 and in remaining length of approach road BT road with 300 mm GSB, 225 mm WMM, 50 mm BM and 25 mm SDBC	CRM 230 MM, DLC 100 MM and M-40 CC Pavement 250 MM	196
7		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	ROB	SR/MDR	03/2015-16	3,386.61	Ongoing	Bituminous Road with 300 mm GSB, 225 mm WMM and 50 mm BM and 25 mm SDBC	CRM 300 mm, WMM 300 mm and BM 50 mm, and BC 30 mm	82.56
8		Construction of High Level Bridge across Tawa river at Rajdhog on Sarni-Loniya Road including approach road in Betul District (MP)	High level	VR/ODR	29/2015-16	961.76	Ongoing	Bituminous Road with 200 mm GSB, 225 mm (G2 and G3) WMM and 20 mm OGPC and seal coat	CRM 280 mm, WMM 250 mm and DGBM 60 mm, and BC 30 mm	133.49

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Type of road	Agreement No.	Upto date payment to contractor (₹ in lakh)	Whether Completed or Ongoing	Provision of cross section as per TC dated 09-07-12	Details of execution of Cross section	Amount Paid for Approach road (₹ in Lakh)
9	Indore	Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar	High level	SR/MDR	17/2016-17	701.51	Completed	GSB-300 mm, WMM-225, BM-50 MM, SDBC-25	GSB-150mm, DLC-100 mm, PQC M-40 300 mm	38.21
10	Jabalpur	Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi-Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	High level	SR/MDR	06/2017-18	1,613.23	Ongoing	GSB-300MM, WMM 225MM, BM 50MM and SDBC 25MM	CRM 250 MM, DLC 100 MM and M-40 CC Pavement 300 MM	22.83
11		Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	ROB	VR/ODR	03/2015-16	464.93	Completed	GSB-200MM, DLC 100MM and M30 CC Pavement 300MM	CRM 300 MM, DLC 100 MM and M-30 CC Pavement 300 MM	25.3
12		Construction of Submersible Bridge across Son River on Bahmangaon – Pangaob Road, District Balaghat	Submersible	VR/ODR	41/2013-14	1,049.26	Completed	GSB-200MM, DLC 100MM and M30 CC Pavement 300MM	GSB 200 MM, DLC 100 MM and M-30 CC Pavement 300 MM	75.78
13		Construction of additional works for Shakkar river high level bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road)(NABARD)	High level	VR/ODR	13/2013-14	574.29	Completed	GSB-200MM, GII 150MM, GIII 75 MM, OGPC 20 MM and premium seal coat	Prime coat, tack coat, Bituminous Macadam 5 MM and Semi Dense Bituminous Concrete 25 MM	11.05

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Type of road	Agreement No.	Upto date payment to contractor (₹ in lakh)	Whether Completed or Ongoing	Provision of cross section as per TC dated 09-07-12	Details of execution of Cross section	Amount Paid for Approach road (₹ in Lakh)
14		Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	ROB	SR/MDR	08/2018-19	6,327.72	Ongoing	GSB-300, WMM-225, BM-50 and SDBC-25	CRM, DLC, M-40/M-30	266.31
15		Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district	High level	VR/ODR	06/2018-19	1,419.80	Completed	GSB-300 mm, WMM-225 mm, BM 50 mm and SDBC 25 mm	CRM, WMM, Prime coat, Tack coat, dense grade bituminous macadam and bituminous concrete	96.59
16		Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	Submersible	VR/ODR	12/2015-16	563.44	Completed	GSB 200 mm, DLC-100 mm, CC M-30 300mm	CRM 150 mm, DLC 100 mm, CC M-40 300 mm	134.93
17		Construction of Submersible Bridge and approach road Across Wainganga-river in Bakhari-Barra-Sadak Seoni Road including approach road & Protection work Distt Seoni.	Submersible	SR/MDR	34/2013-14	431.4	Completed	200 mm GSB, 100 mm DLC and 300 mm M-30 CC	200 mm GSB, 100 mm DLC and 300 mm M-30 CC	17.76
18		Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	High level	VR/ODR	08/2012-13	629.79	Completed	200 mm GSB, 100 mm DLC and 300 mm M-30 CC	Sub base -0.20 meter, base course- 250 MM thick WMM, 50 MM BT with 25 MM SDBC	57.39

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Type of road	Agreement No.	Upto date payment to contractor (₹ in lakh)	Whether Completed or Ongoing	Provision of cross section as per TC dated 09-07-12	Details of execution of Cross section	Amount Paid for Approach road (₹ in Lakh)
19		Construction of High level Bridge across Narmada River on Narsinghpur- Kerpani Road i/c Approach road & Protection Work (CRF)	High level	SR/MDR	072016-17	2,323.27	Completed	GSB 200 mm, WMM-225 mm, OGPC20 mm	CRM 100 mm, DLC 100 mm, CC M-40 250 mm	54.5
20	Rewa	Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	ROB	SR/MDR	02/2017-18	675.76	Ongoing	High Level bridges in MDR there was provision of GSB-300MM, WMM-225 MM, BM-50 MM and SDBC 25 MM	BM 50 MM, BC-300MM, WMM-125MM	79
21		Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	Submersible	VR/ODR	11/2016-17	221.96	Completed	GSB- 200MM, DLC-100MM, CC M-30 in 300MM	DLC -100 MM, CRM- 125 MM meter, CC M-40 200 MM	49.71
22		Construction of Fly Over Bridge at Semariya Chowk on Nowgaon Satna-Rewa Road, District Satna	Fly over	SR/MDR	23/2015-16	5,067.69	Ongoing	GSB-300MM, G-II-150MM, G-III-75MM, BM-50MM and SDBC-25 MM	CRM-200MM, DLC-150MM, CC pavement-200MM	600.61
23		Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umari	Submersible	VR/ODR	24/2012-13	1,049.26	Completed	GSB-200MM, DLC-100MM, M-30 CC-300MM, G-II-150MM, G-III-75MM, OGPC-20MM	GSB-150MM, DLC-150MM, M-30 CC-300MM, G-II-150MM, G-III-75MM, OGPC-20MM, Sealcoat	168.95

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Type of road	Agreement No.	Upto date payment to contractor (₹ in lakh)	Whether Completed or Ongoing	Provision of cross section as per TC dated 09-07-12	Details of execution of Cross section	Amount Paid for Approach road (₹ in Lakh)
24		Construction of (Balance) work of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana-Khairi Road 5/10 K.M.) Road, District Shahdol	High level	VR/ODR	14/2014-15	282.3	Completed	GSB 200MM, G-II&III 225 MM, OGPC 20MM, Seal coat	GSB-150MM, DLC-150MM, M-30 CC-250MM, OGPC-20MM, Sealcoat	48.25
25		Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	Submersible	VR/ODR	04/2010-11	158.57	Completed	GSB-200MM, DLC-100MM, M-30 CC-300MM,	CRM, DLC-100 MM ,CC M-30	12.86
26		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	Fly over	SR/MDR	22/2018-19	4,234.32	Completed	GSB 300 MM, WMM 225 MM, BM 50 MM, SDBC 25 MM	CC pavement, DLC	527.08
		Total				40,896.02				3442.47

Appendix 2.5

Details of works having injudicious provision of bituminous approach roads

(Reference: Paragraph No. 2.3.4)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract amount (₹ in lakh)	Amount of work done (₹ in lakh)	Whether Completed or Ongoing	Cost of Bituminous road (₹ in lakh)
1	Bhopal	Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	Submersible	30/2015-16	911.51	916.35	Completed	13.3
2	Indore	Construction of Submersible bridge across Khan river near on Guran Darjekaradiya Tarana road near village Darjekaradiya Tehsil aswer, Indore.	Submersible	06/2015-16	277.36	189.51	Completed	16.08
		Total			1188.87	1,105.86		29.38

Appendix 2.6

Details of works having no application of CPM and PERT

(Reference: Paragraph No. 2.4)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months as on date of audit	Amount of work done finally paid to contractor (₹ in lakh)
1	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	15/2013-14	1,506.74	25-09-2013	24-03-2016	24-03-2016	No	0	2,697.08
2		Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	28/2013-14	1,622.34	27-01-2014	26-01-2016	27-02-2016	Yes	1	3,490.50
3		Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	01/2015-16	912.34	04-05-2015	04-03-2016	28-02-2016	No	0	946.35
4		Construction of Railway over bridge in lieu of LC No.30 Dewas Barlai Rail Section km 42/17-19 Mendki Phatak at Dewas district Dewas	18/2018-19	1615.32	23-04-2018	22-02-2020	-	Yes	13	1,331.94
5		Construction of High level Bridge across Chambal River on Birlagram Nayan- Bhikampur Road, District Ujjain.	17/2018-19	1,059.40	23-04-2018	22-02-2020	-	Yes	13	396.21
6		Construction of High Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	15/2015-16	1,296.04	05-11-2015	05-11-2018	15-07-2018	No	0	1,531.65
7		Construction of High Level Bridge across Ajnar River on RajgarhKalipith Road in Km 8/10 of district Rajgarh	13/2016-17	437.95	21-11-2016	20-03-2018	-	Yes	36	290.91
8		Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur.	22/2013-14	469.18	25-09-2013	15-02-2016	31-12-2018	Yes	34	451.56
9		Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road	10/2013-14	830.2	22-07-2013	15-12-2015	26-02-2016	Yes	2	1,373.33

