

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

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- II. The General Manager/Construction N.F. Railway, Guwahati
- III. The Principal ChiefEngineers. Eastern Railway/Kolkata, Central Railway Mumbai. Northern Railway/ New Delhi, North Central Railway/Allahabad, Southern Railway/Chennai, South Central Railway/Secunderabad. South Eastern Railway/Kolkataand Western Railway/Mumbai.
- IV. The Chief Engineer/Coordination, :
East Central Railway/ Hazipur, East Coast Railway/ Bhubaneshwar, North East Railway/Gorakhpur. North Frontier Railway/Guwahati. North-Western Railway/Jaipur, South-East Central Railway/Bilaspur, South-WesternRailway /Hubli. West-Central Railway/Jabalpur. CLW/Chittaranjan, DLW/ Varanasai, ICF/Chennai, RCF/Kapoorthala. CORE/Allahabad DCW/Patiala
- V. The Chief Administrative Officer/Const.:
Central Railway/Mumbai CST, Eastern Railway Kolkata, East Central Railway/Hajipur. Northern Railway/Kashmere Gate, Delhi, N.E. Railway/Gorakhpur, S.C.Railway/Nilayam. Secunderabad, Southern Railway /Egmore, Chennai. S.E. Railway/Kolkata, East Coast Railway/Bhubaneshwar. South-Western Railway/ Bangalore, North-Western Railway/Jaipur, Western Railway/Mumbai, Mumbai Rail Vikas Corporation/Mumbai. Metro Railwayl Chennai.
- VI. Director General, RDSO, Manak Nagar, Lucknow
- VII. The Chief Commissioner ofRailway Safety, Ashok Marg. Lucknow
- VIII. The Commissioner of Railway Safety, All Circles
- IX. The Director, IRICEN, Pune
- X. The Director, IRIEEN, Nasik
- XI. The Director, IRISSET, Secunderabad
- XII. The Director, IRIMEE, Jamalpur,
- XIII. The Director General, Railway Staff College, Vadodra.
- XIV. The Chief ProjectOfficer, Delhi Metro Railway Corporation, NBCC Place. New Delhi
- XV. The ChiefVigilanceOfficers. All Indian Railways

A copy of the foregoing letter and enclosure is forwarded for information to:

1. The Chief Secretary to the Govt. of Tamil Nadu, Chennai
2. The Chief Secretary to the Govt. of Maharashtra, Mumbai
3. The Chief Secretary to the Govt. of Gujrat. Gandhi Nagar
4. The Chief Secretary to the Govt. of West Bengal, Kolkata
5. The Chief Secretary to the Govt. of Uttar Pradesh, Lucknow
6. The Chief Secretary to the Govt. of Uttranchal, Dehradun
7. The Chief Secretary to the Govt. of Punjab, India, Chandigath
8. The Chief Secretary to the Govt. of Harayana, Chandigarh
9. The Chief Secretary to the Govt. of Delhi, New Delhi
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23. The Chief Secretary to the Govt. of Sikkim, Gangtok
24. The Chief Secretary to the Govt. of Pondicherry
25. The Chief Secretary to the Govt. of Nagaland, Kohima

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32. The Chief Secretary to the Govt. of Dadara Nagar Haveli, Silvassa
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35. The Chief Secretary to the Govt. of Andaman Nicobar Islands, Port Blair
36. The chairman
 - a. Kolkata Port Trust, 45 Stand road Kolkata- 70001
 - b. Chennai Port Trust, Rajaji Satai, Chennai- 600001
 - c. Vishakhapattanam Port Trust, Vishakhapatnam- 530035
 - d. Cochin Port trust, Villington Island, Cochin- 682009
 - e. Mumbai Port Trust, Shoorji Vallabhdas Marg, Mumbai- 400038
 - f. Khandala Port trust, Port Trust, Post Box No. 50. Gandhi Dham (Kutch)- 370201
37. The general Secretary, Indian Railway Conference Association, New Delhi
38. The Director Genera; pf Commerce and Industry, New Delhi

SCHEDULE OF DIMENSIONS-1676MM GAUGE

Schedule of Dimensions for Indian Railways, 1676mm Gauge

Dear Sir/Dear Sirs,

With their circular letter No. 735-W. of 1922, the Railway Board issued a Schedule of Maximum, Minimum and Recommended Dimensions to be observed on all 1676mm gauge Railways in India. In that Schedule, certain dimensions of the previous schedule of the year 1913 were modified with the object of permitting the use of enlarged rolling stock.

2. The Schedule of Dimensions of 1922 contained two distinct sections, namely, a schedule of "Maximum and Minimum Dimensions" which was considered to enable the proposed larger vehicles to run with about the same degree of safety as that which was previously obtained on the older Railways with existing stock, and a schedule of "Recommended Dimensions" intended to provide approximately the same clearances from fixed structures for the future larger vehicles as the 1913 schedule gave for existing vehicles.

3. In their circular letter No. 232-Tech. dated the 8th February, 1926, the Railway Board gave instructions that the Recommended Dimensions given in the 1922 Schedule were to be observed on important Railways in all new works and alterations to existing works. These orders were modified in letter No. 232-Tech. of the 26th April, 1926, which allowed a relaxation in the case of certain recommended dimensions, the adoption of which would involve heavy expenditure in remodeling works.

4. In 1929, it was found desirable further to amend the Schedule of 1922 in order to introduce certain improvements in the light of experience gained since it was issued, and to provide the clearances required by electric traction equipment on lines which were likely to be electrified in the future. A few special dimensions were also required for "Standard C" railways as defined in the "Rules for preparation of Railway Projects 1926 - Chapter III, Standards of Construction".

5. The Schedule I issued in 1929, therefore, embodied these amendments and additions and the opportunity was taken to omit from this schedule many dimensions occurring in the 1922 Schedule and its predecessors which were more of the nature of current practice than essential for safe working. These were therefore, relegated to Schedule II, Recommended Dimensions.

6. Among the more important changes introduced in the 1929 Schedule, were an increase in the minimum height above rail level for overhead structures to 5410mm and increase to 2360mm in the horizontal distance to a fixed structure up to 3355mm above rail level, a reduction in this distance to 2135mm at 4420mm above rail level, and a reduction also in the clearance to fixed structures from rail level to 1065mm above rail level on bridges and in tunnels. The last three changes were intended to allow for a reduction in tunnel sections and an improvement in the disposition of bracing of bridge girders without sacrificing safety.

7. In 1936, however, the financial stringency on Railways brought to the front the urgent necessity for restricting capital expenditure to a minimum. The falling off in Railway traffic generally and the increasing demand for light fast units to compete with motor bus transport also made the introduction of heavier engines and 3660mm wide stock on Railways improbable. In these circumstances it was found desirable to alter the dimensions prescribed in Schedule I of the 1929 Dimensions and to revert to the maximum and minimum dimensions in the 1922 Schedule in several important respects. Railway administrations were advised of these alterations through correction slip no. 14 of 1st December, 1936 to the 1929 Schedule. These alterations were not, however, intended to prevent the introduction of 3660mm stock at some future date, should this prove necessary. It had, therefore, been expressly laid down that the modifications made in Chapter I of Schedule I, were not to apply to Tunnels, Through and Semi-through Girder Bridges in respect of which the Standard Dimensions of 1929 would continue to apply.

8. The Schedule of dimensions, with metric and F.P.S dimensions which was forwarded in the year 1973 was based on the 1958 reprint of 1939 schedule, with the difference that the Chapter IV and IV SS of schedule -1, were combined and rearranged under two headings viz chapter IV (A), for carriage and wagon and chapter IV(C) for locomotive and the dimensions pertaining to 3050mm wide bogie stock were omitted from this version of 1973 schedule. Chapter IV-S relating to 3660mm wide stock were designated as chapter IV(B) for carriage and wagon. In converting F.P.S dimensions into metric, the dimensions of "wheel profile" were rounded off to the nearest 0.50mm diameter of wheel and smaller dimensions less than 12 inches rounded off to the nearest mm, those of fixed structures and profile of rolling stock to the nearest 5mm and other larger dimensions to the nearest cm in metric unit depending on the accuracy required. Schedule II & III, showing Recommended Dimensions and Infringements of Schedule I respectively, which might be permitted on existing railways, were retained and the appendix dealing with extra clearances required on curves were revised to show the clearances required for 3250mm wide and 21340mm long rolling stock. Also in the revised table, the maximum permissible speed and corresponding super elevation were indicated and the required clearances based on this super elevation were given.

9. The dimensions prescribed in Schedule I which were essential for safe working, were applicable to all new railways and to new works on existing railways, including, so far as practicable, alternations and renewals, and sanction was required to a departure from them.

The clearances prescribed in item 13 of Chapter I 'Tunnel, through and semi-through girder bridges' was to be adopted for all structures, and not only for tunnels and through girder bridges at the time of new constructions or additions/ alterations to the existing structures. If, however in case where 3660mm stock was not expected to be introduced, and adoption of these dimensions would entail heavy expenditure, administrative reference to be made to the Board, individually in each case before execution of the work, for adopting less clearances.

10. The schedule of dimensions of 1973 version was based on the requirements of 25KV A.C. traction and all future construction were to be carried out to these dimensions except in cases where it was considered that there was no chance of the line being subsequently converted to 25KV A.C.traction. A new chapter V(A) was added in respect of dimensions required for electric traction with 25KV A.C. (50 cycles).

11. The present schedule of dimensions (Revised, 2004) is a revised version of the Schedule of Dimensions of 1939 reprinted in 1973. The subject of review of B.C. Schedule of Dimensions was discussed under item No. 821 of 64th Track Standards Committee meeting held in March 1990. Based upon the committee's recommendation on this item, Railway Board vide their letter no. 90/CE-II/TSC/1 dated 17.12.99 issued orders to Director General/RDSO to appoint a multidisciplinary committee for the revision of Schedule of Dimensions (1973 reprint). The multidisciplinary committee consisted of the following directorates of RDSO:

- (i) Track Design Directorate (Coordinating Directorate)
- (ii) Track Design Directorate (Coordinating Directorate)
- (iii) Carriage Directorate
- (iv) Motive Power Directorate
- (v) Wagon Directorate
- (vi) PS&EMU Directorate
- (vii) Signal Directorate
- (viii) TI Directorate

The present schedule of dimensions (Revised, 2004) consists of only metric units. All dimensions in FPS units are deleted. The following modifications have been done over the structure of Schedule of Dimensions of 1973.

- (a) Only two schedules - Schedule I & Schedule II, are provided in this revised Schedule of Dimensions. Schedule-I consists of those items which are mandatory and have to be observed on all 1676mm Gauge Railway in India. It is mandatory and contains the items of Schedule-I & certain selected items of Schedule-II of 1973 version of Schedule of Dimensions.
- (b) Schedule-II consists of items included in Schedule-III of 1973 version of Schedule of Dimensions.
- (c) For maximum moving dimensions, profile shown in diagram ID (EDO/T-2202) is being adopted which is based on the two profiles viz EDO/T-1043(for goods stock and locomotives) and sketch 72227 (for double decker coach) approved by Railway Board vide their letter No. 72/WDO/SR/31 dated 21.2.1974 & 60/WDO/SR/19 dated 5.8.92 respectively.
- (d) The diagrams of 1973 schedule are suitably modified by replacing 1929 profile with present profile (diagram ID).
- (e) The appendix dealing with extra clearances required on curves has been modified to suit maximum speed of 160 kmph and maximum super elevation of 165mm as per high speed Rajdhani and Shatabdi Routes, with other parameters kept as earlier. Additional appendix for extra clearances required on curves for maximum speed upto 200 kmph is also enclosed.
- (f) Various correction slips issued from time to time to Schedule of Dimensions of 1973 as listed in Annexure-III have been incorporated in this Revised Schedule of Dimensions-2004.

Yours faithfully,

(BUDH PRAKASH)
Additional Member/Civil Engineering
Ministry of Railways, Railway Board
Rail Bhawan, New Delhi-110 001

**SCHEDULE -I
STANDARD DIMENSIONS
1676mm GAUGE (BG)**

CHAPTER I—GENERAL

The DIMENSIONS given in this Schedule-I have been classified under two heads namely for 'Existing works' and for 'New works'. Existing works means the works which were existing before issue of this Schedule of Dimensions (2004) and would help the field engineers to provide the information about previous dimensions followed at one place.

New works would include altogether new constructions, additions of new lines/new structures, gauge conversion and doubling. However, it is ~~not intended to~~ **does not** include the works of alteration such as shifting of a points and crossings, extension of siding, ~~building etc.~~ **extension of loop line, alteration in buildings etc.**

The dimensions, except for existing works, are to be observed on all 1676 mm gauge on Indian Railways for execution of new works. **Provided that infringement to any provision of** ~~unless prior sanction has been obtained from the Railway Board through the Commissioner/Chief Commissioner of Railway Safety. Provided further that for execution of new works, any infringement to~~ IRSOD Chapter I, II, III, V, VA & VB of Schedule I **can be condoned by the Commissioner, provided further that infringement beyond the limits prescribed in Schedule II, if any or wherever specific mentions appear in Schedule I, sanction for condonation shall be obtained from Railway Board through Commissioner/Chief Commissioner of Railway Safety. up to the limits prescribed, if any, in Schedule II or as mentioned against specific item in Schedule I, can be condoned by the Commissioner.**

[See Diagram Nos. 1A, 1A(Modified), IB, 1C and 1D]

Note:

- (1) Item 8 and 10 are applicable only to structures outside station yards. All other items are of general applicability.
- (2) For running EMU and other 3660 mm Stock on existing works, clearances prescribed in items 13 Chapter 1, "Tunnels and Semi Through Girder Bridges" shall also be required for all structures governed by items 1, 7, 8 and 12 of this chapter and not only for tunnels, through and semi through girder bridges.

ACS:27 Dt.17/07/2019

Spacing of Tracks

(i)	For existing works	4265 mm
(ii)	For new works/additions to existing works	5300 mm

Note:

- (a) See Appendix for extra clearance required on curves.
- (b) For spacing of tracks in tunnels, Road Over Bridges/Flyovers, through and semi through girder bridges, **see item 13(i) ACS-18 Dt.16-11-2016**
Ref: Rly Bd Letter no.2012/CEDO/SD/IRSOD/O Dt.16-11-2016
- (c) New/Additional works cover laying of new line and new running loops. Extension of existing line or replacement of points & crossings will not be treated as new work.
- (d) OHE mast and Signal post shall not preferably be provided in between tracks. However, under unavoidable circumstances, the clearance maintained in Para 1 (ii) above shall be increased by equal to the width of such provisions/structures/foundation, as the case may be.
- (e) In case of tunnels, ROBs, flyovers, through & semi-through girder bridges, where centre to centre distance, lesser than 5300 mm has been provided, lesser centre to centre distance can be provided on approaches also up to adequate distance to facilitate gradual increase in centre to centre distance up to 5300 mm. **Item.1 ACS-26 Dt.10.01.2019**
Rly Bd letter no.2017 /CEDO/SD/IRSOD/O/ ACS-83rd TSC

Curves :—

2. Minimum radius of curves : 175m (10 degrees)

Bridges:—

3. Bridges must conform to the requirements of chapter IV of the Railways opening for the Public carriage of Passengers, Rule 2000. Directly on longitudinal girders should not be less than 150 mm deep exclusive of any notching which may be required to allow for cover plates, camber, etc. and not less than 305mm greater in length than the distance On existing bridges where there is nothing solid between sleepers to prevent a derailed wheel dropping, the clear distance between two consecutive sleepers shall not exceed 510mm. The clear distance between the joint sleepers shall not, however, exceed 200mm and that between the two consecutive sleepers 450mm in all new constructions and in existing bridges when regirdering or carrying out through sleeper renewal.

Bridge sleepers resting outside to outside of girder flanges subject to a minimum of 2440mm. The minimum length of steel trough sleepers should be the distance outside to outside of girder flanges subject to a minimum of 2440mm.

Rails:—

4. Minimum clearance of check rails for a curve : 44mm

Note:

- (a) This clearance must be increased by not less than half the amount of any difference between 1676mm and the gauge to which the curve is actually laid.
- (b) Check rails to be provided in curves where the radius is 218 metres or less *i.e.* curvature is 8° or more. They may be necessary also in the case of flatter curves, if high speed is contemplated.

