Chapter 5 - Engineering – Open Line and Construction

The Engineering Department of Indian Railways is responsible for maintenance of all fixed assets of Indian Railways such as Tracks, Bridges, Buildings, Roads, Water supply, in addition to construction of new assets such as new lines, gauge conversion, doubling and other expansion and developmental works. Major policy decisions of the Engineering Department are taken by the Railway Board under supervision of Member Engineering who is assisted by Additional Member (Civil Engineering) and Additional Member (Works) and Advisor (Land & Amenities).

At Zonal level, the Engineering Department is headed by Principal Chief Engineer (PCE) under General Manager of the concerned Zonal Railway. The PCE is assisted by various chief engineers for track, bridge, planning, track machines, general matters etc. In addition, each Zonal Railway has a construction organization headed by a Chief Administrative Officer, Construction who is responsible for major construction works including survey works within concerned Zone and is assisted by various chief engineers (construction).

The total expenditure of the Civil Engineering Department during the year 2014-15 was ` 17,738.11 crore. During the year, apart from regular audit of vouchers and tenders, 1480 offices of Engineering department including Construction Organization of the Railways were inspected by Audit.

This Report includes two reviews viz., 'Elimination of unmanned level crossings in IR' and 'Procurement and utilization of stone ballast in IR'. These reviews focused on the efforts/ action taken by Railways in elimination of unmanned level crossings and assessment of requirement, procurement and utilization of stone ballast by Railways in effective and economic manner.

In addition, this Report includes 12 individual paragraphs related to poor planning in construction of Diesel Multiple Unit factory; delay in commissioning of siding facility; execution of traffic facility works without proper justification; non-realization of license fee from occupant of commercial plots/shops etc.

5.1 Elimination of Unmanned Level Crossings in Indian Railways

5.1.1 Introduction

Indian Railways (IR) system is unique and distinctive in character in view of limited line capacity and heavy passenger and goods traffic on tracks. Various systems in operation on IR are quite complicated and typically inter-dependent. As such, it is an enormous challenge for IR to make the whole system a safe and reliable system.

Road Traffic crosses the Railway Track either on "Grade Separated Crossing"[86] or at "Level Crossing"[87]. The level crossings (LCs) form an important part of the system. These are made to facilitate the smooth running of traffic in a regulated manner governed by specific rules and conditions. However, LCs also pose a major challenge in the operation of safe and reliable train services. The White Paper presented in Parliament in February 2015 noted that, the highest number of fatalities (70 *per* cent) in Railways occurs due to accidents at Unmanned Level Crossings (UMLCs) mainly on account of the negligence of road vehicle users in not observing the precautions laid down in the Motor Vehicles Act, while negotiating UMLCs. Thus, LCs are vulnerable points to accidents with resultant loss of life. Railways are removing the UMLCs by building Road Over Bridges (ROBs) and Limited Height Subways (LHSs) and through other prescribed methods[88].

As on 1st April 2014, 11,563 UMLCs still required to be eliminated. IR needed `39,001 crore to complete all the ongoing works of constructing ROBs, LHSs and elimination of all the remaining UMLCs. As on 1st April 2015, there was no significant change in the position as IR had 29447, LCs of which 19,059 (64.72 *per cent*) were manned and 10,388 (35.28 *per cent*) were unmanned. IR aimed to improve safety in the railway network through elimination of UMLCs.

5.1.2 Background

The Corporate Safety Plan (CSP – August 2003) emphasised the need for arresting the rising trend of accidents in LC gates. Taking note of the high percentage of fatalities in accidents at UMLCs, the CSP proposed steps to check them through provision of modified design of stop boards, whistle boards, road warning boards, speed breakers/ rumble strips, closing of UMLC by construction of RUBs etc.

[86] Road and rail at different Levels
[87] Intersection of Road and rail at same level
[88] Such as, closure of the UMLC if the TVU is less than 500, man the UMLC if the Train Vehicle Unit (TVU) is greater than 3000 or if TVU is greater than 2500 & visibility of UMLC to road user is less than 800 M, closure through construction of diversion road to nearest LC or Subway etc.

The Vision 2020 Statement of Railways (December 2009) observed that nearly 70 *per cent* of the fatalities in Railway mishaps took place at UMLCs. The Vision 2020 envisaged that UMLCs would be progressively manned or protected or replaced by Subways/ Road Over Bridges (ROBs)/ Road Under Bridges (RUBs) in five years' time (2010-15). Based on Vision 2020 Statement, RB issued instructions (May 2010) to Zonal Railways (ZR) to do an exercise to prepare a Five Year Master Plan for elimination of all UMLCs. By March 2011, a Five Year Action Plan was put in place.

Further, the High Level Safety Review Committee (HLSRC) headed by Shri Anil Kakodkar recommended (February 2012), *inter-alia*, the elimination of all UMLCs over a period of five years as well as non-introduction of new level crossings under any circumstances.

In the backdrop of Railway's objective to eliminate or protect all UMLCs over a period of five years, Audit reviewed the progress made by IR in achieving its goal of eliminating UMLCs. In the Audit Report No. 32 of 2011-12 (Railways) regarding "Safety works – Level Crossings, Road Over Bridges and Road Under Bridges", in Paragraph 3.3, the issues relating to UMLCs mainly dealt with were (i) shortfall in achievement of target for elimination of UMLCs, (ii) existence of substantial number of UMLCs in Rajdhani/ Shatabdi routes and other important routes such as A, B routes and (iii) safety improvement works at UMLCs.

In the Draft ATN relating to the above Report furnished by RB, it was stated (March 2015) that IR would endeavour to eliminate all UMLCs on Broad Gauge in a time bound manner. In regard to existence of UMLCs in Rajdhani/ Shatabdi routes and other important routes, the RB stated that, as on 1st April 2014 there were only 98 UMLCs on 'A' routes (SR -7, SCR-5, SER-79 and SECR-7).

5.1.3 Audit objectives

Audit reviewed performance of IR on 'elimination of UMLCs in IR' with the following objectives:-

- to assess whether effective and sustained efforts were taken for elimination of UMLCs and
- Whether prescribed protective measures were being taken at all the UMLCs.

5.1.4 Audit criteria

Provisions and instructions contained in the CSP (2003-2013), Vision 2020 Statement, the Five Year Master Plan, Report of High Level Safety Review

Committee headed by Shri Anil Kakodkar, provisions contained in Indian Railway Permanent Way Manual (IRPWM) and RB's instructions of August 2011, January 2012 and September 2011 on UMLCs and construction of Subway/RUB formed the criteria for conducting the Audit.

5.1.5 Scope of Audit and methodology

Though it is the endeavour of the IR to eliminate all LCs from their network, the scope of audit study was limited to coverage of the UMLCs and headway made in eliminating them, considering the serious risk posed by UMLCs to the safety of human lives and number of fatalities that have resulted from accidents at UMLCs in recent years. It is worthwhile to note that 625 casualties took place at UMLCs during the period 2012-13 to 2014-15.

Audit covered a period of three years viz., 2012-13 to 2014-15.Records available in Civil Engineering (CE), Signal and Telecommunication(S&T) and Safety departments in GM offices of Zonal Railways (ZRs) and of the Divisional Offices& Construction Organizations were reviewed. The methodology also included conduct of joint inspection with railway officials at selected UMLCs.

5.1.6 Sample size

The sample selection for the purpose of audit was as follows:

- Out of 1,114 UMLC works comprising of new works, works in progress and completed works during the period 2012-13 to 2014-15, 176 UMLC works were selected for detailed Audit study. The total UMLCs covered in 1,114 works were 6,053 out of which 2,639 were covered in the sample selected (176 works).
- Joint Inspection by Audit and Railway representative of 160 UMLCs was carried out. For this purpose, two Divisions were selected in each ZR
- General review of records in the selected two Divisions in each ZR to see the efforts made by Railway to educate road users in the safe use of UMLCs.

5.1.7 Audit findings

5.1.7.1 Elimination of UMLCs – Achievements against projections

The CSP envisaged (August 2003) manning of all UMLCs meeting the criteria for manning[89]. The Vision 2020 Statement (December 2009) envisioned that

[89]The criterion for manning was 6000 TVUs which subsequently was lowered to 3000 TVUs in 2011. Train Vehicle Unit (TVU) is total train vehicles per day (train units multiplied by road vehicle units) worked out by taking census for a week.

UMLCs would be progressively manned or protected or replaced by Subways/ ROBs / RUBs in the next five years'. The policy directives (2010) went further by stating that all UMLCs would be eliminated in the next five years. As per announcement in the budget speech of 2010, a special drive was launched to man all UMLCs in the coming five years. It was noticed in Audit that, though the Vision 2020 envisaged either elimination of UMLCs through manning/ other approved methods over five year period or to protect them, the Five Year Master Plan has no mention about protection of UMLCs which could not be eliminated.

RB communicated (May 2010) to all ZRs the policy directives issued by Hon'ble Minister of Railways (MR) for elimination of all UMLCs in the next five years. RB also directed (May 2010) Principal Chief Engineers (PCEs) of all ZRs to conduct a one-time exercise for preparing a Master Plan for it. The prescribed methods for elimination were elimination through closure of UMLC with low TVU)[90], manning of UMLC, closure of one UMLC through manning of adjacent UMLC or elimination through other prescribed methods, viz. construction of normal height subway/limited height subway/ROB/diversion road to another LC or to ROB/RUB.

As a follow up of the Vision 2020 Statement, RB prepared (March 2011), a Five Year Master Plan for elimination of UMLCs based on inputs provided by ZRs. It envisaged that out of 16,125 UMLCs that existed over IR at the commencement of the Five Year Plan (2010), over 11,000 UMLCs would be eliminated by 1st April 2015.

While seven ZRs (CR, ECoR, NFR, NWR, SCR, SECR, and WCR) had identified (2010) all UMLCs in their jurisdiction as eligible for elimination, and the other nine ZRs (ECR, ER, NER, NR, SER, SR, SWR, NCR and WR) envisaged that the closure of significant number of UMLCs in their ZRs was not possible under any approved method.

Particulars of elimination of UMLCs by 31 March 2015 are depicted in the table 5.1 below:

[90] Train Vehicle Unit (TVU) is total train vehicles per day (train units multiplied by road vehicle units) worked out by taking census for a week. Train, road vehicle, bullock carts and Tongas are considered as one unit and cycle rickshaw/ auto rickshaw being considered as half unit.

Table 5.1

ZRs	No. of UMLCs at the beginning of Five Year Plan Period (April 2010)	No of UMLCs planned for elimination in the Five Year Plan	No. of UMLCs - beginning of Review period (April 2012)	UMLCs eliminated during Five Year Plan period	UMLCs as of 31 March 2015	Percentage of elimination as against that planned in Five Year Plan	Percentage of elimination against total at the beginning of Five Year Plan
1	2	3	4	5	6	7	8
CR	139	139	175	80	59	58	58
ECoR	670	670	690	198	472	30	30
ECR	1464	817	805	728	736	89	50
ER	342	315	316	241	101	77	70
NCR	508	310	461	130	378	42	26
NER	1588	1538	1383	531	1057	35	33
NFR	970	970	743	380	590	39	39
NR	1723	1441	1371	678	1045	47	39
NWR	1396	1396	1208	339	1057	24	24
SCR	1099	1099	879	583	516	53	53
SECR	672	672	573	229	443	35	35
SER	949	449	829	323	626	72	34
SR	1151	429	1016	438	713	102	38
SWR	681	407	662	249	432	61	37
WCR*	262	262	201	224	38	85	86
WR	2511	716	2382	386	2125	54	15
Total	**16125**	**11630**	**13694**	**5737**	**10388**		

*since achieved 100 *per cent*;

Audit examined the adherence to the five year plan and progress on elimination of UMLCs and observed the following:

- At the beginning of Five Year Master Plan (2010-15), 16,125 UMLCs existed over IR out of which 11,630 UMLCs (72 *per cent*) only were planned (May 2010) for elimination. The remaining 4,495 UMLCs **(**28 *per cent*) were kept out as "cannot be closed" as per the following zonal breakup-

  WR - 1795, SR-722, ECR- 647, SER- 500, NR- 282, SWR- 274, NER- 50, ER- 27 and NCR-198

  - Contrary to Railways' assessment as "cannot be eliminated" in SR all the remaining UMLCs were eligible for elimination through one or more methods. In the remaining seven ZRs, substantial number of

UMLCs was eligible for elimination through one or more methods (WR-93 *per cent*, SER- 78 *per cent*, ER- 74 *per cent*, NR-72 *per cent*, ECR-69 *per cent*, SWR-65 *per cent* and NER-33 *per cent*).

- The initial planning for framing of the Five Year Master Plan in different ZRs was weak, inadequate, unrealistic and without proper investigation of site. The following are illustrative instances from ZRs:
  - SR projected (April 2010) the number of UMLCs belonging to category "cannot be eliminated'' as 722 Nos. Audit, however, observed in March 2015 that there were 254 UMLCs which had TVU less than 500 as per the last census and hence were eligible for outright closure.
  - SR planned to eliminate during 2010-15, 16 UMLCs through construction of diversion road to adjacent LC/ROB/RUB. But, 22 UMLCs were eliminated in three years. Similarly in ER, although no UMLC was projected for elimination through construction of diversion road to adjacent LC/ROB/RUB, four UMLCs had been eliminated during three years.
  - The Five Year Plan for SR proposed to eliminate 26 UMLCs through construction of Subways in five years. However, they completed 57 Subway works during three years itself. In ER, as against the planning to eliminate 29 UMLCs over five year period, 47 UMLCs had been eliminated through construction of Subways in three years.
  - SR and ER Administrations planned to close 29 and 101 UMLCs respectively for low TVU (TVU less than 500) during five year period. However, against their planning, they closed 108 UMLCs and 103 UMLCs respectively on this account in three years.
- On IR, at the beginning of the Five Year Master Plan (April 2010) and at the beginning of review period (April 2012), there were as many as 16,125 and 13,694[91] UMLCs respectively. The number of UMLCs at the end of review period i.e. March 2015 was 10,388 UMLCs. Thus, 5,737 UMLCs were eliminated during the Five Year Master Plan period leaving a balance of 10,388 UMLCs (64 *per cent*).
- Keeping in consideration the planned elimination of 11,630 UMLCs during five year period of Master Plan, the number of UMLCs to be eliminated during the review period on a pro rata basis came to 6,978 UMLCs.

[91]As per figures collected from ZRs

However, out of this, IR was able to eliminate 3,415 UMLCs only (49 *per cent*).

- The manning/ elimination of all UMLCs and provision of ROBs/RUBs in lieu of manned LCs with heavy traffic density in a time bound manner was a commitment of Railways (Budget speech 2014-15). However, the time frame within which all UMLCs were to be manned/ eliminated was not clear from the records available at RB and GM offices of ZRs.

- It is noteworthy that WCR became the first ZR where all UMLCs (118 Nos) had been eliminated by August 31, 2015. In four ZRs (CR, ECR, ER and SCR) the percentage of elimination ranged from 50 to 70 *per cent* and in 11 ZRs (ECoR, NCR, NER, NFR, NR, NWR, SECR, SER, SR, SWR and WR) less than 40 *per cent.*

5.1.7.2 Elimination of UMLCs through manning and other methods

Annual target for elimination of UMLCs through "Manning" and through "Other methods'' are fixed separately by RB based on proposals received from ZRs.

Audit examined in detail the target fixed and achievements there against over IR during the three year period viz., 2012-13 to 2014-15 in respect of "Manning" and elimination of UMLCs through "Other methods". Results of Audit examination are furnished below:

- During the years under review, against the target of elimination of 4,234 through manning or adopting other methods, 3,415 UMLCs (81 *per cent)* were eliminated leaving a shortfall of 19 *per cent*. The category-wise annual targets and achievements were as under-

Table No.5.2 Target and achievement in elimination of UMLCs

Year	2012-13		2013-14		2014-15		Total	
Elimination category	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment
Manning	1,101	459	495	330	348	423	1,944	1,212
Other methods	670	722	857	766	763	715	2,290	2,203

(Figures consolidated using the data obtained from the 16 zones)

- There was a decreasing trend in annual targets fixed by the RB for manning the UMLCs during 2012-13 to 2014-15. The target in 2013-14 (495) was 45 *per cent* of target for 2012-13 (1101). In this connection, Audit observed that in view of shortage of manpower for manning the UMLCs, Railway Board had ordered (March 2012) that on locations where works for creating infrastructure for manning of UMLCs had not commenced Railway should

not take up manning works until creation/sanction of requisite posts of Gatemen. Thus, indecisiveness in the creation/ sanction of Gateman posts was a factor causing reduction in fixation of annual targets.

- Though monitoring of progress in elimination of UMLCs through periodical progress reports was taking place at RB level, the linking of annual targets with the implementation of five year Master Plan was not evident.

5.1.7.3 Inadequate progress in elimination of UMLCs

Audit analysed the factors which might have impacted the achievement of the objectives of elimination of UMLCs. Results of analysis of records related to the selected sample are discussed in subsequent sub-paragraphs:

Allocation of Funds

No Plan can be implemented without assurance of adequate and timely availability of funds. A Railway Safety Fund (RSF) was set up with effect from April 2001 primarily to channelize the Railways' share of diesel and petrol cess, receivable under the Central Road Fund, for road related railway safety works such as construction of road over/under bridges, subways and for the improvement to level crossings including their manning, interlocking etc. The Railways get a share of petrol and diesel cess along with two other Ministries, viz. Ministry of Rural Development and Ministry of Road Transport and Highways. In IR two separate plan heads, viz. Road Safety Works - LCs and Road Safety Works-ROBs/RUBs have been created for budgeting, accounting and monitoring of execution of these works.

Audit observed that the documents related to raising of demands for funds by the ZRs to eliminate all UMLCs in IR network by March 2015 were not available.

