GOVERNMENT OF INDIA MINISTRY OF ROAD TRANSPORT & HIGHWAYS

Transport Bhawan, 1, Parliament Street New Delhi – 110001 Telefax : +911123310950 Dated :24th January 2013

No.RW/NH- 35072/1/2010 S&R(B)

То

- The Chairman, National Highways Authority of India, G-5 & G-6, Sector -10, Dwarka, New Delhi - 110 045
- 2. All Principle Secretaries/Secretaries/Engineer-in-Chiefs/Chief Engineers dealing with National Highways and other category of roads
- 3. The Director General(Border Roads), Seema Sadak Bhawan, Ring Road, Naraina, Delhi Cantt., New Delhi.
- 4. The Director General (Works), Central Public Works Department, Nirman Bhawan, New Delhi 110 001

Subject: Movement of Over Weight and Over Dimensional Consignment (OW/ODC) - Guidelines reg.

Madam/Sir,

Exponential growth in infrastructure sector in general and power sector in particular has led to construction of thermal/hydro/ nuclear power plants in different land-locked parts of the country in the recent past. This has led to significant increase in frequency of Over Weight and Over Dimensional Consignment (OW/ODC)being transported by road . As per the instant practice for movement of OW/ODC, Road Transport (RT) Wing of the Ministry accords approval for registration of the trailer with maximum safe laden weight and dimensions in exercise of the power conferred by subsection 3 of Section 58 of the Motor Vehicle Act 1988. This approval is subject to the following conditions:

(i) The operations of the trailer shall be done only sparingly.

(ii) Load restrictions of various roads stipulated by the Public Works Department/Local Authorities/National Highway Authority of India/Boarder Roads Organization will be observed and permission of such authorities will be obtained every time the vehicles are put on the roads. Each of the such movement will be approved and closely monitored by the concerned road authorities in State/Union Territory/National Highway Authority of India/Boarder Roads Organization from safety point of view.

(iii) The vehicle should display all danger flags and lights, preferably the vehicle should be preceded and followed by a vehicle displaying prominently that a heavy load is passing.

(iv) Coupling of the trailers along the width of the road (side by side)shall not be permitted.

(v) The programme of the movement of the trailer should be intimated at lest ten days in advance to the Executive Engineers concerned and their clearance obtained.

(vi) The trailer shall be registered individually and not as a combination.

(vii) If so directed by the Public Works Department of a State/Union Territory/National Highway Authority of India/Boarder Roads Organization, the loaded vehicle will not be allowed to pass over the bridges on the roads in that State/Union

Territory and in such cases applicants will have to make their own arrangements to cross the rivers/nallas.

(viii) They would need to obtain permission each and every time before moving, on a particular route from concerned State or Union Territory authorities/Nation Highway Authority of India/Boarder Roads Organization enroute in view of the oversized cargo. For each such movement, the timing should be prescribed by the concerned authority.

(ix) They would adhere to the speed limits prescribed by the authorities in State/Union Territory/National Highway Authority of India/Boarder Roads Organization.

(x) The said vehicles should be moved without any hindrance to the normal flow of traffic.

(xi) The maximum speed of the trailer for movement on the road shall not exceed 10 kms/hour.

(xii) The trailer shall be painted for the entire width by yellow and black zebra strips on the front and rear sides duly marked for night time driving /parking suitably by red lamps at the front and rear and red flags on both the sides during day time to indicate the extreme position of the vehicle clearly. In addition the entire overhang shall be covered with a red reflector/reflective tape to facilitate clear vision of overhang at night time.

(xiii) The owner of the trailer would be liable to pay such amount to the Government of State/Union Territory/National Highway Authority of India/Boarder Roads Organization or any other affected person where any damage is caused to the roads or road structures/other road users/person directly or indirectly due to the movement of the trailer.

(xiv) The owner of the trailer will observe restrictions ordered by the State/Union Territory Government/National Highway Authority of India/Boarder Roads Organization time to time in this regard.

(xv) The owner of the trailer will give an advance intimation to such authority or officer specified by the State/ Union Territory Government /National Highway Authority of India/Boarder Roads Organization regarding each movement of such vehicle.