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months as on date of audit	Amount of work done finally paid to contractor (₹ in lakh)
10		Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist.	21/2013-14	708.19	25-09-2013	25-05-2016	22-08-2017	Yes	15	845.89
11		Construction of Submersible Bridge including approach road across kalisindh river in Km 12/10 of Bercha- Sunsdarshi-Akodia road	09/2016-17	662.25	24-06-2016	15-12-2018	-	Yes	27	291.27
12	Bhopal	Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	22/2016-17	2,316.37	06-07-2016	04-06-2018	-	Yes	34	1,967.00
13		Construction of High level bridge across Betwa river on Ashapuri Khasrod Salkani to Wardhmn	132/2013-14	1533.83	23-07-2013	15-06-2016	06-02-2017	Yes	8	1,197.00
14		Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	2248.73	15-02-2013	15-12-2016	-	Yes	51	4,178.00
15		Construction of Submersible bridge across Tenduni River in km 4/350 on the Guradia Panjra Vijay Singh Purohit pipariya road District Raisen	06/2018-19	391.64	11-09-2018	10-09-2019	-	Yes	19	42
16		Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	30/2015-16	920.72	31-12-2015	28-02-2018	--	Yes	40	916.35
17		Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore	104/2017-18	586.85	27-04-2017	27-12-2018	-	Yes	30	372.14
18		Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge	134/2013-14	268.22	08-08-2013	15-05-2015	31-12-2017	Yes	32	198.49
19		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	03/2015-16	3808.44	15-10-2015	12-01-2018	-	Yes	38	3,386.61
20		Construction of High Level Bridge across Tawa river at Rajdhog on Sarni-Loniya Road including approach road in Betul District (MP)	29/2015-16	947.46	08-12-2015	08-02-2018	-	Yes	38	961.76
21		Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on	26/2015-16	782.3	08-12-2015	08-02-2018	02-12-2018	Yes	10	655.53

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months as on date of audit	Amount of work done finally paid to contractor (₹ in lakh)
		Bairasiya-Dhakupur-Chatehedi-Godakala road in Bhopal District								
22		Construction of Submersible Bridge including approach road Across Tenduni river on Magardha-Sirawada road in Raisen District	11/2016-17	577.87	12-05-2016	12-01-2018	20-05-2019	Yes	16	438.55
23		Construction of Submersible bridge from Shuthar to Andia Road on Newan RiverDist- Vidisha	13/2015-16	149.79	05-10-2015	04-06-2016	26-12-2017	Yes	19	101.85
24	Indore	Construction of ROB near lal bagh railway station on Burhanpr Bhusawal railway section	17/2013-14	1307.29	19-07-2013	19-07-2015	-	Yes	68	981.91
25		Construction of ROB LC No.250 km 494-03-04 Ratlam Khandwa Section on Raoi Bazar, Loha Mandi near Gadiadda, Indore	02/2015-16	2914.61	05-11-2015	05-10-2017	15-10-2018	Yes	12	2175.33
26		Construction of High submersible bridge across Maheshwari river at Maheshwar District Khargone	08/2014-15	567	29-01-2015	28-05-2016	31-03-2016	No	0	576
27		Construction of Submersible bridge across Temi Nalla in km 13/4 on Khandwa Kalmukhi Road Distt. Khandwa	25/2013-14	245.1	08-02-2013	15-02-2015	15-04-2015	Yes	2	182.49
28		Construction of Submersible bridge across Khan river near on Guran Darjkaradiya Tarana road near village Darjkaradiya Tehsil aswer Distt. Indore. Under C.R.F.	06/2015-16	310.27	18-04-2016	17-12-2017	04-05-2018	Yes	5	189.51
29		Construction of third leg of Rail Over Bridge in lieu of LC. No. 250 KM 494/03-04 of Ratlam-Khandwa section near Gadi Adda in Indore Dist	03/2018-19	528.95	09-05-2018	08-05-2019	-	Yes	23	372.87
30		Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar	17/2016-17	651.04	01-02-2017	31-10-2018	31-08-2020	Yes	22	701.51
31		Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	02/2013-14	276.46	16-05-2013	15-01-2015	10-11-2015	Yes	10	184
32		Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. Khandwa	08/2017-18	1623.45	07-06-2017	15-12-2019	-	Yes	15	1,062.31
33		Construction of High Level Bridge across Susari River on Bandariya- Rakhibujurg road Dist. Badwani	02/2018-19	584.19	09-05-2018	08-03-2020	-	Yes	13	540

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months as on date of audit	Amount of work done finally paid to contractor (₹ in lakh)
34		Construction of submersible bridges across Tapti river near Jainabad village (at Rajghat Burhanpur) district Burhanpur (NABARD)	13/2016-17	1,120.86	21-07-2016	14-12-2018	31-10-2019	Yes	11	1,191.86
35		Construction of Submersible Bridge Across GOI River On Kalapt-Ghudchal-Pipliyagoi Road Distt, Badwani	06/2018-19	355.4	08-09-2018	08-09-2018	-	Yes	31	137.53
36	Jabalpur	Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	03/2015-16	629.44	03-09-2013	14-12-2017	31-03-2018	Yes	4	464.93
37		Construction of Submersible Bridge across Son River on Bahmangaon – Pangaob Road, District Balaghat	41/2013-14	1022.29	03-09-2013	14-03-2016	31-12-2016	Yes	10	1,049.26
38		Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi- Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	06/2017-18	1,591.18	16-08-2017	15-02-2019	-	Yes	30	1,613.23
39		Construction of additional works for Shakkar river HL bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road)(NABARD)	13/2013-14	555.49	16-09-2013	15-12-2015	15-02-2017	Yes	14	574.29
40		Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	08/2018-19	4974.83	21-12-2018	20-04-2021	-	Yes	4	6327.72
41		Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district	06/2018-19	1495.85	13-08-2018	15-12-2020	10-06-2021	Yes	6	1,420
42		Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	12/2015-16	714.43	22-12-2015	21-02-2018	25-11-2018	Yes	9	563.44
43		Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	06/DL/2013-14	299.36	08-08-2013	15-02-2015	30-03-2017	Yes	25	308.61
44		Construction of Submersible Bridge across Budner River on Ghughri- Sailwara road in Mandla Dist.	02/2018-19	651.59	19-04-2018	18-02-2020	-	Yes	18	688

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months as on date of audit	Amount of work done finally paid to contractor (₹ in lakh)
45		Construction of Box type Bridge including approach road Across Umar River at Khobi-Deori-Mohas-Akola Road In Distt, Narsinghpur	01/DL of 2010-11	91.24	01-04-2010	31-10-2011	10-06-2017	Yes	67	129.22
46		Construction of Submersible Bridge and approach road Across Wainganga-river in Bakhari-Barra-Sadak Seoni Road including approach road & Protection work Distt Seoni.	34/DL /2013-14	463.85	11-07-2013	15-12-2015	30-07-2017	Yes	19	431.4
47		Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	08/2012-13	423.8	14-12-2012	13-04-2015	30-12-2018	Yes	44	629.79
48		Construction of Submersible Bridge across Narmada River near Barman Mela Place on Barman Khurd-Barman Kareli road in Narsinghpur Dist	15/DL/2017-18	989.72	23-01-2018	22-03-2021	-	Yes	5	1350.58
49		Construction of ROB on Railway Km 997/3-4 across LC no. 319 A between Jabalpur and Adhartal station on Jabalpur Katni Section	03/2016-17	1756.88	15-09-2016	14-03-2018	-	Yes	42	1847.96
50		Construction of High level Bridge across Narmada River on Narsinghpur- Kerpani Road i/c Approach road & Protection Work (CRF)	07/2016-17	1739.3	06-07-2016	14-04-2019	-	No	29	2323.27
51	Rewa	Construction of fly over bridge at Sirmour Chouraha Rewa on Varanasi-Nagpur road at Km 234/6 in Rewa city NH-7	23/2012-13	1588.18	14-01-2013	13-01-2015	30-04-2016	Yes	16	2,032.95
52		Construction of submersible bridge including approach road across myar river on Chachar-Kulhai (Kulhaniya) road district Singrauli	24/2015-16	664.56	05-02-2016	05-08-2018	-	Yes	32	629.44
53		Construction of high level bridge including approach road across umrar river on baran mahgwan sutari kharahata road district Katni	17/2015-16	498.24	17-12-2015	16-12-2018	-	Yes	27	307.42
54		Construction of Submersible Bridge including approach road across Kunuk River on Bhatiya – Bhogoda Road, District Shahdol	06 /2010-11	175	23-12-2010	22-04-2012	30-09-2015	Yes	41	161.9
55		Construction of High Level (Box Type) Bridge excluding approach road Across Jhapar River on Barkachh Beohari Road Distt, Shahdol	24/2016-17	289.69	17-10-2016	16-02-2018	-	Yes	37	209.42