The requirement of funds for elimination of UMLCs over five years had been arrived at by RB as ` 10,032 crore for elimination of 10,797 UMLCs in October 2012 as furnished below:

Table No 5.3 - Requirement of funds for elimination of UMLCs

Method for elimination of UMLCs in five years	Number	Requirement of funds (` in crore)
Closure of LCs having low TVU	1,523	152
Closure of LCs by manning adjacent level crossing	210	42
Merger of level crossing s by construction of	902	45

diversion road		
Construction of subways	2,608	7,824
Full height RUB	58	870
Manning	5,496	1,099
Total	**10,797**	**10,032**

As against this, MoR made available to ZRs funds amounting to ` 6,000.75 crore during 2012-13 to 2014-15 under Plan Head 29 and Plan Head 30 (voted). Details of funds provided and actual expenditure during 2012-13 to 2014-15 are in **Annexure-II.**

Table No. 5.4 - Details of amounts voted under Plan Head 29 and 30

Funds	2010-11	2011-12	2012-13*	2013-14*	2014-15*
Budget grant under PH 29 and 30	1,698	1,998	1922.93	1925.58	2152.24
Final grant under PH 29 and 30	1,250	1,456	1605.72	2013.73	2216.64
Extent of budget foregone through lesser final grant	448	542	317.21	-88.15	-64.40
Actual expenditure	1,101	1,328	1500.11	1986.71	2139.97
Surrender as against final grant	149	128	105.61	27.02	76.67

**Figures for the review period viz., 2012-13 to 2014-15 are based on details collected from ZRs records and for the earlier two years (2010-11 & 2011-12) the same have been adopted using data available in the Appropriation Accounts.*

Audit observed that:

- MoR estimated that funds required over and above the budget provisions to eliminate UMLCs would be ` 11,000 crore and requested (August 2014) Ministry of Finance (MoF) to provide it which was not agreed to. MoR further requested (February 2015) to enhance the allocation of fund out of Central Road Fund (CRF) through amendment in the CRF Act to enable IR to eliminate all UMLCs (cost expected-` 20,700 crore). Also, as per estimates in White Paper (February 2015), IR needed `39,001 crore to complete all the ongoing works for elimination of all the remaining UMLCs.

  However, during the five Year Master Plan, in none of the years the allocation under Plan Heads 29 and 30 exceeded ` 2,217 crore. Keeping in consideration the estimated funds required over and above the budget allotment and also the estimates incorporated in the White Paper, the funds

made available every year were much less. Thus, the resources provided were inadequate to ensure elimination of UMLCs within five years.

- Unless the Railway's share of funds from the Road Safety Fund (RSF) is increased significantly, it would be a difficult task for IR to achieve the objective of eliminating all UMLCs even within the next few years. IR has requested MoF for a grant for a second phase of Special Railway Safety Fund (SRSF) to undertake works recommended by the Kakodkar Committee.

Surrender of Funds

Allotment of funds should be followed by adequate utilisation of the same. . RB took a serious view of under-utilisation of funds by ZRs (March 2012). They emphasised the need for utilisation of allotted funds on elimination/up-gradation works and stated that underutilisation of funds despite the large number of works sanctioned in ZRs and requisite powers having been delegated to ZR Administration was a cause of concern and attracted severe criticism from authorities such as the Planning Commission and Parliamentary Standing Committees.

In a reply given (April 2015) to a Parliamentary Standing Committee, RB mentioned the overall position of underutilisation of funds by ZRs on UMLCs including other road safety works stood at 22 *per cent* during 2012-13, one *per cent* during 2013-14 and 19 *per cent* during 2014-15 (till end of February 2015).Thus, ZRs did not ensure utilisation of total available funds indicating that constraints in the elimination of UMLCs, as discussed below have not been suitably addressed by RB to enable execution of works by the ZRs.

Audit examined the utilisation of funds under the two Plan heads (PH 29 and PH 30) and noted that:

- It can be seen from Table 5.4 that funds to the extent of ` 164.67 crore were foregone during three years review period at Final Grant stage. The net surrender during these years after incurring expenditure was ` 373.98 crore and ` 209.30 crore respectively with reference to Budget Grant and Final Grant respectively.
- Among the ZRs, the surrender of funds at the stage of Final Grant was ` 253.87 crore in NWR, ` 87.20 crore in ECR, ` 41.67 crore in WCR and ` 37.44 crore in ECoR. As regards surrender due to less Actuals, SER

showed the highest surrender at ₹70.77 crore followed by NR at ₹43.10 crore, WCR-₹26.95 crore, NFR-₹25.51 crore, NCR-₹23.23 crore, WR-₹17.55 crore, SCR-₹15.25 crore, ER-₹12.31 crore, ECoR-₹9.20 crore, ECR-₹7.85 crore, SWR-₹5.30 crore and NER-₹2.59 crore.

While there was inadequate allocation of funds to eliminate UMLCs, Audit observed that a substantial amount of allotted funds were surrendered.

5.1.7.4 Constraints in Manning and elimination of UMLCs

Major constraints in the Manning of UMLCs was non-availability of Gateman posts and in regard to closure through other methods, the constraint was mainly resistance from public and resultant non-approval of proposal bycivil authorities.

Non-availability of personnel for manning

As brought out in paragraph 5.1.7.2 earlier, the shortfall in achievement against the target for eliminating UMLCs through manning was relatively higher. ZR Administrations generally attributed the shortfall in achievement to non-creation / non-sanction of posts of Gatemen. The infrastructure works for manning, wherever not commenced, were not to be taken up without ensuring creation/sanction of requisite posts of gateman. Various ZRs had taken up with RB the need for creation of Gatemen posts to man the identified UMLCs. Audit noticed following specific cases:

- Generally the main reason for non-manning of UMLC was non-availability of Gatemen. However, on WR there was other reason also. RB approved (2009-10) elimination of 480 UMLCs through 'Manning'. Zonal Authority initially sanctioned manning (February 2012) of 153 UMLCs. In case of 15 UMLCs (Vadodara Division), even after a period of more than three years, tenders for works for infrastructure had not been floated. There was nothing on records to indicate that these UMLCs were reviewed subsequently for consideration under any other method of elimination.

- In fact, the targets fixed by RB were for manning the UMLCs with simultaneous generation and filling of posts of Gatemen. Although ZRs sent their proposals to create posts of Gatemen for manning UMLCs, those were not entertained by RB. This resulted in mismatch between the

expected elimination through manning vis-à-vis the actual availability of resources and led to the need for considering other interim measures[92].

- As per RB instructions (August 2011), a UMLC can be 'manned' if the TVU exceed 3000. It further provided that a UMLC can be manned even if the TVU is more than 2500 & visibility of the UMLC to the road user is less than 800 M. However, in IR, 1,161 UMLCs with TVU more than 3,000 and 409 UMLCs with TVU more than 2,500 & visibility of UMLC to road users less than 800 M remained to be eliminated though they were eligible for 'manning', mainly due to shortage of manpower as discussed time and again between ZRs' Administration and RB.

5.1.7.5 Resistance from public against closure of UMLCs

As per RB's orders (September 2011), besides manning, an UMLC can be eliminated by adopting other methods also[93]. In many ZRs, non-availability of approval of Civil Authorities for closure of UMLCs due to resistance from public on account of various reasons affected the elimination process. Some instances where, UMLCs although satisfied the criteria for elimination, could not be closed mainly due to public protest, are given below:

- Over IR, 3231 UMLCs had TVU less than 500. IR could not close them due to public protest against closure.
- On IR, 3123 UMLCs out of 10,388 UMLCs had been identified feasible for replacement by way of subways. However, the pace of elimination through construction of subways was slow as IR could only execute 315 subways per annum on an average. It was observed that subways with dimensions proposed by IR were considered unsuitable by the road users, particularly at places where agricultural produces/implements were transported from one side to the other. This resulted in Public protests across all ZRs affecting execution of subway works thereby affecting elimination of UMLCs. It is felt that IR was required to take in to consideration the problems brought to their notice in regard to dimensions and take suitable action case-wise.
- With regard to construction of diversion road to adjacent UMLC, outright closure due to less TVU etc. also, resistance from public was a major reason for elimination of UMLCs. It was observed that against closure of

[92]Such as possible utilization of services of Home guards, personnel from local Panchayat, gate Mitras/Counselors etc.
[93]Through other methods including outright closure of the UMLC if the TVU is less than 500, closure through construction of diversion road to nearest LC or Subway, elimination of UMLC by construction of Subway (LHS /Normal Height Subway/RUB or ROB) etc.

UMLCs, representations from public and other sources were being received in RB. Elimination of a large number of UMLCs did not commence due to pendency of approval/ concurrence for closure from concerned district authorities. In case of UMLCs identified for elimination through methods other than manning there were 501 cases at WR (March 2015) and 252 cases at SR (November 2015) where approval/ concurrence of Civil Authorities was pending for over six months**.** In six other ZRs (NWR-157, NR-81, NER-76, NCR-32, ECR-16 and SWR-5), similar position prevailed. It is felt that, ZR Administration should have taken up each issue with Civil Authorities and obtained their sanctions by making best efforts and through effective coordination.

- A major accident on 24 August 2012 at an UMLC in Sambalpur – Maneswar section in ECoR resulted in 14 death and five serious injuries. The honourable High Court of Odisha directed ECoR Administration (November 2012) to pay compensation and eliminate the UMLC within six months. Although the UMLC was not qualifying for elimination as per criteria for TVU, immediate action was taken to eliminate it on out-of-turn basis through providing LHS. Detailed Estimate was sanctioned in February 2013 and the work was awarded (November 2013). However, during execution of work for LHS, villagers of the locality protested quoting difficulties faced in the transportation of agriculture produce and implements from one side to the other in view of the limited height. They demanded either the construction of ROB or manning of UMLC. The Civil Administration considered the request of villagers and the UMLC was being considered for manning.
- In NWR, work to eliminate UMLC (No. C-84) in Hansi – Raman section through provision of RUB could not be executed due to non-receipt of 'no objection certificate' from State Government.
- The work for elimination of UMLC (No.12) through provision of LHS at a cost of ` 1.68 crore in the Chengalpattu - Arakkonam Section of SR was approved (2012-13). The work had to be stopped immediately after award of contract due to public protest.

It may be seen from the above that a number of UMLCs had not been eliminated due to protests by public resulting in non-clearance of the proposals by the civil authorities.

5.1.7.6 Monitoring of progress- Delay in execution

RB had not fixed any specific time frame for execution of Road Safety Works relating to UMLCs. They had also not called for details of UMLC works pending for long periods. As such, there were delays at various stages of execution. Further, they had also communicated (September 2011) to General Managers of all ZRs that only 1491 level crossings had been identified for replacement with LHSs /RUBs. It was further stated that, despite delegation of powers to General Managers to take up works up to ` 2.50 crore under Plan Head 30 and if there is no shortage of funds, the work of identification as well as execution was very slow thereby indicating lack of regular focus.

An examination of records in regard to the process of identification, taking up and execution of 176 selected UMLC works as per sample was carried out and Audit noticed that:

- Thirty seven works[94] did not commence as at the end of March 2015. In most cases where the works had not commenced, the reason for delay was change in scope of work in view of adverse site conditions. Obviously, this was the result of improper site inspection prior to taking up approval for UMLC works for approval.
- Out of 37 works not commenced, in respect of 25 works[95] for which position was available, budget grant to an extent of ` 17.02 crore was provided during the 2010-15 thereby blocking up the capital which could otherwise have been used on other important works.
- Out of the remaining 139 UMLC works, 32 works were completed and the average time taken for completion per work was two years.
- Till end of March 2015, cost of work had escalated to an extent of ` 12.33 crore due to time over-run. The final cost-over-run would be assessable after the completion of 107 on-going works.
- In SR, out of 410 UMLCs approved as on 31 March 2015 for elimination by way of construction of Subways, the proposals were changed in 84 cases in to 'Manning'. It clearly shows that the initial proposals were made in a hurry without proper site inspection. Funds to the extent of ` 18.02 crore provided for these 84 works during 2007-15 remained blocked and could have been utilized on other important works/ projects. Audit also noticed similar cases involving changes in scope of works in other ZRs. In ECR,

[94] ECR and SR had nine works, NER had six works, NCR and NR had three works each, NFR had two works and ECoR, SER, SECR, SCR & SWR had one work each.
[95] Nine each in ECR and SR, two in NR and one each in ECoR, SCR, SECR, SER and SWR

elimination of 186 UMLCs was approved through construction of Subways. The scope was changed to manning in 39 UMLCs due to unsuitability of site conditions. In SWR, approval was available for construction of Subways at 67 UMLCs but the scope was changed later in 17 cases. In SECR, approval was available for construction of Subways in case of 70 UMLCs, the scope was later changed for manning at 12 UMLCs. In ECoR, approval for construction of subways was available in respect of 106 UMLCs but scope was changed for two UMLCs.

- At ECoR, there was a case indicating lack of coordination/monitoring in a work for provision of four LHSs in lieu of UMLCs. The work sanctioned in November 2011 (cost of ` 3.63 crores), was commenced in September 2012.

  The LHS on account of ST-4 could not take off due to non-shifting of OFC cable from the work site. The work was closed (July 2014) and next contract had not been awarded as of 31st March 2015.

- Delay due to paucity of funds, unseasonal rains, condition of soil such as black soil etc., were among the commonly cited reasons for delay. Delay due to time taken for finalisation and approval of plans and drawings, contractor's failure, delay in getting district administration's permission, change in scope of work such as inclusion of three additional subways in place of the original one, delay in getting site clearance/launching of the segment due to CRS inspection/ inauguration of the section, ban on sand and granite quarrying, inadequate supply of OPC-53 grade cement in local and adjacent market, change in methodology of work from cut and cover method to box pushing method were also some other reasons cited.

5.1.7.7 Non-elimination of UMLCs after completion of up-gradation works

Even after completion of works relating to manning or construction of Subway, an LC may remain unmanned for want of Gateman or remain not closed due to public protest against closing. Prior to taking up the construction of Subways etc., ZRs are required to obtain State Government's consent for closure of LCs. Also, as per IRPWM, closure of the LCs should be ensured before commissioning of the ROB / RUB. All such cases where State/Local Authorities do not agree to abide by this should be reported to the RB promptly.

As of March 2015, 58 UMLCs remained not manned in IR after creation of infrastructure for manning and 34 UMLCs remained not closed after completion of work for Subways. Out of these 92 UMLCs, 51 UMLCs could not be manned for want of manpower, 32 UMLCs could not be closed due to public protest and the remaining nine UMLCs could not be closed for other

reasons such as delay in finalisation of station working rule, water logging etc. The facilities remained non-commissioned for an average period of 11 months. Details of UMLCs not eliminated after completion of up-gradation works is at **Annexure III**.

The continuous operation of UMLCs, even after completion of planned works, was counter-productive to the fulfilment of the intended objective.

5.1.7.8 Creation of new UMLCs

In respect of all existing lines, new constructions and gauge conversions, if provision of new level crossing is inescapable, only manned level crossing is to be provided (Para 924 of IRPWM). However, 109 new UMLCs were created in six ZRs (CR-15, ECoR-19, NR-16, SECR-3, SR-5 and SWR-51), reasons for which were not recorded.

5.1.7.9 Other deficiencies in Elimination of UMLCs

There were several instances where an UMLC initially identified for construction of UMLCs was changed to 'Manning' as the site condition was subsequently found to be unsuitable for certain reasons.[96]The changed proposals inevitably delayed the achievement of overall objective for elimination of UMLCs. This also indicated that initial proposals were made without proper site inspections.

5.1.7.10 Option of exploring other avenues

Though RB communicated (January 2012) their decision to extend the policy instruction of February 2007 to permit utilisation of funds from MPLADS and other schemes of Central and State Government[97] records did not indicate that MPLADS etc. had been adequately explored. No UMLC work had been carried out utilising such funds during the period covered in audit.

5.1.7.11 Assessment of traffic density through Census at UMLCs

Instructions (Para 919 of IRPWM) are in place to carry out census at UMLCs once in three years to assess the traffic density in TVU which would form the basis for elimination of UMLCs. Audit reviewed the position of conduct of census at UMLCs and taking up of follow up action thereon and observed the following:

[96]Such as, Approach road is skew and angular, Irrigation channel existing on both sides of LCs, Approach road passing through agricultural land, Rocky ground not suitable for UMLCs, Built up area infringing construction of UMLCs etc.
[97]Such as Prime Minister's Grameen Sarak Yojana, Chief Minister's Sarak Yojana, MLA fund etc. for construction of road under bridges in lieu of level crossings.

- In 624 out of 10,388 UMLCs existing on 31 March 2015, no census had been carried out once in three years. Out of 624 UMLCs, in 209 UMLCs the TVU as per the last census was over 1500. Hence, it was possible that TVU in many of these UMLCs had reached the point to satisfy criteria required for ‘’manning’’.
- In case of UMLCs where accidents occurred, census should be conducted immediately to determine the requirement of ‘’manning’’. In case of 73 UMLCs (SWR-17, NWR-16, SR-12, ECR-11, SER-7, SCR-6, ECoR, ER, NFR & WCR- one each) where accident had taken place, the necessity of ‘’manning’’ had not been assessed.

Thus, compliance with instructions of IRPWM regarding conduct of census and taking of follow up action based on results of census was not adequate.

5.1.7.12 Safety Information Management System (SIMS)

In the Draft Action Taken Note relating to an earlier Audit report MoR stated (March 2015) that as a part of safety measures, Safety Information Management System (SIMS) had been implemented wherein one of the Modules relates to LCs. The SIMS was stated to be useful in monitoring LCs through the data of level crossings by assigning unique ID to every level crossing. The unique ID was stated to correlate to all developments like pattern of traffic, signage, condition, up-gradation works and accident details linked with satellite imagery.

Audit noticed that although the module relating to LCs had been developed and unique ID assigned to LCs, data relating to pattern of traffic, condition, up-gradation works etc. had not been updated. The Master data in SIMS relating to LCs had also not been up-dated after May 2011 in respect of all ZRs.

5.1.7.13 UMLCs in Rajdhani/Shatabdi Routes

On Rajdhani and Shatabdi routes with maximum permissible speed of 120 Kmph or more, all UMLCs should be manned on priority (Para 924 of IRPWM). As on 31 March 2015, there were 712 UMLCs in Rajdhani/Shatabdi routes and 608 UMLCs in ‘A’&‘B’ routes. However, over seven *per cent* of the UMLCs continued to exist in Rajdhani/Shatabdi routes. Audit noticed that:

- 712 UMLCs related to Rajdhani and Shatabdi routes are scattered on different ZRs[98]. In 290 UMLCs[99], the TVU as per last census was more

[98]SER- 173, NR -168, ECR-138, SCR- 59, NER-56, NFR-55, ECoR-27, SWR-25, SR-5, NCR-4 and CR & SECR had one UMLC each.
[99]ECR had all the 138 UMLCs in the Rajdhani/ Shatabdi routes eligible for manning while NR had 65 UMLCs, SER had 34, NFR-16, ECoR-14, SWR-8, SCR-6, NCR-4, SR-3 and NER-2.

than the 3000 mark and hence, these 290 UMLCs were eligible for ‘’manning’’. However, they remained unmanned.

- IR had 608 UMLCs on important rail routes (A&B).[100]
- As at the end of March 2015, there were 30 UMLCs (NFR- 26 UMLCs, SR- 2 and SECR and SWR -one each) in IR that were on the National Highways.