5. i. Minimum clearance of check rail at a level crossing 51mm
 ii. Maximum clearance of check rail at a level crossing 57mm
6. Minimum depth of space for wheel flange from rail level 38mm

Building and structures:—

7. Minimum horizontal distance from centre of track to any structure from rail level to 305mm above rail level
- i. For existing works 1675 mm
- ii. For new works or alterations to existing works 1095 mm
8. Minimum horizontal distance from centre of track to any structure except a platform
- i For existing works.
- From 305 mm above rail level to 4420 mm above rail 2135 mm
- ii level For new works or alterations to existing works:
- a. From 305 mm above rail level to 1065 mm 1905 mm increasing to 2360 mm
- b. From 1065 mm above rail level to 3355 mm 2360 mm
- c. From 3355 mm above rail level to 4420 mm 2360 mm decreasing to 2135 mm
- d. From 4420 mm above rail level to 5870 mm 2135 mm decreasing to 915 mm

Note:

- (a) Under item 7 and 8, any material stacked by the side of line is to be considered a structure in the sense in which the word is used here. These items also apply to projections of rock etc., from the side of cutting.
- (b) See appendix for extra clearance required on curves. Light structures such as ladders, thin posts etc. erected alongside the track at a distance of less than 2360mm from centre of adjacent track should be blanked off to a height of 300mm between 2060mm and 2360mm above rail level.
 - iii a. Below the rail level up to the formation level of the track on straight and curves up to radius of 875m. 2575mm
 - b. Below the rail level up to the formation level of the track on curves with radius less than 875m 2725mm

Note:

- (a) The required clearances as mentioned under item 8(iii) (a) and (b) above will be applicable in case of new lines/doubling/electrification.
- (b) The various fixtures which are attached to the track like traction bonds etc. and are required to be filled with the rail can be provided and the clearance as mentioned in item 8(iii) (a) & (b) above will not be applicable to these fixtures.
- (c) The clearances as mentioned in item no. 8(iii) (a) and (b) above will not be applicable for ballast less track (including washable apron).

Item.2 ACS-26 Dt.10.01.2019 Rly Bd letter no.2017 /CEDO/SD/IRSOD/O/ ACS-83rd TSC

- 9. Minimum horizontal distance of any telegraph post measured from the centre of and at right angles to the nearest track.
 - (i) For existing works plus The height of the post 2135mm
 - (ii) For new works or alterations to existing works plus The height of the post 2360mm

Note: When the line is in cutting a telegraph post erected outside the cutting, must be at a distance from the edge of the cutting not less than the total height of the post.

10. Height of Road Over Bridges and Foot Over Bridges

(a)	Minimum height above rail level for a distance of 915mm on either side of the centre of track for overhead structures	4875mm
(b)	Where D.C. electric traction is in use or is likely to be used this dimension shall be	5410mm
(c)	Where 25 KV A.C. traction is likely to be used, the minimum height above rail level for a distance of 1600mm on either side of the centre of track shall be as under:	
	i) Light overhead structure such as Foot Over Bridges	6250mm
	ii) Heavy overhead structure such as Road Over Bridges and Flyovers	5870mm

Note:

- (a) See appendix for extra clearance required on curves.
- (b) In case of restricted height of existing structures, a special study shall be made, as indicated in Appendix-A to Chapter V-A before 25 kV AC traction is introduced. Accordingly, only in such

cases, the minimum height above rail level shall not be lower than 5070mm in case of Heavy Overhead Structure (such as Road Over & Flyovers) and 5270mm in case of Light Overhead Structures (such as Foot Over Bridges) for a minimum contact wire height of 4800mm from above rail level. OHE arrangements shall be as per RDSO Drawings.

- (c) In areas where 25 KV A.C traction is used or likely to be used, if any turnout or crossover is located under a heavy overhead structure or within 40m from its nearest face irrespective of the position of level crossing gate, the minimum height of such overhead structure shall be 6250mm*. Also, in case the turnout is beyond 40m but the level crossing gate is within 520m from the nearest face of the bridge, the height of such overhead structure shall be 6250mm*.
 - (d) The height mentioned against items 10(a), 10(b) & 10(c) shall be measured from the higher or super-elevated rail.
 - (e) On lines existing or proposed to be electrified on 25KV A.C. system, necessary provision should be made in overhead structure and overhead equipment, if necessary by using longer traction overhead equipment masts to permit an extra allowance of 275mm for raising of track in connection with the introduction of modern track structure in future to cater for modern track structure in the form of increased ballast cushion, larger sleeper thickness and deeper rail sections
- * (In case of restricted height of existing heavy overhead structure, minimum height above rail level shall not be lower than 5270mm, adhering to the provisions of note (b) above). (CS No. 13)
- (f) For Mumbai Suburban, the height of Foot Over Bridges mentioned under para 10(c)(i) above may be reduced to 5750mm subject to following conditions:

- i. The minimum height of the contact wire shall be 4800 mm.
- ii. A special study shall be conducted as indicated in appendix A of chapter V-A to ascertain the feasibility of the contact wire height as 4800mm.
- iii. There shall be no crossover below FOB or within 40 m from the face of FOB.
- iv. There shall be no level crossing within 520 m from face of FOB.
- v. The maximum height of rolling stock shall be restricted to 4420 mm.
- vi. The height shall be measured from the higher or super-elevated rail.

ACS-22 Dt.8-12-2017

(Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/O/1 Dt.08-12-2017)

11. Clearance for power line crossings including telephone line crossings of Railway tracks.

Para 11(i) Clearance for power line crossings in Non-Electrified & Electrified Territory:

SL	Over Head Crossing Voltage	Minimum Clearance from Rail Level		Minimum Clearance Between Highest Traction Conductor and lowest transmission Line Crossing Conductor.
		Existing Power Line Crossing for Non-Electrified Territory	New Power Line Crossing or Crossing Planned for Alteration	
(1)	(2)	(3)	(4)	(5)
1	Upto and including 11 KV	Normally By Underground Cable		
2	Above 11 KV and upto 33 KV	10860 mm	14660 mm	2440 mm
3	Above 33 KV and upto 66 KV	11160 mm	14960 mm	2440 mm
4	Above 66 KV and upto 132 KV	11760 mm	15560 mm	3050 mm
5	Above 132 KV and upto 220 KV	12660 mm	16460 mm	4580 mm
6	Above 220 KV and upto 400 KV	14460 mm	18260 mm	5490 mm
7	Above 400 KV and upto 500 KV	15360 mm	19160 mm	7940 mm
8	Above 500 KV and upto 800 KV	18060 mm	21860 mm	7940 mm

ACS-20 Dt.17-07-2017

Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/Elect./02(Pt.II) Dt.17-07-2017

Note:

- (i) All height /clearances are in mm and under maximum sag conditions.
- (ii) If the crossing is provided with a guarding, a minimum clearance of 2000mm shall be maintained between bottom of the guard wire and highest traction conductor.
- (iii) Power line crossing in yards & stations area shall be avoided.
- (iv) For any electrification work of existing line; doubling/gauge conversion along with electrification, existing crossings can continue, if dimensions are as per Column (5) above, even if dimensions of Col (3) are not satisfied i.e., for electrification works Col (3) is not applicable.

ACS-20 Dt.17-07-2017Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/Elect./02(Pt.II) Dt.17-07-2017

Para 11(ii) Minimum Clearance between any conductor nor adequately insulated and any railway structure under most adverse condition.

SL	Voltage	Minimum Clearance
(1)	(2)	(3)
(a)	Upto including 650 volts	2500mm
(b)	Above 650 volts upto and including 33 KV	3700mm
(c)	Above 33 KV upto and including 66 KV	4000mm
(d)	Above 66 KV upto and including 132 KV	4600mm
(e)	Above 132 KV upto and including 165 KV	4900mm
(f)	Above 165 KV upto and including 220 KV	5500mm
(g)	Above 220 KV upto and including 400 KV	7300mm
(h)	Above 400 KV upto and including 500 KV	8200mm
(i)	Above 500 KV upto and including 800 KV	10900mm

(There is no change in this Para w.r.t. the existing provisions of IRSOD 2004)

Para 11 (iii) Minimum height above rail level for telegraph, telephone and other such low tension wires crossing a railway: 6100mm

Para 11 (iv) Minimum Horizontal Distance of Structures:

The minimum horizontal distance measured at right-angle to, and from the centre of nearest track to any part of the structure above ground level, carrying electrical conductor crossing a railway line shall be:

- (i) For new structures : (H+6)m
- (ii) For existing rigid well founded post/structures 3m, or 1.5 m away from the toe of embankment/top of cutting, whichever is more :

Where, 'H' is the height of post/structure from nearest ground level.

Note:

1. Rigid well founded post/structure: Any post/structure which is so constructed or guyed as to remain in vertical position, or failing this to continue to provide the minimum horizontal clearance of 2.135m from the centre of nearest track, with one or all of the conductors broken or with its conductors attached, when subjected to maximum wind pressure, shall be considered to be a "rigid well founded post/structure."

The existing rigid well founded post/structures, presently at a distance equal to or more than (ii) as given above, but less than (H+ 2.135) m, shall be inspected by railway's nominated electrical official once in a year jointly with the owner of the post/structure and certify the safety of the structure, keeping appropriate records of inspections.

2. If the existing post/structure carrying electrical conductors crossing a railway line, is not rigid and well-founded then the minimum horizontal distance, measured at right angles from the centre of nearest track, shall be equal to height of post/structure above ground level plus 2.135m.

ACS-20 Dt.17-07-2017(Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/Elect./02(Pt.II) Dt.17-07-2017)

Interlocking and signal gear :—

12. Maximum height above rail level of any part of Interlocking or signal gear for a width of 1600 mm or 1830mm in the case of tunnels, through and semi-through girder bridges on either side of centre of track subject to the restriction embodied in the note (a) below 64mm

Note:

- (a) For a distance of 229mm outside and 140mm inside the gauge faces of the rail, no gear or trackfittings must project above rail level except .such parts as are required to be actuated by the wheels or wing rails and point rails of special crossings leading to snag dead ends or elevated check rails of crossing or check rails/check flats of diamond crossings.
- (b) Signal wires or supports for signal wires may be allowed at not less than 1600mm or 1830mm in the case of tunnels or through or semi-through girder bridges [see note at item 31 of Chapter IV (A)] on either side of the centre of track provided that they are not more than 203mm above rail level.
- (c) Metal covers with ramps on both sides must be provided over all interlocking gear projecting above rail level between the rails of a track to prevent hanging couplings from damaging the gear.

Tunnels, through and semi-through girder bridges:—

[(See diagram No. 1 A; 1 -A (Modified)]

- 13. (i) Minimum distance of centre to centre of track
 - a) For existing lines 4495mm
 - b) For new works and alteration to existing works 4725mm

(ii) Minimum horizontal distance from centre of track to any structure shall be as follows:

	Height Above Rail Level	Horizontal Distance From Centre Of Track
(a)	From 0.0mm to 305mm	1905mm
(b)	From 305mm to 1065mm	1905mm increasing to 2360mm
(c)	From 1065mm to 3355mm	2360mm
(d)	From 3355mm to 4420mm	2360mm decreasing to 2135 mm
(e)	From 4420mm to 5870mm	2135mm decreasing to 915 mm

Note:

- i. Where electric traction is not likely to be used, over head bracing of bridges may be 5030mm above rail level for a distance of 1370mm on either side of the centre of track.
- ii. In case of existing structures, a special clearance study shall be made as indicated in Appendix -A to Chapter V-A before electric traction is introduced.
- iii. See Appendix for extra clearances required on curves.
- iv. Where D.C. traction is in use item 13(ii)(e) above may be as under:
 - From 4420 mm to 5410 mm : 2135 mm decreasing to 915 mm
- v. Tunnels , through girder and semi through girder bridges outside station yards should be treated as heavy over head structures such as ROB for electrification works and the same dimension as mentioned in note (c) at Para 10 above shall be applicable and OHE arrangement shall be as per RDSO drawing.

Safety Refuges :—

14.	Maximum distance apart of refuges in tunnels	100m
15.	Maximum distance apart of trolley refuges :	
	i. On bridges with main spans of less than 100m	100m
	ii. On bridges with main spans of 100m or more	A refuge over each pier

Formation width :—

16. Formation width for single line straight track

i.	For existing works	
	a. Minimum width in embankment	6850mm
	b. Minimum width in cutting (excluding side drains)	6250mm
ii.	For new works/alteration to existing works	
	a. Minimum width in embankment	7850mm
	b. Minimum width in cutting (excluding side drains)	7850mm

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17. Formation width for double line straight track

i.	For existing works	
	a. Minimum width in embankment	12150mm
	b. Minimum width in cutting (excluding side drains)	11550mm
	The minimum formation width is based on :	
ii.	For new works/alteration to existing works	
	a. Minimum width in embankment	13160mm
	b. Minimum width in cutting (excluding side drains)	13160mm

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Note :

The minimum formation width is based on :

- i. Ballast section having 1:5:1 side slope.
- ii. Cross slope on top of formation of 1 in 30.
- iii. Track centre in case of double line section is 5300mm.

18. Formation width on curves :

(a) Increase due to extra ballast on outside of curves:

On curves, the actual width to be provided should take into account 150mm extra widening of ballast shoulder (500mm in place of 350mm) required on the outer side of curves. Thus, additions in the width on this account will be 150mm for single line and 300mm for double line.

(b) Increase on double line due to effect of super-elevation:

Due to requirement of extra clearances on double line on curves, increase in track centers with corresponding increase in formation width would be necessary to take into account the effect of super elevation.

Increase in formation width on curves will be decided after taking- into account the increase mentioned in (a) & (b) above.

19. **Gauge on straight and curves :-**

The gauge shall be as follows:

i.	Straight including curves of radius 350 m or more	-5 mm to +3 mm i.e 1671 mm to 1679 mm
ii.	For Curves of radius less than 350 m	Upto+10 mm i.e. 1686 mm

CHAPTER II – STATION YARDS

(see diagram no. 2)

Note :

- (1) The expressions "in station" and "out of station" are to be interpreted in accordance with the definition of "station limits" given in Chapter I, Part I, of the General Rules for open lines, viz "station limits" means the portion of a railway which is under the control of a station master and is situated between the outermost signals of the station.
- (2) For running EMU and other 3660mm Stock clearances prescribed in items 13 of Chapter I "Tunnels, through and semi-through, girder bridges" shall also be required for all structures governed by items 1 and 11 of this chapter and not only for tunnels and through and semi-through girder bridges. However a platform shelter may infringe item 13(ii) (e) of Chapter I and edge of the platform shelter may be kept at a minimum horizontal distance of 1600mm from centre line of track and at a minimum height of 4610mm above rail level.

Spacing of tracks:-

1. Minimum distance centre to centre of straight tracks.

(i) For existing works	4265mm
(ii) For new works/additions to existing works	5300mm

Note:

- (a) See Appendix for extra clearance required on curves.
- (b) ~~For spacing of tracks in tunnels, road over bridges/ flyovers, through and semi through girder bridges, see item 13 (i)./ **** Deleted**~~
- (c) ~~New / Additional works cover laying of new line and new running loops. Extension of existing line or replacement of points and crossings will not be treated as new work.~~

In case of new OHE masts / signal posts are required to be provided in between tracks under unavoidable circumstances, the clearance maintained in 1(ii) above shall be increased by equal to the width of such provisions/structures/foundations, as the case may be.

~~(d) OHE masts & signal post shall not preferably be provided in between tracks. However, under unavoidable circumstances, the clearance maintained in Para 1 (ii) above shall be increased by equal to the width of such provisions/ structures/foundations, as the case may be.~~

(d) For "New works/additions to existing works" in existing yard such as conversion of existing loop lines into main line etc., if the stipulation mentioned in 1(ii) & Note (c) above are not likely to be achieved due to field constraints, then minimum horizontal distance from center of track to any structure, as mentioned in note (c) of Para 11(B) of chapter II, IRSOD-2004 shall be ensured.

(e) In completely new yard or portion of existing yard, where "New Work" is being done independent of existing yard. Stipulation under 1(ii) above shall be ensured.

- (e) (f) In case of tunnels, ROBs, flyovers, through & semi-through girder bridges, where centre to centre distance lesser than 5300 mm has been provided, lesser centre to centre distance can be provided on approaches also up to adequate distance to facilitate gradual increase in centre to centre distance up to 5300 mm.