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months as on date of audit	Amount of work done finally paid to contractor (₹ in lakh)
56		Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	02/2017-18	724.79	24-04-2017	23-10-2018	-	Yes	29	675.76
57		Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	11/2016-17	243.25	31-05-2016	31-01-2018	23-03-2020	Yes	26	221.96
58		Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	27/2012-13	446.56	23-03-2013	23-03-2016	22-03-2016	No	0	831.98
59		Construction of Fly Over Bridge at Semariya Chowk on Nowgaon Satna-Rewa Road, District Satna	23/2015-16	3,765.53	18-01-2016	17-05-2018	-	Yes	34	5,067.69
60		Construction of (Balance) work of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	14/2014-15	192.18	29-10-2014	28-02-2016	04-02-2018	Yes	23	282.3
61		Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umaria	24/2012-13	820.61	16-01-2013	15-01-2016	31-12-2017	Yes	23	1,049.26
62		Construction of ROB on Varanasi- Nagpur Road (NH7) near Railway Station Rewa at Railway Chainage 890 meter across Rewa-Sidhi, new Railway line at Godhar, Rewa	01/2018-19	3245.87	04-05-2018	03-09-2020	-	Yes	7	2,514.24
63		Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	04/2010-11	149.45	23-12-2010	22-04-2012	30-11-2016	Yes	55	158.57
64		Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	01/2020-21	171.87	17-07-2020	15-06-2021	-	Yes	3	14.65
65		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	22/2018-19	3733.3	19-12-2018	18-12-2020	31-03-2021	Yes	3	4,234.32
		Total								74,470.85

Appendix 3.1

Details of short recovery of Royalty and Final Payment to Contractor without 'No Dues Certificate'

(Reference: Paragraph No. 3.2.1)

Sl. No.	Name of Divison	Name of Bridge Work	Agreement No.	Amount of royalty to be deducted (Amount in ₹)	Amount of Royalty deducted (Amount in ₹)	Short recovery of Royalty (Amount in ₹)	Amount of work done (₹ in lakh)
1	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	15/2013-14	32,17,788	20,00,000	12,17,788	2,697
2		Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	28/2013-14	26,87,196	9,00,000	17,87,196	3,491
3		Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	01/2015-16	5,47,004	0	5,47,004	946
4	Bhopal	Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	22/2016-17	20,72,815	2,60,372	18,12,443	1,967
5		Construction of Submersible Bridge including approach road across Tenduni river on Magardha-Sirawada road in Raisen District.	11/2016-17	8,34,153	4,29,623	4,04,530	439
6		Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on Bairasiya-Dhakupur-Chatehedi-Godakala road in Bhopal District	26/2015-16	7,85,750	1,81,704	6,04,046	656
Total				1,01,44,706	37,71,699	63,73,007	10,196

Appendix 3.2

Details of mismatch in the width of carriage way and approach road

(Reference: Paragraph No. 3.2.3)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Width of Bridge (in meter)	Width of Approach Road (in Meter)	Amount of work done (₹ in lakh)
1	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	3,351	7.50	7.00	4,178.00
2		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	03/2015-16	3883.12	7.5	7.00	3,386.61
3		Construction of High Level Bridge across Tawa river at Rajdhog on Sarni-Loniya Road including approach road in Betul District (MP)	29/2015-16	972.85	7.50	3.75/7.00	961.76
4		Construction of Submersible Bridge including approach road across Tenduni river on Magardha-Sirawada road in Raisen District (HM-34)	11/2016-17	537.36	7.50	5.5/7.3	438.55
5		Construction of High level bridge across Betwa river on Ashapuri Khasrod Salkani to Wardhmn	132/2013-14	1,630.46	7.50	7	1,197.00
6		Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore	104/2017-18	498.88	7.50	7	372.14
7		Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	30/2015-16	911.51	7.50	7	916.35
8	Indore	Construction of High submersible bridge across Maheshwari river at Maheshwar District Khargone	08/2014-15	630	7.50	8.40	576
9		Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	02/2013-14	248.7	7.50	7.5 to 5.5	184
10		Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar	17/2016-17	572.13	7.50	11.10 to 7.5	702
11		Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. khandwa	08/2017-18	1,767.77	7.50	7	1,062.31
12	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaon Road, District Balaghat	41/2013-14	1,108.47	7.50	7.00	1,049.26
13		Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	03/2015-16	629.44	7.50	7.00	464.93
14		Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi- Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	06/2017-18	1,510.03	7.50	12	1,613.23

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Width of Bridge (in meter)	Width of Approach Road (in Meter)	Amount of work done (₹ in lakh)
15	Rewa	Construction of Submersible Bridge including approach road across Kunuk River on Bhatiya – Bhogoda Road, District Shahdol	6 /2010-11	160.63	7.50	8.00	161.9
16	Ujjain	Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur.	22/2013-14	505.63	7.50	7.00	451.56
17		Construction of High level bridge across Kalisindh river at Kamlapur Samangi road at district Dewas	13/2013-14	509.22	7.50	7.6 to 7.95	491.88
		Total		19,427.20			18,207.48

Appendix 3.3

Details of works having unwarranted provision of Steel Liner

(Reference: Paragraph No. 3.2.4)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹in lakh)	Amount of work done finally paid to contractor (₹ in lakh)	Quantity of Steel Liner in MT	Rate of Steel Liner in ₹ per MT	Tender percentage	Amount Paid against Steel (₹ in lakh)
1	Bhopal	Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	22/2016-17	2,149.59	1967.48	112.877	88679	-7.20	92.89
2		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	03/2015-16	3883.12	3,386.61	160.83	54000	1.9	88.50
3	Jabalpur	Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	08/2018-19	5467.34	6327.72	142.75	49500	9.9	77.66
4	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	15/2013-14	1,506.74	2,697.08	97.828	86701	18	100.09
5		Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	28/2013-14	1,928.96	3,490.50	69.367	86701	18.90	71.51
		Total		14,935.75	17,869.39	583.65			430.65

Appendix 3.4

Details of execution of extra items without revised technical sanction

(Reference: Paragraph No. 3.2.5)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	PAC (₹ in lakh)	Contract Amount (₹ in lakh)	Amount paid to contractor (₹ in lakh)	Number of Non- BOQ Items	Amount paid for Non-BOQ Items (₹ in lakh)	Whether revised TS was available with inclusion of extra items	Details of Non BOQ items with reference to SOR
1	Indore	Construction of Submersible bridge across Temi Nalla in km 13/4 on Khandwa Kalmukhi Road Distt. Khandwa	25/2013-14	245.10	227.70	182.49	10	22.82	No	2.3 (B), 2.5. 8.7,11.6, 12.1 (ii) & (iii), 12.2 (ii) & (iii), 12.9, 15.4 (A)
2	Rewa	Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	27/2012-13	446.56	548.82	831.98	12	152.84	No	1.1 b (iii),(II)(i), (II)(ii), (II)(iii), 1.6 (a),1.6 (c),3.1 (C) (i)(b), 3.1 (b), 3.14(i), 3.14(ii), 3.11, 4.1 (I)
Total		Two Bridge works		691.66	776.52	1,014.47	22	175.66		

Appendix 3.5

Details of non-utilisation of fly ash in embankment

(Reference: Paragraph No. 3.2.6)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract amount (₹ in lakh)	Value of Work done (₹ in lakh)	Nearest Thermal power station	Distnace from construction site in Km	Status of the work
1	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	ROB	15/2013-14	1,506.74	2,697.08	Grasim Nagda	56.5	Completed
2		Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	ROB	28/2013-14	1,928.96	3,490.50	Grasim Nagda	63.7	Completed
3	Rewa	Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	Submersible	11/2016-17	216.78	221.96	Singrauli Super Thermal Station	70	Complete
4		Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umaria	Submersible	24/2012-13	1,148.44	1,247.98	Sanjay Gandhi Thermal Power Project, Umaria	32	Complete
		Total			4,800.92	7,657.52			