Retention of UMLCs on such important high speed routes makes these crossings vulnerable to avoidable disasters.

5.1.7.14 Provisions of Protective Measures at the UMLCs

As per IRPWM, the various protective measures/works are required to be carried out at UMLCs. Vision 2020 envisioned that all UMLC gates would be progressively ‘manned’ or protected or replaced by constructing infrastructure in the next five years' time. Various instructions of the RB over the years have also highlighted the need for providing protective measures at UMLCs, as long as the same have not been eliminated.

Recognising the role of such protective measures, the position of provision of protective measures in case of all UMLCs as on 31 March 2015 was reviewed by Audit with reference to records maintained by the Railway Administration besides conduct of Joint Inspection with Railway officials at selected UMLCs.

- **Stop Boards** - Stop Boards of prescribed specifications are required to be fixed (Para 916 of IRPWM) at the UMLCs to warn road users. Audit observed that, as at the end of March 2015 Stop Boards had not been provided at 833 UMLCs (SR-598, SCR-211, ECR-24) out of 10,388 UMLCs.

  Further, during Joint Inspection at 160 selected UMLCs, it was observed that at 11 UMLCs (NR-4, NWR-3, CR-2, ECoR-2), Stop Boards had not been provided although the same had been stated in the records as having been provided.

- **Whistle Boards** - The approaches to all UMLCs are required to be provided (Para 916 of IRPWM) with ‘Whistle Boards’ of prescribed design erected at 600 meters along

[100]SCR- 250, SER- 107, ECoR – 74, SR- 57 UMLCs, NR-33, NWR-29, NFR-27, SWR-24, NCR-4, ER-2 and SECR-1.

the track from the level crossing to enjoin the Drivers of approaching trains to give audible warning of the approach of a train to the road users. As on 31 March 2015, 'Whistle Boards' had been provided at all UMLCs.

The Joint Inspection carried out at 160 selected UMLCs confirmed the presence of whistle boards in all 160 UMLCs checked.

- **Rumble strips or speed breakers** - Road Authorities are responsible to provide rumble strips of standard design on approaches of LCs (Para 918 of IRPWM). ZRs' Administration are required to pursue the matter with State Governments/Road authorities to ensure that rumble strips are provided on all LCs over the total width of the road with proper road warning signs.Till such time these are replaced with rumble strips of proper design by the Road authorities, as a temporary safety measure, Railways were to provide speed breakers.

  Audit observed from the records maintained at ZRs that speed breakers were yet to be provided in 1024 UMLCs (632 in WR, 390 in NER and one each in ECR & NCR). Join Inspection carried out at 160 UMLCs over IR showed that in case of two UMLCs in SWR and one UMLC each in ECoR, NR, SECR either rumble strips or speed breakers were not provided.

- **Height Gauges** - Paragraph No. 910 (4) of IRPWM provides that adequate arrangements are required to be made to erect Height Gauges in the electrified sections on either side of the overhead equipment (OHE) at every LC to ensure that vehicles and moving structures passing under the height gauge also pass under the OHE with adequate clearance. During Joint Inspection, in respect of all UMLCs checked in the electrified sections, it was observed that height gauges were provided.

- **Other aspects noticed during Joint Inspection** - All roads should preferably cross the Railway line at right angles[101]. In all 160UMLCs covered in Joint inspection the angle of crossing had been provided as prescribed. All the UMLCs checked had been provided with sign boards,

[101]As per paragraph No. 906 of IRPWM, in special cases, when modification is required to suit the road approaches, the angle of crossing should not be less than 45 degree.

levelled road between UMLC gate posts and check rails covering the width of UMLC gates.

5.1.7.15 Protective measures - Inspection of UMLCs

Audit noted that, as per extant codal/ manual provisions, it is not mandatory for Railway officials to conduct periodical inspection of UMLCs though provisions exist in Para 914 of IRPWM for inspection of LCs (manned ones). However, Audit observed that PCE/NWR had issued a circular prescribing schedule for inspection of UMLCs by Senior Section Engineers (SSEs) and Assistant Divisional Engineers (ADENs).It may be prudent for RB if specific instructions are issued in this regard. It was generally observed that in several Divisions, Joint Ambush Checks conducted by Railways during 2014-15 did not cover all UMLCs in the Division possibly because there is no prescribed norm concerning the coverage.

5.1.7.16 Accidents at UMLCs

Analysis of accidents at UMLCs - Highest number of fatalities in IR occurs due to accidents at UMLCs[102].

The Supreme Court (October 2014) described as "serious" the fact that 40 *per cent* of railway level crossings across the country are unmanned and account for 73 *per cent* of fatalities every year and issued notice to the Centre in response to a PIL demanding the deployment of guards or gates at all 30,348 crossings over IR.

Audit examined the statistics of accidents at UMLCs that occurred during the review period (2012-15) and noticed that the number of accidents (consequential as well as those due to negligence of road users) and casualties (deaths and injuries) at UMLCs were as shown below-

Table No. 5.5 - Accidents in UMLCs

Item	2012-13	2013-14	2014-15
Number of accidents	88	81	69
Number of casualties	213	191	221

Audit noted that although the number of accidents during the three year period showed a decreasing trend, the number was still significantly high, notwithstanding an overall reduction in number of UMLCs across the IR. The number of casualties was still almost the same. The number of accidents was high in NWR with 47 accidents, NR had 28 and SR & NCR had 18 each etc. The number of accidents was relatively less in ER (1), WCR (3) and CR (5).

[102]Paragraph 3.7 of the White Paper(February 2015).

The data reinforces the need for concerted and intensified efforts to eliminate UMLCs at the earliest. Cases of UMLC accidents relating to the review period were checked to analyse if the numbers indicated a clear correlation between the occurrence of these specific cases and low visibility to road users (less than 800 M).

Audit also sought to analyse data relating to the traffic density in terms of TVU at the UMLCs where the accidents occurred to check whether any pattern was observed/ conclusion drawn. It was noticed that, out of 238 accidents at UMLCs, at 91 UMLCs the visibility was less than 800 m. As such, low visibility would have been among the causes attributable in these cases.

Further, the criteria set for manning a UMLC is above 3000 TVU. However, in respect of UMLCs where accidents occurred it was seen that TVU was less than 1000 at 55 UMLCs, between 1000 and 3000 at 85 UMLCs and over 3000 at 98 UMLCs. Thus, majority of the accidents (138 accidents–59 *per cent*) occurred at UMLCs where the TVU was less than 3000. This indicates that the criteria set for manning a UMLC needs to be reviewed.

Impact of accidents at UMLCs - Out of 1020 train accidents that occurred in IR during the period of review, 238 accidents were at UMLCs causing 360 deaths and 265 injuries. The total amount of ex-gratia paid in the death/injury cases was ` 1.38 crore and cost of damage to Railway assets was ` 2.35crore.

5.1.7.17 Measures taken to educate road users

ZRs, following the instructions of RB, carryout from time to time, intensive social awareness campaigns to educate road users[103]to ensure safety at UMLCs. Every year, International Union of Railways (UIC) observes one day as the International Level Crossing Awareness Day (ILCAD)[104]. As a part of this endeavour, Joint surprise Checks involving RPF, GRP and Civil authorities at the level crossings are conducted and action taken on errant road users under sections of Motor Vehicle Act.

The position, generally reviewed with reference to records available in the Safety Branch of two selected divisions in each ZR revealed that adequate measures were taken up to educate the road users in the safe usage of UMLCs[105].

[103]This includes publicity campaigns through media like Newspapers, TV, Radio, posters etc., distribution of leaflets, use of short duration films/ advertisements etc.
[104]In the year 2012, 7th June was observed as ILCAD. 7th May was observed as ILCAD in 2013 and 3rd June in the year 2014.
[105]Wall posters, pamphlets etc. were pasted/ distributed among public and Railway users. Railways also utilised other methods such as 'Nukkad Nataks' and sending SMSs in large numbers in local language for educating the people about the precautions to be observed at UMLCs.

5.1.7.18 Deployment of Gate Mitras

Keeping in view aspects such as the long gestation period of capital intensive works and the costs involved, Railways had endeavoured to work out other interim measures to protect lives and also to maintain smooth train operations through involvement of other authorities. The possibility of the involvement of the local Panchayats for strengthening the safety of UMLCs, where the village Panchayats could post watchmen at UMLCs with the wages to be taken care of through agreed institutional mechanisms had been mooted.

Involvement of Home Guards of the State Government for strengthening the safety at UMLCs with wages to be arranged by the Railways had also been considered. However, only few states responded positively to the initiative. Though Railways had taken up with the Ministry of Rural Development (2012) the possibility of inclusion of "guarding activity at UMLCs by local Panchayat" in the illustrated list of eligible works under NREGA scheme, the same did not materialise.

RB communicated (August 2009) the directions of the Hon'ble Minister to the zones which emphasised that priority needs to be given to manning of level crossings. If staff were not available, then it might be examined whether manning could be undertaken under PPP. This was also reiterated in Adviser/Safety's letter dated 22nd May 2014 to ZRs wherein they were exhorted to devise schemes to reduce accidents at UMLCs (until their elimination through one of the specified methods) citing the efforts made by CR and WCR in deploying Gate Mitras/counsellors at UMLCs. Other ZRs were encouraged to follow CRs' innovative method of deployment of councillors to guide road users. The concept of deployment of Gate Counselors/Gate Mitras at UMLCs was actively contemplated since mid-2014. Apprehensions were raised against deployment of Gate Mitras, some of the important ones are given below:

- As per the Motor Vehicles Act, 1988, the onus of safely negotiating an UMLC lies entirely on the road user. Under the circumstances, in the event of an accident at an UMLC where Gate Mitras are deployed, the responsibility would be shifted towards Railways.
- As per the experience of Railways in the yesteryears, the persons engaged to act as Gate Mitras may claim regular employment with Railways at a later stage.

On 4th August 2014, RB instructed ZRs that based on the experience of this pilot scheme in the two Railways, the same would be expanded.

As seen from the records of RB as also at zonal level, the issues raised against deployment of Gate Mitras had not been fully resolved. However, it has been observed that 2902 Gate Mitras have been engaged at UMLCs in various ZRs of IR after seeking the Law Ministry's opinion (July 2014) to know whether it would be liable to pay compensation to accident victims at these crossings if it utilised services of Gate Mitras.

5.1.7.19 Use of Geo-spatial technologies to provide safety at UMLCs

RB in December 2014 communicated instructions of Honourable MR to ZRs to consider other measures in addition to Geo-spatial technologies for providing comprehensive safety at UMLCs in consultation with State Governments, NGOs and other stake holders. ZRs were required to prepare and put in place comprehensive Action Plan so that accidents at level crossings may be fully avoided.

The comprehensive Action Plan involving measures including Geo-spatial technologies was yet to be evolved by IR/ZRs as on 31st March 2015.

5.1.7.20 Other developments

The importance attached to safety in Indian Railways and in particular, at the UMLCs is seen from the fact that in the Railway Budget presented in 2015, one of the announcements made was concerning the development of devices to provide audio visual warning to road users at UMLCs. This would be done in collaboration with RDSO, ISRO and IIT Kanpur. Further, to facilitate the construction of ROB/RUB, a web based application has been commissioned with user friendly measures for online submission and approval of drawings within 60 days. An MOU has also been signed with the Ministry of Road Transport and Highways in this regard.

As part of the developmental efforts, RDSO, Railways' research wing, recently finalised the specifications of a vandal-proof warning system for unmanned level crossings. The system consists of two sensor modules and a control module in which train movements are detected and siren and blinker alerts are produced when the train is within one km of the level crossing. Sensor modules are located within one km of level crossing to detect train movement on track.

In case of vandalisation of the system at the level crossing by unscrupulous elements or for any other reason, SMS alert will be sent to pre-programmed mobile numbers.

RDSO had recommended to RB to advise zonal railways to install at least one or two systems for field trials before large-scale development could be initiated.

The system has been working for the past few months on Coimbatore-Mettupalayam section in SR.

5.1.8 Conclusion

As per the Vision 2020 Statement of Railways (December 2009) hundred *per cent* UMLCs were to be eliminated progressively through manning or through any of the approved methods or protected in five years' time (2010-15) and 11,630 out of 16,125 UMLCs that existed in 2010 were planned for elimination by 1st April 2015. Only 5,737 UMLCs were eliminated during the Five Year Master Plan period and still 10,388 UMLCs remained to be eliminated as on 1 April 2015.

As many as 4495 UMLCs were categorised as ''cannot be closed''. However, during execution, the position changed at ZRs and many of the UMLCs belonging to this category were considered for manning / conversion. There was a decreasing trend in annual targets fixed by the RB for manning the UMLCs (2012-13- 1101 UMLCs and 2013-14- 495 UMLCs). It was due to RB order (March 2012) that on locations where works for creating infrastructure for manning of UMLCs had not commenced, Railway should not take up manning works until creation/sanction of requisite posts of Gatemen.

The funds made available every year were lesser than the resources that could have hastened achievement of the objective of elimination of UMLCs. In none of the years the allocation exceeded `2,217 crore due to which MoR had to request MoF (February 2015) to enhance the allocation of fund out of Central Road Fund (CRF) through amendment in the CRF Act and grant a second phase of Special Railway Safety Fund (SRSF) to undertake works recommended by the Kakodkar Committee.

The progress in construction of subways indicates that it would take several years for IR to complete all sanctioned works. Out of limited funds granted, there was surrender of underutilised funds also that established the fact that there were certain other reasons like resistance of general public also that hindered the progress in elimination of UMLCs.

All protective measures at UMLCs were being provided by IR to check accident.

5.1.9 Recommendations

- There should be close monitoring of the execution of long pending UMLC works and IR should take efforts to prioritise the elimination of UMLCs in important routes including Rajdhani/ Shatabdi routes. Time frame should

be in place for execution of works relating to elimination of UMLCs, particularly works relating to construction of Subways.

- MoR may ensure the availability of funds required every year for completion of targeted works for the elimination of UMLCs and ensure that funds granted are fully utilised on works.
- Approval of Civil authorities for closure of UMLCs prior to commencement of infrastructure works relating to manning, construction of subways etc. to avoid idling of capital invested, should be ensured in all cases. An appropriate mechanism should be put in place to ensure cooperation from the public as non-closure of UMLCs on account of public resistance may be a costly and risky option for IR as well as the public.
- Census at UMLCs should be carried out once in three years and action required as per codal provisions and extant instructions of RB based on results of census should be taken without fail, for closure, manning etc.
- IR may pursue the matter of including the "activity of guarding unmanned level crossings by local Panchayat" in the illustrated list of eligible works under NREGA scheme.

5.2 Procurement and Utilization of Stone Ballast in Indian Railways

5.2.1 Introduction

Indian Railways (IR) has a network of 1,17,996 track kilometers {Broad Gauge (BG): 1,09,535 km, Metre Gauge (MG): 5,929 km and Narrow Gauge (NG): 2,532 km} spread over 17 Zonal Railways as on 1st April 2015[106].

Track or Permanent Way (P Way) is the rail-road on which trains run. Two parallel rails at a specified distance are fastened to sleepers which are embedded in a layer of ballast of defined thickness spread over the formation. Ballast forms a major component of track sub-structure and plays a dominant role in the track performance and its maintainability. Track ballast forms the track bed upon which railway sleepers are laid. It is packed between, below and around the sleepers. It also keeps down vegetation that might interfere with the track structure. It is typically made of crushed stone. The thickness of a layer of track ballast depends on the size and spacing of the sleepers, the amount of traffic expected on the line and various other factors. It is essential for ballast to be piled as high as the sleepers, and for a substantial "*shoulder*" to be placed at their ends, the latter being especially important, since this ballast shoulder is, for the most part, the only component restraining lateral movement of the track. Ballast acts as a shock absorber and provides lateral resistance against longitudinal movement of sleepers. While providing lateral stability to track and facilitating distribution of weight of rolling stock, it also serves as a drainage system for the formation. Better riding comfort and safe passage of trains are achieved by the provision of adequate quantity of good quality ballast as prescribed in specifications of track ballast issued by Railway Board (IRS-GE-I of June 2004).

As per Para 264 of Indian Railway Permanent Way Manual (IRPWM), the assessment of ballast requirements is to be made by open line organization separately for making good deficiencies arising out of overhauling of track and for providing extra cushion while converting the track to Long Welded Rail Track (LWR). In respect of construction projects, requirement of ballast is to be made as per the profile given in

[106] *Indian Railways year book 2014-15*

para 263(1) of IRPWM. The procurement of ballast in Indian Railways is being made through contracts for supply and stacking of ballast either in depots or on cess[107]. Since assessment of requirement of ballast for making good deficiency as existing in track is to be made through survey, no periodicity for recoupment of ballast in the existing track is fixed.

5.2.2 Organizational structure

At Railway Board (RB) level, Member Engineering (ME), assisted by Additional Members (Works & Civil Engineering), Executive Directors (Works, Civil Engineering, General and Planning), Directors (Works, Civil Engineering, Bridges & Structures and Planning) and Joint Directors (Works) are responsible for formulating policy decision on track structure.

At the Zonal level, the Chief Track Engineer (CTE), working under the control of Principal Chief Engineer (PCE), is responsible for implementing the policy guidelines/ orders of the RB. At the Divisional level, the Senior Divisional Engineers/ Divisional Engineers (Sr.DEN/DEN), aided by Assistant Divisional Engineer/Assistant Engineers (ADEN/AEN)/ Senior Section Engineers/ Section Engineers (P Way)/(SSE/SE-P Way) translate the guidelines into action.

Procurement of ballast for construction projects (New Line, Doubling and Gauge Conversion) is based on the requirements projected in the detailed/revised estimates which are sanctioned by Railway Board. The procurement process is done by Construction Organization of Zonal Railway based on over all progress of projects and availability of funds.

[107] Stacking of ballast along side the track

5.2.3 Audit objectives

- To see whether requirement of ballast was properly assessed for maintenance of track, for special works and for projects
- To review the process of procurement of ballast through examination of tenders and contracts
- To see whether proper monitoring mechanism and control exists in procurement & utilization of ballast.

5.2.4 Audit criteria

Criteria adopted for the review were:

- Provisions contained in Para 130,210,261 to 267 of IRPWM-2004.
- Policy Guidelines issued by Railway Board, vide Letter No 2006/CE-II/MB/2 dated 25 May 2007 and instructions issued from time to time.
- Specifications of track ballast issued by RDSO, vide IRS-GE-1(June 2004) and subsequent corrections issued thereon.

5.2.5 Audit scope, methodology and sample size

The review covered assessment of requirement, procurement and utilization of stone ballast during the five-year period from 2010-11 to 2014-15.