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2. Maximum steepest gradient in station yards, unless special safety devices are adopted and/or special rules enforced to prevent accidents in accordance with approved special instructions.

(i) For New works & Alteration to Existing Works-	
(a) Recommended	1 in 1200 (0.083%)
(b) Maximum (Steepest)	1 in 400 (0.25%)
(ii) For existing works	
	1 in 400 (0.25%)

Note:

- (a) Recommended dimension is generally the good practice, the adoption of which will lead to desirable uniformity on Indian Railways, but it is not to be treated as standards, a departure from which requires sanction.
- (b) In case, it is not possible to provide recommended gradient of 1 in 1200 (0.083%) in yard even after making efforts to provide grades as flat as possible, reason for deviation from recommended gradient and up to the specified maximum (steepest) gradient of 1 in 400 (0.25%) shall be recorded by the Zonal Railway.
- (c) No station yard shall be constructed nor shall any siding join a passenger line on a grade steeper than ~~1 in 260~~ **1 in 100 (0.10 %)**, except where it is unavoidable and then also only with the previous sanction of Railway Board, obtained through the Commissioner of Railway Safety, when a slip siding or other **adequate** arrangements **are** made ~~sufficient~~ to prevent accident.
- (d) The power of condonation for gradient steeper than the specified standard maximum gradient of 1 in 400(0.25%) shall be as under-

(i)	Existing Yard:	
	Steeper than 1 in 400 (0.25%) and up to 1 in 100 (0.10%)	Commissioner of Railway Safety
	Steeper than 1 in 100 (0.10%)	Railway Board through Chief Commissioner of Railway Safety
(ii)	For New Yard in New Line Projects:	
	Steeper than 1 in 400 (0.25%) and up to 1 in 260 (0.38%)	Commissioner of Railway Safety
	Steeper than 1 in 260 (0.38%)	Railway Board through Chief Commissioner of Railway Safety

- (e) For above purpose, Station Yard means--
- (1) ~~Station Yard will be taken to extend —~~
 - (i) On single line to a distance of 50 meters beyond Stock Rail Joint of outermost points at either end of the station.
 - (ii) On double line where 2 aspect signaling is provided, from Home signal to a distance of 50 meters beyond Stock Rail Joint of outermost points at the trailing end, or where there are no loops, to last stop signal of each line.
 - (iii) On double line where multiple aspect signaling is provided to a distance of 50 meters beyond Stock Rail Joint of outermost points at either end of the station or where there are no loops, from Block Section Limit Board to last stop signal of each line.
 - (2) ~~There must be no change of grades within 30 meters of any points or crossings.~~
 - (3) ~~These provisions shall also apply to Flag station and Halt station in case of 'New Lines' projects.~~
 - (f) ~~Item 2 does not apply to Flag station, Halt station/IBS.~~

(f) There must be no change of grades within 30 m. of any points or crossings.

(g) In case of "New Lines" projects, the above provisions shall also apply to Flag station, Halt station or class 'C' station (where there is no station section as defined in IR General Rules 1976). This is to keep provision for conversion of Flag, Halt or class 'C' station into class 'A' or 'B' station in future.

(h) For other than "New Lines" projects the above provisions shall not be applicable for Flag station, Halt Station or class 'C' station.

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Platforms:

3. (i) Horizontal distance from centre of track to face of passenger platform coping

Maximum	1680mm
Minimum	1670mm

Note: The coping of passenger platform must be so constructed that when necessary, to allow for introduction of wider stock, it can be easily and expeditiously set back to 1905mm. from centre of track (see diagram no. 2)

- (ii) Horizontal distance from centre of track to face of goods platform coping

Maximum	1680mm
Minimum	1670mm

- (iii) Horizontal distance from centre of track to face of any platform wall.

Maximum	1905mm
Minimum	1675mm

Note:

- (a) New platform walls should be built to maximum dimensions and the coping corbelled out to 1675mm unless provision is made to allow for the introduction of wider rolling stock either by slewing the platform track out by 230mm or by moving the platform wall 230mm further from the track.
- (b) See Appendix for extra clearance required on curves.

4. Height above rail level for high passenger platforms: **840 mm maximum**
760 mm minimum
5. Maximum height above rail level for medium level passenger platform : 455 mm
6. Maximum height above rail level for goods platforms
(except horse and end loading platforms) : 1065 mm

Note: For items 4, 5 and 6

- (a) Platforms may be flush with rail level.
- (b) The ends of all platforms (except end loading platforms) must be ramped to a slope of 1 in 6 for a width of not less than 1 m from the face of the platform wall, the rest can either be ramped to the same slope or fenced.
- (c) The height of platforms serving canted track should be measured vertically from the face to a plane passing through the top of both the rails.
- (d) End loading platforms and platforms on sidings used exclusively for horse loading may be raised to a height of 1295mm above rail level.
- (e) Signal wires or supports for signal wires may be allowed underneath the platform coping.
- (f) The length of a passenger platform should be not less than the length of the longest passenger train excluding the engine, booked to stop at the platform.
- (g) No passenger platform in case of new line would be constructed on a curve having radius less than 875 m.
- (h) In case of construction of a new platform on the existing line addition/alteration to existing platforms or in gauge conversion/doubling works, where either the new platform(s) are to be constructed or the old being dismantled and reconstructed, efforts should be made to ease out the existing curves having radii less than 875 m. However, for these works, having platform located/to be located on curves with radii less than 875 m, no condonation of CRS/Board would be necessary.
- (i) For Item 4: the height for Mumbai suburban passenger platform and **Pune suburban passenger platform** may be in range of 840mm-900mm for reducing gap between bottom of sole bar of EMU coach & platform floor and shall be applicable for operation of EMU stocks having height of bottom of sole bar above rail level not less than 1039 mm above rail level in fully loaded condition. The height of platform more than 840 mm shall be permitted by General Manager, after ensuring maintenance condition of track and **maintenance condition of** rolling stock as under:
 - i. Improvement in maintenance practices and monitoring condition of spring during trip inspection of EMU rakes.
 - ii. Improvement in track maintenance on platform lines to the standards specified in Para 607(2) of IRPWM.
 - iii. Improved monitoring and corrective action to control sinkage of vertical level of track.
 - iv. In case, a new design EMU stock, different from the existing stock is to be introduced on suburban section, running trial over increased height suburban platforms shall be required before clearing the stock for passenger operation.

ACS-27 Dt.17-07-2019

ACS-22 Dt.08-12-2017

Ref: Rly Board Letter No.2011/CEDO/SD/IRSOD/O/1 Dt.08-12-2017

Buildings and structures:

7. (a) Minimum horizontal distance of any building on a passenger platform from centre line of track:

- | | | |
|-------|---|---|
| (i) | From platform level to 305mm above platform level | 5180 mm increasing uniformly to 5330 mm |
| (ii) | From 305mm above platform level to 3430mm above rail level | 5330 mm |
| (iii) | From 3430mm above rail level to | |
| (1) | 4115mm above rail level in case of existing works | 5330 mm decreasing uniformly to 3810 mm |
| (2) | 4610mm above rail level in case of new works or alterations to existing works | 5330 mm decreasing uniformly to 3810 mm |

Note:

- (1) For the return end of platform fencing these dimensions may be reduced to 2740 mm.
- (2) Isolated structures are covered in item 8 below:
- (3) In Mumbai suburban area, when it is not possible to provide platform width to meet provisions at 7.a (i), 7.a (ii), and 7.a (iii) above, the dimensions at 7.a(i), 7.a(ii), and 7.a(iii) can be reduced by Commissioner of Railway Safety for construction of new foot over bridge on the platform, on case to case basis subject to stipulations (a), (b), (c) & (d) below, as under:

- | | | |
|-----|---|---|
| i. | From platform level to 3430mm above rail level | : 4115 mm |
| ii. | From 3430mm above rail level to 4610mm above rail level | : 4115 mm decreasing uniformly to 3810 mm |

- (a) The supporting column of FOB deck and landing on platform shall be designed in such a way that there is no lateral bracing between two columns up to a height of 2400 mm from platform level to allow free movement of passengers.
- (b) The FOB structure as well as platform surface in the 'entire zone covering the members of FOB having horizontal clearance less than 5330 mm from centerline of track from PF level to 2400 mm above PF level' shall be painted with yellow and red retro reflective paint strips to alert the alighting passengers. No temporary or permanent structure, no stabling of hand trolley shall be permitted in this zone. This area shall be well illuminated during night time,
- (c) No Slewing of track towards adjoining platform shall be permitted in the FOB zone.
- (d) In any case, FOB landing width should not be more than 50% of Platform Width.

ACS-23 Dt.8-12-2017

(Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/O/2 Dt.08-12-2017)

7. (b) Minimum horizontal distance of any building or longitudinal boundary fence from the centre line of track of passenger platform which is **not an island platform** (for new works or alterations to existing works) **ACS 24 Dt.02.08.2018**

- | | | |
|------|-------------|----------|
| (i) | Minimum | 6830 mm |
| (ii) | Recommended | 12130 mm |

Note :

- (a) Item 7(b)(ii) allows for setting back the platform to make room for an additional track in future, without infringing item 7(b)(i).

- (b) Item 7(b) should also apply to buildings and isolated structures not readily removable, erected on ground over which it is anticipated that a platform may be extended in future.
- (c) Item 7(b)(i). may further be reduced to 5330mm in case of **foot over bridge at any station and /or** provisions of longitudinal boundary fence at D, E and F category stations; subject to stipulation that if any pucca construction of building /structure is done in future, provisions of items 7(a) & 7(b) shall be followed. **ACS-24 Dt.02-08-2018**
- (d) **In Mumbai suburban section, for construction of new foot over bridge on the platform, provision of Item 7(a) shall be applicable. ACS-24 Dt.02.08.2018**
(Ref: Rly Bd Letter no.2017/CEDO/SD/IRSOD/O/2 Dt.02-8-2018)
8. Minimum horizontal distance from centre line of track to a pillar, column, lamp or similar isolated structure on a passenger platform or any building on a goods platform.
- | | |
|--|---|
| i. From platform level to 305mm above platform level | 4570 mm increasing uniformly to 4720 mm |
| ii. From 305mm above platform level to 3705mm above rail level | 4720 mm |
| iii. From 3705mm above rail level to | |
| a. 4115 mm above rail level in case of existing works | 4720 mm decreasing uniformly to 3810 mm |
| b. 4610mm above rail level in case of new works or alterations to existing works | 4720 mm decreasing uniformly 3810 mm |

8.A Minimum horizontal distance from centre line of track to a pillar, column, lamp or similar isolate structure on a goods platforms.

- | | |
|--|---|
| i. From platform level to 305mm above platform level | 3960 mm increasing uniformly to 4110 mm |
| ii. From 305mm above platform level to: | |
| a. 3980mm above rail level in case of existing works | 4110 mm |
| b. 4310 mm above rail level in case of new works or alterationsto existing works | 4110 mm |
| iii. a. From 3980mm above rail level to 4115mm above rail level in case of existing works | 4110 mm decreasing uniformly to 3810 mm |
| b. From 4310mm above rail level to 4610mm above rail level in case of new works or alterations to existing works | 4110 mm decreasing uniformly to 3810 mm |

Note :A pillar or column (vide items 8 & 8A) which covers more than 3716 sq. cm. in plan, must beclasssed as "building" and not as "isolated structure".

9. Minimum height above rail level for width of 1600 mm on either side of the centre of track, of tie rods or any continuous covering in a passenger station 6250 mm

Note :

- (1) On lines other than main lines where 25K.V A.C. electric traction is not likely to be used, the dimensions given above may be modified as under :

For a width of 1370mm on either side of centre of track : 6100mm

- (2) On existing primary lines, not likely to be electrified, dimension as in Note 1 may be allowed to continue.
- (3) Item 9 does not apply to overhead piping parallel to the track.
- (4) A low roof that infringes-item 9 is permissible in the case of goods or transshipment shed on siding, provided it does not infringe the out line of the figures for the minimum fixed structure 01 of stations (See diagram IB).
- (5) Extra vertical clearance of 275mm under overhead structures and overhead equipment in electrified section be provided to allow for any raising of track to permit modern trackstructure to be introduced.

Note: On lines proposed to be electrified on 25 KV A.C. system, necessary provision should be made in overhead line structures and overhead equipment if necessary by using longer traction overhead equipment masts to permit possible raising of the track by 275mm in future to cater for increased ballast cushion, larger sleeper thickness and deeper rail sections.

10. Height of Over Head Structures:

Minimum height above rail level for a width of 1600 mm on either side of central line of track, of a foot over bridge or a signal gantry in a passenger station 6250 mm

Note:

- a. Where D.C. traction is in use or likely to be used, this minimum height shall be 5410 mm.
- b. On secondary lines, where electric traction is not likely to be introduced, this minimum height shall be 4875mm. this also applies to overhead piping arrangements parallel to track wherever provided, which shall necessarily be changed over to the ground hydrants, when the section is electrified.
- c. However, for existing overhead structure, dimensions given in note (c) of para 10 of Chapter- I, Schedule-1: General shall be applicable.
- d. Tunnel, through girder bridge and semi – through girder bridge in station yards shall be treated as heavy overhead structures, such as ROB for electrification works and the same dimensions as mentioned in note (c) of para 10 of schedule 1, chapter- 1: General shall be applicable.
- e. For Mumbai Suburban, the height of Foot Over Bridges mentioned above may reduce to 5750 mm subject to following conditions:
 - i. The minimum height of the contact wire shall be 4800 mm.
 - ii. A special study shall be conducted as indicated in appendix A of chapter V-A to ascertain the feasibility of the contact wire height as 4800mm.
 - iii. There shall be no crossover below FOB or within 40 m from the face of FOB.
 - iv. There shall be no level crossing within 520 m from face of FOB.
 - v. The maximum height of rolling stock shall be restricted to 4420 mm.
 - vi. The height shall be measured from the higher or super-elevated rail.

ACS-22 Dt.08.12.2017

Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/O/1 Dt.08-12-2017

11. Minimum, horizontal distance from centre of track to any structure:

- | | |
|--|----------------------------------|
| A. For existing works: | |
| i. From rail level to 305mm above rail level | 1675 mm |
| ii. From 305mm above rail level to 3355mm above rail level | 2135 mm |
| iii. From 3355mm above rail level to 4115mm above rail level | 2135 mm decreasing
to 1980 mm |
| iv. From 4115 mm to 6250mm above rail level on main line | 1600 mm |
| v. Below the rail level up to the formation level of the track
on straight and curves up to radius of 875m. | 2575 mm |
| vi. Below the rail level up to the formation level of the track
on curves with radius less than 875 in. | 2725 mm |

Note:

- (a) See appendix for 'extra clearances required on curves'.
- (b) On lines other than main lines or existing main lines where electric traction is not likely to be introduced, the horizontal distance of 1370 mm from 4115mm to 6100 mm above rail level may be allowed to continue.
- (c) The various fixtures which are attached to the track e.g. lock bar, point machine, traction bonds, point and signal rodding *etc.* and are required to be fitted with the rail can be provided and the clearance as mentioned in item (v) and (vi) above shall not be applicable to these items.

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- (d) Items (v) and (vi) above shall not be applicable in case of bridges. Tunnels, ballast-less track (including washable apron).

Below the rail level and upto formation level of the track on straight and curves upto radius 875 m	2575 mm
---	---------

Below the rail level and upto the formation level of the track on curves with radius less than 875 m	2725 mm
--	---------

Note :

- a. See Appendix for extra clearances on curves
- b. Items (vii) & (viii) above shall not be applicable in case of bridges. Tunnels, ballast-less track(including washable apron)
- c. For addition/ alteration to works in existing yard the minimum horizontal distance shall be maintained as 2360mm on straight track and on curve having radius 875m & more, and 2510mm in case of curve having radius less than 875m, in case after making full efforts it is not possible to provide prescribed clearances as mentioned in items (vii) and (viii) above.
- d. The various fixtures which are attached to the track like traction bonds *etc.* and are required to be fitted with the rail can be provided and the clearance as mentioned in item (vii) and (viii) above will not be applicable to these fixtures.

