

Section K

VEHICLES REQUIRING SPECIAL CONDITIONS OF TRAVEL

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K VEHICLES REQUIRING SPECIAL CONDITIONS OF TRAVEL

Special conditions of travel need to be applied to vehicles or loads.

K1 Vehicles not conforming to the Network Rail standard loading gauge

K1.1 Certain vehicles may themselves not conform to the Network Rail W6A (W6) loading gauge (see table K1). Before they can be allowed to operate, loaded or empty special conditions may apply to the following:

- (a) continental vehicles including types which can travel with their sides secured in the down position
- (b) special vehicles used only for exceptional goods
- (c) vehicles passing over a route with a smaller loading gauge than the Network Rail W6A loading gauge.

K1.2 Heavy vehicle axle weights – special conditions

Heavy vehicle axle weights may require special conditions of travel. Vehicles with an axle weight greater than the route to be used must be authorised by the issue of a form RT3973HAW (see example in table E4) showing any conditions of travel that have to be applied to movements of that vehicle over the route.

If there are no conditions of travel this must be stated.

The form RT3973HAW will apply to all movements of the vehicle type involved over the specified route. A copy of the form RT3973HAW must be issued to the train crew at the originating location of the train.

These vehicles do not require exceptional load vehicle labels to be applied (see section E).

K2 Freight loads for which special conditions apply

The types of load identified below in sections K2.1 and K2.2 must be specially examined and labelled by a competent person before the traffic is accepted and despatched.

K2.1 Loads examined procedure

The loads examined procedure applies to the following types of loads identified in train operator or Network Rail loading manuals:

- (a) traffic which cannot be loaded in all aspects within the Network Rail standard W6A loading gauge but for which no conditions of travel are necessary
- (b) loads in excess of the length of the vehicle, which conform to table K4
- (c) loads which are wider than the vehicle below 1050 mm above rail level and which conform to section K4.1
- (d) loads within the length of the vehicle which are within the Network Rail standard W6A loading gauge but are exceptional by reason of awkward shape, heavy weight in relation to size, type of vehicle used or any other reason but do not require the imposition of conditions of travel
- (e) rails loaded on more than one vehicle where the only condition of travel is that they must not be loose shunted or have vehicles loose shunted on to them.

In all cases the examination and application of load examined labels must be undertaken by a competent person before the traffic is dispatched.

K2.2 Exceptional loads procedure

Exceptional loads must be notified to a competent loads inspector to enable identification and application of the necessary controls before the traffic is accepted and despatched. Exceptional load procedures apply to the following types of load:

- (a) traffic which cannot be loaded in all respects within the Network Rail Standard W6A loading gauge and requires the imposition of conditions of travel, including loads which are only permitted over a specified route(s)
- (b) loads that are not contained within the length or width of the vehicle, which do not conform to the requirements of table K4 of this Working Manual, and require the imposition of conditions of travel
- (c) loaded or empty vehicles which, due to their construction to accommodate unusual loads require special conditions of travel to be applied
- (d) loads which require the imposition of a speed restriction lower than the authorized maximum speed of the vehicle
- (e) loads which create unbalanced wheel/axle loadings and require the imposition of conditions of travel. However, when the load does not exceed the maximum axle load of the vehicle, but exceeds the permitted axle loading for a section of the route to be traversed, see section K1.2
- (f) vehicles which do not conform to the Network Rail Standard W6A loading gauge, for example certain continental registered vehicles

- (g) when it is necessary to reduce the speed of a vehicle during transit due to the condition of the load, the person attaching 'exceptional loads' labels must advise the appropriate Network Rail control, also advise the TRP to enable TOPS to be updated.

K2.2.1 Particulars of loads

A competent loads inspector will identify:

- (a) the precise dimensions of the load
- (b) the type of vehicle to be used
- (c) axle loading
- (d) origin and destination of the movement
- (e) timescale for the movement.

K2.2.2 Determination of conditions of travel

Network Rail in conjunction with the train operator will:

- (a) determine a route which enables the traffic to pass
- (b) determine what conditions of travel have to be applied
- (c) organise production of a Special Train Notice for the movement
- (d) advise the competent loads inspector.