At the Macro level:

The review was undertaken in 16 Zonal Offices and Construction units (except Metro Railway Kolkata where stone ballast is not used).

At the Micro level:

- For detailed study of method of assessment adopted, tender and contract management, monitoring of procurement and utilization etc., **50** ***per cent*** of the Divisions, subject to a ***minimum of two Divisions per Zonal Railway*** (39 divisions)[108] were covered.
- For reviewing the method of assessment adopted at the level of SSE/SE (PWay), basic records of ***78 SSE/ SE (P Way) units***[109] of selected Divisions were test checked.
- ***439 completed special works***[110] involving ballast consumption on Open Line (completed during review period), except SR and one division of NR

[108] *CR-3, ECR-3, ECoR-2, ER-2, NCR-2, NER-2, NFR-3, NR-3, NWR-2, SCR-3, SECR-2, SER-2, SR-3, SWR-2, WCR-2 and WR-3*
[109] *CR-6, ECR-6, ECoR-4, ER-4, NCR-4, NER-4, NFR-6, NR-6, NWR-4, SCR-6, SECR-4, SER-4, SR-6, SWR-4, WCR-4 and WR-6*

(i.e. Delhi Division) where the data was not made available to audit, were covered for the review.

- ***113 completed Gauge Conversion (GC), Doubling (DL) and New Line (NL) projects***[111] of Construction Organization, (completed during the review period) were covered.

- ***25 per cent of the total ballast depots subject to a minimum of one depot per division*** of each Zonal Railway– 91 ***depots***[112] were covered for review of working of Depots.

5.2.6 Issues examined and Audit findings

5.2.6.1 Assessment of requirement of ballast for maintenance of track

As per Para 264 of IRPWM, the requirement of ballast for normal maintenance is to be arrived at by assessing the quantity by a survey over a rail length in every one km at the level of SSE/SE (P Way). Review of records of 78 selected SSEs[113], revealed the following deficiencies.

- For making good deficiencies in the existing track, ballast assessment was not done as per the stipulated procedure in Para 264 of IRPWM. Sectional registers did not contain details of kilometers where ballast deficiency existed. Details of recoupment done and year-wise particulars of deep screening carried out were not indicated in the sectional registers of all the 78 SSEs in contravention of Para 210 of IRPWM.

- The requirement of ballast for revenue maintenance was not obtained from field SSEs for consolidating the divisional requirements except in 23 Divisions of eight Zonal Railways[114] indicating system deficiencies in assessment of divisional requirements.

- Out of 68 divisions, annual projected requirement was submitted to Zonal HQ by 35 divisions, [115]annual projected requirement was not submitted by 30 divisions[116] while the data was not made available to audit by 3 divisions of North Central Railway.

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[110] *CR-37, ECR-16, ECoR-18, ER-31, NCR-53, NER-15, NFR-9, NR-28, NWR-31, SCR-63, SECR-9, SER-48, SWR-10, WCR-53 and WR-18*
[111] *CR-2, ECR-10, ECoR-4, ER-19, NCR-2, NER-10, NFR-6, NR-5, NWR-12, SCR-3, SECR-2, SER-12, SR-11, SWR-8, WCR-1 and WR-6*
[112] *CR-9, ECR-1, ECoR-11, ER-2, NCR-6, NER-3, NFR-4, NR-5, NWR-5, SCR-10, SECR-3, SER-2, SR-13, SWR-4, WCR-7& WR-6*
[113] *CR-6, ECR-,6 ECoR-4, ER-4, NCR-4, NER-4, NFR- 6, NR-6, NWR-4, SCR-6, SECR-4, SER-6 , SR-1, SWR-4, WCR-4, WR-6*
[114] *CR-3, ECoR-1, ER-4, NCR-1, NWR-2, SER-4, WCR-3 and WR-5*
[115] *CR-5, ECR-5, ECoR-2, ER-4, NER-3, NWR-3, SER-4, WCR-3 and WR-6*
[116] *ECoR-1,NCR-NAP, NFR-5, NR-5, SCR-6, SECR-3, SER-1, SR-6 and SWR-3*

The above position indicated that assessment of ballast for open line maintenance was not need based, which could impact safety and riding comfort in trains.

The issue that ballast for normal maintenance was not assessed as per laid down procedure even at the level of Assistant Engineer/ Section Engineer (P.Way) was earlier taken up in the Audit report No.9 of 2001. Through the Action Taken Note, RB replied (May 2006) that permanent way officials inspect the permanent way sections very often and are well conversant with their sections and deficiencies. It should, therefore, not be essential to carry out the entire exercise as listed in IRPWM for the sole purpose of assessing deficiency of ballast which eventually would lead to wastage of manpower and efforts.

As no correction slip has been issued to Para 264 of IRPWM, revising the procedure to be adopted by the SSEs for assessing the deficiency of ballast on track, the requirement of ballast for normal maintenance was not based on the laid down procedure in the IRPWM.

5.2.6.2 Enhancement of requirements of ballast

As per Para 264 (5) of IRPWM, the quantities assessed as requirements is to be enhanced suitably (say 8 *per cent*) to arrive at gross quantities of ballast for the purpose of procurement action in case measurements are taken in stacks or in wagons at originating station. The above provision was introduced vide advance correction slip No. 80 dated 02 December 2002 to IRPWM when the procurement of ballast was as per the specifications of the ballast prevailing in 2002, which included hand crushed ballast. Specifications for Railway track ballast was revised by RDSO, vide IRS- GE-I June-2004 according to which, ballast should be cubical in shape as far as possible and should be machine crushed. It is observed that no correction to Para 264 (5) of IRPWM (Second reprint 2004) has been issued by the Board consequent on revising the specifications.

Out of 21 Divisions of ten ZRs[117] which had assessed the requirement of ballast, only six divisions of three ZRs (two each on NER, NWR and WR) had enhanced the quantity as per provisions of Para 264 (5) of IRPWM. Similarly, out of 113 completed projects[118] by CN unit, the requirement of ballast was

[117] *CR-3, ECoR-2, ECR-3, ER-2, NCR-1, NER-2, NWR-2, SER-1, WCR-2 and WR-3*
[118] *CR-2, ECR-10, ECoR-4, ER-19, NCR-2, NER-10, NFR-6, NR-5, NWR-12, SCR-3, SECR-2, SER-12, SR-11, SWR-8, WCR-1 and WR-6*

enhanced in the estimates of 36 projects[119] and no enhancement was made in the estimates of balance 77 projects.

Thus, there was no uniformity in assessing the requirements for procurement action at the estimation stage.

5.2.6.3 Assessment of requirements for Special works

Out of 439 special works completed, involving consumption of ballast, by selected Divisions of Zonal Railways (except SR and Delhi Division under NR, where the details of special works were not made available to audit), assessment of requirements and actual consumption are as follows:

Table-5.6

S. l.	Details	Number of works
1	Total Number of completed special works involving ballast consumption	**439**[120]
2	Out of the above, number of Special works for which quantity of assessed requirement and consumption was not made available to Audit	**202**[121]
3	Out of the above, number of Special works for which quantity of assessed requirement and consumption was made available to Audit	**237**
4	Out of 3 above, number of special works where the variation of more than ten *per cent* between assessment and consumption existed	73[122]

It is evident from the above that records for actual consumption of ballast for Special works were not maintained by the Railway Administration properly. Out of 237 Special works[123], where the data was furnished by the Railway Administration, variation existed between assessment and utilization in respect of 73 special works even after considering a reasonable allowance of (+/-) 10 *per cent.* The variation ranged from (-) 100 *per cent (NWR-2 works, WCR-9 works)* to (+) 337 *per cent (ER-1 work)*. In respect of 56 special works[124], reasons for variations were not kept on record. The reasons for variations,

[119] *ER-2, NER-8, NWR-12, SCR-1, SER-10 and SWR-3*
[120] *CR-37, ECR-16, ECoR-18, ER-31, NCR-53, NER-15, NFR-9, NR-28, NWR-31, SCR-63, SECR-9, SER-48, SR-NAV, SWR-10, WCR-53 and WR-18*
[121] *CR-37, NCR-28, NER-10, NWR-16, SCR-63 and SER-48*
[122] *ECR-3, ECoR-6, ER-4, NCR-2, NFR-4, NR-3, NWR-12, SECR-1, SWR-3, WCR-31 and WR-4*
[123] *ECR-16, ECoR-18, ER-31, NCR-25, NER-5, NFR-9, NR-28, NWR-15, SECR-9, SR-NAV, SWR-10, WCR-53 and WR-18*
[124] *ECR-3, ECoR-6, ER-3, NCR-2, NFR-4, NR-3, NWR-1, SECR-1, SWR-2 and WCR-31*

wherever furnished, were stated to be based on site condition. The abnormal variations indicated that assessment of requirements was not done based on ground realities.

5.2.6.4 Assessment of requirement of ballast for CN projects

Audit attempted to independently work out the requirements of ballast as per provisions of IRPWM for 113 projects completed during 2010-11 to 2014-15. Results of audit analysis are tabulated below:

Table-5.7

Sl	Details	Number of projects
1	Total number of projects completed	**113**
2	Number of projects where data for assessment of requirement was not made available to audit	07[125]
3	Number of projects where estimation of requirement by construction units was less than requirements worked out	23[126]
4	Number of projects where the assessment was in excess of requirements worked out	38[127]

From the above, it is seen that out of 106 completed projects[128], where data was available while requirement of ballast for 38 projects was higher by 4.89 lakh cum, it was short by 2.55 lakh cum for 23 projects with reference to assessment after made by Audit as per provisions of IRPWM. This was indicative of improper estimation of requirement of ballast for projects. However, the reasons for excess/less assessment of ballast were not kept on record.

5.2.6.5 Assessment of availability of MG/NG ballast for use in BG track during GC work

Conversion of track from MG/NG to BG necessitates procurement of additional ballast to meet the requirement of BG standards which is to be assessed after taking into account the ballast available on the MG/NG track proposed for conversion. As per Para 263 of IRPWM, one km of NG and MG track on an average should have a minimum 543 cum and 1235 cum of ballast under ideal conditions respectively. As adequate ballast cushion is a pre-requisite for safe permanent way, the existing MG/NG tracks (taken up for GC) having regular traffic is presumed to have been provided with minimum ballast.

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[125] *ECR-1, NER-2, SER-2 and SR-2*
[126] *ER-6, NER-4, NFR-3, NWR-4, SCR-1, SECR-1, SR-1, WCR-1 and WR-2*
[127] *ECoR-1, ER-9, NCR-2, NER-4, NFR-2, NWR-5, SECR-1, SER-2, SR-2, SWR-8 and WR-2*
[128] *CR-2, ECR-9, ECoR-4, ER-19, NCR-2, NER-8, NFR-6, NR-5, NWR-12, SCR-3, SECR-2, SER-10, SR-9, SWR-8, WCR-1 and WR-6*

Following are the details of GC projects completed during the period 2010-11 to 2014-15 and quantity of MG/NG Ballast available.

Table-5.8

Sl	Particulars	Number of Projects completed/ Quantity of ballast in cum
1	Number of GC projects completed	21[129]
2	Number of GC projects for which data was not made available	2 [130]
3	Number of GC projects where quantity of existing ballast was assessed to be NIL in the estimates for use due to existence of only moorum ballast	2[131]
4	Number of GC projects where quantity of existing ballast was assessed to be NIL in the estimates for use even though stone ballast existed in MG/NG section	5[132]
5	Number of GC projects where some quantity of existing ballast was considered to be used during GC in the estimates	12[133]
6	Minimum quantity of existing ballast that should have been available for use during GC	18.40 lakh cum[134]
7	Out of the above, quantity of existing ballast considered for use during GC	3.11 lakh cum[135]
8	Overall percentage of ballast considered for use in the estimates during GC (with reference to Sl. 5 above)	17

Out of 21 GC projects completed, in respect of two projects, data was not made available to Audit. In respect of two projects, due to existence of moorum ballast, no quantity of existing ballast was considered to be used during GC. For the balance 17 projects, where data was made available, quantity of existing ballast assessed to be available for use in GC was nil for five projects as against a minimum quantity of 2.18 lakh cum that should have been available for use during GC. Further only a meagre quantity of 3.11 lakh cum of existing ballast was considered to be used, out of a minimum of 16.22 lakh cum in respect of 12 projects. The reasons for not considering any quantity and considering only a

[129] *ECoR-1, ER-1, NCR-1, NER-1, NFR-2, NWR-5, SCR-1, SER-1, SR-4, SWR-2 and WR-2*
[130] *Aurihar -Jaunpur GC (NER) and KMU-VM-GC PORTION (SR)*
[131] *Naupada-Gunupur GC (ECoR) and Kolar-Chikkaballapur GC (SWR)*
[132] *ER-1, NFR-1, SER-1 and WR-2*
[133] *NCR-1, NFR-1, NWR-5, SCR-1, SR-3 and SWR-1*
[134] *ER-0.09, NCR-0.43, NFR- 1.77 NWR-8.05, SCR-2.8, SER-0.49, SR-3.30, SWR-0.70 and WR- 0.77*
[135] *NCR-0.12, NFR-0.24, NWR-1.75, SCR-, 0.45 SR-0.45 and SWR-0.10*

meagre quantity were not on record for 13 projects (NCR-1, NWR-5, SCR-1, SWR-1,SR-3 and WR-2). However, in respect of four projects, Railway Administration stated that available ballast was as per old specification and also badly contaminated and was not fit for use.

5.2.6.6 Tendering Process

The contract is to be awarded to the lowest, eligible, valid and technically acceptable tenderer (L1) only. If the contract is not awarded to L1, specific reasons are to be recorded by the Tender Committee. Further, there are no specific time lines prescribed for the various activities involved in processing of tenders including that of preparation of tender schedules and briefing notes. The only prescription being that the tenders are to be evaluated and finalized at the earliest and much before the expiry of validity of offers. However, a reasonable time limit of six months for completing all the formalities of tendering process in cases of finalization of risk and cost tenders was fixed by SR which is taken as the benchmark by audit for working out the delay in tendering process.

Out of 602 tenders finalized in 39 selected Divisions and 113 completed projects of CN units for procurement of ballast, during the review period, 16 tender files (ECoR-3, NER-1, NFR-11 and NWR-1) were not made available to Audit. A review of 586 tenders finalized for procurement of ballast revealed the following.

- L1 was passed over in respect of 27 tenders[136] due to non-fulfillment of eligibility criteria, non-submission of ballast test certificates, non-submission of credentials, etc which were found to be in order.
- 103 tenders were finalized with a delay ranging from one month to 18 months after allowing a reasonable time limit of six months. The delay was mainly attributed to reasons such as negotiations, verification of credentials, shortage of funds, etc**.**
- In respect of four cases[137], tenders were accepted without ballast test certificates along with the offer, since ballast test certificates were not found on record.
- Out of 18 tenders finalized by two Divisions of SER during the review period, for procurement of ballast, cartel formation was suspected by the Railway Administration in respect of six tenders since same rates, terms and conditions were quoted by the tenderers. In terms of RB's instructions (October 2006 and March 2014) the cases of cartel formation were to be

[136] *CR-1, ECoR-1, NCR-6, NER-1, NR-3, NWR-4, SECR-4, SER-3, SR-1 and SWR-3*
[137] *NER-1, SECR-1 and SWR-2*

reported to Competition Commission of India (CCI). However, the Railway Administration had not referred the matter to the CCI. The tenders were finalized duly distributing the total quantity among all the tenderers at the same rates, terms and conditions on the plea that it was a general trend to quote the similar rates in case of ballast tenders with the source of Pakur/ Bakudih quarries even for other Railways viz., NFR, ER, etc.

- Similarly, in the tenders finalized by NFR (1), ECR (3) and ER (9), during the review period, cases of quoting same rates, terms and conditions by two or more tenderers were noticed in Audit. ER administration suspected the cartel formation in two tenders out of nine tenders. Cartel formation was not suspected by NFR & ECR. The cases were also not referred to CCI in contravention of RB guidelines on the subject. Contracts were awarded to all the tenderers duly distributing the quantity equally.

5.2.6.7 Contract Management

A review of 574 completed contracts[138]of selected Divisions and selected projects of CN units of Zonal Railways [except contracts of Delhi Division of NR and three contracts each of ECoR (CN) and NER (CN), where contract files were not made available] revealed the following:

a) **Granting of extension of time for completion**: A total of 1703 extensions[139] were granted, ranging from one to twelve extensions, for various reasons such as non-availability of wagons, space constraints for stacking ballast, collection of additional quantities, variation in quantities, heavy rains, funds constraints, public protests, delay in finalization of yard plans, delay in handing over of clear site, reasons attributable to contractors, etc in respect of 532 contracts. The works in respect of 42 contracts[140] were completed within the stipulated initial currency of the contracts (7.31 *per cent*). This clearly indicated that there was lack of planning in execution of the contracts resulting in extra liability of `88.82 crore[141] by way of payments to contractors under Price Variation Clause (PVC). It is pertinent to point out that the initial time fixed for completion of the works was not realistic, duly taking into account all the constraints in execution of works.

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[138] *CR-(OL/CN-47/6), ECR-(17/9), ECoR-(39/12), ER-(16/17), NCR-(21/2), NER-(12/25), NFR-(15/23), NR-(22/11), NWR-(11/37), SCR-(11/23), SECR-(19/4), SER-(30/18), SR-(19/11), SWR-(28/19), WCR-(16/1) and WR-(25/8)*

[139] *CR-172, ECR-46, ECoR-141, ER-60, NCR-104, NER-93, NFR-121, NR-99, NWR-205, SCR-85, SECR-48, SER-114, SR-118, SWR-161, WCR-48 and WR-88*

[140] *CR-2, ECR-4, ECoR-1, ER-7, NCR-4, NFR-4, NR-1, NWR-1, SCR-1, SECR-2, SER-10, and WR-5*

[141] *CR-8.03, ECR-7.01, ECoR-6.22, ER-3.09, NCR-3.40, NER-27.02, NFR-10.93, NR-0.50, NWR-1.46, SCR-1.56, SECR-0.62, SER-8.09, SR-7.30, SWR-2.23, WCR-0.37 and WR-0.99*

b) **Incorrect levy of liquidated damages/penalty**: Clause 17B of GCC clearly stipulates that extension of the currency of the contract is subject to levy of liquidated damages (LD) of a sum equivalent to ½ of 1 *per cent* of the contract value of the works for each or part of the week subject to a maximum of

i) 10 *per cent* of the total value of the contract, for contract value up-to `2 lakh.

ii) 10 *per cent* of the first 2 lakh and 5 *per cent* of balance, for contract valued above `2 lakh,

Further, it was also stipulated that competent authority, while granting extensions to the currency of the contract under clause 17B of GCC may also consider levy of token penalty as deemed fit based on merits of the case. This implies that the levy of token penalty is in addition to the levy of LD.