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12. Points and Crossings:
- Maximum clearance of check rail opposite nose of crossing 48 mm
- Note:** In case of turnouts laid with 1673 mm gauge, the clearance shall be 45 mm instead of 48 mm
13. Minimum clearance of check rail opposite nose of crossing 44 mm
- Note:** In case of turnouts laid with 1673 mm gauge, the clearance shall be 41mm instead of 44 mm
14. Maximum clearance of wing rail at nose of crossing 48 mm
- Note:**In case of turnouts laid with 1673 mm gauge, the clearance shall be 41mm instead of 44 mm
15. Minimum clearance of wing rail at nose of crossing 44 mm
- Note:**In case of turn outs laid with 1673 mm gauge, the clearance shall be 41mm instead of 44 mm.
16. Minimum clearance between toe of open switch and stock rail
- i. For existing works 95 mm
- ii. For new works or alteration to existing works 115 mm
- Note:**The clearance can be increased upto 160mm in curved switches in order to obtain adequate clearance between gauge face of stock rail and back face of tongue rail.
17. Minimum radius of curvature for slip points, turnouts of crossover roads 218 metres (8 degree)
- Note:**In special cases mentioned below this may be reduced to not less than the minimum of:
- i. 213 m radius in case of 1 in 8.5 BG turnouts with 6.4m over riding switch, and
- ii. 175 m radius in case of 1 in 8.5 scissors crossing to allow for sufficient straight over the diamond crossing between crossovers.
18. Minimum angles of crossing (ordinary) 1 in 16
- Note:** Crossings as flat as 1 in 20 will usually be sanctioned if recommended by the Commissioner of Railway Safety.
19. Diamond crossings not to be flatter than 1 in 8.5
- Note:** Diamond Crossings as flat as 1 in 10 will usually be sanctioned if recommended by the Commissioner of Railway Safety.
20. Minimum length of tongue rail 3660mm
- Minimum length of train protection, point locking or fouling treadle bar 12800mm
- Note:**There must be no change of super elevation (of outer over inner rail) between points 18m outside toe of switch rail and nose of crossing respectively, except in the case of special crossings leading to snag dead-ends or under circumstances as provided for in item-22.

22. Super-elevation and speed in stations on curves with turnouts of contrary and similar flexure :
 Main line: Subject to the permissible run through speed, based on the standard of. Inter locking, the equilibrium super-elevation, calculated for the speed of the fastest train, may be reduced by a maximum amount of 75mm without reducing the speed on the mainline.

Turnouts:

- i. Curves of contrary flexure :—

The equilibrium super-elevation

$$C = \frac{GV^2}{127R}$$

Where :

G=Gauge of the track + Width of the rail head in mm

V = Speed in Kmph

R = Radius of turnout curve in metres

C= Super elevation in mm

The permissible negative super-elevation on the turnout (which is also the actual super- elevation of the main line) may then be made as (75-C)mm.

- ii. Curves of similar flexure :—

The question of reduction or otherwise of super-elevation on the mainline must necessarily be determined by the administration concerned. In the case of a reverse curve close behind the crossing of the turnouts, the super-elevation may be run out at the maximum of 1 mm in 360mm.

Length of sidings:

23. Minimum clear available length of one siding at any station where it is intended to cross trains :
- i. Shall be length of the longest train permitted the section plus 35m.
 - ii. Although it may not be necessary till traffic develops to provide sidings for the largest possible train loads, land should be acquired for them and no building, level crossings or other obstructions should be permitted that will interfere with the crossing siding being lengthened to the following dimensions:

On sections of the railway where the ruling gradients is	Minimum Clear Available Length of one siding for new works or Alteration to the Existing Works
1 in 100 or flatter	750 metres
Steeper than 1 in 100	Length of the longest train permitted in the Section plus 35m

Note:Clear available length denotes:

- i. Distance between foot of the signal to Fouling Mark in the rear on the same line in case of Main line and Directional loop at Station yard.
- ii. In case of Common Loop at the stations, Clear Available Length/ Clear Standing Length shall be the distance between two starter signals of opposite direction on the same line.

CHAPTER III - Workshops and Station Machinery

Water tanks and water cranes:

- | | | |
|-------|---|----------|
| 1. a. | Minimum height above rail level for discharge orifice of water crane | 3660 mm |
| b. | Distance from centre of track to face of tank house less than 60 metres beyond the end of a passenger platform. | |
| i. | Minimum | 7165 mm |
| ii. | Recommended | 11890 mm |

Note :

- | | | |
|-----|---|-----------------------------------|
| (a) | Item 1(b) need not be observed in the case of small subsidiary or relay tanks which can easily be removed back to provide room for an extension of the yard. | |
| (b) | Item 1 (b) (i) allows for the extension of the platform and item 1 (b) (ii) allows for the laying of an additional track and extending of the platform in future. | |
| (c) | Minimum height for bottom of tank above rail level at water column : | |
| i. | For watering engines | 7620 mm |
| ii. | For washing engines | 12190 mm |
| (d) | Minimum total tank capacity at any station | 56.5 cu meters or
56825 liters |
| (e) | Minimum internal diameter for piping from tank to water crane | 203 mm |

Workshops and running sheds:

- | | | |
|-----|--|---------|
| 2. | Minimum distance from centre to centre of tracks | |
| i. | For existing works | 4570 mm |
| ii. | For new works or alterations to existing works | |
| a. | In workshops | 4570 mm |
| b. | In running sheds | 5260 mm |

Note :

Where there is a structure between tracks, the distance of centre to centre of tracks is to be increased by the amount of the width of the structure like O.H.E. post *etc.*

- | | | |
|-----|---|---------|
| 3. | Minimum clear distance from centre of track to any isolated structure such as a pillar in : | |
| i. | Workshops | |
| a. | For existing works | 2285 mm |
| b. | For new works or alterations to existing works | 2360 mm |
| ii. | Running sheds | 2515 mm |

4. Minimum clear distance, for a height of 1830mm above rail level, from centre of track to any continuous structure in

- | | |
|-------------------|--------|
| i. Workshops | 2745mm |
| ii. Running sheds | 3275mm |

Note : For standard 'C' Railways, minimum horizontal distance for a height of 1830mm above rail level on either side of centre of track to any continuous structure in running sheds shall be 2745mm.

5. Minimum height above rail level to overhead tie bars, girders etc. in workshops and running sheds:

- | | |
|---|--------|
| i. Where electric traction is not likely to be used | 5030mm |
| ii. Where electric traction is likely to be used | 6250mm |

6. Minimum height above rail level of doorways for a width of 1370mm on either side of centre of track in both workshops and running sheds :

- | | |
|---|--------|
| i. Where electric traction is not likely to be used | 4875mm |
| ii. Where electric traction is likely to be used | 6250mm |

Ashpits etc. :

7. Average depth for ashpits in station yards, pits in running sheds and carriage examination pits.	760mm
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Note : Siting of Ashpits on run through lines should, if possible, be avoided

CHAPTER IV (A) - Rolling Stock (Carriage & Wagon)

Wheels & Axles

1.	Wheel gauge, or distance apart, for all wheel flanges	Maximum 1602 mm Minimum 1599 mm
2.	i. Maximum diameter on the tread of new carriage or wagon wheel, measured at 63.5mm from wheel gauge face	1092 mm
	ii. Minimum diameter on the tread of new carriage or wagon wheel, measured at 63.5mm from wheel gauge face	914 mm
3.	Minimum projection for flange of new tyre, measured from tread at 63.5mm from wheel gauge face	28.5 mm
4.	Maximum projection for flange of worn tyre, measured from tread at 63.5mm from wheel gauge face	35.0 mm
5.	Maximum thickness of flange of tyre, measured from wheel gauge face at 13mm from outer edge of flange	29.4 mm
6.	Minimum thickness of flange of tyre, measured from wheel gauge face at 13mm from outer edge of flange	16 mm
7.	Minimum width of tyre	127 mm
8.	Incline of tread	1 in 20

Height of Floors

9.	Maximum height above rail level for floor of any unloaded vehicle	1345 mm
10.	Minimum height above rail level for floor of fully loaded passenger vehicle	1200 mm
11.	Minimum height above rail level for floor of fully loaded goods vehicle	1145 mm

Note: This does not apply to crocodile wagons.

Buffers & Couplings

12.	Distance apart for Centres of buffers	1956 mm
13.	Maximum height above rail level for centres of buffers & CBC couplers for unloaded vehicles	1105 mm
14.	Minimum height above rail level for centres of buffers & CBC couplers for fully loaded vehicles	1030 mm

Wheel Base & Length of Vehicles

15.	Maximum rigid wheel base for four wheeled vehicles	6100 mm
16.	Minimum distance apart of bogie centres for bogie vehicles	5400 mm
17.	Maximum distance apart of bogie centres for bogie vehicles	14900 mm
18.	i. Minimum rigid wheel base for bogie truck of any vehicle	1830 mm
	ii. Minimum rigid wheel base for bogie truck of passenger vehicle	2440 mm
19.	Maximum length of body or roof for:	
	a. 4-wheeled vehicle	8540 mm
	b. Bogie vehicles	21340 mm

Note :

- i. Maximum length of body or roof of bogie vehicles can be upto 23540 mm, subject to tapering of the ends in a manner that the end throw, when calculated as per Appendix, is same as that for ICF coach of 21340 mm and within this length Schedule of Dimensions.
- ii. A cornice may project beyond the maximum permissible length of the roof up to 51 mm in the case of (a) above, beyond each end of the vehicle.
- iii. Fittings on the end of a vehicle, such as step iron, vacuum brake piping, electrical connections, vestibule etc., need not be kept within the prescribed maximum permissible lengths for bodies of vehicles, but may project beyond the end of the body to a reasonable extent.

20. Maximum length over center buffer couplers or side buffers :

a.	4-wheeled vehicle	9810 mm
b.	Bogie vehicles	22300 mm

Note: Maximum length over the centre buffer couplers or side buffers can be increased up to 24000 mm for Bogie Vehicles, in accordance to maximum length of body or roof. However, the maximum length over the centre buffer couplers or side buffers for longer coaches as per Item 20 above shall be so arranged that difference between length over side buffers and length of body or roof is not less than 460 mm.

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21.	Maximum distance apart between any two adjacent axles	12345 mm
Maximum Moving Dimensions (See diagram ID)		
22.	Maximum width over all projections at 102 mm above rail level, when fully loaded.	2440 mm
23.	Maximum width over all projections, at 305 mm above rail level, when fully loaded.	3050 mm
24.	a. Maximum width over all projections from 305mm above rail level, to 940 mm above rail level, when fully loaded	3050 mm
	b. Maximum width over all projection from 940 mm above rail level to 1082 mm above rail level, when fully loaded	3050 mm increasing gradually to 3150 mm
25.	Maximum width over all projection from 1082 mm above rail level, to 1170 mm above rail level, when fully loaded	3150 mm increasing gradually to 3250 mm

Note : For freight bogie vehicles with maximum length of body or roof upto 14500mm and bogie centre distance upto 10000mm, maximum width over all projections from 305mm above rail level to 1060mm above rail level, when fully loaded, can be relaxed to 3135mm instead of 3050mm

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- | | | |
|-----|---|---------|
| 26. | Maximum width over all projections from 1170 above rail level, 3250 mm when fully loaded to a height of 3735 mm when empty | |
| | (i) Guttering, side lamps and destination boards may project 76 mm on each side beyond the dimensions given above from a height of 2895 mm to 3355 mm above rail level, upto a maximum over all width of 3402 mm. | |
| | (ii) Coach number plates may project 25 mm on each side beyond the dimension given above from a height of 2590 mm to 2895 mm above rail level, upto a maximum over all width of 3300 mm. | |
| | (iii) Reservation card holders may project 25 mm on each side beyond the dimensions given above from a height of 1750 mm to 1980 mm above rail level upto a maximum over all width of 3300 mm. | |
| | (iv) The doors are to be either sliding or opening inwards. Hand bolts, door locks, handles and window bars shall not, however, project beyond the dimensions given against item above. | |
| 27. | Maximum width over open doors, including all projections for passenger vehicles. | 4040 mm |
| 28. | Maximum width over open doors, including all projections for goods vehicles. | 4265 mm |

Note: Doors of horse boxes, brake vans, luggage vans and rising and falling flap doors of good wagons are exempted from this rule

- | | | |
|-----|--|-------------------------------------|
| 29. | Maximum height above rail level for a width of 1015 mm on either side of the center of unloaded vehicle at side of unloaded vehicles (Diagram no. 04) | : 4265 mm |
| 30. | Maximum height above rail level at side of unloaded vehicles. | 3735 mm ACS-27 DT.17.07.2019 |

Note :

- i. Destination boards for passenger vehicles may project 76mm above the dimensions upto maximum height above rail level at sides of vehicles when empty.
- ii. (Applicable for clauses 26, 27 & 30)

In case of stocks exceeding the 1929 profile and within the maximum moving dimensions shown in diagram 1 D, clearance of the following Railway is required to be obtained for the following locations before permitting the stock for the general adoption:

S.No.	Railway	Section	Location
1	2	3	4
1.	E. Railway	Andal-Sainthia Chord	Br. No. 66
2.	N.F. Railway	Old Malda— Singhabad	Tangon Br.
3.	S.E. Railway	Tata — Rourkela	Up Saranda Tunnel
4.	S. E .C .Railway	Bilaspur — Katni	DnBhortonk Tunnel

31. Minimum height above rail level when fully loaded for a width of 91 mm 1220 mm on either side of center of track with the exception of wheels and attachments there to (vide note below)

Note :A tyre or an attachment of a wheel may project below the minimum height of 91 mm from a distance of 51 mm inside to 216 mm outside of the gauge face of the wheel.

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32. Minimum height above rail level, when fully loaded at 1 567.5 mm from centre of track 305 mm

Loading Gauge for Goods

33. Maximum width 3250 mm
 34. Maximum height above rail level at centre 4265 mm
 35. Maximum height above rail level at sides 3735 mm

Note : The loading gauge is for testing loaded and empty vehicles; the maximum moving dimensions are given in items 26, 27, 29 and 30 above.

CHAPTER IV (B)

Rolling Stock, 3660mm wide stock

Note:

These dimensions shall not be adopted in designs for rolling stock without the special sanction of the Railway Board in each case.

Maximum Future Moving Dimensions:(See diagram No. 1A)

- | | | |
|----|--|--------------------|
| 1. | Maximum width over all projections: | |
| | i. At 102mm above rail level, when fully loaded | 2895 mm |
| | ii. At 305mm above rail level, when fully loaded | 3505 mm |
| | iii. From 305mm above rail level to 1145mm above rail level when fully loaded | 3505 mm |
| | iv. From 1145mm above rail level, when fully loaded to a height of 3355mm when empty | 3660 mm |
| | v. At 4265mm above rail level, when empty | 3505 mm |
| 2. | Maximum width over open doors, including all projections,for passenger vehicles | 4495 mm |
| 3. | Maximum width over open doors, including all projections, for goods vehicles | 4500 mm (CS No.14) |

Note: Doors of horse boxes, brake vans, luggage vans and rising and falling flap doors of goodswagons are exempted from this rule.

- | | | |
|----|--|---------|
| 4. | Maximum height above rail level for a width of 915mm on either side of the centre of unloaded vehicles. | 4725 mm |
| 5. | Maximum height above rail level at sides of unloaded vehicles | 4265 mm |
| 6. | Minimum height above rail level, when fully loaded for a width of 1450mm on either side of centre of track, with the exception of wheels and attachments thereto (vide note below) | 102 mm |

Note: A tyre or an attachment to a wheel may project below the minimum height of 102 mm from a distance of 51 mm inside to 216 mm outside of the gauge face of the wheel.

- | | | |
|----|--|--------|
| 7. | Minimum height above rail level, when fully loaded at 1755 mm from centre of track | 305 mm |
|----|--|--------|

Loading gauge for goods:

- | | | |
|-----|---|---------|
| 8. | i. Maximum width at a height of 3380 mm above rail level | 3710 mm |
| | ii. Maximum width at a height of 4295 mm above rail level | 3555 mm |
| 9. | Maximum height above rail level for a width of 915 mm on either side of the center of track | 4750 mm |
| 10. | Maximum height above rail level at sides | 4295 mm |

Note:The loading gauge is for testing loaded and empty vehicles, the maximum moving dimensions are given in items 1 (iv), 4 and 5 above.