Appendix 3.6
Details of works for time analysis
(Reference: Paragraph No. 3.3.1)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
1	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	15/2013-14	2149.59	25-09-2013	24-03-2016	24-03-2016	No	0	2,697.08
2	Ujjain	Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	28/2013-14	1,928.96	27-01-2014	26-01-2016	27-02-2016	Yes	1	3,490.50
3	Ujjain	Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	01/2015-16	1,103.93	04-05-2015	04-03-2016	28-02-2016	No	0	946.35
4	Ujjain	Construction of Railway over bridge in lieu of LC No.30 Dewas Barlai Rail Section km 42/17-19 Mendki Phatak at Dewas district Dewas	18/2018-19	1,615.32	23-04-2018	22-02-2020	Ongoing	Yes	13	1,331.94
5	Ujjain	Construction of High level Bridge across Chambal River on Birlagram Nayan- Bhikampur Road, District Ujjain.	17/2018-19	1,146.27	23-04-2018	22-02-2020	Ongoing	Yes	13	396.21
6	Ujjain	Construction of High Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	15/2015-16	1,289.30	05-11-2015	05-11-2018	15-07-2018	No	0	1,531.65
7	Ujjain	Construction of High Level Bridge across Ajnar River on	13/2016-17	389.07	21-11-2016	20-03-2018	Ongoing	Yes	36	290.91

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
		RajgarhKalipith Road in Km 8/10 of district Rajgarh								
8	Ujjain	Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur.	22/2013-14	505.63	25-09-2013	15-02-2016	31-12-2018	Yes	34	451.56
9	Ujjain	Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	10/2013-14	936.12	22-07-2013	15-12-2015	26-02-2016	Yes	2.5	1,373.33
10	Ujjain	Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist.	21/2013-14	804.15	25-09-2013	25-05-2016	22-08-2017	Yes	15	845.89
11	Ujjain	Construction of Submersible Bridge including approach road across kalisindh river in Km 12/10 of Bercha- Sunsdarshi-Akodia road	09/2016-17	594.5	24-06-2016	15-12-2018	Ongoing	Yes	27	291.27
12	Ujjain	Construction of railway over bridge in lieu of l.c. no 177 (ratlam chandaria rail section km 341/6-7) at jaora city district Ratlam	10/2016-17 34/2018-19	1,358.06	08-07-2016	07-08-2018	Earlier work was terminated on 25-05-18 and new work is awarded	Yes	33	758.77
13	Ujjain	Construction of High level bridge across Kalisindh river at Kamlapur Samangi road at district Dewas	13/2013-14	425.84	12-08-2013	12-12-2015	31-12-2016	Yes	13	491.88
14	Ujjain	Construction of H.L. Bridge across Jamner River near Barda Village on Barda to Kankariya Road, District Dewas	29/2018-19	358.7	06-09-2018	14-02-2020	Ongoing	Yes	13	215.52
15	Ujjain	Construction of ROB at LC No.81 Subhash Phatak to Ratlam Godhra	21/2019-20	1443.9	02-03-2020	02-02-2022	Ongoing	No	0	1356.17

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
16	Bhopal	Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	22/2016-17	2,149.59	07-06-2016	04-06-2018	31-03-2019	Yes	34	1,967.00
17	Bhopal	Construction of High level bridge across Betwa river on Ashapuri Khasrod Salkani to Wardhmnn	132/2013-14	1,630.46	23/07/2013	15/06/2016	02-06-2017	Yes	8	1,197.00
18	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	3,350.61	15/02/2013	15/12/2016	Ongoing	Yes	51	4,178.00
19	Bhopal	Construction of Submersible bridge across Tenduni River in km 4/350 on the Guradia Panjra Vijay Singh Purohit pipariya road District Raisen	06/2018-19	352.52	11-09-2018	09-10-2019	Ongoing	Yes	19	42
20	Bhopal	Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	30/2015-16	911.51	31-12-2015	28-02-2018	Ongoing	Yes	37	916.35
21	Bhopal	Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore	104/2017-18	498.88	27-04-2017	27-12-2018	--	Yes	27	372.14
22	Bhopal	Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge	134/2013-14	280.8	08-08-2013	15-05-2015	31-12-2017	Yes	32	198.49
23	Bhopal	Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	03/2015-16	3,883.12	15.10.2015	01-12-2018	26/12/2019	Yes	38	3,386.61
24	Bhopal	Construction of High Level Bridge across Tawa river at Rajdhog on	29/2015-16	972.85	23-12-2015	02-08-2018	--	Yes	38	961.76

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
		Sarni-Loniya Road including approach road in Betul District (MP)								
25	Bhopal	Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on Bairasiya-Dhakupur-Chatehedi-Godakala road in Bhopal District	26/2015-16	700	23-12-2015	08-02-2018	02-12-2018	Yes	10	655.53
26	Bhopal	Construction of Submersible Bridge including approach road Across Tenduni river on Magardha-Sirawada road in Raisen District	11/2016-17	537.36	12-05-2016	12-01-2018	20-05-2019	Yes	16	438.55
27	Bhopal	Construction of Submersible bridge from Shuthar to Andia Road on Newan RiverDist- Vidisha	13/2015-16	134.5	05-10-2015	06-04-2016	31-12-2017	Yes	19	101.85
28	Indore	Construction of ROB near lal bagh railway station on Burhanpr Bhusawal railway section	17/2013-14	1,519.07	19-07-2013	19-07-2015	Ongoing	Yes	68	981.91
29	Indore	Construction of ROB LC No.250 km 494-03-04 Ratlam Khandwa Section on Raoi Bazar, Loha Mandi near Gadiadda, Indore	02/2015-16	3,278.06	11-05-2015	10-05-2017	15-10-2018	Yes	17	2,175.33
30	Indore	Construction of High submersible bridge across Maheshwari river at Maheshwar District Khargone	08/2014-15	629.99	29-01-2015	28-05-2016	31-03-2016	No	0	575.57
31	Indore	Construction of Submersible bridge across Temi Nalla in km 13/4 on Khandwa Kalmukhi Road Distt. Khandwa	25/2013-14	227.7	02-08-2013	15-02-2015	15-04-2015	Yes	2	182.49
32	Indore	Construction of Submersible bridge across Khan river near on Guran Darjekaradiya Tarana road near village Darjekaradiya Tehsil aswer Distt. Indore. Under C.R.F.	06/2015-16	277.36	18-04-2016	17-12-2017	05-04-2018	Yes	4	189.51

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
33	Indore	Construction of third leg of Rail Over Bridge in lieu of LC. No. 250 KM 494/03-04 of Ratlam-Khandwa section near Gadi Adda in Indore Dist	03/2018-19	598.4	09-05-2018	05-08-2019	Ongoing	Yes	23	372.87
34	Indore	Construction of High Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar	17/2016-17	572.13	01-02-2017	31-10-2018	31-08-2020	Yes	22	701.51
35	Indore	Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	02/2013-14	248.7	16-05-2013	15-01-2015	10-11-2015	Yes	10	184.48
36	Indore	Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. Khandwa	08/2017-18	1,767.77	06-07-2017	15-12-2019	Ongoing	Yes	15	1,062.31
37	Indore	Construction of High Level Bridge across Susari River on Bandariya-Rakhijurg road Dist. Badwani	02/2018-19	624.03	09-05-2018	03-08-2020	Ongoing	Yes	13	540
38	Indore	Construction of submersible bridges across Tapti river near Jainabad village (at Rajghat Burhanpur) district Burhanpur (NABARD)	13/2016-17	1,114.47	21.07.2016	14-12-2018	31-10-2019	Yes	11	1,191.86
39	Indore	Construction of Submersible Bridge Across GOI River On Kalapt-Ghudchal-Pipliyagoi Road Distt, Badwani	06/2018-19	316.43	08-09-2018	08-09-2018	Ongoing	Yes	32	137.53
40	Indore	Construction of Road Fly over Bridge at Teen Imli Squair (Ring Road) District Indore	23/2012-13	2,861.93	05-10-2012	04-10-2014	20-02-2018	Yes	40	3,035.92
41	Indore	Construction of High level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone.	25/2018-19	850.37	30-01-2018	29-03-2020	31-03-2021	Yes	12	736.09

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
42	Indore	Construction of submersible bridge at Gambhir river on Kalmer betma road, Indore	16/2015-16	666.99	08-12-2015	28-11-2016	30-11-2016	No	0	645.44
43	Jabalpur	Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	03/2015-16	566.56	15-10-2015	14-12-2017	31-03-2018	Yes	4	464.93
44	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaob Road, District Balaghat	41/2013-14	1,108.47	03-09-2013	14-03-2016	31-12-2016	Yes	10	1,049.26
45	Jabalpur	Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi-Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur	06/2017-18	1,510.03	16-08-2017	15-02-2019	Ongoing	Yes	25	1,613.23
46	Jabalpur	Construction of additional works for Shakkar river HL bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road)(NABARD)	13/2013-14	636.26	16-09-2013	15-12-2015	15-02-2017	Yes	14	574.29
47	Jabalpur	Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	08/2018-19	5,467.34	21-12-2018	20-04-2021	Ongoing	Yes	0	6,327.72
48	Jabalpur	Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district	06/2018-19	1,642.44	13-08-2018	15-12-2020	10-06-2021	Yes	6	1419.8
49	Jabalpur	Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	12/2015-16	666.84	22-12-2015	21-02-2018	25-11-2018	Yes	9	563.44