Extensions were granted under clause 17B of GCC in respect of 56 contracts[142] due to delay attributable to contractors. An amount of `4.83 crore was due to be imposed and recovered as LD as per the provisions of Clause 17B of GCC. However, in respect of only 17 contracts (one contract of NWR and 16 contracts of SCR), LD of `0.59 crore was imposed and an amount of `0.56 crore was recovered after waiving an amount of `0.03 crore in one contract of SCR. Thus, LD amounting to `4.24 crore, in respect of the above 39 contracts, was not imposed and recovered.

Further, an amount of `1.36 crore had also been paid under PVC irregularly in 10 cases (CR-1, ECoR-2, SCR-1, SECR-1, SER-2 and WCR-3) though the extensions had been granted under Clause 17B.

c) **Non follow up of payment of Royalty to Department of Mines & Geology:**

The rate offered and accepted in the contracts for supply of ballast is inclusive of Royalty/Seignorage charges. As per Special Conditions of Contract (SCC), in 11 ZRs (CR, ECR, ECoR, ER, NCR, NER, NFR, SCR, SECR, SER, and WR), royalty charges on supply of ballast should be recovered and remitted to the State Government concerned. However, recovery need not be effected, if the contractor produces documentary evidence for having paid such charges.

[142] *CR-1, ECoR-2, NCR-6, NR-10, NWR-2, SCR-16, SECR-3, SER-3, SWR-1, WCR-5 and WR-7*

Such documentary evidence shall be got verified by the Railway Administration for their genuineness. No such clause was provided in both the CN and Open Line contracts of three ZRs (NR, NWR and SR), in open line contracts of SWR and in CN Unit contracts of WCR. Thus, the conditions of agreement in respect of recovery of royalty charges were not uniform.

A review of the royalty charges paid/ recovered from the ballast contracts revealed the following:

- An amount of ` 110.39 crore was involved as Royalty charges for 242.72 lakh cum of ballast procured in respect of 512 completed contracts[143] of selected divisions of Open line and completed projects by CN units at the prevailing rates. In respect of 68 contracts (NR-33, NER-2, ECoR-3 and SR-30) data relating to royalty charges was not made available to audit.
- In 11 contracts (CR-9 and NWR-2)[144], the royalty charges of ` 0.18 crore directly paid by the contractors to the department and recovered by Railway Administrations was more than the amount due.
- An amount of ` 34.51 crore was neither paid by the contractors nor recovered by the Railway Administration in 222 contracts[145].
- Photocopies of the documentary evidence such as no due certificates, Demand Drafts paid to the Department of Mines, receipts issued by the Department of Mines, certificate from quarry owner for payment of royalty, etc, were submitted for 284 contracts[146]. While the same had been got verified for their genuineness from the department in respect of 155 contracts[147], the same had not been got verified in 129 contracts[148].

Audit had already pointed out in earlier Report (Para 2.3 of Report No. 9 of 2001) that Railway Administration failed to ensure submission of revenue mineral certificate (MRCC) by contractors. Vide ATN on this Report; RB stated (May 2006) that desired action for recovery of the Seignorage charges was taken by Railways and at no stage the liability towards this was accepted.

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[143] *CR-53, ECR-26, ECoR-51, ER-33, NCR-23, NER-38, NFR-38, NR-NAV, NWR-48, SCR-34, SECR-23, SER-48, SR-NAV, SWR-47, WCR-17 and WR-33*

[144] *CR-9 and NWR-2*

[145] *CR-7, NCR-12, NFR-38, NWR-44, SCR-3,SECR-1, SER-47,SWR-36, WCR-1 and WR-33*

[146] *CR-36, ECR-26, ECoR-40, ER-28, NCR-15, NER-20, NFR-19, NWR-5, SCR-3, SECR-23, SER-38, SWR-20, WCR-11, NR & SR – Not available*

[147] *CR-25, ECoR-17, ER-21, NCR-10, NER-16, NFR-15, SCR-1, SECR-22, SER-6, SWR-11, WCR-11, NR & SR – Not available*

[148] *CR-11, ECR-26, ECoR-23, ER-7, NCR-5, NER-4, NFR-4, NR-NAV, NWR-5, SCR-2, SECR-1, SER-32, SR-NAV and SWR-9*

However, audit noticed that the same irregularity is being continued as commented in the above para.

d) **Review of quality check of ballast procured**

Detailed instructions have been laid down in Para 5 of IRS-GE-I for sampling and testing of ballast for use in railway track. As per norms, on supply of first 100 cum, the test for size and gradation, abrasion value, Impact value and water absorption should be got carried out in approved laboratories or Railway's own laboratories and reports submitted to Railways by the contractors. Further supply should be accepted only after the ballast satisfies the specifications. Subsequent tests should be got carried out as follows.

A	For size and gradation	One for each stack
B	For abrasion value, impact value and water absorption test	one test for every 2000 cum

A review of quality check exercised by Railway Administration in respect of 563 contracts[149] completed pertaining to selected divisions and completed projects in CN unit (except seventeen contracts[150], where data was not made available to audit) revealed that:

- List of approved labs where tests are to be conducted were not indicated in the tender documents of 38 contracts (NFR).
- First test had not been carried out on supply of first 100 cum in 46 contracts (NFR-13 and SER-33).
- Shortfall in carrying out test for size and gradation was noticed by audit in 3230 stacks of 26 contracts (ECoR-1, NER-21, and WR-4).
- Shortfall in carrying out tests for abrasion value, impact value and water absorption were noticed in audit in respect of 74 contracts[151] involving 10.69 lakh cum. This excludes 16 contracts of Open line Unit of ER where a quantity of 6.83 lakh cum had been accepted without the results of water absorption test.

[149] *CR-53, ECR-26, ECoR-51, ER-33, NCR-23, NER-38, NFR-38, NR-33, NWR-48, SCR-34, SECR-23, SER-45, SR-30, SWR-47, WCR-17 and WR-24*
[150] *ECoR-3, NER-2, SER-3 and WR-9*
[151] *CR-6, ECoR-7, NCR-1, NER-25, NFR-1, NWR-1, SECR-2, SER-12, SWR-8, WCR-9 and WR-2*

e) **Review of test check of measurements by higher authorities for cess collection**

As per RB's instructions (May 2007), 10 *per cent* test check of recorded measurements should be exercised by Sr.DEN/ DEN or Dy.CE/CN and at least 30-33 *per cent* of the bills passed shall be test checked. At no stage, more than three bills in succession shall be missed from the test check.

A review of this issue in respect of 322 completed contracts[152] for cess collection pertaining to selected divisions and completed projects of CN units (except 10 contracts (ECoR-3 NER-1 and SER-6) where the data was not made available to audit) revealed the following:

- Out of 37489 stacks[153], Ground level certificates were not furnished in respect of 429 stacks (WR).
- There was shortfall in test check of stack measurements by higher authorities in 67 contracts[154].
- Similarly, shortfall was noticed in test check of bills passed in 67 bills of 12 contracts (NER-2, NWR-6 and SER-4).
- Test check of more than three bills in succession was missed in 34 contracts[155] involving 82 bills.

5.2.6.8 Analysis of procurement vis-à-vis utilization and targets

Following are the details of procurement of ballast by open line of Zonal Railways, where procurement had reached/ exceeded the RB target while the utilization was less than the procured quantity.

Table-5.9

Zonal Railway	Years	Excess procurement wrt RB Target [lakh cum]	Avg Percentage of Excess procurement wrt RB Target	Short Utilisation wrt procurement [lakh cum]	Avg Percentage of short utilization wrt procurement
ECoR	2010-11 to 13-14	3.07	16.83	2.11	9.44
ECR	2011-12 to 14-15	1.75	7.95	1.01	4.18

[152] *CR-9, ECR-37, ECoR-15, NCR-2, NER-24, NFR-38, NR-14, NWR-43, SCR-23, SECR-23, SER-42, SR-11, SWR-29, WCR-1, WR-11*
[153] *CR-1954, ECR-916, ECoR-1071, NCR-938, NER-1571, NFR-2786, NR-2034, NWR-12244, SCR-3712, SECR-1204, SER-1648, SR-1497, SWR-3427, WCR-503 and WR-1984*
[154] *CR-3, ECR-18, NCR-2 NFR-7, NR-2, NWR-17, SECR-4, SER-7 and WR-7*
[155] *NCR-(C-2 B-3), NER-(C-5 B-5) NWR-(C-5 B-6), SECR-(C-14 B-19) and SER-(C-8 B-49)*

ER	2010-11	1.50	25.00	0.50	6.67
NCR	2012-13 & 14-15	1.91	21.35	0.63	5.65
NER	2011-12	0.30	12.00	0.15	5.36
NFR	2010-11 to 11-12 & 14-15	1.23	11.59	1.53	13.19
NWR	2012-13 & 14-15	2.55	42.50	1.08	12.45
SCR	2014-15	1.13	14.13	0.85	9.31
SECR	2011-12	0.57	14.25	0.47	10.28
SER	2010-11 to 12-13 & 14-15	3.20	12.53	0.45	1.49
SR	2010-11,13-14 & 14-15	1.01	6.71	1.78	10.08
SWR	2011-12 to 13-14	1.20	12.28	2.28	20.35
WR	2014-15	0.46	9.20	0.25	4.58
Total		**19.88**	**15.87**	**13.09**	**8.69**

As could be seen from the table above, procurement was in excess by 19.88 lakh cum in 13 ZRs with reference to RB's target and the per cent of excess procurement ranged from 6.71 *per cent* (SR) to 42.50 *per cent (NWR).* Utilization was less by 13.09 lakh cum and the per cent of short utilization of procured quantity ranged from 1.49 *per cent* (SER) to 20.35 *per cent* (SWR). The above position indicated that procurement of excess quantum of ballast either with reference to RB's target or with that of actual consumption lacked adequate justification.

(i) Working of Ballast Depots

Position of Ballast Depots

As on 1st October 2010, 310 Ballast Depots[156] were in existence in IR. 35 depots[157] were opened and 32 depots[158] were closed during the review period. As on 31 March 2015, 303 Ballast Depots were functioning. Justification for opening of 11 depots (ECoR-2, NCR-2, SCR-7) and closing of 16 depots (NCR-6, SCR-7, SR-3) were not made available to audit. Approvals of CTEs concerned were not obtained in respect of opening of 15 depots (ECoR-12, NR-1, WCR-2) and closing of six depots (ECoR-5, SER-1). However, in respect of three depots of SR, no data was made available to Audit.

Test check of measurements by higher authorities for Depot collection

As per RB's instructions of May 2007, 10 *per cent* test check of recorded measurements should be exercised by Sr.DEN/ DEN or Dy.CE/CN and at least

[156]*CR-40, ECR-2, ECoR-35, ER-6, NCR-21, NER-4, NFR-8, NR-16, NWR-16, SCR-39, SECR-8, SER-3, SR-52, SWR-12, WCR-25 and WR-23*
[157]*CR-3, ECoR-12, NCR-2, NFR-1, NR-2, NWR-1, SCR-7, SWR-3, WCR-2 and WR-2*
[158]*CR-7, ECoR-5, NCR-6, NFR-1, NR-3, SCR-7, SECR-1, SER-1, SR-3, SWR-2 and WR-6*

30-33 *per cent* of the bills passed shall be test checked. At no stage, more than three bills in succession shall be missed from the test check.

A review of test check of measurements by higher authorities in the 91 selected ballast depots[159] of Zonal Railways revealed the following deficiencies in contravention of stipulated instructions.

- Ground level certificates were not furnished in respect of 1674 stacks (NER-1490, NWR-184).
- There was shortfall in test check of stack measurements by higher authorities in 30 contracts (CR-4, ECoR-10, NCR-9, SECR-2, SER-3 and WR-2). The test check of measurements by higher authorities ranged from 0 to 9.17 *per cent*[160] as against the stipulated minimum of 10 *per cent*.
- Similarly, there were shortfalls in test check of bills passed in 26 contracts (CR-2, NCR-4, NR-11, NWR-2, SECR-1, SER-3 and WR-3). Percentage of bills covered under test check ranged from 0 to 28.5 *per cent*[161] as against the stipulated minimum of 30 *per cent*.
- Test check of more than three bills in succession was missed in 150 bills of 18 contracts of 7 zones[162].

Comparison of wagon measurement and stack measurement

As per Para 266 (3) of IRPWM, if the wagon measurements vary from the recorded stack measurements by more than five *per cent*, the matter should be investigated immediately and reported to Divisional Engineer.

Test check of the selected depot records indicated that the variation was within the permissible limits during the review period in all the Zonal Railways. However, in respect of Gandhidham depot of WR (ADI division), wagon measurements in respect of 1586 stacks measuring 3.07 lakh cum was not recorded. Hence, comparison of stack measurements vis-à-vis wagon measurements was not susceptible to cross check in audit. The instructions contained in IRPWM were not followed.

Non/ short acceptance of ballast by the consignees

As per Railway Board policy of May 2007, final payment for supply and loading should be based on lower of the two measurements, viz., measurements taken at the originating depot (consignor) and measurements taken by the field SSEs (consignee). A comparison of quantity of ballast loaded into the wagons

[159] *CR-9, ECR-1, ECoR-11, ER-2, NCR-6, NER-3, NFR-4, NR-5, NWR-5, SCR-10, SECR-3, SER-2, SR-13, SWR-4, WCR-7& WR-6*
[160] *CR-5.45 to 9.17, ECoR-0 to 7.11, NCR-0 to 6.61, SECR-0, SER-0 and WR-0*
[161] *CR-14.28 to 22, NCR-0 to 15, NR-0 to 28.57, NWR-27 to 28, SECR-0, SER-0 and WR-0 to 10*
[162] *CR-2 (13 bills), NCR-5 (53 bills), NR-1 (2 bills), NWR-3 (3 bills), SECR-1 (11 bills), SER-3 (6 bills) and WR-3 (62 bills)*

as per the challans raised by depot SSEs (consignor) with that accepted by the field SSEs (consignees) in 27 test checked depots of five zones (ER-2, NCR-6, NWR-5, SCR-10 and SWR-4) revealed that challans for a quantity of 87,480 cum[163] of ballast had not been accepted by the consignees. In the circumstances, payment made to the tune of ` 7.15 crore[164] for the above quantity was without the acceptance certificate from the consignee.

(ii) Inconsistency in RB's instructions in provision of ballast

As per Para 263 of IRPWM (2004), the minimum clean stone ballast cushion below the bottom of sleeper for BG LWR track should be 250 mm and corresponding requirements for straight track and curved track are 1.952 and 2.032 cum per meter respectively.

Accordingly, project estimates provided 250 mm ballast cushion and the same were sanctioned by the competent authorities. However, Railway Board, vide ACS No. 117 dated 19 May 2009 to IRPWM had revised the ballast cushion on BG track as follows.

For all track renewal works	300 mm	Where ever possible 350 mm is to be provided
For all DL, GC and NL Projects	350 mm	
Loop Lines	250 mm	

The same was reiterated vide ACS No. 126 dated 21 June 2011 of IRPWM. Further, RB, in July 2013, instructed that a ballast cushion of 250 mm only is to be provided in GC projects where the projected traffic was less than or equal to 5 GMT. These revised instructions were not reflected by way of corrections in the IRPWM.

Out of 17 GC projects,[165] having projected traffic density of less than 5 GMT, completed during the review period, three projects were provided with higher ballast cushion based on the correction slip to IRPWM dated 19 May 2009, though initial estimates[166] were sanctioned for 250 mm ballast cushion. Provision of higher ballast cushion was in violation of RB's instruction (2013) that a ballast cushion of 250 mm only is to be provided in GC projects where the projected traffic was less than or equal to 5 GMT. This had resulted in

[163] *ER-508, NCR-3130, NWR-4551, SCR-2404 and SWR-76887*
[164] *ER (0.028), NCR (0.162), NWR (0.225), SCR (0.120) and SWR (6.614)*
[165] *ECoR-1, ER-1, NCR-1, NER-1, NFR-2, NWR-3, SCR-1, SER-1, SR-4, SWR-1 and WR-1*
[166] *(i) Rupsa-Bangariposi NG to BG line (90 km) of SER: Initial estimate sanctioned (2006)*
(ii) Kolar-Chikkaballapura NG to BG (85 km) of SWR: Initial estimate sanctioned (1998); I Rev Est (2007)
(iii) Rajpipla-Ankeleswar (64 km) of WR: Initial estimate sanctioned (2008).

avoidable extra expenditure/ liability on the project costs to the tune of `5.9 crore in respect of 3 GC projects[167] except in one project of NER and one project of SR where data was not available.

(iii) Booking of expenditure on ballast in the Works Registers

Para 1472 E to 1475 E details instructions for maintenance of Works Registers in respect of works undertaken by the Railway Administration for effecting control over expenditure on works with reference to estimates, budgetary control, etc.

A review of the booking of expenditure on ballast consumed by the Special works in the Works registers revealed the following:

Table-5.10

Sl	Details of special works and projects	No of Works
1	Completed	552[168]
2	Works Registers were not maintained	80[169]
3	Quantity of Ballast consumed for the works was not made available to Audit	192[170]
4	Amount not booked in the Works Registers under Ballast sub head, though ballast had been consumed for the works	34[171]

It was evident from the above, that records of actual consumption of ballast for special works and projects and the related expenditure were not maintained by the Railway Administration. In respect of 280 works (where data was made available to Audit), though 13.03 lakh[172] cum of ballast was consumed for 34 works, no expenditure had been booked in the Works Registers under Ballast sub-head. Thus, it is clear that booking of expenditure to special works was not as per the actual expenditure incurred, ignoring the principles of allocation of expenditure.