CHAPTER IV (C)
Rolling Stock (Locomotive)

Wheels and axles :

1.	Wheel gauge or distance apart for wheel flanges :		
	a. Wheels with thick flanges/wear adopted wheel profile	1596 mm	
	b. Wheels with standard flanges	1600 mm	
	c. Wheels with thin flanges	1600 mm	
	d. Wheels without flanges	1600 mm	
	(See item 5 for identification of thick/wear adopted, standard & thin flanges)		
2.	i. Maximum diameter on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face.	1092 mm	
	ii. Minimum diameter on the tread of new locomotive carrying wheels measured at 63.5 mm from wheel gauge face.	914 mm	
3.	Minimum projection for flange of new tyre measured from tread at 63.5 mm from wheel gauge face.	28.5 mm	
4.	Maximum projection for flange of worn tyre measured from tread at 63.5 mm from wheel gauge face.	35 mm	
5.	Maximum & minimum thicknesses of tyre flanges measured at 13 mm from outer edge of flange :	Max.	Min.
	a. Thick flanges/wear adopted wheel profile	32 mm	—
	b. Standard flanges	28 mm	—
	c. Thin flanges	18 mm	—

Note:

- (i) The above values of flange thicknesses are measured from the back face of the tyre.
- (ii) Minimum size of flange of locomotive tyres shall be determined by condemning profile gauge which specifies the minimum thickness and the limits of angularity of the flange on the gauge face.

6.	Minimum width of tyres:	
	a. Locomotive coupled wheels	133 mm
	b. Locomotive wheels other than coupled	127 mm
7.	Incline of tread	1 in 20 for all profiles except wear adopted profile for which with radii of the wear adopted profile

Buffers & Couplings :

8.	Distance apart for centers of buffers	1956"mm
9.	Maximum height above rail level for centers of buffers and CBC couplers for empty locomotive	1105"mm
10.	Minimum height above rail level for centers of buffers &CBC couplers when fully loaded	1030 mm

Maximum Moving Dimensions :

11.	(See diagrams 1 D-the new diagrams introduced by RDSO)	
11.A	Maximum length of body or roof	21340"mm
11.B	Maximum length over centre buffer couplers or side buffers	22300"mm

Note:

- *~~k~~ Maximum length of body or roof can be upto 23540"mm, subject to tapering of the ends in a manner that the end-throw, when calculated as per Appendix, is same as that for ICF coach of 21340"mm length and within this Schedule of Dimensions.
- *~~k~~ Maximum length over the egpvt buffer couplers or side buffers for bogie"vehicles can be increased upto 24000"mm for Bogie Vehicles, in accordance to maximum length of body or roof. However, length over the egpvt buffer couplers or side buffers be so arranged that difference between length over side buffers and length of body or roof is not less than 460"mm.

330C Maximum width over all projection u:"

i.	At 91 mm above rail level, when fully loaded	2440"mm
ii.	At 91 mm to 305 mm above rail level, when fully loaded	2440 mm increasing gradually to 3050 mm
iii.	From 305 mm above rail level to 940 mm above rail level, when fully loaded	3050mm
iv.	From 940 mm above rail level to 1082 mm above rail level,when fully loaded	3050 mm increasing gradually to 3150mm
v.	From 1082mm above rail level to 1170 mm above rail level, when fully loaded	3150 mm increasing gradually to 3250 mm
vi.	From 1170 mm above rail level, when when fully loaded to 3735 mm above rail level, when empty	3250mm

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Note:

- i. Maximum width over all projections from 925mm (minimum in allconditions) above rail level to 1082mm above rail level, when fully loaded can be 3075mm (in the bogie portion only).
 - ii. Maximum distance apart of bogie centres (i.e. pivot centres) for locomotives shall be 15810mm, subject to the condition that width of locomotive at the centre is such that mid-throw, when calculated as per Appendix, is same as that for ICF coach of 21340mm length and within this Schedule of Dimensions. CS No.14)
- | | | | |
|-----|---|--------|-----------------------------|
| 12. | Maximum height above rail level for a width of 760mm 1015 mm on either side of the center of empty locomotives unloaded vehicle. | 4265mm | ACS-27 Dt.17.07.2019 |
| 13. | Maximum height above rail level at sides of empty locomotives | 3735mm | |

Maximum Moving Dimensions for X-Class locomotives

- | | | |
|------|---|---|
| 14. | Maximum width over all projections: | |
| i. | At 102 mm above rail level, when fully loaded | 2440 mm |
| ii. | From 305 mm above rail level to 1110 mm above rail level,when fully loaded | 3135 mm |
| iii. | From 1110 mm above rail level to a height of 1145 mm above rail level when fully loaded | 3135 mm increasing gradually to 3200 mm |
| iv. | From 1145 mm above rail level when fully loaded to a height of 3735 mm above rail level, when empty | 3200 mm |

- | | | |
|-----|---|---------|
| 15. | Maximum height above rail level for a width of 305 mm on either side of centre of empty locomotives | 4470 mm |
|-----|---|---------|

Note: The dimension given in item no 15 shall not be adopted without obtaining prior approval of Railway Board.

- | | | |
|-----|---|---------|
| 16. | Maximum height above rail level at sides of empty locomotives | 3735 mm |
| 17. | Minimum height above rail level when fully loaded for a width of 1220 mm on either side of center of track with the exception of wheels and attachments thereto (vide note below) | 91 mm |

Note: A tyre or an attachment to a wheel or sand pipes in line with the wheel may project below the minimum height of 91 mm from a distance of 51 mm insides to 216 mm outside of the gauge face of the wheel.

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- | | | |
|-----|---|--------|
| 18. | Minimum height above rail level when fully loaded at 1525 mm from centre of track | 350 mm |
|-----|---|--------|

CHAPTER V - ELECTRIC TRACTION (Direct Current)

Note: Wherever electric traction, employing overhead conductor wires, is in use strict orders must be issued prohibiting any one from getting on the roofs of vehicles until the current in the overhead conductors has been switched off and the conductors themselves have been earthed.

1. Minimum height from rail level to the under side of live conductor wire:

i. Under bridges and tunnels	5030 mm
ii. In the open	5335 mm
iii. In running and carriage sheds	5790 mm
iv. At level crossing	5485 mm

Note : The height prescribed in item 1 (iv) applies also to tramway trolley wires crossing the railway.

2. Maximum height from rail level to the underside of live contact wire except in running and carriage sheds 5790 mm

Note: In the case of running and carriage sheds, the maximum height of the contact wire will be determined in each case based on the operating range of the pantograph and the permissible electrical clearances required inside the sheds.

3. Maximum variation of live conductor wire on either side of the central line of track:

- | | |
|--|--------|
| i. On straight track | 230 mm |
| ii. On curves (on the inside of the curve) | 380 mm |

4. Minimum distance between live conductor wire and any structure 130 mm

5. Maximum width of pantograph collector 2030 mm

CHAPTER V-A Electric Traction**25 KV A.C. 50 Cycles**

Note: Wherever electric traction is in use, special precaution shall be taken in accordance with provisions made in Chapter XVII, General Rules for all Open lines of Railways.

Electrical Clearances:

1. Vertical and lateral distance between 25 KV line parts and earthed parts of fixed structure or moving loads / rolling stocks shall be as large as possible. The Minimum vertical and lateral electrical clearances to be maintained under worst condition of temperature, wind etc. between any live part of the over head equipment of pantograph and parts of any fixed structures (earthed or otherwise) or moving loads / rolling stocks shall be as under :

- | | | |
|-----|----------------|----------|
| i. | Long duration | : 250 mm |
| ii. | Short duration | : 200 mm |

Note:

- (a) Long Duration means when the conductor is at rest and Short Duration means when the conductor is not at rest.
 - (b) A minimum vertical distance of 270 mm shall normally be provided between rolling stock and contact wire to allow 20 mm temporary raising of track during maintenance. Whenever the allowance required for track maintenance exceed 20 mm, the vertical distance between rolling stock and contact wire shall correspondingly be increased.
 - (c) Where adoption of above clearances is either not feasible or involves abnormally high cost, permanent bench mark shall be provided to indicate the level of the track to be maintained.
2. Minimum height from rail level to the underside of contact wire :

- | | | |
|-----|-------------------------------|--------------|
| i | Under bridges and in tunnels | : 4.80 metre |
| ii | In the open | : 5.50 metre |
| iii | At level crossings | : 5.50 metre |
| iv | In running and carriage sheds | : 5.80 metre |

Note:

- (a) In cases where it is proposed to allow only locomotives or rolling stocks not higher than 4.42 m, the minimum height of contact wire specified under item 2(i) above may be reduced to 4.69 meter.
- (b) In cases where it is proposed to allow only locomotives or rolling stocks not higher than 4.27 m, the minimum height of contact wire specified under Item 2(i) above may be reduced to 4.54 meter. Aboard showing this restriction and specifying —locomotive s or stocks not permitted to ply on such sections —, shall be exhibited at the entrance to the same.
- (c) For movement of over dimensional consignments, the height specified under 2(i) above, shall be increased by the difference between the height of the consignment contemplated and 4.42 m. In case such an over dimensional consignment is moved at speeds not exceeding 15 Km/h and is also specially escorted by authorized railway staff, the derived height of contact wire may be reduced by 50 mm.
- (d) On curves, all vertical distance specified in item (2) above, shall be measured above the level of the inner rail, increased by half the super elevation.
- (e) Suitable prescribed gradient on the height of the contact wire shall be provided for connecting these wires installed at different heights.

3. Maximum variation in alignment of the live conductor wire on either side of the centre line of track under static conditions.

- i. On straight track : 200 mm
- ii. On curves : 300 mm

Note: These limits would not apply to special locations e.g. insulated overlaps and out of run wires.

4.

- i. Maximum width of pantograph collector ~~1800mm~~ **2030 mm** ACS-27 Dt.17.07.2019
- ii. When D.C. Traction is converted to 25 KV AC Traction , width of pantograph collector (subject to it being within the approved MMD) 2030 mm

Note : A tolerance of plus 10mm on maximum width specified is permissible to accommodate variation in manufacture and mounting with respect to the centre line of vehicle

5. In the case of light structure such as foot- over bridges, it would be desirable to keep a standard height of contact wire of 5.50 metre. In case of heavy structures, such as flyover bridges or road over bridges, it is desirable to keep the height of contact wire as low as possible, consistent with the requirements of movement of standard class C'Over Dimensional Consignments of height 4.80 metre.

Chapter VB - 25 kV A.C. Electric Traction with High Rise OHE ACS-21

Note: Provisions under this chapter are applicable only for electrification of routes where doublestack container having maximum height of 6809 mm is plying.

1. Minimum Height from rail level to the underside of contact wire in open: 7520 mm

Note: On curves, the height shall be measured from the higher or super elevated rail.

2. Minimum Height of Overhead structure above rail level for a distance of 1600 mm on either side of the center of track shall be as under:

A. Light Overhead Structures, such as Foot Over Bridges:	8430 mm
B. Heavy Overhead Structures, such as Road Over Bridges and Flyovers:	8050 mm
C. Heavy Overhead Structures, such as Road Over Bridges and Flyovers, if any turnout or crossover is located under that heavy overhead structure or within 40 meters from its nearest face:	8430 mm

Note:

- (i) Necessary provision shall be made in overhead structure and overhead equipment to permit an extra allowance for raising of track in future to cater for modern track structure in the form of increased ballast cushion of 350 mm, larger sleeper depth of 230 mm and heavier rail sections of 200 mm including 10 mm thick rubber pad by using longer traction overhead equipment masts, if necessary.

- (ii) In case of restricted height of existing overhead structures. minimum height of overhead structure for a distance of 1600mm on either side of the centre of track for provision of high rise OHE as per note (iii) below, to permit operation of double stack container having maximum height as 6809 mm shall be as under:

a. Light Overhead Structures, such as Foot Over Bridges:	7568 mm
b. Heavy Overhead Structures, such as Road Over Bridges and Flyovers:	7468 mm
c. Heavy Overhead Structures, such as Road Over Bridges and Flyovers, 7568 mm if any turnout or crossover is located under that heavy overhead structure or within 40 m from its nearest face:	For these minimum restricted heights, catenary wire shall be terminated outside overhead structure (Road Over Bridges & Flyovers / Foot Over Bridges).

- (iii) In case of restricted height of existing overhead structures, bridges and tunnels the minimum height of underside of the contact wire from rail level can be reduced to 7166 mm. In such cases, a special study shall be made, before 25 kV AC traction is introduced as explained below:

a. Height of the rolling stock:	6809 mm
b. Short duration electrical clearance:	200 mm
c. Additional electrical clearance for oscillation of the contact wire (For OHE span length of 49.5m or below):	50 mm
d. Allowance for track up gradation/maintenance:	50 mm
e. Rise in rolling stock height under dynamic conditions:	57 mm
f. Minimum height of contact wire:	7166 mm

(iv) Extra vertical clearance shall be provided on curves as under:

$$\text{Extra vertical clearance (mm)} = \frac{\{\text{Width of MMD (mm)} * \text{Super elevation(mm)}\}}{\text{Dynamic gauge (mm)}}$$

This extra vertical clearance on curve would be with respect to inner rail of curve.

3. Clearance for Power Line Crossings Including Telephone Line Crossings of Railway Tracks:

SL	Over Head Crossing Voltage	Minimum Clearances From Rail Level		Minimum Clearance Between Conductor And Lowest Transmission Line Crossing Conductor
		Existing Power Line Crossing For Non Electrified Territory	New Power Line Crossing Or Crossing Planned For Alteration	
(1)	(2)	(3)	(4)	(5)
a.	Upto and including 11- kV	Normally By Underground Cable		
b.	Above 11 kV & upto 33 kV	10860 mm	16660 mm	2440 mm
c.	Above 33 kV & upto 66 kV	11160 mm	16960 mm	2440 mm
d.	Above 66 kV & upto 132 kV	11760 mm	1 7560 mm	3050 mm
e.	Above 132 kV & upto 220 k V	12660 mm	1 8460 mm	4580 mm
f.	Above 220 kV & upto 400 kV	14460 mm	20260 mm	5490 mm
g.	Above 400 kV & upto 500 kV	15360 mm	21 160 mm	7940 mm
h.	Above 500 kV & upto 800 kV	1 8060 mm	23860 mm	7940 mm

Note :

- i. All height/clearances are in mm and under maximum sag conditions.
- ii. If the crossing is provided with a guarding, a minimum clearance of 2000 mm shall be maintained between bottom of the guard wire and highest traction conductor.
- iii. Power line crossing in yards & stations area shall be avoided.
- iv. For any electrification work of existing line; doubling/gauge conversion along with electrification, existing crossings can continue, if dimensions are as per Column (5) above, even if dimensions of Col (3) are not satisfied i.e. for electrification works Col (3) is not applicable.

4. Maximum width of Pantograph Collector:

2030 mm

Note: A tolerance of plus 10mm on maximum width specified is permissible to accommodate variation in manufacture and mounting with respect to centre line of vehicle.

ACS-21 Dt.27-09-2017

Ref: Rly Bd Letter no.2011/CEDO/SD/IRSOD/O/ACS-21 Dt.27-09-2017

SCHEDULE - II

Existing infringements of Schedule I which may be permitted to continue on existing 1676mm gauge Railways:

The following infringements of the dimensions prescribed in Schedule I may, subject to such restrictions of speed as are considered necessary, be permitted on existing railways (*See* diagram No. 3) it being understood that when structures are altered they will be rebuilt to comply with Schedule I, except in case of structures falling under item 7.

Dimensions marked (a) refer to the requirements for 3250mm wide stock [Chapter IV(A) of Schedule I], and those marked (b) refer to the requirements for 3660mm wide and 4725mm high stock (Chapter IV(B) of Schedule I)

1.	(a) Minimum distance centre to centre of tracks	3660 mm
	(b) Minimum distance centre to centre of tracks	4040 mm
2.	(a) Minimum clear horizontal distance from centre of track to any fixed structure from rail level to 1065 mm above rail level.	1675 mm
	(b) Minimum clear horizontal distance from centre of track to any fixed structure from rail level to 1065 mm above rail level	1905 mm
3.	(a) Minimum clear horizontal distance from centre of track to any fixed structure from 1065 mm above rail level to 3505 mm above rail level.	1980 mm
	(b) Minimum clear horizontal distance from centre of track to any fixed structure from 1065 mm above rail level to 3355 mm above rail level.	2135 mm
4.	(a) Minimum clear horizontal distance from centre of track at 4265 mm above rail level.	2055 mm
5.	(a) Minimum clear height above rail level for a distance of 305 mm on either side of centre of track.	4420 mm
	(b) Minimum clear height above rail level for a distance of 915mm on either side of centre of track.	5030 mm

Note:

- (i) Items 2(a), 3(a), 3(b) and 4(a) refer to structures outside station yards only.
- (ii) Where speed is restricted to 16 km/h, the minimum clear horizontal distance under 4(a) may be reduced to 1980mm.
- (iii) Where, as on girder bridges, ashpits, *etc.*, the structure is not likely to be out of plumb and the super-elevation (or level of rails) does not vary and where the speed is restricted to 16km/h, the above dimensions may be reduced to :
3580mm for 1(a), 3960mm for 1(b), 1 905mm for 3(a), 2055mm for 3(b), 1980mm for 4(a), 4265mm for 5(a), 4875mm for 5(b)
- (iv) To the horizontal distance given in 1 to 5 must be added the extra allowance for curves (*See* Appendix). Where existing structures do not permit of these allowances being given, they may be reduced by limiting the super-elevation to be allowed for outer over inner rail. When this is done a notice board should be erected against the structure, stating the maximum permissible super-elevation.