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
50	Jabalpur	Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	06/DL/2013-14	284.54	08-08-2013	15-02-2015	30-03-2017	Yes	25	308.61
51	Jabalpur	Construction of Submersible Bridge across Budner River on Ghughri-Sailwara road in Mandla Dist.	02/2018-19	728.87	19-04-2018	18-02-2020	Ongoing	Yes	13	688.25
52	Jabalpur	Construction of Box type Bridge including approach road Across Umar River at Khobi-Deori-Mohas-Akola Road In Distt, Narsinghpur	01/DL of 2010-2011	105.08	01-04-2010	31-10-2011	10-06-2017	Yes	67	129.22
53	Jabalpur	Construction of Submersible Bridge and approach road Across Wainganga-river in Bakhari-Barra-Sadak Seoni Road including approach road & Protection work Distt Seoni.	34/DL /2013-14	481.43	11-07-2013	15-12-2015	30-07-2017	Yes	19	431.4
54	Jabalpur	Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	08/2012-13	529.28	14-12-2012	13-04-2015	30-12-2018	Yes	44	629.79
55	Jabalpur	Construction of Submersible Bridge across Narmada River near Barman Mela Place on Barman Khurd-Barman Kareli road in Narsinghpur Dist	15/DL/2017-18	1,057.91	23-01-2018	22-03-2021	Ongoing	No	0.35	1,350.58
56	Jabalpur	Construction of ROB on Railway Km 997/3-4 across LC no. 319 A between Jabalpur and Adhartal station on Jabalpur Katni Section	03/2016-17	1,635.48	15-09-2016	14-03-2018	Ongoing	Yes	36	1,847.96
57	Jabalpur	Construction of High level Bridge across Narmada River on Narsinghpur- Kerpani Road i/c Approach road & Protection Work (CRF)	07/2016-17	1,993.29	06-07-2016	14-04-2019	30-11-2018	No	0	2,323.27
58	Rewa	Construction of fly over bridge at Sirmour Chouraha Rewa on	23/2012-13	2,246.32	14-01-2013	13-01-2015	30-04-2016	Yes	16	2,032.95

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
		Varanasi-Nagpur road at Km 234/6 in Rewa city NH-7								
59	Rewa	Construction of submersible bridge including approach road across myar river on Chachar-Kulhai (Kulhaniya) road district Singrauli	24/2015-16	574.31	05-02-2016	08-05-2018	Ongoing	Yes	32	629.44
60	Rewa	Construction of high level bridge including approach road across umrar river on baran mahgwan sutari kharahata road district Katni	17/2015-16	428.54	17-12-2015	16-12-2018	Ongoing	Yes	27	307.42
61	Rewa	Construction of Submersible Bridge including approach road across Kunuk River on Bhatiya – Bhogoda Road, District Shahdol	06 /2010-11	160.63	23-12-2010	22-04-2012	30-09-2015	Yes	41	161.9
62	Rewa	Construction of High Level (Box Type) Bridge excluding approach road Across Jhapar River on Barkachh Beohari Road Distt, Shahdol	24/2016-17	249.45	17-10-2016	16-02-2018	Ongoing	Yes	37	209.42
63	Rewa	Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	02/2017-18	682.24	24-04-2017	23-10-2018	Ongoing	Yes	29	675.76
64	Rewa	Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	11/2016-17	216.78	31-05-2016	31-01-2018	23-03-2020	Yes	26	221.96
65	Rewa	Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	27/2012-13	548.82	23-03-2013	23-03-2016	22-03-2016	No	0	831.98

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract (₹ in lakh)	Date of Work Order	Date of Schedule Completion	Date of Actual Completion	Whether any Delay	Delays in months upto March 2021	Amount of work done finally paid to contractor (₹ in lakh)
66	Rewa	Construction of Fly Over Bridge at Semariya Chowk on Nowgaon Satna-Rewa Road, District Satna	23/2015-16	3,691.35	18-01-2016	17-05-2018	Ongoing	Yes	34	5,067.69
67	Rewa	Construction of (Balance) work of High level Bridge across KUNUK River on Ledra – Khairi (BrelKhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	14/2014-15	227.93	29-10-2014	28-02-2016	04-02-2018	Yes	23	282.3
68	Rewa	Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umaria	24/2012-13	1,148.44	16-01-2013	15-01-2016	31-12-2017	Yes	23	1,247.98
69	Rewa	Construction of ROB on Varanasi-Nagpur Road (NH7) near Railway Station Rewa at Railway Chainage 890 meter across Rewa-Sidhi, new Railway line at Godhar, Rewa	01/2018-19	3,401.35	04-05-2018	09-03-2020	Ongoing	Yes	7	2,514.24
70	Rewa	Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	04/2010-11	159.86	23-12-2010	22-04-2012	30-11-2016	Yes	55	158.57
71	Rewa	Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	10/2016-17	364.66	19-05-2016	18-01-2018	Ongoing	Yes	38	217.56
72	Rewa	Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	22/2018-19	4,350.25	19-12-2018	18-12-2020	31-03-2021	Yes	3	4,234.32
Total				83,869.69				Median	16.5	

Appendix 3.7

Use of non-tested and uncertified Elastomeric Bearings

(Reference: Paragraph No. 3.4.1)

Sl. No.	Name of Bridge Division	Name of Bridge Work	Type	Agreement No.	Contract Amount (₹ in lakh)	Amount of work done (₹ in lakh)	Quantity (in Cu cm)	Rate (₹ per Cu cm)	Amount Paid (₹ in lakh)
1	2	3	4	5	6	7	8	9	10=8×9
1	Bhopal	Construction of High-level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road	High level	111/2012-13	3343.64	4177.86	1755840.00	0.8	14.05
2		Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal	ROB	22/2016-17	2149.59	1967.48	2196480.00	0.86	18.89
3		Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	Submersible	30/2015-16	911.51	916.35	428467.00	0.86	3.68
4		Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge	Submersible	134/2013-14	280.80	198.49	156160.00	0.86	1.34
5		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	ROB	03/2015-16	3883.12	3386.61	2578867.20	1.8	46.42
6	Indore	Construction of High-level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone	High level	25/2018-19	850.37	736.08	780000.00	0.78	6.08
7		Construction of Submersible Bridge across Gambhir River on Betma – Kalmer Road, District Indore	Submersible	16/2015-16	666.99	645.43	331488.00	0.86	2.85
8		Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	Submersible	02/2013-14	248.70	184.48	173600.00	0.6	1.04
9		Construction of High-Level Bridge across Man River in Km 43/2 of Khalghat-Manawar road Dist. Dhar	High level	17/2016-17	572.13	701.51	487500.00	0.86	4.19
10		Construction of third leg of Rail Over Bridge in lieu of LC. No. 250 KM 494/03-04 of Ratlam-Khandwa section near Gadi Adda in Indore Dist	ROB	03/2018-19	598.40	372.87	409600.00	0.86	3.52
11		Construction of High level bridge across Narmada river between Bangalee Baba Ashram to Barfani baba Ashram at Omkareshwar, Dist. khandwa	High level	08/2017-18	1767.77	1062.31	141700.00	0.86	1.22
12		Construction of submersible bridges across Tapti river near Jainabad village (at Rajghat Burhanpur) district Burhanpur (NABARD)	Submersible	13/2016-17	1114.47	1191.86	611840.00	0.86	5.26

Sl. No.	Name of Bridge Division	Name of Bridge Work	Type	Agreement No.	Contract Amount (₹ in lakh)	Amount of work done (₹ in lakh)	Quantity (in Cu cm)	Rate (₹ per Cu cm)	Amount Paid (₹ in lakh)
1	2	3	4	5	6	7	8	9	10=8×9
13	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaob Road, District Balaghat	Submersible	41/2013-14	1108.47	1049.26	515648.00	0.86	4.43
14		Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	Submersible	12/DL/2015-16	666.84	563.44	721280.00	0.86	6.20
15		Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	Submersible	06/DL/2013-14	284.54	308.61	368320.00	0.86	3.17
16		Construction of Submersible Bridge across Budner River on Ghughri- Sailwara road in Mandla Dist.	Submersible	02/SAC/2018-19	728.87	688.25	659280.00	0.78	5.14
17	Rewa	Construction of fly over bridge at Sirmour Chouraha Rewa on Varanasi-Nagpur road at Km 234/6 in Rewa city NH-7	Fly over	23/2012-13	2246.32	2032.95	1989465.60	0.86	17.11
18		Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	ROB	02/2017-18	682.24	675.76	307200.00	0.86	2.64
19		Construction of High level Bridge including approach road across Paisuni River on Rajola-Mohakamgrah Hanuman Dhara By pass Road in Km 1/6-8	Submersible	27/2012-13	548.82	831.98	506440.00	0.8	4.05
20		Construction of (Balance) work of High level Bridge across KUNUK River on Ledra – Khairi (Brelkhairwana- Khairi Road 5/10 K.M.) Road, District Shahdol	High level	14/2014-15	227.93	282.30	280800.00	0.65	1.83
21		Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	High level	01/2020-21	142.65	14.65	280800.00	0.86	2.41
22		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	Fly over	22/2018-19	4350.25	4234.32	3756100.00	0.95	35.68
23	Ujjain	Construction of High Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	High level	15/2015-16	1289.30	1532.00	1935360.00	0.86	16.64
		Total			28663.72	27754.85	21372235.80 (Say 21.37 Cu m)		207.84