(iv) Monitoring mechanism in utilization of ballast for Projects

Table-5.11

Sl	Details	No. of projects
1	Completed	113

[167] *Rupsa-Bangariposi NG to BG line (90 Km) of SER-Rs.1.99 crore, Kolar-Chikkaballapura NG to BG (85kms) of SWR-Rs.1.97 crore and Rajpipla-Ankeleswar (64kms) of WR-Rs.1.94 crore*
[168] *CR-39, ECR-26, ECoR-22, ER-50, NCR-55, NER-25, NFR-15, NR-33, NWR-43, SCR-66, SECR-11, SER-60, SR-11, SWR-18, WCR-54 and WR-24*
[169] *ECR-17, NER-12, NR-7, NWR-15, SER-28 (not made available) and SR-1*
[170] *CR-15, ECR-1, NCR-45, NER-12, NWR-18, SCR-63, SER-28 and WCR-10*
[171] *CR-1, ECR-9, NCR-2, NFR-5, NR-6, SER-2, SWR-5 and WCR-4*
[172] *CR-0.02, ECR-7.28, NCR-0.80, NFR-3.12, NR-1.01, SER-0.17, SWR- 0.24 and WCR-0.39*

2	Data for quantity of ballast utilized for project was not made available to Audit	07[173]

As brought out in the Para 5.2.6.4 above, in respect of 106 completed construction projects, the quantity provided in the estimates of 38 projects was higher by 4.89 lakh cum with reference to assessment of requirement made in audit. For those cases where data was made available, it was noticed that during execution of 56 projects, 11.21 lakh cum[174] of ballast had been utilized in excess as compared to quantity assessed by audit. The extra expenditure due to provision of excess ballast with reference to actual requirements for 56 completed projects worked out to ` 111.72 crore[175]. Further, despite providing ballast in excess of actual requirements, substantial deficiency of 2.04 lakh cum[176] of ballast on track existed at the time of handing over of 17 completed projects by CN unit to open line units. CN unit had agreed to accept an amount of `18.76 crore[177] being the cost for procurement and insertion of 2.04 lakh cum of ballast to make up deficiencies by open line chargeable to the respective projects. The total extra expenditure/ liability worked out to `130.48 crore[178] in respect of 56 completed projects.

In a reply of December 2015 to Audit's special letter for one NL project (KTR-HRR), SWR Administration stated that the excess utilization of ballast was due to regrading of track at certain locations and for elimination of undulations formed on the track as track was commissioned after a lapse of 4 years from the completion of track linking works. The contention of the Railway Administration is not acceptable in Audit since re-grading was to be done with earth and not with ballast. Further, since the formation in the NL project was done with good soil with blanketing of 1m height to the required specifications, the contention that excess ballast was used to eliminate undulations of track cannot be accepted.

The above was indicative of lack of adequate monitoring and control in procurement and utilization of ballast during execution of projects.

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[173] *ECR-1, NER-2, SER-2 and SR-2*

[174] *CR-1 (0.10), ECR-4 (0.86), ECoR-3 (0.19), ER-9 (0.44), NCR-1 (0.18), NER-6 (0.49), NFR-5 (2.12), NR-2 (0.35), NWR-7 (2.95), SCR-2 (0.49), SER-4 (1.15), SR-3 (0.40), SWR-8 (1.39) and WR-1 (0.10)*

[175] *CR-0.50, ECR-5.54, ECoR-1.73, ER-6.00, NCR-1.16, NER-8.97, NFR-30.46, NR-3.41, NWR-21.26, SCR-3.44, SER-9.96, SR-3.13, SWR- 15.45 and WR-0.71*

[176] *ER-0.02, NFR-0.18, NWR-0.69, SCR-0.22 and SWR-0.93*

[177] *ER-2 (0.13 crore), NFR-2 (2.20 crore), NWR-5 (4.96 crore), SCR-1 (1.60 crore) and SWR-7 (9.87 crore)*

[178] *CR-1 (0.50 crore), ECoR-3 (1.73 crore), ECR-4 (5.54 crore), ER-9 (6.13 crore), NCR-1 (1.16 crore), NER-6 (8.97 crore), NFR-5 (32.66 crore), NR-2 (3.41 crore), NWR-7 (26.22 crore), SCR-2 (5.04 crore), SER-4 (9.96 crore), SR-3 (3.13 crore), SWR-8 (25.32 crore) and WR-1 (0.71 crore)*

(v) Speed restrictions on account of ballast deficiencies

There was one permanent speed restriction for four years for a length of 14.70 km in two P Way sections of NWR and there were 28 cases (NR-13, NWR-1, SECR-6, SER-5 and WCR-3) of temporary speed restrictions for period ranging from 5 days to 12 months imposed due to ballast deficiency, having an impact on the movement of trains, in respect of 54 P Way sections covering 90 km under 23 SSE units.

The work of complete track renewal (CTR-P) for 14.66 km from Merta Road to Merta City in Jodhpur division of NWR was taken up and completed in August 2011. As against the assessed requirement of 35184 cum of ballast, a quantity of only 1760 cum (5 *per cent*) was inserted during CTR work for which no specific reason was given in the variation statement. Permanent speed restriction of 30 KMPH for goods trains was imposed with effect from 01 April 2011 and is being continued due to ballast deficiency. Chief safety officer/ NWR, in his safety audit report (30 May 2014) commented that the ballast was deficient between Merta Road and Merta City to the extent that sleepers were supported by rail instead of sleeper supporting the rail. Thus, execution of other elements of CTR work viz. replacement of rails, sleepers, fittings, etc. was not justified and did not serve the purpose. The deficiency of ballast would have an adverse impact and shorten the life of rails, sleepers and other fittings apart from imposition of permanent speed restriction.

(vi) Verification of records for supply of ballast

Instructions for maintenance of stack measurement register/ ballast passing register are enumerated in Para 267 of IRPWM and reiterated in RB's directives of 25 May 2007.

Examination of records pertaining to procurement of ballast in 91 ballast depots and for 25 *per cent* of the completed projects under CN units (52 projects,[179] except projects of NER, SER and WCR where the data was not available) revealed the following deficiencies.

a. Ballast passing register in the prescribed format was not maintained in three projects of ECR, two projects each of SECR and WR and one depot of SER. Ballast ledgers were maintained in two depots and two projects of SWR.

b. Though bill passing registers were maintained, they did not contain

- Reference to agreement details in four depots of ECoR
- Date of measurements in three depots of ECoR

[179] *CR-2, ECR-3, ECoR-1, ER-14, NCR-2, NFR-2, NR-5, NWR-3, SCR-3, SECR-2, SR-11, SWR-2 and WR-2*

- Measurement details in one depot of NFR
- Details of physical properties in two depots each of ECoR and NCR, one depot each of NER and NFR, three depots and two projects of SWR.
- Results of quality check in ten depots and one project of ECoR, two depots each of NCR and SECR, one depot of NFR, four depots and two projects of SWR.
- The entries in the MBs differed from that in bill passing registers in one depot of NFR, two depots of ECoR and two projects of SECR.

(vii) Procurement of ballast directly from quarry

Ballast was procured directly from quarries through Hopper Wagons to the required locations in three Zonal Railways (ER, ECR and NFR). As per the additional special conditions of the contract, the contractor should load wagons/hoppers to the full carrying capacity including permissible overload. Instances of under-loading of ballast in the wagons were noticed by adopting the actual weight recorded in the RRs (generated through FOIS or weighment through weigh bridges). The difference between the actual weight and the net loadable weight, taken as under loaded quantity, worked out to 1,24,818 tonnes with a financial loss of ` 8.64 crore due to non-recovery of freight charges from the contractor as per additional special conditions of contract.

5.2.6.9 Issues specific to Zonal Railways

(i) NWR: Irregular booking of expenditure under ballast sub-head

As per explanatory notes in F(II), the cost of ballast and the expenditure incurred for transportation of the same should only be booked under ballast sub-head/ detailed head in the works registers of the projects. However, it was noticed that expenditure incurred towards pay and allowances of departmental establishments, payment to casual labour, stores supplied from stock and productivity linked bonus, to the extent of ` 7.02 crore have been irregularly booked to ballast sub-head as detailed below:

Table-5.12

Sl.	Project	Amount booked in detailed head 44 in PU 1, 2, 5, 8 & 10 (`)
1.	Alwar-Harsauli DL	7840880
2.	Dausa-Bandikui DL	7876528
3.	Jaipur-Dausa DL	15984718

4.	Bangurgram-Ras NL	1102464
5.	Ajmer-Pushkar NL	26710
6.	Harsauli-Rewari DL	37380383
	Total :	**70211683**

(ii) NWR: Non completion of NL project due to delay in procurement of ballast

Dausa – Didwana (part of Dausa-Gangapur city New BG line project) NL section (41 km) was targeted to be completed and commissioned in 2012-13. A contract was awarded in April 2011 for procurement of 94580 cum of ballast for the project. The contractor could supply only 49913 cum of ballast by February 2014 even after obtaining four extensions. Hence, the contract was terminated in February 2014. Fresh contract for procurement of balance quantity was also not awarded as of July 2015. Thus, undue delay in procurement of ballast resulted in delay in completion of the project.

5.2.7 Conclusion

Assessment of ballast for open line maintenance was not need based, impacting safety and riding comfort in trains. There was no uniformity in assessing the requirements for procurement process. Further, while assessment of requirement of ballast for special works was not based on ground realities, assessment of ballast for projects was more/ less as compared to the norms prescribed in IRPWM. Only a meagre quantity of existing ballast was estimated to be available during gauge conversion of projects.

Lack of planning and co-ordination in execution of contracts and unrealistic fixation of completion dates in contracts had resulted in grant of liberal extensions under 17 (A) of GCC involving additional expenditure by way of payment under price variation clause. Non follow up of recovery of Royalty charges, shortfall in quality checks and test check measurements by higher authorities, in contravention of the stipulated limits, was indicative of ineffective contract management.

Monitoring mechanism and control in procurement and utilization of ballast was not effective due to several reasons viz., provision of ballast in excess of actual requirements, existence of deficiency after completion of project and non-recovery of freight charges from the contractors for under loaded quantity as per additional special conditions of contract etc.

5.2.8 Recommendations

- Assessment of requirement of ballast for open line maintenance, special works and projects should be based on the norms prescribed in IRPWM.
- Contract Management should be strengthened to plug leakages in quantity and measurement checks by higher authorities and to avoid additional expenditure by the way of PVC variation due to extensions being granted in the light of unrealistic targets.
- Monitoring mechanism and control in procurement and utilization of ballast should be improved to avoid extra liability/ expenditure on projects due to provision of ballast in excess of requirements.

5.3 South Eastern: Injudicious decision in construction of Diesel Railway (SER) Multiple Unit (DMU) Factory at Haldia

Investment decision for DMU Factory at Haldia resulted in infructuous expenditure of ` 116.52 crore as the objective to develop and adapt DMU technologies in departmental unit was not achieved

In the Budget Speech of 2010-11 setting up of a Diesel Multiple Unit (DMU) Factory in joint venture (JV)/ public private partnership (PPP) mode at Sankrail on available Railway land under Kharagpur Division of South Eastern Railway was announced. Railway Board constituted (March 2010) a four member committee to assess the (a) optimal capacity of the factory with product mix of self propelled vehicles, (b) broad performance specifications for DMU, and (c) investment and land requirement, etc.

In its report (June 2010), the committee opined that the factory was necessary as the Integral Coach Factory (ICF), Chennai was not able to meet the growing demand of DMUs. It was further expressed that even though the project had been proposed to be set up as a JV/PPP mode, going by the lack of success so far in JV/PPP projects, it would be advisable to adopt a two phase approach. A departmental unit in Phase I, which would develop and adapt DMU technologies for Indian Railways and International Railroads as a Technology Incubation Centre, and a JV/PPP unit in Phase II for full scale production of DMUs.

The total cost of the project was estimated to be ` 262.66 crore in which Phase I was estimated at ` 70.57 crore. It was proposed that the departmental unit under Phase I would manufacture 8 to 12 coaches per month largely covering assembly, painting, furnishing and testing of fabricated shell from ICF and in Phase II there would be full scale production of DMUs and Self Propelled Accident Relief Trains (SPARTs).

The Railway Board (July 2010) handed over the construction of Phase I to Rail Vikas Nigam Limited (RVNL). The work could not, however, be started because of local hindrance and was therefore relocated from Sankrail to Haldia (February 2011). RVNL awarded (July 2011) the construction work for DMU factory at Haldia at a cost of ` 98.18 crore with scheduled date of completion in December 2012. The work was completed in June 2013. The production could not commence due to local disturbances at DMU factory, Haldia and the work was expected to start from the end of June 2014. However, it was noticed by

Audit that furnishing works of both Trailer coaches and Power coaches were outsourced. Moreover, till July 2015, the furnishing works for DMU Power Coaches was executed at Kharagpur Workshop, while furnishing work of Trailer coaches were done at Haldia. Thus, despite total investment of ` 116.52 crore on the project (setting up of Factory at Haldia) upto July 2015, the desired objective of departmental unit in Phase I to develop and adapt DMU technologies for Indian Railways and International Railroads as a Technology Incubation Centre, was not achieved.

On the issue being pointed to the Railway Administration (February 2015 and April 2015), it was intimated by them (July 2015) that furnishing of DPCs was yet to be undertaken and all out effort has been initiated to achieve full scale departmental production in the year 2015-16.

The above reply is not acceptable because till date (July 2015), the furnishing works are being done by outside agency and there was also no proposal to construct the Phase II in near future. SER Administration is also planning to procure Shells from trade. The DMUs could in any case be procured from private manufacturers or a Government Enterprise like BEML as was procured earlier (January 2012, March 2012, September 2012, June 2013, etc.) by Ministry of Railways (Railway Board). Hence there was no need for this huge investment of ` 116.52 crore which remained infructuous. Moreover, when in March 2013, Railway Board advised SER to explore sources of shells from trade or newly acquired wagon from Public Sector Undertakings (PSUs) as ICF, the only manufacturer of DMU coaches intimated that they were unable to meet the demand for DMU coaches. Further, Additional Member (Mechanical Engineering) during his visit to Haldia (February 2015) expressed that facilities for manufacture of shell in Phase-II and expansion of the factory through PPP mode are highly capital intensive and there may not be any takers for it. He therefore, directed that developing sources/vendors near Kolkata for fabrication and supply of shells may be explored. The Railway Administration in their reply of August 2015 in connection with setting up of JV through PPP mode for phase II expansion of the project, had themselves accepted that no progress had been made at Railway Board level in this regard.

Thus, the total investment of ` 116.52 crore incurred on the project upto July 2015 proved to be infructuous since the objective to develop and adapt DMU technologies in departmental unit under Phase I was not achieved and no progress had been made in respect of Phase II of the project.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.4 South Eastern Railway (SER): Non-realisation of land licence fee amounting to ` 11.20 crore from plot holders of Adra Division

Due to failure of the Railway Administration to renew the agreements on time, revise the license fee, pursue and raise demand for outstanding license fees as per codal provisions, Railway Administration failed to realise the outstanding licence fee of ` 11.20 crore

Licecce fee is fixed at prescribed percentage of land value. RB's instructions (February 2005) stipulates that the land value, fixed on 1 January 1985, will be increased every year on the 1st of April, starting from 1 April 1986, at the rate of 10 *per cent* over the previous year's land value to arrive at the land value for the following year based on which the annual licence fee will be fixed. From 1 April 2004 onwards, the land value was to be increased at the rate of 7 *per cent* every year over the previous year's value.

In the above instructions, RB also directed that in each case of licensing, proper agreement must be executed between Railway Administration and licensees before the licensee is given possession of the land/ plot. This must be strictly followed and for any violation of these instructions, the official handing over the land before the execution of agreement shall be held personally responsible.

As per Indian Railway Code for the Engineering Department (Para 1025), recovery of licence fee should be done in advance every year with a grace period of one month for occupying engineering plot for one year or more. In case of failure, occupant shall have to pay liquidated damages at the rate of one *per cent* per month or part thereof to be reckoned from the due date to the date of actual payment. The ibid Code (Para 1024) also stipulates periodical revision of licence fees by the Railway Administration in consultation of their FA&CAO.

Further, Para 1141 of the Indian Railway Accounts Code, Volume I stipulates that there should be no delay in preparing bills on mutually accepted basis or as per agreement. The realization of the bills should be vigorously pursued with the parties and cases of delay in payment should be promptly brought to the

notice of the Executive officer concerned for expeditious action to recover the outstanding dues or to discontinue the service rendered to the party or such action as may be deemed necessary.

Review of records (January 2015) of Engineering Department Adra Division in connection with the licensing of plots/ shops for commercial and other purpose revealed that 1,314 plots/ shops had been allotted to outsiders. However, in respect of 1,215 plots (92.46 *per cent*), licence agreements are due for renewal and hence licence fees were not revised. Audit further revealed that -

- In respect of 231 plots, the plot holders were paying licence fees at old rates.
- Out of 1,215 plots, occupants of 949 plots have not paid any licence fees. The outstanding dues, as calculated by SER Administration, against these 949 plot holders of 13 stations of Adra division was ` 11.20 crore as on 31 March 2015.
- In respect of balance 35 plots, SER Administration failed to calculate arrear licence fees due for recovery from the occupant.
- A detailed check of 24 cases of plot holders was conducted in Audit where it was seen that outstanding licence fee pertained to the period prior to 2006-07 also.

Thus, due to failure of SER Administration to renew the agreements on time, revise the license fee, pursue vigorously and raise demand for outstanding license fees as per codal provisions, the realizable licence fees started accumulating year after year and the plot holders in possession of the plots gradually stopped paying licence fees to the Railway Administration leading to outstanding amount of ` 11.20 crore as on 31 March 2015.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.5 Western Railway (WR): Avoidable delay in commissioning of IOCL siding facility at Bangrod resulting in loss of revenue ` 65 crore

Delay in commissioning of a 'Deposit Work' having substantial earning potential led to loss of revenue amounting to ` 65 crore

M/s. Indian Oil Corporation Limited (IOCL) in December 2005 proposed to Western Railway a Deposit Work on Railway premises for commissioning of

an Assisted Siding on standard terms at Bangrod Station of Ratlam Division. This work was to be executed for dispatch of Petroleum (POL) products brought from Vadodara through a pipeline. The initial cost of the work estimated and sanctioned by Western Railway in March 2008 was ` 26.79 crores. The estimate was however revised four times due to change in scope of work related to additional S&T infrastructure, provision of CC Apron, FOB etc. The estimate was last revised to ` 38.7 crore in October 2012.

The work which commenced in January 2009 was completed in March 2011. However, it was notified for opening only on 20 July 2012 after sanction of Commissioner of Railway Safety (CRS) on 07 May 2012. Review of the records related to construction and commissioning of this siding revealed the following:

- Railway Administration commenced the work on deposit terms without obtaining advance receipt of the estimated cost of the work as per procedure laid down in Para No. 735 of Indian Railway Code for Engineering Department. Though four years have elapsed since completion of the work of the siding (March 2011), the expenditure incurred on this deposit work has not been finalized and advised to IOCL (March 2015).
- Though the work was completed in March 2011 there was inordinate delay in (April 2011 to April 2012) setting right basic deficiencies such as yard being in infringement of gradient requiring gradient condonation, rectification of change in gradient within 30 meters near points and also non submission of requisite dispensation under relevant provisions of General Rules (GR) required to be taken into consideration during drawing stage itself. This resulted in delay in sanction by CRS for Commissioning of the siding being issued only in May 2012.