6. The minimum permissible clearances in existing tunnels and girder bridges shall be:

- (i) Under any circumstances and subject to any restriction of speed which it may be considered necessary to impose:

		In tunnels (See Diagram No.3)	On girder bridges
At	‘A’	229 mm	229 mm at top of sides of vehicles
	‘B’	305 mm	229 mm at side of vehicles
	‘C’	380 mm	305 mm between moving trains
	‘D’	229 mm	152 mm above vehicles

- (ii) For unrestricted speeds:

		In tunnels	On Girder Bridges
At	‘A’	380 mm	229 mm at top of the sides of vehicles
	‘B’	535 mm	455 mm at sides of vehicles
	‘C’	610 mm	535 mm between moving trains
	‘D’	305 mm	229 mm above vehicles

Where doors opening inwards or of the recessed or sliding type are provided the minimum clearances in tunnels and bridges may be reduced to 380 mm, at 'B' and 455 mm at 'C' for unrestricted speed. To the above must be added the extra allowance for curves (See Appendix).

7. Structures which have already been built in accordance with items 10 and 13 of Chapter I, items 9, 10 and 11 of Chapter II and items 5 and 6 of Chapter III of Schedule I as contained in the 1958 reprint, reproduced in note below, may infringe the dimensions now shown against these items. Such infringements may continue and alterations for the removal of such infringements need be taken up only when 25 KV A.C. Electric Traction is undertaken when a study shall be made of each structure to limit the extent of alterations as indicated in Appendix A to Chapter V-A.

Note: The items referred to above are reproduced below:

Item 10 Chapter 1, Schedule I

- | | |
|--|---------|
| i. Minimum height above rail level for a distance of 915 mm on either side of the centre of track for overhead structure | 4875 mm |
| ii. Where electric traction is in use or likely to be used, this dimension shall be | 5410 mm |

Note: See Appendix for extra clearance required on curves

Item 13, Chapter I Schedule I

(i) Minimum distance center to centre of tracks 4725 mm

Note:When respacing existing lines, the minimum distance centre to centre of tracks may be reduced, from 4725 mm to not less than 4495 mm for the purpose of avoiding heavy alterations to tunnels or through or semi through girder bridges. The 4725 mm dimension is to be adopted for all new works.

(ii) Minimum horizontal distance from centre of track to any structure shall be as follows:

	Height above rail level	Horizontal distance from centre of track
a.	From 0 to 305 mm	1905 mm
b.	From 305 mm to 1065 mm	1905mm increasing to 2360 mm
c.	From 1065 mm to 3355 mm	2360 mm
d.	From 3355 mm to 4420 mm	2360 mm decreasing to 2135 mm
e.	From 4420 mm to 5410 mm	2135 mm decreasing to,915 mm

Note:

- (a) Where electric traction is not likely to be used overhead bracing of bridges may be 5030 mm above rail level for a distance of 1370 mm on either side of centre of track.
- (b) See Appendix for extra clearance required on curves.

Item 9, Chapter II, Schedule I

Minimum height above rail level for a width of 1370 mm on either side of the centre of track, of tie rods or any continuous covering in a passenger station. 6100 mm

Note: Item 9 does not apply to overhead piping parallel to the track.

Item 10, Chapter II, Schedule I

Minimum height above rail level for width of 1370 mm on either side of the centre of track of a signal gantry or a foot over bridge in passenger station. 4875 mm

Note:

- (a) This also applies to overhead piping arrangements parallel to track wherever provided which shall necessarily be changed over to the ground hydrants when the section is electrified.
- (b) Where electric traction is likely to be introduced this minimum height should be 5410 mm. Item 11, Chapter II, Schedule I

Minimum horizontal distance from centre of track to any structure

- (i) From rail level to 305 mm above rail level 1675 mm
- (ii) From 305 mm above rail level to 3355 mm above rail level 2135 mm

- (iii) From 3355 mm above rail level to 4115mm above rail level 2135 mm decreasing to 1980 mm
- (iv) From 4115 mm above rail level to 6100 mm above rail level 1370 mm

Note: See Appendix for clearance required on curves.

Item 5, Chapter III, Schedule I

Minimum height above rail level to overhead tie bars, girders *etc* in workshops and running sheds

- i. Where electric traction is not likely to be used 5030 mm
- ii. Where electric traction is likely to be used 6176 mm

Item 6, Chapter III, Schedule I

Minimum height above rail level of doorways for a width of 1370 mm on either side of centre of track, in both workshops and running sheds.

- i. Where electric traction is not likely to be used 4875 mm
- ii. Where electric traction is likely to be used 6176 mm

A.C. Traction 25 KV 50 cycles

8. General: Out of station

Minimum height above rail level for a distance of 1600 mm on either side of the centre of track for overhead structures 5410 mm

Note:

- i. See Appendix for extra clearance required on curves.
- ii. In case of existing structures, a special study shall be made as indicated in Appendix-A to Chapter V-A of Schedule-I, before 25 kV AC traction is introduced. In case of restricted height of existing overhead structure, the minimum height above rail level shall not be lower than 5070 mm in case of Heavy Overhead Structure (such as Road Over & Flyovers) and 5270 mm in case of Light Overhead Structures (such as Foot Over Bridges) for a minimum contact wire height of 4800 mm from above rail level. OHE arrangements shall be as per RDSO Drawings.

9. General: For tunnels & through girder bridges.

Minimum horizontal distance from centre of track to any structure from 4420 mm to 5410 mm above rail level : 2135 mm decreasing to 915 mm

Note: See Appendix for extra clearance required on curves.

10. Station Yards:

Minimum height above rail level for a distance of 1600 mm on either side of the centre of track, of a signal gantry or a foot over bridge in a passenger station

Note:

- i. See Appendix for extra clearance required on curves.
- ii. In case of existing structures, a special study shall be made as indicated in Appendix-A to Chapter V-A before 25 KV AC traction is introduced. In case of restricted height of existing overhead structure, the minimum height above rail level shall not be lower than 5070 mm in case of Heavy Overhead Structure (such as Road Over or Flyover Bridges) and 5270 mm in case of Light Overhead Structures (such as Foot Over Bridges) for a minimum contact wire height of 4800 mm from above rail level. OHE arrangements shall be as per RDSO Drawings.

- 11. Minimum horizontal distance from centre of track to any structure from 4115 mm to 6100 mm above rail level 1370 mm

Note: See Appendix for extra clearance required on curves.

APPENDIX

Note:

- (a) Column 5 applies to goods platforms 1065 mm above rail level which are not on a running line. For such platforms on running lines 25 mm should be added to the figures given in column 5.
- (b) For intermediate heights between 4420 mm and 5410 mm add 1 mm for every 12 mm of height to the figures given in column 6.
- (c) Where electric traction is likely to be used, add 1mm for every 12 mm of height above 5410 mm to the figures given in the column 7 upto the height at which the conductor wires are likely to be fixed.
- (d) Where there is a structure between tracks, the extra clearance to be provided must be according to column 5,6,7 and 8 instead of column 9.
- (e) Appendix showing extra clearance on curves has been revised. In the revised table, the maximum permissible speed and corresponding super-elevation are indicated and the required clearances based on these super-elevations have been given.

Note on Extra Clearance on Curves :

1. It has been contended that the extra clearance prescribed for curves both in the 1913 and in the 1922 Schedule of Dimensions was too liberal in the case of platforms, and caused a gap between the platform and foot board at certain parts of a bogie carriage, which was dangerous to passengers. In the 1922 schedule, the allowance for lurching and sway of the carriage was treated as entirely additional to that already provided for such motion in the clearance given for straight platforms whereas only additional sway due to the curved track in excess of the maximum occurring on straight track need be provided for. The amount of super-elevation allowed for was also excessive on the sharper curves.
2. The clearance provided between a vehicle (*i.e.* the foot boards) and the platform coping on the straight is 152 mm. It is consider that to reduce the average distance between a curved platform and the foot boards the minimum clearance between a platform on the out side of a curve and the ends of a vehicle may safely be reduced to 127 mm. The maximum movement due to lurching at the centre of a vehicle cannot be greater than seven tenth of that at the ends, so that the minimum clearance between the centre of a vehicle and a platform on the inside of a curve may be safely reduced to 102 mm. Therefore, in calculating the extra allowance to be provided on curves as explained in paragraph 5,6,7 and 8, a reduction of these extra allowance has been made of 51 mm on the inside and 25 mm on the outside of curve as shown in paragraph 7.
3. Allowance to be made : The additional clearance to be given on the inside of a curve must include the effect of curvature, the lean due to super-elevation, and an allowance for any additional sway of the vehicles over that already provided for in the clearance on straight tracks. The additional clearance to be given on the outside of a curve must allow for the effect of curvature. Additional sway or lurch due to curve can be considered as fully counteracted by the inward lean of the vehicle due to super-elevation.
4. Allowance for curvature : The allowance for curvature for a vehicle 21340 mm long, 14785 mm between bogie centre shall be calculated as under:

At the centre of vehicle

$$V = \frac{14.785 * 14.785 * 1000}{8R} = \frac{27330}{R} mm$$

At the end of vehicle

$$V = \frac{21.34 * 21.34 * 1000}{8R} - \frac{27330}{R} = \frac{29660}{R} mm$$

Where R is the radius of the curve in metres.

5. Allowance for superelevation : The lean due to superelevation at any point at height 'h' above rail level is given by:

$$L = \frac{h}{g} * S$$

Where S is the Superelevation g is the gauge of the track.

6. Allowance for additional sway on curves: The provision for additional lurch and sway on the inside of a curve as given in the 1913 and 1922 schedules has been adopted, namely one-fourth of the lean due to super elevation. No provision has been made for additional sway due to a curve in the outward direction for reasons already given in paragraph 3 above.

7. Platforms :—For platforms the total additional clearance to be provided is: On the inside of a curve

$$(i) \quad V + \frac{5L}{4} - 51mm$$

Where L is the lean in millimetres

On the outside of a curve (ii) $V_o - 25 \text{ mm}$.

(See paragraph 2 above)

Column 5 of the Appendix has been calculated for a high passenger platform 840 mm according to Formula (i).

8. Clearance from adjacent structure on the inside of a curve : For obtaining the figures given in column 6 & 7, Formula (i) of paragraph 7 above has been used.

9. Clearance from adjacent structures on the outside of a curve: For column 8, Formula (ii) of paragraph 7 above has been used.

10. Extra clearance between adjacent tracks: The worst case will be when the end of a bogie carriage on the inner track is opposite the centre of a similar carriage on the outer track. Nothing is allowed for superelevation, it being assumed that both tracks will be inclined the same amount. Though there are cases where a different superelevation is provided on each track, the distance allowed between centres of tracks gives a sufficient margin of safety to permit of this being omitted from consideration. The formula used for column 9 is

$$V + V_o + \frac{2L}{4}$$

and as the height adopted for the value of h in calculating L, is 3355 mm, the above therefore reduces to $V + V_o + S$

11. Railway Board vide letter No. 68/WDO/SC/1 dt. 16-4-1968 have issued instructions for increase of speed over curves for contemplating 160/200 kmph speed on Broad Gauge. As stated therein while locating any permanent structures by the side of the track in the case of trunk routes and main lines which have the potential for the increase of speed in future, the need for additional clearances for realignment of curves for higher speed operation should be kept in view. The particulars of the extra clearances necessary on curves between structures and the adjacent track and between tracks when there are no structures are given in additional appendix for extra clearances on curves for maximum speed of 200 kmph. The same should be followed when highspeeds of the order of 160/200 kmph are contemplated.

Extra clearances for the speeds specified above are shown in Annexure-I & II.

12. The clearance worked out (Annexure I & II) are for the vehicle 21340 mm long with bogie centers 14785 apart. For vehicle having different dimensions, the clearance can be worked out in similar manner.

ADDITIONAL APPENDIX—EXTRA CLEARANCES

EXTRA CLEARANCES ON CURVES FOR HIGH SPEED ROUTES (160 KMPH)

Degree of curvature	Radius of curve	Maximum permissible speed	Super-elevation	Extra Clearance between structure and adjacent track			Extra clearance between adjacent track when there is no structure between track	
				Inside of curve		Out side of curve		
				Upto 840mm above rail level	From 840 mm to 4420m m above rail level	At 5410 mm above rail level	Any ht	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Degree	Metre	Kmph	mm	mm	mm	mm	mm	mm
1	1750	158	95	25	280	350	-	130
1.5	1167	145	142	60	440	545	-	190
2	875	130	164	85	520	640	10	230
3	583	106	165	100	540	665	25	265
4	438	92	165	115	555	680	45	295
5	350	83	165	130	570	695	60	300
6	292	75	165	145	590	710	75	360
7	250	70	165	165	605	725	95	395
8	219	65	165	180	620	740	110	425
9	194	62	165	195	635	755	130	460
10	175	58	165	210	650	770	145	490

ADDITIONAL APPENDIX – EXTRA CLEARANCES

EXTRA CLEARANCES ON CURVES FOR MAXIMUM SPEED OF 200 KMPH

Degree of curvature	Radius of curve	Maximum permissible speed	Super-elevation	Extra clearance between adjacent track when there is no structure between track				Extra clearance between adjacent track when there is no structure between track
				Inside of the curve				
				Upto 840mm above rail level	From 840 Mm above rail level	At 5410 mm above rail level	Out side of curve any ht	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Degree	Metre	Kmph	mm	mm	mm	mm	mm	mm
1	1750	190	185	81	574	711	-	218
1.5	1167	155	185	88	582	719	-	234
2	875	134	185	96	590	727	9	250
3	583	110	185	112	606	742	26	283
4	438	95	185	127	621	758	43	315
5	350	85	185	143	637	774	60	348
6	292	77	185	159	653	789	76	380

APPENDIX A TO CHAPTER V-A
Clearances required for 25 KV single phase A.C. Electric Traction

1. It is desirable to provide the maximum possible clearance in the case of lines equipped for 25 KV A.C. 50 cycle single phase electric traction.

Minimum Clearance between live bare conductors / pantographs) and structure:

- a. Short term clearances_ Vertical and lateral distance between live conductors and earth (normally existing only for a brief period) : 200 mm
- b. Long term clearances _ Vertical and lateral distance between live conductors and earth (which may remain for a considerable period) : 250 mm
2. In order to ascertain whether the requisite clearance would be available under an existing structure, the permissible height of the contact wire shall be determined. For this purpose the following particulars should be known :
- a) Particulars of the structure including profile.
 - b) Allowance for slewing of tracks
 - c) Allowance for low joints in tracks
 - d) Radius of curvature of track under the structure
 - e) Superelevation of track under the structure
 - f) Maximum permissible speed under the structure
 - g) Maximum dimensions of over-dimensional consignments which are permissible and safety measures which would be taken for movement of over-dimensional consignments.
 - h) Location of the structure in relation to level crossings, water column and turnouts in the vicinity.
 - i) The type of overhead equipment.