Appendix 3.8

Details of works having insufficient number of exploratory borings during execution

(Reference: Paragraph No. 3.4.2)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Value of work done and paid to contractor (₹ in lakh)	No. of exploratory boring as per provisions	No. of exploratory boring as per execution	Shortfall in exploratory borings	Amount paid (₹ in lakh)
1	Ujjain	Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	01/2015-16	1,103.93	946.35	12	6	6	1.99
2		Construction of High Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	15/2015-16	1,289.30	1,531.65	14	0	14	0
3	Bhopal	Construction of Submersible bridge across Tenduni River in km 4/350 on the Guradia Panjra Vijay Singh Purohit pipariya road District Raisen	06/2018-19	352.52	42	3	2	1	0.75
4		Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	3,350.61	4,177.86	17	0	17	4.25
5		Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	22/2016-17	2,149.59	1,967.48	15	0	15	8.6
6	Indore	Construction of ROB near lal bagh railway station on Burhanpr Bhusawal railway section	17/2013-14	1519.07	981.91	38	8	30	4.44
7		Construction of ROB LC No.250 km 494-03-04 Ratlam Khandwa Section on Raoi Bazar, Loha Mandi near Gadiadda, Indore	02/2015-16	3278.06	2175.33	21	13	8	6.08
8		Construction of (High) submersible bridge across Maheshwari river at Maheshwar District Khargone	08/2014-15	630	576	12	2	10	2.64

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Value of work done and paid to contractor (₹ in lakh)	No. of exploratory boring as per provisions	No. of exploratory boring as per execution	Shortfall in exploratory borings	Amount paid (₹ in lakh)
9		Construction of Submersible Bridge across Gambhir River on Betma – Kalmer Road, District Indore	16/2015-16	666.99	645.43	10	4	6	2.45
10		Construction of Road Fly over Bridge at Teen Imli Square (Ring Road) District Indore	23/2012-13	2,861.93	3,035.92	22	13	9	3.46
11		Construction of Submersible bridge across Khan river near on Guran Darjkaradiya Tarana road near village Darjkaradiya Tehsil aswer Distt. Indore. Under C.R.F	06/DL/2015-16	277.36	189.51	6	2	4	0.76
12	Jabalpur	Construction of additional works for Shakkar river bridge on Kalyanpur Chandan kheda road District Narsinghpur (Village road) (NABARD)	13/2013-14	636.26	574.29	17	2	15	1.47
13		Construction of Submersible Bridge across Narmada River near Barman Mela Place on Barman Khurd-Barman Kareli road in Narsinghpur Dist	15/DL/2017-18	1057.91	1350.58	20	10	10	3.89
14	Rewa	Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	02/2017-18	682.24	676	4	0	4	0
15		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20) CRF	22/2018-19	4350.25	4,234	50	36	14	11.64
16		Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 4/6 Rewa District	01/2020-21	142.65	14.65	16	0	16	0
		Total		24,348.67	23,118.96	277	98	179	52.42

Appendix 3.9

Details of non-purchase of steel from Primary Producers

(Reference: Paragraph No. 3.4.3)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Qty of Steel used (MT)	Amount Paid to contractor for steel (₹ in lakh)	Whether invoices were produced to audit	Whether produced invoices were of primary producer	Name of Dealers	Value of work done and paid to contractor (₹ in lakh)	Whether Completed or Ongoing
1	Ujjain	Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam	21/2013-14	804.15	335.083	254.66	Yes	No	Sagar Steel Supplier Indore, Vijay Steel centre Jabalpur	845.89	Completed
2		Construction of Submersible Bridge across including approach road cross kalisindh river in Km 12/10 of Bercha-Sunsdarshi-Akodia road	09/2016-17	594.5	217.377	122.53	Yes	No	M/s Bahubali Trading Company Indore, Balaji Enterprise Shajapur, Shivangi Rolling Mills Pithampur	291.27	Ongoing
3	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	111/2012-13	3,351	2200.342	1079.1	No	No	No Invoices	4178	Ongoing
4		Construction of Submersible bridge across Tenduni River in km 4/350 on the Guradia Panjra Vijay Singh	06/2018-19	352.52	20.786	10.18	Yes	No	Jai Bhole Steel Raisen Road Bhopal, Shri Mekalsuta Traders Bareli Raisen	42	Ongoing

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Qty of Steel used (MT)	Amount Paid to contractor for steel (₹ in lakh)	Whether invoices were produced to audit	Whether produced invoices were of primary producer	Name of Dealers	Value of work done and paid to contractor (₹ in lakh)	Whether Completed or Ongoing
		Purohit pipariya road District Raisen									
5		Construction of Basoda ROB at Railway crossing No. 288 of Bhopal-Bina section under CRF Scheme	03/2015-16	3883.12	2120.913	1524.8	No	No	No Invoices	3386.61	Ongoing
6		Construction of Railway Over Bridge in lieu of level crossing No.249A Subhash Phatak at Subhash Nagar in Bhopal district	22/2016-17	2,149.59	1284.764	656.01	No	No	No Invoices	1967.48	Ongoing
7		Construction of High Level Bridge across Tawa river at Rajdhog on Sarni-Loniya Road including approach road in Betul District (MP)	29/2015-16	972.85	961.76	212.22	No	No	No Invoices	172.51	Ongoing
8	Indore	Construction of Submersible bridge across Khan river near on Guran Darjekaradiya Tarana road near village Darjekaradiya Tehsil aswer Distt. Indore. Under C.R.F	06/DL/2015-16	277.36	105.64	71.68	Yes	No	M/sArihant Steels, Indore, M/s Steel Homes, Indore.	189.51	Completed
9	Jabalpur	Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti	03/2015-16	566.56	17.46	13.15	No	No	No Invoices	1,420	Completed

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Qty of Steel used (MT)	Amount Paid to contractor for steel (₹ in lakh)	Whether invoices were produced to audit	Whether produced invoices were of primary producer	Name of Dealers	Value of work done and paid to contractor (₹ in lakh)	Whether Completed or Ongoing
		Road including approach Road, District Balaghat									
10		Construction of R.O.B. in Lieu of Level Crossing No. 276 Railway K.M. 904/3-4 between Itarsi-Manikpur Section at Narsinghpur Chhindwara Road in, District Narsinghpur.	06/2017-18	1,510.03	1152.05	631.81	No	No	No Invoices	1,613.23	Ongoing
11		Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	06/2013-14	284.54	171.153	123.6	No	No	No Invoices	308.61	Completed
12		Construction of Railway over bridge (ROB) cum fly over Jabalpur road to Mission chowk to Chandak chowk in Katni district (LC-NX-115 Katni-Bina section)	08/2018-19	5467.34	2431.504	1215.5	No	No	No Invoices	6327.72	Ongoing
13		Construction of Submersible Bridge across Budner River on Ghughri- Sailwara road in Mandla Dist.	02/2018-19	728.87	472.85	261.45	Yes	No	Tapa marketing Mandla, Ananth metalics chhattisgarh	688	Ongoing

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Qty of Steel used (MT)	Amount Paid to contractor for steel (₹ in lakh)	Whether invoices were produced to audit	Whether produced invoices were of primary producer	Name of Dealers	Value of work done and paid to contractor (₹ in lakh)	Whether Completed or Ongoing
14		Construction of ROB on Railway Km 997/3-4 across LC no. 319 A between Jabalpur and Adhartal station on Jabalpur Katni Section	03/2016-17	1635.48	1155.86	634.14	No	No	No Invoices	1847.96	Ongoing
15		Construction of High level Bridge across Narmada River on Narsinghpur- Kerpani Road i/c Approach road & Protection Work (CRF)	07/2016-17	1993.29	1564.28	1043.7	No	No	No Invoices	2323.27	Completed
16		Construction of high level bridge across wainganga river on Puni to Batarmara road in Balaghat district	06/2018-19	1642.44	722.027	392.53	No	No	No Invoices	1,420	Completed
17	Rewa	Construction of high level bridge including approach road across umrar river on baran mahgwan sutari kharahata road district Katni	17/2015-16	428.54	169.375	109.92	No	No	No Invoices	307.42	Ongoing
18		Construction of High Level (Box Type) Bridge excluding approach road Across Jhapar River on Barkachh Beohari Road Distt, Shahdol	24/2016-17	249.45	112.1519	52.53	Yes	No	Pawan Traders, Shahdol	209.42	Ongoing