(xvi) A specific entry in Registration Certificate is to be made that the trailer owner in case of each and every movement will be required to take the permission of concerned Authority i.e. Sate Govt./Union Territory Govt./National Highway Authority of India/Boarder Roads Organization.

2. As per the condition stipulated while according approval for registration of the trailer, the owner of the trailer need to obtain permission each and every time before moving on a particular route from the concerned State/UT authorities/NHAI/BRO enroute. It has been reported that due to delay on account of permission from the concerned authorities, there are delays in movement of the trailers. This delay may perhaps be due to non-availability of guidelines for movement of OW/ODC. Since bridges are critical and vital link of the road network and safety of the same is of the concern for the road authorities.

3. In order to develop a comprehensive document which will give guideline regarding movement of OW/ODC(maximum axle load, gross vehicle weight, length of the vehicle permitted for a particular type of super-structure and for a given span length designed as per IRC loadings), Hydraulic Trailer Owners Association (HTOA) has engaged a consortium of four consultants empanelled with the Ministry. HTOA has submitted document prepared by the consortium of the consultants. Outcome of the study is as under and the same has carved the way for issuance of these guidelines by MoRT&H.

(i) The highway bridges are designed based on codes published by The Indian Roads Congress (IRC). The bridges are designed for live loads conforming to IRC:6. The IRC design vehicles do not cover the loads that are being carried using multi-axle Modular hydraulic Trailer (MHT). For granting permission for the passage of OW/ODC on any

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existing bridge, the assessment for adequacy of the bridge is to be carried out as per the provisions of IRC:SP:37-2010, which furnish Guidelines for evaluation of load carrying capacity of bridges for OW/ODC .

(ii) A detailed analytical study was carried out for passage of various types and combination carrying multi-axle modular hydraulic trailers (i.e. 13 types of combinations considered) as OW/ODC. The study was carried out only for simply supported bridge structures with span length ranging from 5m to 50 meters and covering various cross sections with 2 lane, 4 lane, 6 lane and 8 lane width and various types of bridges.

4. Based on the findings of this study, simplified charts (as listed below) are enclosed, which shall form the basis for operation and permitting movement of multi axle modular hydraulic trailers carrying OW/ODC throughout the territory of India. The movement shall be permitted subject to compliance of the conditions/assumptions given in Annexure 1.

4.1 The final results of the study are reproduced in enclosed charts, Chart C.1 to Chart C.13. Different combinations of multi axle modular hydraulic trailers are listed in Table 1:

Table 1 - Load Composition of type IIII to IIIIo						
Type Of Combination	Total No.of Axles in MH TRAILER UNIT	Gross Vehicle Weight (without Puller Tractor) (MT)				
HT1	4	72				
HT2	6	108				
HT3	8	144				
HT4	10	180				
HT5	12	216				
HT6	14	252				
HT7	16	288				
HT8	18	324				
HT9	20	360				
HT10 *	8+8	288				
HT11 *	10+10	360				
HT12 **	14+14	504				
HT13 **	16+16	576				
	Type Of Combination HT1 HT2 HT3 HT4 HT5 HT6 HT7 HT6 HT7 HT8 HT9 HT10 * HT11 * HT12 **	Type Of Combination Total No. of Axles in MH TRAILER UNIT HT1 4 HT2 6 HT3 8 HT4 10 HT5 12 HT6 14 HT7 16 HT8 18 HT9 20 HT11* 10+10 HT12** 14+14				

Table 1 - Load	Composition	of type	HT1 to HT13	;
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(The Unladen weight of single axle is considered as 3.3 t

(*) Units with Turn Table Bolster Arrangement (Beam Weight = 16 t)

(**) Units with Girder Arrangement (Self Weight of Girder = 132 t)

The puller tractor is considered to carry a load of 25t comprising of 6t axle load in front axle and 9.5t each in rear two axles

<u>Note</u>

In order to select the appropriate chart applicable to a particular type of bridge structure, it is important to identify the characteristics of the bridge (i.e. Span Length, Structure Type, Support Condition etc). Before granting permission for passage of OW/ODC, it is important to ensure that these parameters are available with the authority and overall condition of the bridge is examined by the concerned engineer of the Department/ empanelled consultants with Ministry.