K2.2.3 Application of conditions

The competent loads inspector must:

- (a) undertake an examination after loading to ensure the load is properly loaded and secured
- (b) determine whether the movement of the load needs to be accompanied, for example by competent loading or technical personnel
- (c) complete and sign the exceptional load vehicle labels (see section E for an example) which must be placed on both sides of the vehicle
- (d) the train operator must organize a further examination of the load by a competent loading inspector if the movement does not take place within 24 hours of the original examination.

K2.2.4 Exceptional loads – forms RT3973

Examples of these forms are shown in section E. They may contain code words, which are shown in Appendix B at the rear of this Working Manual.

K2.2.5 In all cases where a train or vehicle movement is subject to conditions of travel identified on an exceptional load form RT3973 the train crew must be in possession of this form before the train is despatched.

K2.3 'X' Headcodes

Trains conveying the vehicles carrying exceptional load labels (see section K2.2.3) must be given a train identity number X .

K3 Loads exceeding 18.5 metres length (or equivalent length)

K3.1 Equivalent lengths

Loads which are longer than the vehicle on which they are to be loaded should be loaded with an equal overhang at each end. Where this is not possible the **equivalent length of the load** must be determined by the following calculation:

Measure the distance from the end of the longer overhang to the adjacent bogie centre, double it and add it to the distance between the bogie centre.

| | | |
|--------------------------|--------------------------------|-----------------|
| Example: Longer overhang | 3500 mm x 2 | 7000 mm |
| | Distance between bogie centres | 12801 mm |
| | | ----- |
| | Equivalent length of the load | 19801 mm |

K3.2 Equivalent central width

The width of a load that is centrally loaded across a vehicle is equal to the actual width of the load. The equivalent central width of a load must be determined by the following calculation.

Measure the distance from the longitudinal centre line of the vehicle to the point on the load farthest from this centre line and double it.

Example - A 1450 mm wide load is positioned on a vehicle with 840 mm on one side of the centre line of the vehicle and 610 mm on the other side of the centre line, by doubling the larger distance (840 mm) the equivalent central width is **1680 mm**.

K3.3 Need for special conditions of travel

Loads exceeding 18.5 metres (or equivalent lengths) which are rigid, well secured and loaded on a single vehicle with runners may travel without special conditions being applied (see section K2.2) when the central or equivalent central width (between 1200 and 3275 mm above rail level throughout their length) does not exceed the width identified in table K4 below.

K3.4 Use of Table K4

- (a) Table K4 gives the extreme dimensions of loads, which can travel without special conditions being applied (see section K2.2). The dimensions given in the table do not override the other factors that must be considered and the associated controls such as the type of vehicle, the loading arrangements, axle weights, and physical arrangements at terminals.
- (b) If, when using table K4, the specific dimensions of the load or the bogie centre is not shown then use the figures relative to the length of the load that is greater than the actual load and the bogie centre value that is less than that of the actual vehicle being used.

Example:

A 20.5 metre long load on a vehicle with a bogie centre distance of 12.8 metres would be taken as a length of 21 metres and a bogie centre distance of 12.5 metres, giving a maximum width of 2515 mm.

- (c) The dimensions in table K4 apply on Network Rail controlled infrastructure except the lines listed below. If movement on these lines is being considered then a competent movements inspector must be involved.

The following are the Network Rail lines to which table K4 does not apply:

Archcliffe Junction to Hawkesbury Street Junction
Balham Junction to Crystal Palace Station
Blackheath to Woolwich Dockyard via Charlton
Briton Ferry to Dock Branch
Burrows Junction to Swansea Docks
Charing Cross/Cannon Street Stations to London Bridge Station
Folkestone East to Folkestone Harbour Station
Gwaun-cae-Gurwen Loop
Lewes Tunnel
Llanelli West to Cynheidre Colliery
North Kent East Junction to Charlton Junction
Ore Station to Three Oaks
Portsmouth Harbour Station
Port Wallaroo Dock Line (Briton Ferry)
Rochester Station to Gillingham Station
South Croydon Station to Riddlesdown Station
Waterloo Station (SW) to West Crossings
Weymouth to Weymouth Quay