3. After determining the permissible height of the contact wire based on the above particulars, the clearance required between the lowest portion of the bridge or structure and the top most position of the overhead wire shall be determined in each case after study of the following :—
- (a) System of tensioning of the overhead equipment
 - (b) Atmospheric conditions.
 - (c) Maximum permissible number of electric locomotives per train (double or triple headed)
 - (d) Location of the structure in relation to points and crossings, overlap, spans, *etc.*
 - (e) Length of the structure along the tracks.
 - (f) Type of structure, girder, masonry *etc.*
 - (g) The span of overhead equipment under the bridge,
 - (h) Presence of a traction feeder,
 - (i) Likelihood of diesel locomotives halting under the structure.
4. (a) The minimum height of contact wire for a stock height of 4.42m, to be able to run on all sections electrified with 25 KV A. C. traction system with live traction over head equipment.
- | | |
|--|--------|
| (i) Height of the locomotive | 4.42 m |
| (ii) Minimum clearance to contact wire | 0.25 m |
| (iii) Allowance for track maintenance | 0.02 m |
| (iv) Minimum height of contact wire (Total) | 4.69 m |

Note : For OHE span length of 49.5 m or below , the oscillations of contact wire get reduced to 0.05 m and the minimum height of the contact wire in para 4(a)(iv) can be reduced to 4.69 m.

(b) After determining the minimum height of contact wire on the assumption that it would permit passage of standard locomotives and stocks, the maximum height of over dimensional consignments (ODC) with the live overhead equipment at speed over 15km/h (when vertical oscillation of overhead equipment is pronounced) is derived as under:

Minimum height of contact wire	4.69 m
Less	
(i) Minimum electrical clearance	0.20 m
(ii) Track allowance	0.02 m
(iii) Allowance for vertical oscillation of contact wire under influence of moving pantographs	0.05 m
Total Permissible maximum height of over dimensional consignment	0.27 m

(c) If an over dimensional consignment is moved at slow speed not exceeding 15 kmph there will be no downward displacement (due to oscillation) of contact wire. However, to cater for the likelihood of an over dimensional consignment halting under a structure, a clearance of 0.25m under rest condition is to be provided, vide item 1 of Chapter V-A. In this case the derived height of contact wire may be reduced by 50mm.

5. In the case of light structures such as foot-over bridges, it would be desirable to keep a standard height of contact wire of 5.50m. In case of heavy structures, such as flyover bridges or road over bridges, it is desirable to keep the height of contact wire as low as possible, consistent with the requirements of movement of standard class 'C' over dimensional consignments of height 4.80m.

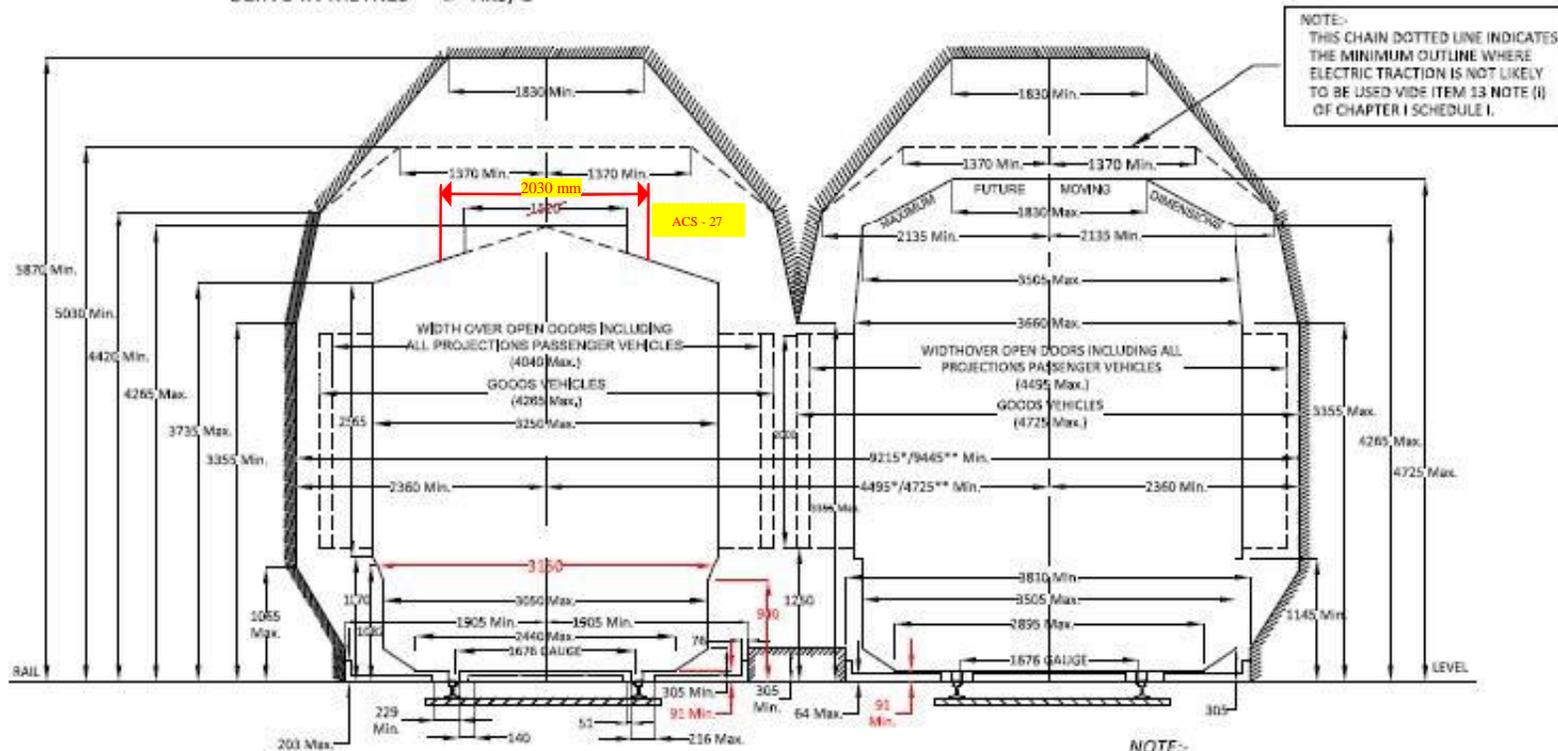
Statement showing the Correction Slips issued to BG Metric Schedule of Dimensions

Correction Slip No.	File No.	Date of issue	Page Nos. of SOD-73
1.	74/WDO/SD/13	Nov. 1974	62
2.	71/WDO/AC/SD/1	June, 1975	76
3.	74/WDO/SD/13	Aug. 1975	60
4.	75/WDO/SD/1 1	Nov. 1975	24 (superseded) CS- 11
5.	76/WDO/SD/30	Dec. 1976	61
6.	77/WDO/SD/1 1	Dec. 1977	17
7.	78/WDO/SD/24	Jan. 1979	Dial 1 A (modified) 1C & 2
8.	79/WDO/SD/20	Oct. 1979	14
9.	80/WDO/SD/9	Oct. 1980	33
10.	79/WDO/SD/28	Feb. 1982	73
11.	82/WDO/SD/12	May J 1982	8, 1 3, 24, 65 & 7
12.	80/CEDO/SD/10	Aug. 1984	61,62,63, 64, 10 & 104
13.	80/CEDO/SD/10	Sept. 1992	23
14.			
15.	94/CEDO/SD/43	March, 1999	65
16.	80/WDO/SD/10	Dec. 2000	73
17.	80/WDO/SD/10	June, 2003	19.34
18.	2004/CEDO/SD/1	April, 2004	28

DIAGRAM No. 1A (MODIFIED)
1676 mm GAUGE

**STANDARD DIMENSIONS FOR TUNNELS & THROUGH GIRDER BRIDGES
TO SUIT 25 k.V. A.C. TRACTION SCHEDULE I CHAPTER I**

NOTE:- THE DISTANCES SPECIFIED APPLY ONLY IN CASE OF STRAIGHT TRACKS. ON CURVES, THE HORIZONTAL DISTANCE SHOULD BE INCREASED BY AN AMOUNT 'D' TO ALLOW FOR THE LEAN DUE TO SUPER-ELEVATION CALCULATED BY THE FOLLOWING FORMULA, WHERE 'H' IS THE HEIGHT OF THE CONTACT WIRE, 'S' THE SUPER-ELEVATION AND 'G' THE GAUGE OF THE TRACK, ALL DIMENSIONS BEING IN METRES $D=HxS/G$



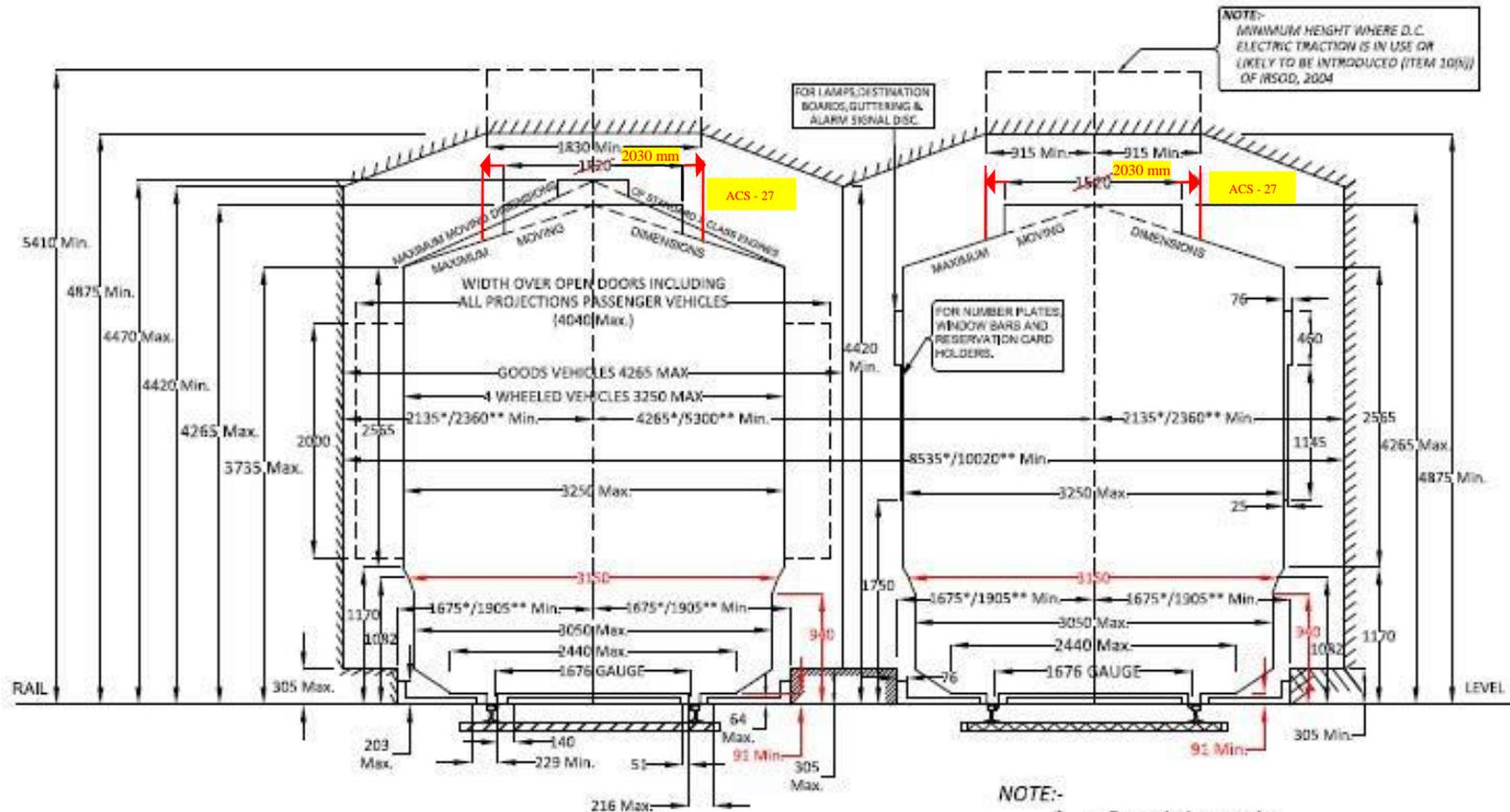
NOTE:- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE SHOWN.

NOTE:-
* - For existing works
** - For new works or alteration to existing works

STANDARD DIMENSIONS OUT OF STATIONS
SCHEDULE I - CHAPTER I

DIAGRAM No. 1B
1676 mm GAUGE

NOTE:- WHERE THE LINE IS ON A CURVE, THE HORIZONTAL DISTANCE OF ANY STRUCTURE FROM THE CENTRE OF ADJACENT TRACK AND THE DISTANCE BETWEEN CENTRES OF TRACKS ARE TO BE INCREASED ACCORDING TO THE APPENDIX.



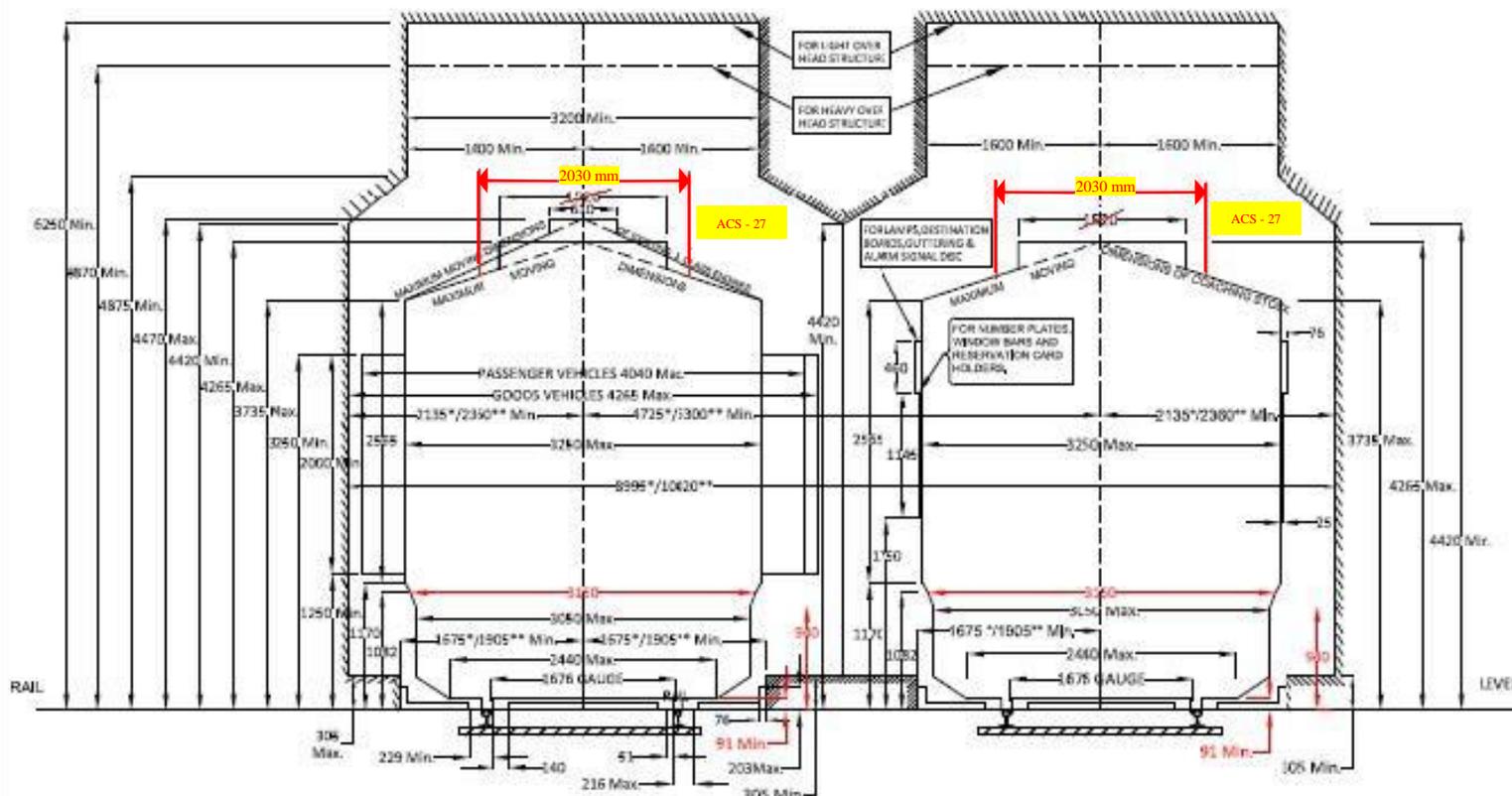
NOTE:- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE SHOWN.