When this issue was taken up in September 2014, Railway Administration in their reply (December 2014) stated that all laid down procedures have been followed. There was no delay in commissioning of the siding from Railway side being a deposit work. The work can only be executed after the required deposit is made by the concerned party. The dues amounting to `1.97 crore were still pending; however, the corresponding work as provided in the sanctioned estimate have also not been executed by the railways. The reply is not tenable due to delay on the part of the Railway Administration in attending to the CRS observations and setting right the deficiencies. Money was demanded in piecemeal. Railways should have submitted the requisite details

to M/s IOCL to complete the remaining works. Moreover, a delay of over one year in setting right the basic deficiencies which mostly related to approval of WR Administration for the deviations that needed to be condoned reflects lack of committed approach.

Considering its earning potential since its opening in July 2012, Railway Administration should have accorded priority for timely execution of the project. This has resulted in loss of potential earning estimated at about ` 65 crores (for 12 months from July 2011 to June 2012) based on the actual average earning of `5.41 crore per month of the siding.

The matter was brought to the notice of Railway Board in August 2015; their reply has not been received (May 2016).

5.6 South Central Railway (SCR): Execution of traffic facility works without proper justification

Execution of works for providing coach maintenance facilities at two stations without proper justification resulted in avoidable capital investment of `54.42 crore on a new line project taken up on socio-economic considerations with low ROR

Codal provisions (Paras 201 and 204 of IR code for Financial department) stipulate that expenditure incurred on creation of new asset should be financially justified and sanctioned prior to its actual incurrence. A fresh investment is considered financially justified if the Rate of Return (ROR) from the created asset is expected to be more than prescribed limits[180]. RB also instructed (June & July 2008) that economy is required to be observed in respect of works taken up on socio-economic considerations and changes in the scope summarily rejected unless extenuating circumstances were established.

Review of construction department of SCR Administration revealed that-

- Railway Board sanctioned (1998-99) construction of a new line between Bidar-Gulbarga at a cost of `242.42 crore on socio economic considerations[181]. The Government of Karnataka agreed (November 2010) to share 50 *per cent* of the cost of the project.
- During the execution of project, Central Railway Administration (CR) requested (July 2013 and January 2014) South Central Railway Administration (SCR) to provide coach maintenance facilities at Gulbarga

[180] 14 *per cent* under DCF method or 7.5 *per cent* under conventional method on the initial estimated cost.
[181] The Rate of Return (ROR) of the project was estimated to three *per cent* only.

at cost of ` 41.10 crore; chargeable to the new line project. SCR Administration agreed to provide the same and took up (March 2014) work for coach maintenance facilities at Gulbarga (cost- ` 42.90 crore) as a part of the new line project. Railway Board sanctioned (March 2014), with material modification for pit line at Gulbarga, the revised estimate of the new line work (cost ` 844.15 crore).

- Meantime, SCR Administration commenced (December 2013) the work of another coach maintenance facility at Khanapur station (adjacent station to Bidar) and executed it by incurring ` 11.52 crore without prior approval of the Railway Board. The cost of work was not included in revised estimate also.

In this connection, Audit is of the view that:

- Execution of works of coach maintenance facilities at Gulbarga and Khanapur as a part of a new line project work without the sanction of railway Board was in contravention of codal provisions and Railway Board instructions.
- Although SCR Administration had rejected the proposal of CR Administration (2010) for provision of coach maintenance facilities at Gulbarga on the grounds that ROR of new line would be very less (three *percent*) , traffic expected just after opening of the new line would be very little and also the original estimate for the new line had no sanction for the coaching facility work, they changed their decision and the scope of work. They also did not observe economy as envisaged in respect of works to be taken up on socio-economic considerations. They took up the work for coaching facility at Khanapur without prior approval of the Railway Board. The regularisation of amount spent was pending (March 2015).

When the matter was taken up (July 2014) with the SCR Administration, they stated (January 2015) that the detailed financial justification of the proposals based on traffic projections were not available and the works were taken up on urgency due to laying of foundation of coaching maintenance works by the Minister of Railways programmed on 16.11.2013 (Khanapur) and 23.02.2014 (Gulbarga). It was further stated that the coach maintenance facilities were warranted as a lot of future passenger traffic was expected. Their reply was not tenable as these traffic facilities could be taken up separately after assessing the need and justification based on the increase in passenger traffic instead of charging to the new line project. The existing coaching facilities at SCR were

quite sufficient to maintain the small number of coaches on operation on new line.

Thus, execution of works of provision of coach maintenance facilities at Gulbarga and Khanapur without proper justification resulted in avoidable burden of ` 54.42 crore on the new line project of Bidar-Gulabarga taken up on socio-economic considerations with low ROR.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.7 North Eastern: Blocking up of capital with State Government Railway (NER) towards compensation of land

Non observance of codal provision by Railway for regulating payments to State Government regarding compensation for land acquisition resulted in blocking of capital of ` 21.06 crore besides a deferred dividend liability of ` 4.21 crore.

As per codal provision 940 of Indian Railway Code for Engineering Department (940E) the Railway Administration should ensure that amount deposited by them with the State Government towards the payment of award during land acquisition is only to the extent necessary for immediate payment and suitable arrangements are also entered into with the State Government to ascertain from them the requirement of funds every month in advance. Audit scrutinized two new line projects and the position that emerged is as under.

Hathua Bhatni new line project (79.74 kms) was sanctioned in the year 2006-07 at an estimated cost of ` 203.65 crore. Out of this an amount of ` 41.20 crores was earmarked for compensation to land owners for acquisition of 650.614 acres of land required for the new line project. An amount of ` 46.23 crore (112 *per cent*) against the earmarked amount of ` 41.20 crore was paid (March 2006 to June 2010) to State Government as demanded by the State Government, for payment as compensation to land owners. However, total land acquired by March 2015 was only 326.043 acres (i.e. 50.12 *per cent*) against 650.614 acres of land required. Hathua-Bathua Bazar-Panchdeori-Chauri-Bhatni being a new line project, was sanctioned for a total of 79.74KMS. The part land acquired was between Hathua-Bathua Bazar (22

KM) and the laying of new line between these two stations has been completed and the same has been opened for traffic on 30 November 2010. Similarly, acquisition of land between Bathua Bazar-Panchdeori (11 KM) has been completed and the work of laying of line is under progress.

A similar case of another new line project, i.e. Chhitauni-Tamkuhi Road, which is a part of Paniyahawa-Chhitauni-Tamkuhi Road new line project (58.88 kms), was sanctioned in 2006-07 at an estimated cost of ` 235.00 crore. Out of above, an amount of ` 33.53 crore was earmarked for compensation to land owners for acquisition of land. An amount of ` 11.48 crore (34.23 *per cent* against the earmarked amount) was deposited (December 2008 to March 2011) with the State Government for payment as compensation to land owners. However, no land has been acquired so far (March 2015).

The Railway Administration had paid the money as and when demanded by the state government without ascertaining and monitoring whether any process for the land acquisition has been started or not. The accounts department, which is responsible for internal audit/control, also did not object to the payment in violation of the codal provision of Para 940E.

The issue was raised with the Railway Administration in May 2012. In reply Railway Administration (September 2012 and May 2014) stated that;

- The payment was made as per demand of the State Government after concurrence of the Associate Finance and after sanction of the General Manager.
- Since both the new line projects are sanctioned works and detailed estimate of these projects were already sanctioned and the cost of land was booked to concerned projects, the expenditure on land acquisition was not kept under objection book.
- The maintenance of the details of land acquired in form E-949 was not being done since long and Railway Administration assured that appreciating the view of Audit the information has been prepared and reconciled.
- Copies of the paid vouchers will be obtained from the district authorities and submitted to associate accounts for regularization of the advance so paid.

The remarks of the Railway Administration are not acceptable as;

- In Para 940 of the Indian Railway Code for the Engineering Department it is clearly mentioned that the Railway Administration should ensure that the amount deposited in advance are only to the extent necessary for immediate payment. Out of a total amount of ` 57.71 crore deposited with the State Government (` 46.23 crore for Hathua-Bhatni and ` 11.48 crore for Chittauni-Tamkuhi Road which included an accrued interest of ` 5.39 crore irregularly credited to the account of DM/Gopalganj), State Government could only disburse ` 42.04 crore (72.85 *per cent*) and the balance is still lying with the State Government.
- As per para 856 of Indian Railway code for the accounts department Part-I, in absence of vouchers, the expenditure should be classified as 'held under objection and posted in objection book' and administration itself agreed that vouchers are not available as yet.
- Railway Administration has still (March 2015) not been able to obtain the vouchers from the State authorities and submit the same to accounts for regularization of the advance. Since the amount of ` 57.71 crore was deposited as advance to State Government, the amount will lie as suspense balance and will not be regularized for want of vouchers.

Thus, non-observance of codal provisions of para 940E in respect of payments has resulted in blocking up of capital to the extent of ` 21.06[182] crore which includes an amount of ` 5.39[183] crore as accrued interest for the last six to seven years besides a deferred dividend liability of `4.21crore.

The matter was brought to the notice of Railway Board in August 2015; their reply has not been received (May 2016).

5.8 Eastern Railway (ER): Avoidable payment of Value Added Tax in procurement of sleepers

Procurement of Concrete Sleepers from Concrete Sleeper Plants located in Jharkhand instead of from those located in West Bengal led to avoidable expenditure of Value Added Tax (VAT) to the tune of `11.58 crore

[182] ` 11.48cr+4.19cr+5.39cr= ` 21.06 crore

[183] Detail of accrued interest ` 3.86+1.53 = ` 5.39 crore

Indian Railways (IR) use Concrete Sleepers (CS) in various works[184]related to Railway tracks. The procurement of CS is centralized at Railway Board (RB). CSs are manufactured in Concrete Sleeper plants (CSPs). The location of CSPs is decided by the RB keeping in consideration the requirements of CSs in view of the ongoing works/ works to be taken up. For establishing CSPs at the desired locations, RB floats Open Tenders (OTs) inviting offers of various agencies along with terms & conditions. After finalization of OTs at RB, contract agreements are signed by Zonal Railways (ZRs) in whose jurisdiction the CSPs are to operate.

The requirements of CSs over various ZRs are assessed in the Annual Conference of Chief Track Engineers (CTEs). Purchase Orders (POs) for the supply of CSs are placed by RB on CSPs taking into account some materials like Special Grade Cement which is supplied by Railway free of cost. The rate of payment of Value Added Tax (VAT) to be paid by CSPs to State Governments at the time of sale of CSs and also the lead involved[185] in supplies of CSs do not emerge as issues for consideration as CSPs are generally within a State and lead involved is more or less the same.

A scrutiny of records (2015) regarding procurement of CS in Eastern Railway revealed that RB placed (December 2009) POs for a total quantity of 701000 CSs on five CSPs (140200 CS each) for manufacture and supply of CS[186] at uniform basic rate of ` 1194 per CS. Out of the five CSPs, two CSPs[187]were located in Jharkhand and the other three CSPs[188] in West Bengal. On the sale of CSs, ZR Administration was required to pay, in addition to the basic cost, the legally leviable Tax[189]. Further, since the concessional tax regime available to the Government Departments had been withdrawn, Central Sales Tax (CST) at normal VAT rates[190] prevalent in the seller's State towards purchase involving inter-state movement of goods was also payable by ZR. The procurement of CSs from two CSPs located in Jharkhand attracted VAT at the prevalent rates (12.5 *per cent* to 14 *per cent*). However, in respect of three CSPs, located in West Bengal, the rate for levying VAT was five *per cent*. Thus, procurement from CSPs located in Jharkhand involved payment of VAT at higher rates amounting to `8.23 crore. This payment could have been avoided had the

[184]Track renewal works, new construction, gauge conversions, doubling works, casual renewals and day to day maintenance of tracks
[185] Distance between CSP and site of work/ depot
[186] Mono-block Pre-stressed
[187] (i) M/s. Muva Industries Ltd., Ranchi and (ii) M/s. Prestressed Udyog (India) Pvt. Ltd., Dhanbad
[188] (i) M/s. Rampurhat PSC Sleepers Pvt. Ltd. Kolkata, (ii) M/s. Strescon Industries Ltd., Kolkata and (iii) M/s. GPT Infraprojects Ltd., Kolkata.
[189]Clause 3.1 of the manufacture and supply orders
[190] Clause 3.3 of the orders *ibid*

quantity procured from CSPs located in Jharkhand been procured from CSPs located in West Bengal either through suitable re-allocation of the allotted quantities of CSs to the West Bengal based CSPs or by setting up one or two CSPs at desired locations in West Bengal as per codal instructions.

Further, RB placed (October 2013) POs for manufacture and supply of 1015000 CSs on the same five CSPs (203000 CSs each) at the basic rate of ` 1589 per CS. This indicated the fact that during the intervening period of four years the avoidable payment of VAT was not taken cognisance by the RB as no CSP was set up in West Bengal to stop CSs supply from Jharkhand. The procurement of CSs from Jharkhand based CSPs resulted in further avoidable payment of ` 3.34 crore on account of applicability of higher rate of VAT.

On this being pointed out (August 2015) by Audit, ZR Administration stated (September 2015) that generally CSs were supplied to various sites from the nearest plants as the lead might increase the transportation cost. Also, the increase/ decrease in VAT rates by State Government could not be predicted in advance as they could even increase/ decrease the rate during the currency of the contract. Hence, ZR Administration was not in a position to take a decision to award the contract on the basis of location of CSP. They had not extended any favour to any CSP by paying VAT at higher rate. Moreover, it was a policy matter to be decided by RB.

ZR Administration reply was not acceptable as the lead and consequential transportation cost had not been a consideration while arriving at the basic cost of CS. Also, VAT rates applicable on the date of supply were to be levied. Further, Audit has highlighted the avoidable expenditure on account of higher rate of VAT and not the extension of favour to any CSP. Such avoidable expenditure would continue till a policy decision is taken to consider the rates of VAT of the respective States at the time of awarding contracts involving suppliers belonging to more than one State.

Procurement of Concrete Sleepers from Concrete Sleeper Plants located in Jharkhand instead of from those located in West Bengal led to avoidable expenditure of Value Added Tax (VAT) to the tune of ` 11.58 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.9 Northeast Frontier: Short realization of maintenance charges due Railway (NFR) to non-revaluation of cost of Defence siding

Non-revaluation by the Railway of the cost of their portion of a Defence Siding after every five years resulted in non-revision of maintenance charges and consequent short realization of ` 7.56 crore from Defence siding for the period April 2003 to March 2015.

Railway Board decided (March 1979) that Railway would revalue the cost of railway's portion of a Defence siding after every five years to determine the maintenance charges on Railway's share of cost of work recoverable from the Defence Department. These charges would be calculated with effect from 1 April 1978 at the rate of 4.5 *per cent* of the updated cost or the cost as per book value, whichever was higher.

A review of records connected with Bengdubi Project Military Siding (BPMS) commissioned in February 1973 in Katihar Division revealed in Audit that-

- The updation of Railway's share of the cost of BPMS due since 1 April 1978 was not done. Railway Administration, however, up-dated the Railway's share of cost for BPMS in April 1988 and effected recovery of appropriate maintenance charges up to March 1993.
- Further, although Railway Board's directives (March 1979) were incorporated in terms and conditions[191], no effective measure was taken by the Railway Administration to revalue the cost of work in Railway's portion of the Siding after April 1988 and the maintenance charges were being recovered at the last arrived and revised rate of April 1988.

Audit made an attempt to derive the revaluated cost of Railway's portion of BPMS as on April 2003, April 2008 and April 2013 and noticed a short realization to the extent of ` 7.56 crore from Defence department towards maintenance charges of Railway's portion of BPMS Siding for the period April 2003 to March 2015 (12 years) due to non-adherence by Zonal Railway Administration to the Railway Board's directive of March 1979.

The matter was brought to the notice of the Railway Administration (July 2013). Their reply received in July 2015 indicated that the revaluation of cost of maintenance of BPMS Siding had not been done by Authorities of concerned Railway Division due to which raising of revised bills was awaited (July 2015).

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

[191] Para 6 (a) (ii) in the Standard Memorandum of Terms and Conditions related to the siding of 1st March, 2005

5.10 North Western: Railway (NWR) — Delay in opening of Hanumangarh-Sri Ganganagar section

Delayed action on the part of Railway Administration led to delay in opening of Broad Gauge Hanumangarh-Sri Gangangar section and consequential payment of ` 4.50 crore towards dividend to General Revenue without any benefit, infructuous expenditure amounting to `2.90 crore on salaries paid to personnel engaged in track maintenance work and loss of earnings amounting to ` 1.06 crore

Detailed estimate of Suratpura-Hanumangarh-Sri Ganganagar GC project was sanctioned by Railway Board in June 2009 at a cost of ` 516.23 crore. This comprised two sections viz. Suratpura-Hanumangarh {(SURP-HMH) (174.07 km)} and Hanumangarh-Sriganganagar {(HMH-SGNR) (66.88 km)}.

Review of records revealed that the target for completion of the Gauge conversion work of HMH-SGNR section was 2011-12. Five pairs of trains were plying on this MG section which was closed for Gauge Conversion work w.e.f. 01 Februarary 2012. The section remained closed for more than 13 months for the Gauge Conversion work which was completed in March 2013.

Chief Administrative Officer (Construction) (CAO/C) submitted completion papers of this GC work to Principal Chief Engineer (PCE) on 12 March 2013 for onward submission to CRS for opening of the section for Goods and Passenger services. After obtaining approval of GM/NWR on 28 August 2013, CAO(C), Jaipur applied for sanction of the Commissioner of Railway Safety (CRS) Western Circle, Churchgate, Mumbai for opening of SGNR-HMH Rail link after conversion from Metre Gauge to Broad Gauge on 29 August 2013. CRS examined the documents submitted by CAO(C) and made several observations for compliance on 17 September 2013 and 19 September 2013. The CRS authorized opening of the section for public carriage on 16 December 2013. The section was finally opened for running of trains on 29 January 2014.

It is pertinent to mention that timely action for various administrative actions including provision of manpower to operate the upgraded section including sanction of additional posts was taken only after completion of the work of Gauge Conversion. Sanction of posts should have been obtained simultaneously with the execution of the work as the two are parallel activities. A revised proposal for creation of 115 posts of trackmen for maintenance of SGNR-HMH section was sent to GM/NWR on 30 May 2013 by Divisional Railway Manager Bikaner. GM/NWR sanctioned additional seven posts of trackmen and three

other posts on 19 August 2013 against this proposal. This contributed to delay (five and half months) in submission of papers/documents to CRS for obtaining his sanction. Further delay of around three months was attributable to non/delayed compliance of the observations of CRS. The time taken from completion of work to beginning of services was around ten and half months (i.e. from 12 March 2013 to 29 January 2014). Providing for a reasonable time frame of two months for clearance from North Western Railway authorities and CRS, the avoidable delays are estimated at eight months.