K4 Loads exceeding vehicle width below 1050 mm above rail level

K4.1 Loads which exceed the width of the vehicle, below 1050 mm above rail level may be conveyed without special authority if the load conforms to the following dimensions:

| Axle or Bogie Centres (mm) | Maximum Permissible Centre/Equivalent Width (mm) |
|---------------------------------------|---|
| 6100 | 2640 |
| 6500 | 2636 |
| 7000 | 2632 |
| 7500 | 2627 |
| 8000 | 2621 |
| 8500 | 2616 |
| 9000 | 2610 |
| 9500 | 2603 |
| 10000 | 2596 |
| 10500 | 2589 |
| 11000 | 2582 |

| Axle or Bogie Centres (mm) | Maximum Permissible Centre/Equivalent Width (mm) |
|---------------------------------------|---|
| 11500 | 2574 |
| 12000 | 2566 |
| 12500 | 2556 |
| 13000 | 2546 |
| 13500 | 2536 |
| 14000 | 2526 |
| 14500 | 2507 |
| 15000 | 2476 |
| 15500 | 2445 |
| 16000 | 2412 |

Where the precise axle or bogie centre is not shown then the width or equivalent width can be worked out in the following way:

Example:

Vehicle with a bogie centre dimension of 14300 mm

| | |
|------------------------------------|----------------|
| Bogie centre 14000 mm width | 2526 mm |
| <u>Bogie centre 14500 mm width</u> | <u>2507 mm</u> |
| Difference | 19 mm |

Therefore width/equivalent width

$$= 2526 - \frac{300}{500} \times 19 = 2515 \text{ mm}$$

The above table gives the equivalent width of a load (for the wheel base or bogie centres of the vehicle involved) that can travel without special authority.

TABLE K1 NETWORK RAIL W6A STANDARD LOADING GAUGE

Details of the Network Rail standard loading gauge for vehicles with bogie/axle centres not exceeding 12800 mm are shown below.

Table K2 gives the principal dimensions.