NOTE:-
* - For existing works
** - For new works or alteration to existing works

STANDARD DIMENSIONS OUT OF STATIONS
TO SUIT 25 kV. A.C. TRACTION
SCHEDULE I - CHAPTER I

DIAGRAM No. 1C
1676 mm GAUGE

NOTE:- THE DISTANCES SPECIFIED, APPLY ONLY IN CASE OF STRAIGHT TRACK. ON CURVES, THE HORIZONTAL DISTANCE SHOULD BE INCREASED BY AN AMOUNT 'D' TO ALLOW FOR THE LEAN DUE TO SUPER-ELEVATION CALCULATED BY THE FOLLOWING FORMULA, WHERE 'H' IS THE HEIGHT OF THE CONTACT WIRE, 'S' THE SUPERELEVATION AND 'G' THE GAUGE OF THE TRACK, ALL DIMENSIONS BEING IN METRES $D = \frac{H \times S}{G}$

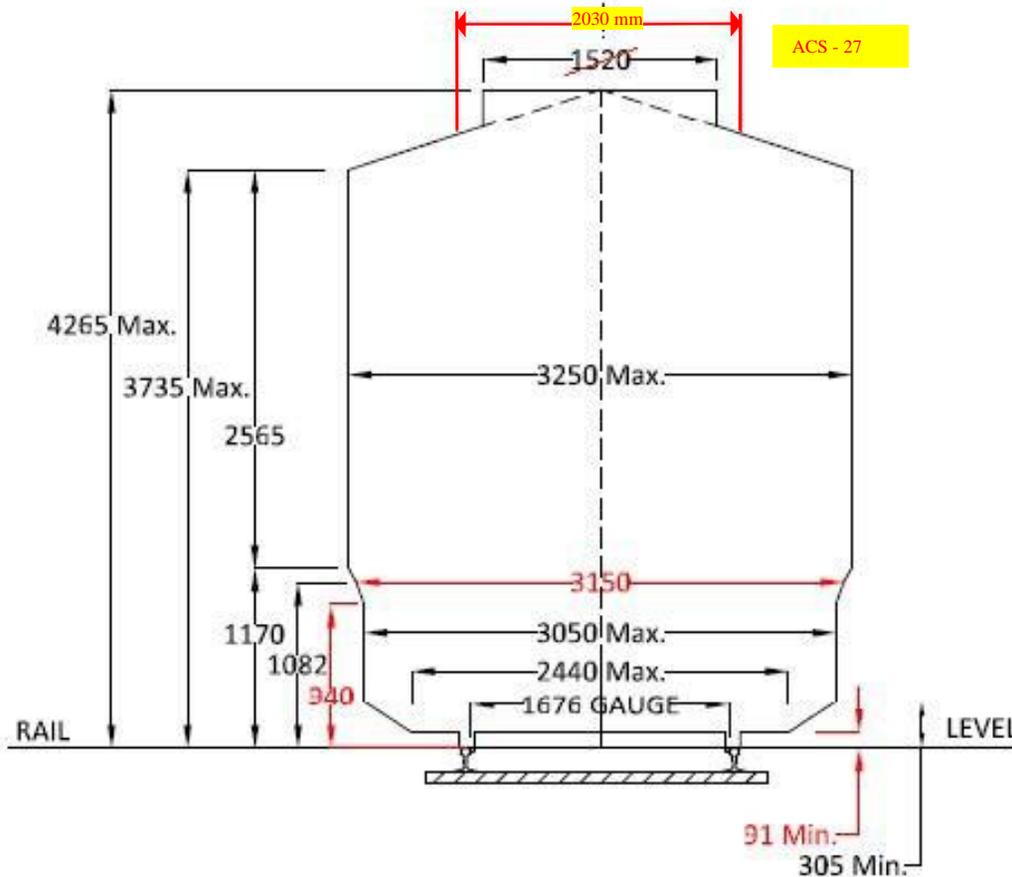


NOTE:- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE SHOWN.

NOTE:-
 * - For existing works
 ** - For new works or alteration to existing works

MAXIMUM MOVING DIMENSIONS

DIAGRAM No. 1D
(EDO/T-2202)
1676mm GAUGE

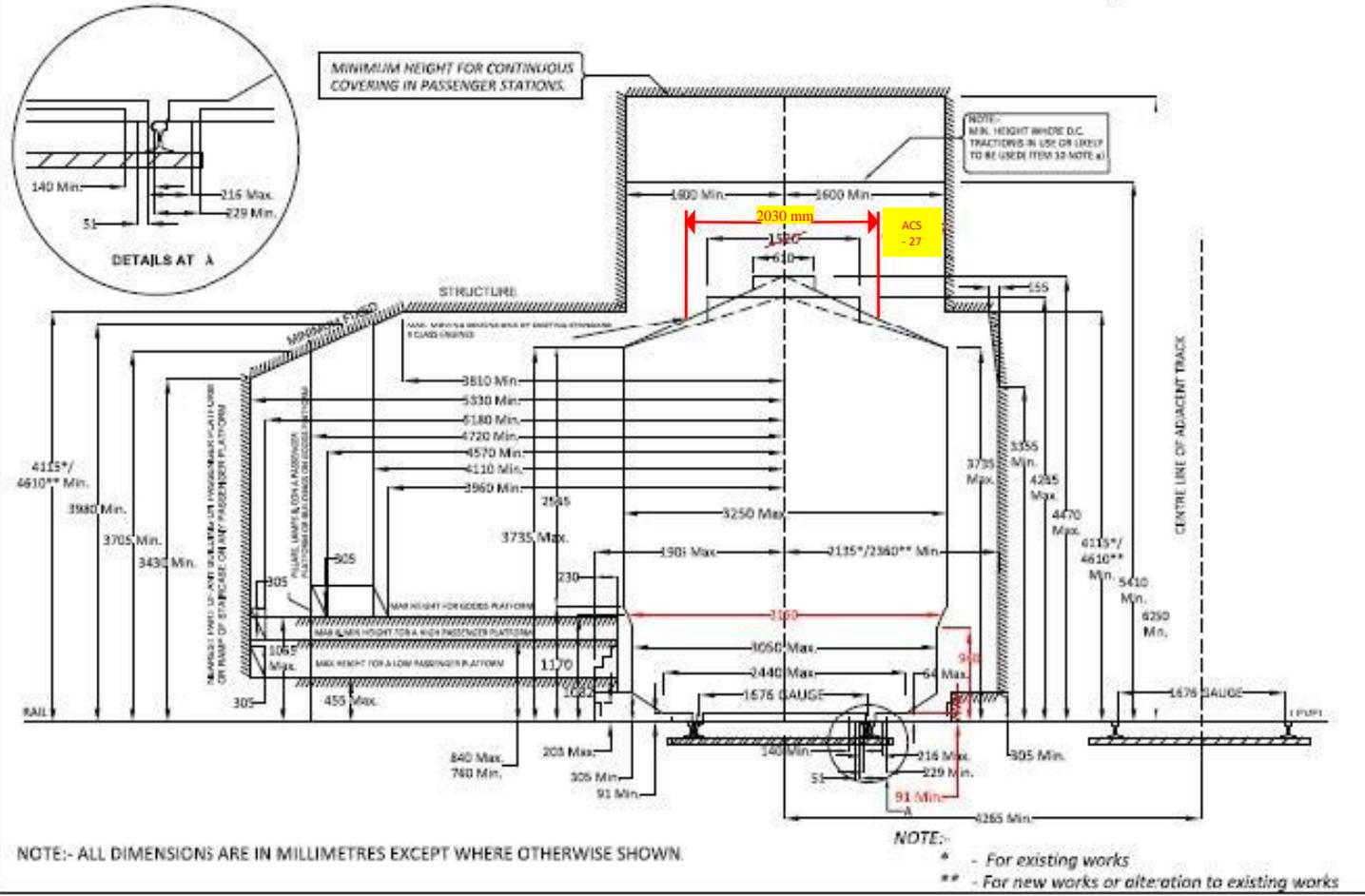


NOTE:- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE SHOWN.

DIAGRAM NO. 2
1676 mm GAUGE

STANDARD DIMENSIONS IN STATIONS
TO SUIT 25 kV.A.C. TRACTION SCHEDULE I-CHAPTER II

NOTE:- THE DISTANCES SPECIFIED, APPLY ONLY IN CASE OF STRAIGHT TRACK. ON CURVES, THE HORIZONTAL DISTANCE SHOULD BE INCREASED BY AN AMOUNT 'C' TO ALLOW FOR THE LEAN DUE TO SUPER-ELEVATION CALCULATED BY THE FOLLOWING FORMULA, WHERE 'H' IS THE HEIGHT OF THE CONTACT WIRE, 'S' THE SUPERELEVATION AND 'G' THE GAUGE OF THE TRACK, ALL DIMENSIONS BEING IN METRES $D = \frac{H \times S}{G}$

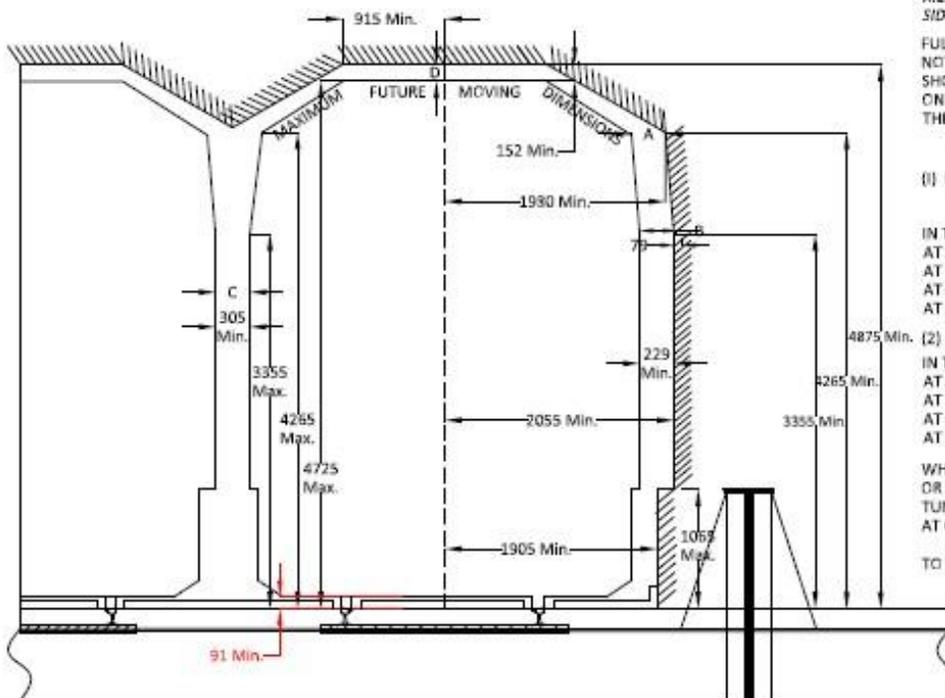


DIGRAM NO. 3 (FIG I)
1676mm GAUGE

INFRINGEMENTS OF SCHEDULE - I

FOR 3660 mm GOODS STOCK & NEW
STANDARD LOCOMOTIVES IN EXISTING
BRIDGES ONLY

PERMITTED UNDER SCHEDULE-II
MINIMUM CLEARANCES ON EXISTING GIRDER BRIDGES



NOTES:-

FULL LINES SHOW MAXIMUM MOVING DIMENSIONS OF FUTURE 3660 WIDE STOCK & OF EXISTING 3200/3250 WIDE STOCK & OUTLINE OF EXISTING 3660 WIDE ELECTRIFIED STOCK DOTTED LINES SHOW OUTLINE OF NEW STANDARD X.E. & W.H. ENGINES & OF PROPOSED 3660 WIDE HIGH SIDED OPEN TRUCK.

FULL HATCHED LINES SHOW DIMENSIONS WHICH SHOULD NOT BE INFRINGED IN TUNNELS, DOTTED HATCHED LINES SHOW DIMENSIONS WHICH SHOULD NOT BE INFRINGED ON GIRDER BRIDGES WHERE THE TRACK IS FIXED TO THE GIRDERS.

THE MINIMUM PERMISSIBLE CLEARANCES WILL BE.

(1) UNDER ANY CIRCUMSTANCES & SUBJECT TO ANY RESTRICTION OF SPEED WHICH IT MAY BE CONSIDERED NECESSARY TO IMPOSE.

IN TUNNELS

AT A—229mm
AT B—305mm
AT C—380mm
AT D—229mm

ON GIRDER BRIDGES

AT A—229mm (AT TOP OF SIDES OF VEHICLES)
AT B—229mm (AT SIDES OF VEHICLES)
AT C—305mm (BETWEEN MOVING TRAINS)
AT D—152mm (ABOVE VEHICLES)

(2) FOR UNRESTRICTED SPEED:

IN TUNNELS

AT A—380mm
AT B—535mm
AT C—610mm
AT D—305mm

ON GIRDER BRIDGES

AT A—229mm (AT TOP OF SIDES OF VEHICLES)
AT B—455mm (AT SIDES OF VEHICLES)
AT C—535mm (BETWEEN MOVING TRAINS)
AT D—229mm (ABOVE VEHICLES)

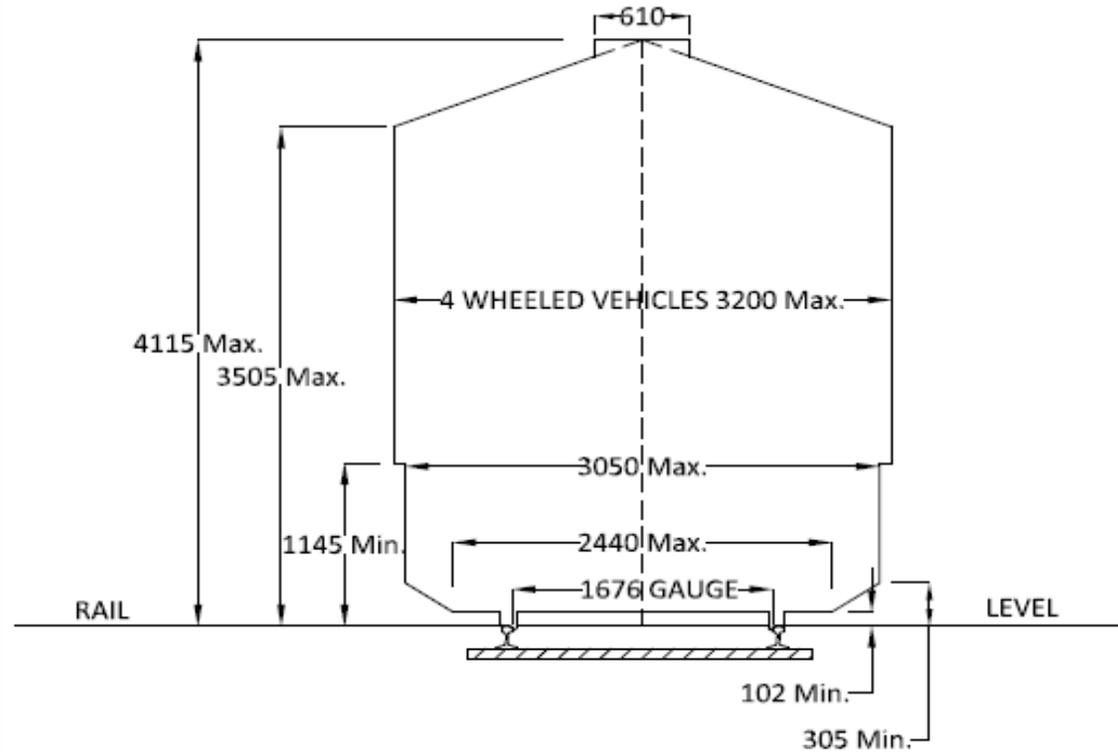
WHERE DOORS OPENING INWARDS OR OF THE RECESSED OR SLIDING TYPE ARE PROVIDED, THE MINIMUM CLEARANCE IN TUNNELS & BRIDGES MAY BE REDUCED TO 380 AT B & 455 AT C FOR UNRESTRICTED SPEED.

TO THE ABOVE MUST BE ADDED THE EXTRA ALLOWANCES FOR CURVES (SEE APPENDIX.)

NOTE:- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE SHOWN.

DIAGRAM NO. 4
1676mm GAUGE

MAXIMUM MOVING DIMENSIONS OF 1929 PROFILE



NOTE:- ALL DIMENSIONS ARE IN MILLIMETRES EXCEPT WHERE OTHERWISE SHOWN.