Due to delay of eight months in opening of this section for Passenger traffic, payment of Dividend to General Revenue at the rate of five *per cent* without any benefit amounting to ` 4.50 crore was made by the Railway Administration as an expenditure of `135 crore was incurred on this GC work up to 31March 2014. Besides this, 145 personnel were deployed on this section for maintenance work. An expenditure of `2.90 crore towards salary of these employees for the aforesaid eight months was incurred which was infructuous. Moreover, loss of earnings for this period estimated on the basis of traffic on the MG section prior to 01 December 2012 comes to `1.06 crore. Thus, due to avoidable payment of Dividend to General Revenue, infructuous expenditure on salaries paid to personnel engaged in track maintenance and loss of earnings due to non-plying of the train on the section.

This issue was raised through a Draft Para in June 2014. The Railway Administration in their reply (December 2014) denied that the gauge conversion work was completed in March 2013. The MG section between HMH and SGNR was blocked for Gauge conversion work w.e.f. 01 February 2012. The track linking work was completed in October 2012 and Engine rolling on the section was done on 25 October 2012. The work of welding of rail joints, ballasting of the track by track machines, balance bridge works, elimination of LCs by providing LHSs etc. were completed by November 2013. These were all essential works without which section could not be opened. The Railway Administration's remarks are not acceptable. The work was completed in March 2013 as stated by the CAO (C) in his MCDO for the month of March 2013, to ME/ Railway Board. As far as Railway Administration's remarks" Eliminations of LC's by providing LHSs etc. was completed by November 2013", it is stated that out of eight locations, contract had been awarded by State government for LHS work at six locations and work was in progress in three locations. Tender was under process at remaining two locations. This confirms that the work of LHSs was incomplete in November 2013.

Had the NWR Administration taken timely action for opening of SGNR-HMH Gauge Converted section, the payment of ` 4.50 crore towards dividend to General Revenues, infructuous expenditure of ` 2.90 crore on salaries paid to personnel engaged in track maintenance work and loss of earnings amounting to ` 1.06 crore could have been avoided.

The matter was brought to the notice of Railway Board in August 2015; their reply has not been received (May 2016).

5.11 Eastern Railway (ER): Loss of revenue due to delay in construction of new bridge as replacement of a distressed bridge

Abnormal delay in replacing a distressed bridge by a new bridge led to loss of revenue to the extent of ` 7.81 crore due to charging of freight on loads with weight lesser than otherwise permissible.

Bandel- Naihati section of Bandel- Titagarh route of Eastern Railway has a distressed bridge (Jubilee Bridge) over the river Hooghly which was built in 1867. RB decided to replace this distressed bridge and sanctioned (1999-2000) a work for construction of a new railway bridge. As the existing bridge was distressed, trains were allowed to run on the bridge with a speed restriction of 10 Kmph.

The work for construction of the sub-structure of the new bridge which was commenced in April 2005 was completed at a cost of Rs 39.64 crore in January 2008. Thereafter, the work for the construction of super-structure was awarded (August 2009) at a cost of ` 140.24 crore with scheduled date of completion being January 2012. However, as on March 2015, the progress of the work was 82 *per cent*.

Meanwhile, RB declared (2007) Bandel-Titagarh route as CC+6 tonne route for Goods transportation. However, as a result of non-completion[192] of work for the new bridge, the Goods traffic was to be carried over the distressed bridge. In view of this, RB had to reduce (2011) the PCCs of wagons from 61 tonnes to 59 tonnes for BCN wagons and from 64 tonnes to 62 tonnes for BCNA wagons. Due to this decision, the freight actually charged fell short on account of lesser

[192] Delay in finalising tender, new technology, launching activity non availability of material as per specification etc

loading than permissible in normal conditions[193]. This resulted in loss of freight revenue to that extent.

Had the bridge been built on time, operation of Goods trains with higher loading per wagon could have been possible with larger freight revenue earnings. Scrutiny of station records for 2012-15 (three years) revealed that 15081 wagons from Titagarh station and 2630 wagons from Naihati station were booked to different destination stations utilizing this route having a distressed bridge. This resulted in loss of precious earnings of `6.62 crore and `1.19 crore respectively (total ` 7.79 crore) towards less charging of freight on reduced CC.

When the matter was taken up (August 2014) with the Railway Administration, they stated that:

- Loss had been arbitrarily linked with the construction of new bridge which had been a separate issue and progress of construction achieved was according to funds availability.
- The main reasons for the delay in construction of the new bridge were (i) severe funds constraints; (ii) delay in procurement of materials from the approved manufacturer; and (iii) delay in blockage of waterway which required clearance from the Inland Waterway Authority of India *etc*.

Their reply is not tenable in view of the following:

- General Manager expressed his concern (May 2013) over delay in completion of new bridge due to which Railway was unable to uplift the imposed speed restrictions on Jubilee Bridge that was affecting the operations of both freight and coaching operations.
- RB orders (September 2001) were that funds for bridge rebuilding/ rehabilitation would not fall short of requirement and directed that bridge rebuilding/ rehabilitation works should not be slowed down/ affected on this ground. In fact, funds provided in the Original Grant for the construction of the new bridge could not be utilized by Railway Administration;
- Railway Administration took two years to submit the detailed project report and another two years in finalizing the tender for super-structure.

[193] As per Rates Circular No. 28 of 2011, BCN at 59 tonnes (PCC being 61 tonnes) and BCNA at 62 tonnes (PCC being 64 tonnes)

- There was delay on the part of Railway Administration in approving the design of material;
- Although blockage of waterway was granted by Inland Waterway Authority of India for six months (20 June 2013 to 19 December 2013), no progress was noticed during the first two months.

Thus, failure of the Railway Administration in ensuring timely completion of new railway bridge in replacement of existing distressed bridge led to loss of revenue to the tune of ` 7.81 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.12 Western Railway (WR): Irregular expenditure of ` 6.55 crore on Road Over Bridge over a line leased to Bharuch-Dahej Railway Company Limited (BDRCL)

Expenditure amounting to ` 6.55 crore incurred by Western Railway for a Road Over Bridge (ROB) constructed over a Railway line leased to BDRCL was irregularly charged to its safety fund, instead of executing the same as a Deposit work.

Ministry of Railways set up Rail Vikas Nigam Limited (RVNL) for implementing National Rail Vikas Yojana. A Memorandum of Understanding (MOU) was signed between Ministry of Railways and RVNL for creating project specific Special Purpose Vehicle. Bharuch-Dahej Gauge Conversion Project is a sanctioned ongoing project of Railways and is an identified project to be undertaken under this Yojana. Rail Vikas Nigam Limited, Gujarat Industrial Development Corporation (GIDC) and Gujarat Maritime Board (GMB), signed an MOU on January 2005 for implementing Bharuch-Samni- Dahej Railway Project through a Special Purpose Vehicle.

RVNL, Gujarat Maritime Board, Adani Petronet (Dahej) Port Private Limited, Gujarat Narmada Valley Fertilizer Company Limited and Dahej SEZ Limited have signed the shareholders Agreement for Bharuch Dahej Railway Company Limited (BDRCL) on January 2007 and Jindal Rail Infrastructure Ltd. and Hindalco Industries Ltd. have signed the participation agreement on June 2008 in order to take over the responsibility for implementation of the project which shall include raising the necessary finances for the project, completion of civil works, installation of equipment and facilities for the

project, testing and commissioning and subsequent operations and maintenance of the railway line for a period as specified in the Concession Agreement.

The Government of Gujarat proposed (February 2010) MoR that ROBs/RUBs to be provided to ease congestion on Rail line between Bharuch and Dahej on equal cost sharing basis and to facilitate smoother movement of Rail traffic. Railway Board directed (May 2010) WR Administration to prepare a feasibility report for construction of six ROBs in lieu of level crossings (LCs) No. 2A, 3, 4, 22, 50 and 178 over lines leased to BDRCL. Administrative approval for four of these ROBs in lieu of LCs viz; No.2A, 22, 50 and 178 was granted and included in the Pink Book of 2012-13. Work of ROB in lieu of LC No.22 has been completed by the Western Railway Administration, while work in respect of two other ROBs in lieu of LCs No. 2A and 50 is yet to start. ROB in lieu of LC No.178 which is partly owned by BDRCL is in the initial stage of construction with scheduled date of completion being November 2015. Remaining two ROBs in lieu of LC No. 3 and 4 were constructed by BDRCL itself on urgency basis.

Scrutiny of records revealed that the Railway Administration has booked a sum of ` 6.55 crore to its Safety Fund towards construction of the ROB in lieu of LC No.22. This is in contravention of the relevant clauses of lease agreement signed with BDRCL as it enjoys ownership and derives benefits of the assets transferred to it, implying that costs on augmentation of infrastructure on these lines which are essentially under its control will have to be borne by BDRCL as the work should have been executed by the Railway Administration on Deposit terms only or undertaken by BDRCL themselves. Further, Railway Board vide their letter (July 2012) has clarified that all the infrastructure augmentation cost on the line belonging to SPV has to be borne by SPV.

When this issue was taken up in March 2015, Western Railway Administration in its reply (June 2015) stated that on account of safety issues, this work was carried out by Railway administration though it was related to PPP Project. It added that necessary clarification on the issue has been called for from Railway Board in July 2013 and action as directed by Railway Board would be taken. Reply is not tenable. It is also seen that neither has clarification been received from Railway Board, nor has there been any follow up. Similarly, there is also lack of clarity on the issue of bearing of expenditure in respect of ROB in lieu of LC No.178.

The decision of the WR Administration to undertake construction of the ROB over a line leased to BDRCL from their own safety fund instead of executing the same as deposit work was in violation to the extant orders and resulted in avoidable expenditure of ` 6.55 crore. The expenditure might escalate, if cost of other ROBs is also borne by the Railway Administration.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.13 South East Central Railway (SECR): Loss due to creation of idle asset

Due to non adherence to the rules laid down for investment decision, Railway sustained a loss of ` 3.38 crore towards cost of creation of idle asset

The preparation of Annual Works Programme is a part of continuous planning process. In regard to proposals for new marshalling yards, goods terminals and transship yard etc., work study team should go into the actual working before formulating the schemes for additional facilities.

During audit of Ramtek Station (February 2014) on Kanhan – Ramtek Branch line of South East Central Railway (SECR), Audit noticed that a full length high-level Goods platform with Goods Shed was constructed (May 2012) by extending the existing line No. 3 at a cost of ` 3.38 crore. The Engineering Department of Nagpur Division executed the work and completed the same on 15 May 2012. While justifying the work, SECR calculated 28.62 per cent Rate of Return (ROR) on the investment proposed. It calculated ROR based on net expected earnings of ` 352.91 lakh per annum on the basis of annual average outward traffic of 480 rakes expected to be dealt with at Ramtek Station. The proposal was mooted on the basis of traffic projected by M/s Gupta Coal Ltd for 30 rakes of washed coal per month and by M/s Vidhi Mineral & Alloys Pvt. Ltd for 8-10 rakes per month. However, verification of records of Ramtek Station by Audit (February 2014) revealed that only 14 rakes were booked for outward traffic from Ramtek Station during 2007-08 and 2008-09. During 2009-10 and 2011-12 only three rakes of Manganese Ore were booked from Ramtek Goods shed. Since its completion in May 2012 no rakes were booked from Ramtek Stations (till February 2014 upto the date of Audit inspection). 112 coal rakes were, however, unloaded here during May 2012 to December 2012, but no outward loading was done from Goods Platform. The above facility created at the cost of Railway is lying unutilized.

When the matter was brought to the notice of Railway Administration in April 2015, they replied in June 2015 that the proposal for the work of Ramtek-extension of line No.3 to facilitate full rake loading/ unloading was sanctioned considering the new traffic at Ramtek station of about 480 rakes per annum as per written commitment made by two private firms. With the commitments given by the two firms, it was necessary to provide proper infrastructure for loading and hence the goods shed was developed. It was further stated that provision of facility led to unloading of 112 rakes at Ramtek and earning of ` 50.87 crore to Indian Railways (May 2012 to December 2012). Thereafter, unloading stopped due to public agitation on environmental issue.

The above reply was not acceptable due to the following reasons:

- Ministry of Railways (Railway Board) never advised SECR to develop goods shed without financial justification. In this particular case SECR failed to assess the future growth potential. This was also evident from negligible traffic (only two to three rakes of inward as well as outward traffic) handled in Ramtek goods shed, which could have been handled easily in Ramtek goods shed without any development work as was done prior to this development work. Therefore, there was no justification for such developmental work costing `3.38 crore which could have been invested in other location from which Railway could have got the expected Rate of Return (ROR).
- Performance of a Zonal Railway is judged by loading made/ carried out by them as the freight is earned by them. In this case SECR was the destination Railway dealing with unloading of goods traffic.
- As far as environmental issues are concerned it is stated that District Administration did not impose any ban on unloading of the coal, rather they asked the party and the Railways to take measures for pollution control arising out of unloading of coal and reloading the same to the truck at Ramtek station. However, no action was taken either by the Railway or by the party in this regard.

In view of the above, the Railway Administration failed to survey the actual position through works study team before formulating the scheme as required vide para 604 of Indian Railway Engineering Code. Thus, due to non adherence of the rules laid down for investment decision, Railway sustained a loss of ` 3.38 crore towards cost of creation of idle assets.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.14 East Coast Railway (ECOR):Short accountal of Signalling Relays resulting in loss of ` 20.68 lakh

Incorrect entries of Relays in Ledgers resulted in short accounting of stores to the tune of ` 20.68 lakhs

Para 1201 of Indian Railway Code for the Stores Department Vol-II states that the Depot Officer is responsible for the safe custody of stores in stock, for correct tally of such stock at any time with the balances as shown in the Ledgers and correct preparation and posting of all initial documents, Ledgers etc. Para 1439 of the Indian Railway Code for the Engineering Department also provides for proper safeguard of the railway materials at site and every stock holder is required to maintain a ledger wherein the receipt and issue of each and every item is to be recorded and updated stock position reflected. Para 3201 of Indian Railway Code for the Stores Department, Volume-II further states that the object of verification by the Accounts Department of Stores in the custody of the Depot and other Department officers and subordinates is to ensure that the materials accord with the description and specification shown in the balances appearing in the books. Any excess or deficiency, if noticed on such verification, is to be properly investigated.

Scrutiny of the office of the Senior Section Engineer, Signal, Construction at Marripalem, Visakhapatnam by Audit in July 2015 revealed that the opening balance of the relays (QNA1 8F/8B) was brought forward from page 315 of the ledger No.MAS-12 as on 16 February 2010 and the balance shown as 298 units. After three transactions of receipt and issue (one receipt of 300 units and two issues totaling 30 units) from 16 February 2010 to 4 September 2010, the stock position reflected was 568 units. In the next transaction on receipt of 380 units on 6 September 2010, the closing balance was 948 units, but on further receipt of 150 units of relays on 7 October 2010, the Ledger Balance was shown as 598 units instead of 1098 units. Thus, there was short accountal of 500 units of Relays on 7 October 2010. Subsequently, there were two instances of formal handing/ taking over of 398 Relays of material between two Senior Section Engineers after 18 June 2011 and 25 June 2012 without mentioning the actual date and also without proper verification of ledger. On 1 August 2012, the stock was totally exhausted and shown as NIL after several transactions. Thereafter, a fresh stock of 500 units of Relays were received and recorded in November 2012. Further, Senior Inspector of Stores Accounts, East Coast

Railway, Visakhapatnam verified the stock after 23 January 2013 and certified the physical stock of 422 units of Relays as correct as per Ledger Balance.

Similar case of short accounting was noticed in another type of Relay (QNNA1) in the same ledger at page 446. The closing balance as on 14 June 2013 was 332 units, but when five units of these Relays were issued on 13 July 2013 the MAS Ledger balance was shown as 227 units instead of 327 units. This resulted in short accountal of 100 Relay units.

The total loss on account of shortage of (500+100=) 600 units of Signalling Relays was assessed at ` 20.68 lakhs as per purchase rate of the materials as shown below:

Table 5.13

Sl. No.	Item	Value per unit	Shortage	Loss (amount in `)
1	Relay (QNA1 8F/8B)	Rs 3,456.00	500	17,28,000.00
2	Relay (QNNA1)	Rs 3397.00	100	3,39,700.00
Total			**600**	**20,67,700.00** **Or ` 20.68 lakhs**

In this connection, the following observations are made;

- As per Para 1450 of the Indian Railway code for the Engineering Department, the stock verification of materials at site should be checked by Depot Officers once a year. However, during the period from 2010 to 2014, instead of five stock verifications (once in each calendar year), no verification of stock was done by the Depot officer. During handing over/taking over of stock, the Ledger Balance was also not properly checked to reconcile with the Ground Balance
- As per records available, from February 2010 to September 2015 the stock verification by Accounts Department was done only once instead of five times i.e. once a year. Thus, it was noticed that there was total negligence on the part of Accounts Stock Verifier in checking the accounting of the materials in the ledger and in reconciling it with the Ground Balance.

In the absence of periodical stock verification, the possibility of fraud routinely escaping the attention of the Depot officer cannot be ruled out. Thus, incorrect entries of Relays in Ledgers resulted in short accounting of stores to the tune of `20.68 lakhs during the period February 2010 to September 2015.

When the matter was brought to the notice of the ECOR Administration in December 2015; they replied (February 2016) that posting in the ledgers were done erroneously on 7 October 2010 by not properly accounting the materials stacked in different places. But through physical check of the store it was found to be 600 Nos. as ground balance. Short accountal of 500 Nos. QNA1 and 100 Nos. of QNNA1 Relays has been set right and entered in ledger on 9 December 2015. It was further stated that the arithmetical error has occurred due to checking of huge number of transactions in four ledgers of the unit for a period of 3 years within the stipulated man days.

The above reply was not acceptable due to the following reasons:

Railway Administration has accepted that posting of ledgers was done erroneously on 7 October 2010 but failed to detect and rectify the same for five years. Railway's contention that 600 Relays were in the stores but neither the store keepers nor Stock Verifier could find the same for five long years is not acceptable to Audit. Though half yearly/ annual verifications were prescribed in Indian Railway Code for Engineering Department, verification was conducted once in a span of five years that too incorrectly.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).