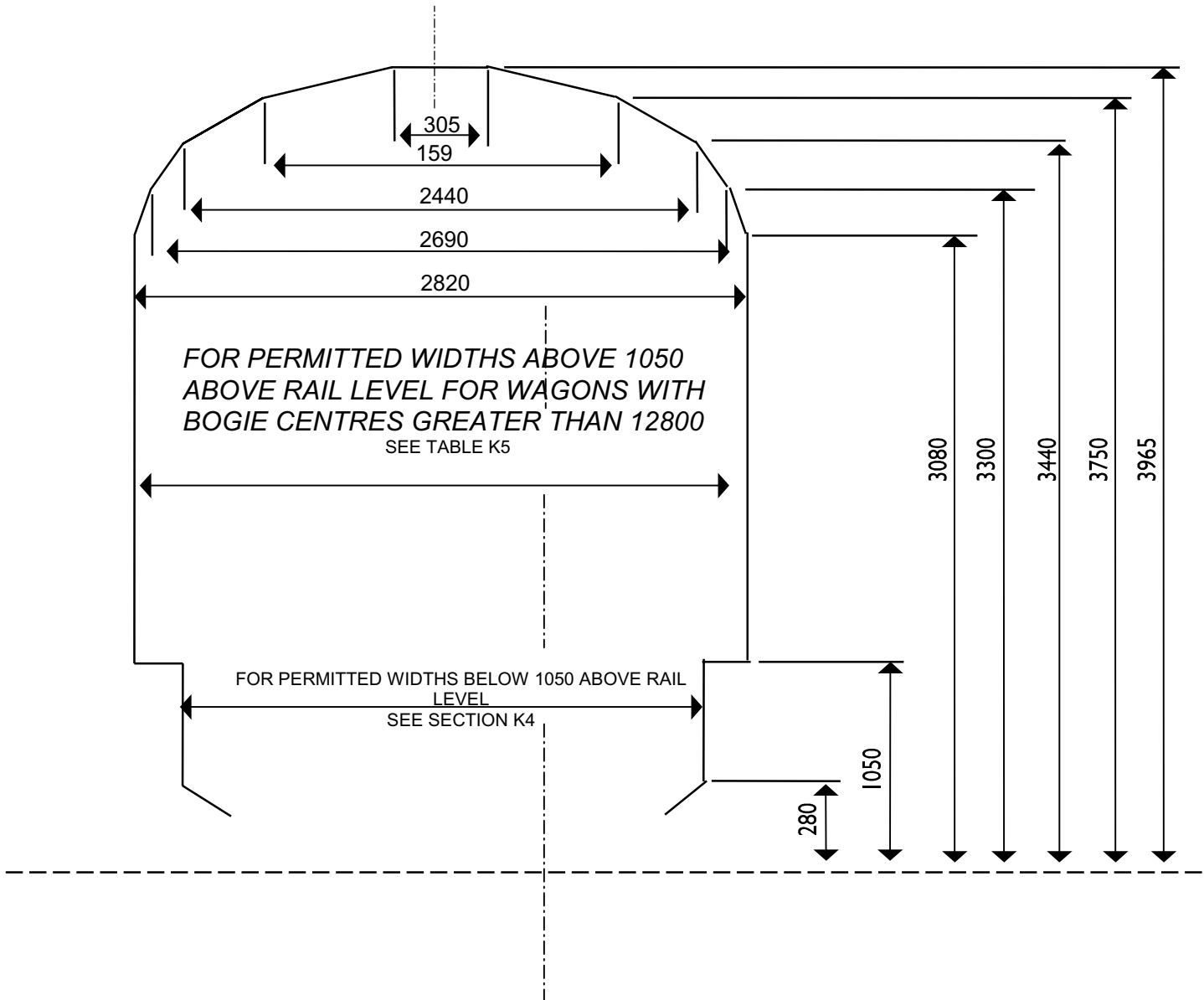


TABLE K2 NETWORK RAIL STANDARD LOADING GAUGE WIDTHS

| Height above rail (mm) | Corresponding half-width (mm) | Height above rail (mm) | Corresponding half-width (mm) | Height above rail (mm) | Corresponding half-width (mm) |
|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|
| 3080 | 1410 | 3370 | 1283 | 3670 | 905 |
| 3090 | 1407 | 3380 | 1274 | 3680 | 891 |
| 3100 | 1404 | 3390 | 1265 | 3690 | 877 |
| 3110 | 1401 | 3400 | 1256 | 3700 | 864 |
| 3120 | 1398 | 3410 | 1247 | 3710 | 850 |
| 3130 | 1395 | 3420 | 1238 | 3720 | 836 |
| 3140 | 1392 | 3430 | 1229 | 3730 | 822 |
| 3150 | 1389 | 3440 | 1220 | 3740 | 809 |
| 3160 | 1386 | 3450 | 1207 | 3750 | 795 |
| 3170 | 1383 | 3460 | 1193 | 3760 | 765 |
| 3180 | 1379 | 3470 | 1179 | 3770 | 735 |
| 3190 | 1376 | 3480 | 1165 | 3780 | 706 |
| 3200 | 1373 | 3490 | 1151 | 3790 | 676 |
| 3210 | 1371 | 3500 | 1138 | 3800 | 646 |
| 3220 | 1368 | 3510 | 1124 | 3810 | 616 |
| 3230 | 1366 | 3520 | 1110 | 3820 | 586 |
| 3240 | 1363 | 3530 | 1097 | 3830 | 556 |
| 3250 | 1360 | 3540 | 1083 | 3840 | 526 |
| 3260 | 1357 | 3550 | 1069 | 3850 | 496 |
| 3270 | 1354 | 3560 | 1055 | 3860 | 466 |
| 3280 | 1351 | 3570 | 1042 | 3870 | 436 |
| 3290 | 1348 | 3580 | 3580 | 3880 | 407 |
| 3300 | 1345 | 3590 | 3590 | 3890 | 377 |
| 3310 | 1336 | 3600 | 1001 | 3900 | 347 |
| 3320 | 1327 | 3610 | 987 | 3910 | 317 |
| 3330 | 1318 | 3620 | 973 | 3920 | 287 |
| 3340 | 1309 | 3630 | 960 | 3930 | 257 |
| 3350 | 1300 | 3640 | 946 | 3940 | 227 |
| 3360 | 1291 | 3650 | 932 | 3950 | 197 |
| | | 3660 | 918 | 3965 | 152.5 |