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Qty of Steel used (MT)	Amount Paid to contractor for steel (₹ in lakh)	Whether invoices were produced to audit	Whether produced invoices were of primary producer	Name of Dealers	Value of work done and paid to contractor (₹ in lakh)	Whether Completed or Ongoing
19		Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	11/2016-17	216.78	75.1891	36.24	No	No	No Invoices	221.96	Completed
20		Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	04/2010-11	159.86	80.8932	35.87	No	No	No Invoices	158.57	Completed
21		Construction of (Balance work) high level bridge including approach road across Bihar river on Sirmour Semariya road, in Km 6/4 Rewa District	01/2020-21	142.65	10.646	4.81	No	No	No Invoices	14.65	Ongoing
22		Construction of 11.46 Km CC road i/c flyover at SamanTiraha near new bus stand in the Rewa city portion from Km 229/2 to Km 243/2 of Old NH No. 7 (MDR no. 10-20)CRF	22/2018-19	4350.25	2161.622	1352.52	Yes	No	Prakash Enterprises, Rewa, Prakash Hardware, Rewa, Vibhuti Trade Private Limited, Wardha, Vindhya Iron products Rewa, Aradhana Trading Cooperation, Satna	4,234.32	Completed
		Total		31,761.17	17543.73	9,838.95				32,168.40	

Appendix 4.1

Details of non-construction of approach roads and carriage ways in tandem with the bridge structure

(Reference: Paragraph No. 4.2.1)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Value of work done (₹ in lakh)	Status of work	Date of completion of Bridge proper	Status/Date of completion of Approach road	Delay in completion of Approach road in months	Audit date
1	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	High level	111/2012-13	4,178.00	Ongoing	20-11-2019	Not completed	13	30-10-2020
2		Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore	Submersible	104/2017-18	372.14	Ongoing	26-04-2018	Not completed	38	30-06-2021
3	Rewa	Construction of submersible bridge including approach road across myar river on Chachar-Kulhai (Kulhaniya) road district Singrauli	Submersible	24/2015-16	629.44	ongoing	15-04-2018	Not completed	41	30-09-2021
4		Construction of high level bridge including approach road across umrar river on baran mahgwan sutari kharahata road district Katni	High level	17/2015-16	307.42	ongoing	16-12-2018	Not completed	24	30-09-2021
5	Ujjain	Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur.	Submersible	22/2013-14	451.56	Completed	17-11-2017	31-12-2018	12	30-03-2021
6		Construction of High level bridge across Kalisindh river at Kamlapur Samangi road at district Dewas	High level	13/2013-14	491.88	Completed	01-05-2016	31-12-2016	8	30-03-2021
Total					6430.44		Delay in range	8 months to 41 months		

Appendix 4.2

Details of non-execution of road furniture and safety items

(Reference: Paragraph No. 4.2.2)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Actual Completion	Amount of work done (₹ in lakh)	Name of Items in Estimate but not Executed
1	Ujjain	Construction of Railway over bridge in lieu of LC No.29A Ujjain Bhopal Section Km 57/38-40 on MR-5 road of Ujjain city Ujjain.	ROB	15/2013-14	1,506.74	24-03-2016	2,697.08	SOR item No. 8.90 Painting lines, dashes arrows etc. on roads , item No.8.40 retro-reflectorised signs, item No.8.60 Direction and place identifications signs and item No. 8.24 “Road markers/road stud with lense reflector
2		Construction of Railway Over Bridge at Railway L.C. No. 25 (K.M.51/22-24) of Nagda-Ujjain section and L.C. No. 8 M.G. Rail section of Fathehabad on Badnagar Road Ujjain District Ujjain	ROB	28/2013-14	1,928.96	27-02-2016	3,490.50	SOR item No. 8.4 retro-reflectorised cautionary And item no. 8.6 Direction and Place Identification signs
3		Construction of High level bridge across Kalisindh river at Kamlapur Samangi road at district Dewas	High level	13/2013-14	425.84	31-12-2016	491.88	SOR Item No.8.40 retro-reflectorised traffic signs, item No.8.60 Direction and place identifications signs and item No. 8.18 “Tubular Steel Railing on Medium weight steel channel, SOR item no. 8.7 Painting two coats
4		Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	Submersible	10/2013-14	936.12	26-02-2016	1,373.33	No Provision in the Estimate, No execution
5		Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist.	Submersible	21/2013-14	804.15	22-08-2017	845.89	No Provision in the Estimate, No execution
6	Bhopal	Construction of High level bridge across Betwa river on Ashapuri Khasrod Salkani to Wardhmn	High level	132/2013-14	1,630.46	06-02-2017	1,197.00	Traffic sign and bridge furniture
7	Indore	Construction of Submersible Bridge across Gambhir River on Betma – Kalmer Road, District Indore	Submersible	16/2015-16	666.99	30-11-2016	645.43	SOR item No. 8.4 retro-reflectorised Traffic signs, retro-reflectorised cautionary, mandatory and informatory sign board, fixed to the post with four minimum four number breakway bolts.

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Date of Actual Completion	Amount of work done (₹ in lakh)	Name of Items in Estimate but not Executed
8		Construction of High level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone	High level	25/2018-19	850.37	13-06-2021	736.09	item no. 8.4 Retro-reflectorised Traffic signs Providing and fixing of of retro-reflectorised cautionary, mandatory and informatory sign SOR item 8.25 Metal beam Crash Barrier
9	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaon Road, District Balaghat.	Submersible	41/2013-14	1,108.47	31-12-2016	1,049.26	SOR item no. 8.6 Direction and Place Identification signs
10		Construction of Submersible Bridge across Budner River on Ghughri-Sailwara road in Mandla Dist	Submersible	06/DL/2013-14	284.54	Ongoing	688.25	No Provision in the Estimate, No execution
11		Construction of High Level Bridge across Pench River on Charaikala-Darbai Road Dist Chhindwara	High level	08/2012-13	529.28	30-12-2018	629.79	No Provision in the Estimate, No execution
12	Rewa	Construction of Submersible Bridge including approach road across Kunuk River on Bhatiya – Bhogoda Road, District Shahdol	Submersible	6 /2010-11	160.63	30-09-2015	161.9	No Provision in the Estimate, No execution
13		Construction of ROB at chainage 17250 M on SH-09, Rewa-Sidhi-Shahdol Road in connection with Rewa-Sidhi New B.G. Rail line Project	ROB	02/2017-18	682.24	Ongoing	676	No Provision in the Estimate, No execution
14		Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	Submersible	11/2016-17	216.78	23-03-2020	221.96	No Provision in the Estimate, No execution
15		Construction of ROB on Varanasi-Nagpur Road (NH7) near Railway Station Rewa at Railway Chainage 890 meter across Rewa-Sidhi, new Railway line at Godhar, Rewa	ROB	01/2018-19	3401.35	Ongoing	2,514.24	No Provision in the Estimate, No execution
16		Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	Submersible	04/2010-11	159.86	30-11-2016	158.57	No Provision in the Estimate, No execution
		Total			15,292.78		17,577.17	

Appendix 4.3

Details of bridge works having no footpath

(Reference: Paragraph No. 4.2.3)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Whether constructed in the city/urban areas	Whether footpath/ kerb was the part of estimate	Whether footpath / kerb was executed	Value of work done (₹ in lakh)
1	Ujjain	Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	Submersible	10/2013-14	936.12	Yes	No	No	1,373.33
2		Construction of Railway over bridge in lieu of LC no 177 (Ratlam Chanderia rail section km 341/6-7) at Jaora city District Ratlam	ROB	34/2018-19	1,358.06	Yes	No	No	93.98
3		Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	Submersible	01/2015-16	1,104	Yes	No	No	946.35
4		Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist.	Submersible	21/2013-14	804.15	Rural/ Near Habitation	No	No	845.88
5	Bhopal	Construction of High level bridge across Narmada river near Awalighat on Salkanpur-Dharamkundi road i/c approach road and protection work District Sehore	High level	111/2012-13	3,351	No	No	No	4,177.86
6	Indore	Construction of High level Bridge across Kunda River on Khandwa – Barwani Road, District Khargone	High level	25/2018-19	850.37	Yes	No	No	736.09
Total					8,403.70				8,173.49

Appendix 4.4

Details of execution of safety Kerb with an inadequate width

(Reference: Paragraph No. 4.2.4)

Sl No.	Name of Work	Name of Division	Type of Bridge	Overall width of Bridge	width of carriage way	width of Kerb executed including	As per provision, the width of Kerb either side
1	Construction of Submersible Bridge at Bah river on Jamusar Kala to Kaddyashah road	Bhopal	Submersible	8.4	7.5	0.45	0.75
2	Construction of High Level Bridge across PENCH River on Charaikala-Darbai Road Dist Chhindwara	Jabalpur	High level				
3	Construction of High Level Bridge at Narmada river at Salknapur-Dharamkundi road on Awalighat	Bhopal	High level				
4	Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	Ujjain	Submersible				
5	Construction of Submersible Bridge across on Dhamad river from Matia to Andheriya road	Rewa	Submersible				

