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GOVER NS INDIA
MINIST ..WAYS
(RAILWAY BOARD)

2006/CE-I/AC/1 (Safety) pt. New Delhi, dated 07.12.2009

Director General (Road Development),
Department of Road Transport & Highways,
Ministry of Shipping, Road Transport & Highways,
Transport Bhawan, Parliament Street,
New Delhi-110001.

Kind Attn. Shri Arun kumar Sharma, Chief Engineer (S & R) B, 01123719850

Sub: - Limited Height or Restricted Height Subways on Railways- Vertical Clearance issue

Ref. (i) IRC- 11 (B-1W)/2009 dated 19.11.2009
(ii) IRC-11 (B-1W/2009 dated 05.10.2009
(iii) MORTH letter no. RW/NH/34066/5/2009-S&R (B) dt. 09.09.2009
(iv) Railway Board letter no. 2006/CE-I/AC/1 (Safety) pt. Dt. 07.7.2009.

1.0 **As per IRC: 54-1974, the minimum vertical clearances of road under bridges are** 5.0m in case of Rural Roads and 5.5m on Urban Roads. In this regards, under reference (iv) above, the Ministry of Railways have requested MORTH to issue letter to the State Govt. PWDs as per the proposed vertical clearances for construction of LHS in railway area as under:

Table-1

SN	TYPE OF ROAD	Proposed vertical clearance	Traffic Pattern
1	Village Road (VR) Rural Roads (RR)	2.5 to 3.2 m	Two & three wheeler, bullock cart,
2	Other District Roads (ODR)	3.6m	Light Motor vehicle
3	Major District Road (MDR)	3.6m	Light motor vehicle
4	State Highways (SH)	5.5m	No change proposed
5	National Highways (NH)	5.5m	No change proposed

1.0 Explanation to the proposed vertical clearances and how these offer win-win situation for all users, i.e. railways, road users and State Govt. (PWD/Road) are submitted as under for the deliberation and discussion by IRC committee on the matter:

8/12/09

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2.1 **Railways:**

1.1.1 On Indian railways, there are about **17244** manned level crossings, **16976** unmanned level crossings and **1526** cattle & canal crossings.

1.1.2 Yearly maintenance & manning cost of a manned level crossing is about **10-to12 lakh** apart from one time construction cost **Rs.20 to 30 lakh**.

1.1.3 Level crossings are potential **safety hazard** for pedestrian to heavy vehicle traffic. Every year about **100 accidents** take place at level crossing gates involving loss of lives & stock. And accidents are more frequent at unmanned LC gates.

1.1.4 All manned level crossing gates create serious **blockage / congestion to road traffic** and under open condition to train traffic. Inspite of diesel and petrol cess being levied to public since 2000 or so, Govt. (Central or State) have not been able to provide much needed relief to populace at large.

1.1.5 Manned gate and Grade Separators like ROB or RUB are solutions to above problem.

- Though manned gate help to reduce the accident, it neither reduce road congestion nor improve punctuality of trains. Rather manning of all gates means additional bottlenecks at about 17000 locations at a heavy investment of Rs.30 x 17000 = Rs. 5100crores and staggering recurring maintenance and manning cost of Rs. 1700crores per year. As such, it cannot be considered as a techno-economical solution.
- Railways construct ROB/normal height RUB in planned manner at all level crossings with train vehicle units (TVU) more than one lakh on cost sharing, deposit / BOT basis. Also NHAI is constructing ROB at important NH roads. The cost of ROB is about Rs.30crores, whereas a normal height RUB may be about Rs.5crores. Total investment required is more than Rs.50000crores for about 1600 nos. of such LC gates qualifying for ROB/RUB.
- **Thus manning and ROB, both are cost prohibitive solution,** without offering much needed real relief particularly in areas where road vehicles units are very low and type of vehicles are light motor vehicle, two/ three wheelers / bullock cart ply. Rather a ROB becomes another bottlenecks because of **long detour and being difficult for bullock cart, auto/manual Rickshaw, etc, to climb**, and whereas an RUB with 5.0m vertical clearance, water logging pose a serious problems particularly in rural area with flat terrain and no arrangement of pumping out water.