**TABLE K3 LINES OF ROUTE NOT MEETING THE NETWORK RAIL
STANDARD W6A (W6) LOADING GAUGE**

Due to physical limitations of reduced clearances, track geometry. The Network Rail standard W6A loading Gauge does not apply at the following locations/sections of line and, therefore, conditions of travel must be obtained for vehicles destined to the following locations:

Canterbury Road Junction/Cambria to Farringdon Station

Charlton Junction to Plumstead Station (London End)

Coed Bach Washery to Cwmmawr

London Underground Limited, except Metropolitan Line between Harrow-on-the-Hill and Amersham

Kings Cross (Thameslink) Station to Moorgate Station (inclusive)

North Kent East Junction to Charlton Junction

TABLE K4 CENTRAL WIDTHS (OR EQUIVALENT CENTRAL WIDTHS) PERMITTED ON BOGIE CENTRES SHOWN

| Wagon Bogie Centres | OVERALL LENGTH OR EQUIVALENT LENGTH OF LOAD (METRES) | | | | | | | | | | | | | | | | | | | |
|---------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|
| | 18.50 | 19.00 | 20.00 | 21.00 | 22.00 | 23.00 | 24.00 | 25.00 | 26.00 | 27.00 | 28.00 | 29.00 | 30.00 | 31.00 | 32.00 | 33.00 | 34.00 | 35.00 | | |
| Metres | | | | | | | | | | | | | | | | | | | | |
| 10.50 | 2625 | 2585 | 2505 | 2420 | 2330 | 2235 | 2140 | 2035 | 1930 | 1820 | 1705 | 1585 | 1460 | 1340 | | | | | | |
| 11.00 | 2650 | 2610 | 2525 | 2440 | 2350 | 2260 | 2160 | 2060 | 1950 | 1840 | 1725 | 1610 | 1485 | 1360 | 1225 | 1090 | | | | |
| 11.50 | 2670 | 2630 | 2550 | 2465 | 2375 | 2280 | 2185 | 2080 | 1975 | 1865 | 1750 | 1620 | 1510 | 1380 | 1250 | 1115 | 975 | | | |
| 12.00 | 2695 | 2655 | 2575 | 2490 | 2400 | 2305 | 2210 | 2105 | 2000 | 1890 | 1775 | 1655 | 1535 | 1405 | 1275 | 1140 | 1000 | 875 | | |
| 12.50 | | 2680 | 2600 | 2515 | 2425 | 2330 | 2235 | 2130 | 2025 | 1915 | 1800 | 1680 | 1560 | 1430 | 1300 | 1165 | 1025 | 880 | | |
| 13.00 | | | 2625 | 2540 | 2450 | 2360 | 2260 | 2169 | 2050 | 1940 | 1825 | 1710 | 1585 | 1460 | 1325 | 1190 | 1050 | 910 | | |
| 13.50 | | | | 2570 | 2480 | 2385 | 2290 | 2185 | 2080 | 1970 | 1855 | 1735 | 1615 | 1485 | 1355 | 1220 | 1080 | 930 | | |
| 14.00 | | | | 2600 | 2510 | 2415 | 2315 | 2215 | 2110 | 2000 | 1885 | 1765 | 1640 | 1515 | 1385 | 1250 | 1110 | 960 | | |
| 14.50 | | | | 2635 | 2540 | 2445 | 2345 | 2245 | 2140 | 2030 | 1915 | 1795 | 1670 | 1545 | 1415 | 1280 | 1140 | 990 | | |
| 15.00 | | | | 2665 | 2575 | 2475 | 2375 | 2275 | 2170 | 2060 | 1945 | 1825 | 1700 | 1575 | 1445 | 1310 | 1170 | 1020 | | |
| 15.50 | | | | 2695 | 2605 | 2510 | 2410 | 2310 | 2200 | 2090 | 1975 | 1855 | 1725 | 1605 | 1475 | 1340 | 1200 | 1050 | | |
| 16.00 | | | | 2705 | 2640 | 2545 | 2445 | 2340 | 2235 | 2125 | 2010 | 1890 | 1765 | 1640 | 1510 | 1375 | 1225 | 1090 | | |
| 16.50 | | | | | 2670 | 2580 | 2480 | 2375 | 2265 | 2155 | 2040 | 1925 | 1800 | 1675 | 1540 | 1405 | 1265 | 1120 | | |
| 17.00 | | | | | 2665 | 2615 | 2515 | 2415 | 2300 | 2190 | 2075 | 1960 | 1835 | 1710 | 1575 | 1440 | 1300 | 1160 | | |
| 17.50 | | | | | 2640 | 2640 | 2550 | 2450 | 2345 | 2230 | 2115 | 1995 | 1870 | 1745 | 1615 | 1480 | 1340 | 1190 | | |
| 18.00 | | | | | | 2620 | 2590 | 2485 | 2380 | 2265 | 2150 | 2030 | 1910 | 1780 | 1650 | 1515 | 1375 | 1230 | | |
| 18.50 | | | | | | | 2600 | 2525 | 2420 | 2310 | 2195 | 2070 | 1945 | 1820 | 1690 | 1555 | 1415 | 1270 | | |
| 19.00 | | | | | | | | 2575 | 2565 | 2460 | 2350 | 2235 | 2110 | 1985 | 1860 | 1725 | 1590 | 1450 | 1310 | |