Appendix 4.5

Details of submersible bridges in which road users' safety was overlooked

(Reference: Paragraph No. 4.2.6)

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Value of work done and paid to contractor (₹ in lakh)
1	Bhopal	Construction of Submersible bridge across Tenduni River in km 4/350 on the Guradia Panjra Vijay Singh Purohit pipariya road District Raisen	06/2018-19	352.52	11-09-2018	42.00
2	Bhopal	Construction of Submersible Bridge and Approach Road across Bah River on Jamusar Kalan - Kaddya Shah Road in Bhopal Dist	30/2015-16	911.51	31-12-2015	916.35
3	Bhopal	Construction of 03 Bridges on Soya-Chaupal to Housing Board Colony Road, CH.3100, 4500 and 5910 m Dist Sehore	104/2017-18	498.88	27-04-2017	372.14
4	Bhopal	Construction of Submersible Bridge in Betul Dist. From Kharpi to Muktagiri 6/4 km Naag River HL bridge	134/2013-14	280.80	08-08-2013	198.49
5	Bhopal	Construction of Submersible Bridge Across Nalla near Chatehedi in Km 8/4 & Bah river in Km 5/4 on Bairasiya-Dhakpur-Chatehedi-Godakala road in Bhopal District	26/2015-16	700.00	08-12-2015	655.53
6	Bhopal	Construction of Submersible Bridge including approach road Across Tenduni river on Magardha-Sirawada road in Raisen District	11/2016-17	537.36	12-05-2016	438.55
7	Bhopal	Construction of Submersible bridge from Shuthar to Andia Road on Newan River Dist- Vidisha	13/2015-16	134.50	05-10-2015	101.85
8	Indore	Construction of High submersible bridge across Maheshwari river at Maheshwar District Khargone	08/2014-15	629.99	29-01-2015	575.57
9	Indore	Construction of Submersible bridge across Temi Nalla in km 13/4 on Khandwa Kalmukhi Road Distt. Khandwa	25/2013-14	227.70	02-08-2013	182.49
10	Indore	Construction of Submersible bridge across Khan river near on Guran Darjkaradiya Tarana road near village Darjkaradiya Tehsil aswer Distt. Indore. Under C.R.F.	06/2015-16	277.36	18-04-2016	189.51
11	Indore	Construction of Submersible Bridge across Gambhir River at Bhaislai-Mahu road	02/2013-14	248.70	16-05-2013	184.48
12	Indore	Construction of submersible bridges across Tapti river near Jainabad village (at Rajghat Burhanpur) district Burhanpur (NABARD)	13/2016-17	1,114.47	21.07.2016	1,191.86

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Value of work done and paid to contractor (₹ in lakh)
13	Indore	Construction of Submersible Bridge Across GOI River On Kalapt-Ghudchal-Pipliyagoi Road Distt, Badwani	06/2018-19	316.43	08-09-2018	137.53
14	Jabalpur	Construction of Submersible Bridge across Doriya Nalla on Jamuntola – Chakaheti Road including approach Road, District Balaghat	03/2015-16	566.56	15-10-2015	464.93
15	Jabalpur	Construction of Submersible Bridge across Son River on Bahmangaon – Pangaob Road, District Balaghat	41/2013-14	1,108.47	03-09-2013	1,049.26
16	Jabalpur	Construction of Submersible bridge across Narmada river on Rai Malpur Road near Dungariya village in Dindori District	12/2015-16	666.84	22-12-2015	563.44
17	Jabalpur	Construction of Submersible bridge across Thawar river on Bijegaon-Keolari Road in Mandla District	06/DL/2013-14	284.54	08-08-2013	308.61
18	Jabalpur	Construction of Submersible Bridge across Budner River on Ghughri- Sailwara road in Mandla Dist.	02/2018-19	728.87	19-04-2018	688.25
19	Jabalpur	Construction of Box type Bridge including approach road Across Umar River at Khobi-Deori-Mohas-Akola Road In Distt, Narsinghpur	01/DL of 2010-2011	105.08	01-04-2010	129.22
20	Jabalpur	Construction of Submersible Bridge and approach road Across Wainganga-river in Bakhari-Barra-Sadak Seoni Road including approach road & Protection work Distt Seoni.	34/DL /2013-14	481.43	11-07-2013	431.40
21	Jabalpur	Construction of Submersible Bridge across Narmada River near Barman Mela Place on Barman Khurd-Barman Kareli road in Narsinghpur Dist	15/DL/2017-18	1,057.91	23-01-2018	1,350.58
22	Rewa	Construction of submersible bridge including approach road across myar river on Chachar-Kulhai (Kulhaniya) road district Singrauli	24/2015-16	574.31	05-02-2016	629.44
23	Rewa	Construction of Submersible Bridge including approach road across Kunuk River on Bhatiya – Bhogoda Road, District Shahdol	06 /2010-11	160.63	23-12-2010	161.90
24	Rewa	Construction of Submersible Bridge across Dhamad River at Andheriya-Matiya Road in Singrauli Dist	11/2016-17	216.78	31-05-2016	221.96
25	Rewa	Construction of Submersible Bridge across SONE River at Rupoula Ghat on Khannaudhi – Manpur Road, District Umaria	24/2012-13	1,148.44	16-01-2013	1,049.26
26	Rewa	Construction of Submersible bridge including approach road across Kunuk river on Jheenk Bijuri Road in K.M. 14/6-8 District Shahdol	04/2010-11	159.86	23-12-2010	158.57

Sl. No.	Name of Division	Name of Bridge Work	Agreement No.	Contract Amount (₹ in lakh)	Date of Work Order	Value of work done and paid to contractor (₹ in lakh)
27	Ujjain	Construction of Submersible Bridge across Kshipra river connecting Vikrant Bhairav Temple to Okhleshwar Ghat District Ujjain	01/2015-16	1,103.93	04-05-2015	946.35
28	Ujjain	Construction of Submersible Bridge Across Newaj river on Bolda Hariai Kala Road District Shajapur.	22/2013-14	505.63	25-09-2013	451.56
29	Ujjain	Construction of Submersible Bridge and Approach Road across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road (Simhastha 2016)	10/2013-14	936.12	22-07-2013	1,373.33
30	Ujjain	Construction of Submersible Bridge and Approach Road across Mahi River on Raoti to Amarapur Road in Ratlam Dist.	21/2013-14	804.15	25-09-2013	845.89
31	Ujjain	Construction of Submersible Bridge including approach road across kalisindh river in Km 12/10 of Bercha- Sunsdarshi-Akodia road	09/2016-17	594.50	24-06-2016	291.27
Total				17,434.27		16,301.57

Appendix 4.6

Details of non-electrification of bridges and approach roads

(Reference: Paragraph No. 4.2.7)

Sl. No.	Name of Division	Name of Bridge Work	Type of bridge	Agreement No.	Contract Amount (₹ in lakh)	Whether provision of footpath was there	Whether provision of electrification was in estimate	Whether electrification was done on Bridge length	Whether electrification was done on Bridge approach road	Value of work done and paid to contractor (₹ in lakh)	Whether Completed or Ongoing
1	Ujjain	Construction of High-Level Bridge across Kshipra river i/c approaches on Alot-Unhle (Nageshwar) road in Km 5/2-8 District-Ratlam	High level	15/2015-16	1,289.30	Yes	No	No	No	1,531.65	Completed
2		Construction of Submersible Bridge across Kshipra River on Rinmukteshwar to Ranjeet Hanuman Mandir Road	Submersible	10/2013-14	936.12	No	electrification on approach road only	No	Yes	1,373.33	Completed
3	Bhopal	Construction of High level bridge across Betwa river on Ashapuri Khasrod Salkani to Wardhman	High level	132/2013-14	1,630.46	Yes	No	No	No	1,197.00	Completed
		Total			3,855.88					4,101.98	

Glossary	
AA	Administrative Approval
BOQ	Bill of Quantity
CE	Chief Engineer
DLC	Dry Lean Concrete
DPR	Detailed Project Report
EE	Executive Engineer
E-in-C	Engineer in Chief
FL	Formation Level
GAD	General Arrangement Drawing
GL	Ground Level
GSB	Granular Sub-Base
HFL	High Flood Level
HLB	High Level Bridge
IDEA	Interactive Data Extraction and Analysis
IRC	Indian Road Congress
IS	Indian Standards
MDR	Major District Road
MJB	Major Bridge
MNB	Minor Bridge
MORTH	Ministry of Road Transport & Highways
MPPWD	Madhya Pradesh Public Works Department
NHDC	Narmada Hydroelectric Development Corporation
ODR	Other District Road
OFL	Ordinary Flood Level
PQC	Pavement Quality Concrete
RL	Road Level
ROB	Rail Over Bridge
RUB	Rail Under Bridge
SBC	Safe Bearing Capacity
SE	Superintending Engineer
TS	Technical Sanction
VR	Village Road
WBM	Water Bound Macadam
WMM	Wet Mix Macadam

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