2.1.6 **Limited Height Subways (LHS):** In view of techno-economic problems deliberated in Para 2.1.5 above, railways have tried LHS to take care of above problems. Following boundary conditions are fulfilled before constructing an LHS:

- **Water logging** is not a serious problem. And in rainy season also, there is low-lying area in the vicinity of LC gate, where water passage can be made to drain off the accumulated water if any.
- Railway Track is on **embankment of height about 3.0m and above.**

- LHS with vertical clearance 2.5 to 3.2 m is adopted, if and only if road traffic consists of two /three-wheeler / bullock cart and particularly in case of Village Rural roads.
- LHS with vertical clearance 3.6m is adopted if only if road traffic consists of light motor vehicle and that too on Other District Roads /Major District Roads.
- Effort are also made to ensure that adjoining to LHS, there is escape road for heavy / light vehicle, i.e. manned LC gates or ROB or Normal height RUB is/are available on one of sides of LHS. If need be, diversion road can be made by the concerned authorities in the land boundary to ensure the escape road.
- There are many LC gates with seasonal road traffic only and having kutcha road. And if LHS is feasible, the same are being planned there.
- Wherever adequate embankment height is available for construction of 5.0/5.5m RUB, the same is being constructed, like in case of NH/SH/DR.
- The underlying principle in all RUB/LHS is that there should not be any need of re-grading of track, as it affect otherwise about 1 to 2 km on either side of RUB.
- Typical internal dimensions on a single road being followed are height- 3.6 m and Roadway width- 4.0 m with internal clear height not less than 2.5 m.
- Height barrier shall be put at approach roads to prevent heavy vehicle passing through LHS.

2.0 **Enforcing / implementing machinery:** Before making any ROB, RUB, LHS the extant practice of written undertaking of District Authorities for closure of level crossings, CRS sanction, maintenance of road by the state authority, etc are required to be followed to avoid post LHS construction complications. Usually **joint survey** of such LC gates are carried out by the officials deputed by the District Magistrate, Executive Engineer / PWD, Divisional Engineer / railways and Pradhan/mukiya/Sarpanch / Municipality Authority. As such, it would not be unilateral decision of railways. It will be basically a site specific and democratic decision for the benefit of all.

4.0 Funding: Railways bear the cost of LHS upto Rs.50lakh, normal height RUB Rs.1.25crores (single line) / Rs.1.50crores (double line). Cost over and above and in out side railway area is to be borne by the State Govt. This scheme has also been extended to **MPLADS** (Member of Parliament Local Area Development Scheme). Normal height RUB can also be constructed on cost sharing basis.

3.0 **Potential of Limited Height Subways:** Railways have already identified and sanctioned construction of about **600 LHS** at its own cost, across the country falling on railway network and these are at various stages of planning and execution. Many more can be included in the sanction list with the cooperation and awareness of the State PWD and District Authorities.

4.0 Thus, railways have adopted LHS from **Safety consideration** as elimination of accident prone LC gates with poor visibility will increase safety, **Economic consideration** as elimination of level crossing will yield substantial operational benefits but without actually affecting the movement of heavy motor vehicle. And LHS offers win-win situation, as it is a low cost solution for seamless operation of both railways and roadways. Hence, there is a need to take a socio-economic-technical solution to the problem rather than going for a purely technical solution.

5.0 In this background railways have forwarded letter under reference (iv) above. Since the same has been also taken up by the committee finalizing the Manual for Flyover & Grade Separators, it is requested this may be deliberated and if agreed upon the same may be included at appropriate place in the manual.

Arun Kumar Shrivastava
Executive Director/Civil Engg/Bridges & Structures-II
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Copy to:

1. The Secretary General, Indian Roads Congress, Kama Koti Marg, Sector 6, R. K. Puram, New Delhi-110022
2. Shri Vijay Kumar, Convener, B-1 Committee, E-002, Krishna Apra residency, sector 61, Noida, 201307, U.P., Tel-0120-2586902, M-9810680669.
3. Shri Alok Bhowmick, Member Secretary, B-1 Committee, MD, BSEC, 315, Vishal Chambers, Sector 18, Noida, 201301
4. Section Officer, Indian Road Congress, Kama Koti Marg, Sector 6, R. K. Puram, New Delhi-110022 Tel 011-26716778. Fax 011-26183669
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INDIAN ROADS CONGRESS

Kama Koti Marg, Sector 6, R.K. Puram,
New Delhi - 110 022 (India)

Dated 05 OCT 2009

No. IRC-11(B-1W)/2009

(15)

Shri J.S. Sondhi
Executive Director
Civil Engg. (B&S) II
Ministry of Railways
Rail Bhavan
NEW DELHI

Sub: Limited Height or Restricted Height Subways on Railways – Vertical Clearance

Sir,

I am directed to enclose herewith a copy of letter No.126 VK/IRC:B-1/09 dated 3.8.2009 received from Shri Vijay Kumar, (Convenor, B-1 Committee) (copy enclosed for ready reference).