TABLE K5 PERMITTED WIDTHS OF LOADS ON VEHICLES WITH BOGIE CENTRES IN EXCESS OF 12800 mm

| Vehicle Bogie Centres (mm) | Permitted Width (mm) | | | | |
|----------------------------|------------------------------|------------------|------------------|------------------|------------------|
| | From 1050mm to 3080mm A.R.L. | At 3300mm A.R.L. | At 3440mm A.R.L. | At 3750mm A.R.L. | At 3965mm A.R.L. |
| 12801 – 13400 | 2800 | 2670 | 2420 | 1570 | 295 |
| 13401 – 14000 | 2780 | 2650 | 2400 | 1550 | 275 |
| 14001 – 14600 | 2760 | 2630 | 2380 | 1530 | 255 |
| 14601 – 15250 | 2735 | 2605 | 2355 | 1505 | 230 |
| 15251 – 15850 | 2710 | 2580 | 2330 | 1480 | 205 |
| 15851 – 16500 | 2680 | 2550 | 2300 | 1450 | 175 |
| 16501 – 17000 | 2660 | 2530 | 2280 | 1430 | 155 |
| 17001 – 17500 | 2640 | 2510 | 2260 | 1410 | 135 |
| 17501 – 18000 | 2615 | 2485 | 2235 | 1385 | 110 |
| 18001 – 19000 | 2575 | 2445 | 2195 | 1345 | 70 |

Note:

For permitted widths at heights between those specified, calculated as follows:

For example:

At 3400 mm A.R.L. on 14000 mm Bogie centres

1. Permitted width at 3300 mm A.R.L. is 2650 mm
2. Permitted width at 3440 mm A.R.L. is 2400 mm
3. For increase of 140 mm in height, permitted width decreases by 250 mm.
4. Therefore for 100 mm increase in height (ie 3400 – 3300), the decrease in width will be $\frac{100}{140} \times 250 = 179$ mm
5. Therefore permitted width = $2650 - 179 = 2471$ mm

Note:

As table K2 shows only one half of the gauge the values for permitted widths are one half of the actual values.