It is requested that the following information/data is required on the above matter can be taken up for discussion in B-1 Committee to be held on 8h December 2009 at 11.00 AM IRC Conference Room, R.K.Puram, New Delhi-110022

1. A detailed explanatory note from Railways as to how they have arrived at these clearances for VR, ODR and MDR at RUB location including the data base of the various types of the traffic and their dimensions using these facilities on such roads with their future projections
2. Any study or report/data available on the above databse for taking a correct and logical view and decision in the matter.

Yours faithfully,

Chadha

(S.K.Chadha)
Section Officer
Tel. 2671 6778

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As discussed with SO-III. vide letter No. IRC-11(B-1)-W/2006
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Er. Vijay Kumar
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Convener, IRC Technical Committee B-7
Technical Director (Bridges), SWI

(14)

No. 126 VK/IRC: B-1./ 09 Dtd. 3.08.09

To,
The Secretary General
Indian Roads Congress
Kama Koti Marg
Sector 6, R.K.Puram
New Delhi 110022

Sub.-Limited Height or Restricted Height Subways on Railways- Vertical Clearance
Ref.- Your No. IRC:11 (B-1)-W/2006 Dtd. 27.07.09

Dear Sir,
Please refer to your abovementioned letter. The changes required in the vertical clearances at RUBs on ODR, MDR and Village Roads are quite substantial. The following information /data is required from Railways and MORT&H before the matter can be taken up for discussion in B-1 Committee.

1. A detailed explanatory note from Railways as to how they have arrived at these clearances for VR, ODR and MDR at RUB location including the data base of the various types of the traffic and their dimensions using these facilities on such roads with their future projections.

2. Any study or report/ data available in the Ministry which can form the above database for taking a correct and logical view and decision in the matter.

You may please write to the concerned authorities for the same.
Meanwhile the letter received from Railways/Ministry may please be forwarded to all the Members of B-1 Committee to send their written comments and views within 15 days.
Thanking You,
Sincerely,
Vijay 3/08/09
(Vijay Kumar)
Convener, B-1 Committee

Cc: 1.Shri Arun Kumar Sharma, Chief Engineer, MORT&H, Transport Bhawan, New Delhi, 110001.
2. Shri J.S. Sondhi, ED, Civil Engg. (B&S)-II, Railway Board, Rail Bhawan, New Delhi
3. Shri Alok Bhowmick, Member Secretary, B-1 Committee, MD, BSEC, 315, Vishal Chambers, Sector 18, Noida, 201301

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Government of India
Ministry of Road Transport & Highways
Transport Bhawan, New Delhi-110001

No. RW/NH-34066/5/2009-S&R(B)

July 14, 2009

To

The Secretary General,
Indian Roads Congress,
Kama Koti Marg,
Sector-6, R.K. Puram,
New Delhi

Sub: Limited Height or Restricted Height Subways on Railways – Vertical Clearance issue.

Sir,

Ministry of Railways vide their letter No. 2006/CE-I/AC/I(Safety) Pt. dated 7.7.2009 has approached this Ministry to allow Limited Vertical Clearnce for Road under Bridges (RUBs) for village roads, Other District Roads and Major District roads crossing the railway line. The reference received from Ministry of Railways is sent herewith for consideration in B-I Committee of IRC.

The decision on vertical clearance at RUB for village roads, ODR and MDR will effect replacement of unmanned level crossing by RUBs.

It is suggested that meeting of B-1 Committee may be called at a short notice so tht this issue of vertical clearance at RUBs gets finalised quickly.

Yours faithfully,

(Arun Kumar Sharma)
Chief Engineer
Tel. No. 23719850

Encl: As above

Copy to Shri J.S. Sondhi, Executive Director, Civil Engg. (B&S)-II, Railway Board, New Delhi.

(Arun Kumar Sharma)
Chief Engineer
Tel. No. 23719850