4.2 Free movement for MHT combination type HT1, HT2 & HT3 may be permitted for all specified types of bridges and for all specified span lengths. For MHT combination type HT4, HT5, HT6, HT7, HT8, HT9, HT10, HT11, HT12 & HT13, movement shall be

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permitted up to Gross Vehicle Weight (GVW) as mentioned in the enclosed charts or reduced GVW reflected in specific cell.

4.3 Based on the above referred charts, a concise recommendation of study in the form of summary is presented in Table 2 below. The HT Loadings are categorized as A, B & C and structure types categorized as 1,2 & 3 respectively. The summary table presents the equivalency of IRC loads to different HT Loads with respect to structure type. For Longer Spans and for Type of Structures **not** covered in the above referred charts, specific studies may be carried out on identical system, which shall form the basis for clearance for movement of OW/ODC and also for future reference.

TABLE 2 : SUMMARY TABLE SHOWING ADEQUACY OF STRUCTURE TYPES FOR PASSAGE OF HT LOAD

			CATEGORY OF STRU	CTURE TYPE			
		TYPE OF BRIDGE	1	2	3		
TYPE OF HT LOADING			 ✓ Culverts ✓ Masonry Arch Bridges ✓ RCC Solid/ Void Slab Bridges ✓ RCC Precast/Cast-in- situ Beam & Slab Bridges (with or without intermediate cross girder) 	 ✓ PSC Precast/Cast- in-situ Beam and slab Bridges(with or without intermediate cross girder) ✓ PSC Cast-in- situ Box Girder type Bridges 	 PSC Precast Segmental box Girder type Bridges with WET joints. Composite Decks with steel beams and concrete slab bridges (with or without intermediate cross girder) 		
	A	HT1, HT2, HT3	PASS	PASS	PASS		
CATEGORY	В	НТ4 ТО НТ9	PASS	 ✓ For HT4: Pass ✓ For HT 5 to HT9: Pass with Restricted GVW in some cases- Refer charts for details 	 ✓ Pass with Restricted GVW in some cases- Refer charts for details 		
HT LOADING CATEGORY	с	HT10, HT11, HT12, HT13	PASS	 ✓ Pass with Restricted GVW in some cases- Refer charts for details 	 ✓ Pass with Restricted GVW in some cases- Refer charts for details 		

4.4 If a route is through for a particular type of Hydraulic trailer with particular load, the route shall be deemed fit for equal or lower categories of HTs with load for a period of six (6) months immediately from the date of issuance of first permission. The permission granted along with the route and HT/load details shall be hosted on Ministry's website. The Chief Engineer (Bridges) S&R of Ministry shall act as nodal officer to receive requests and grant permission for movement of OW/ODC on National Highways within 3 months after the receipt of the Route Survey Report plan along with

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condition survey report of the bridges enroute prepared by Ministry's empanelled consultant.

5. Bridge authorities to implement bridge information display system as suggested in Table-3 below) for bridges with span length exceeding 20 meters for better compliance of orders.

Table-5 Bridge miorma	
Name Of Bridge/ Crossing	
Location/Chainage	
Name of River	
Type of Superstructure	
Type of Bearing	
Type of Foundation	
Carriageway width	
Span Arrangement	
Year of Construction	
Design Live Load	
Bridge has been rehabilitated earlier or not	
Name of Controlling Authority	
Address of Controlling Authority	
Contact Telephone Number	
Published on	Date:

Table-3 Bridge Information Display

6. The contents of this letter may be brought to the notice of all the officers of your Department dealing with bridge works on National Highways and other category of Roads. The State/UT governments may also like to issue similar circulars for movement of OW/ODC in roads under their jurisdiction.

Yours faithfully

(A.H. Pathak) Chief Engineer(B)S&R For Director General (RD)&SS

Enclosure: Charts C.1 to C.13 Annexure 1

Copy to :

- 1. All Technical Officers of the Ministry
- 2 All ROs and ELOs, MoRT&H
- 3. Secretary General, IRC, New Delhi- With request to publish in Indian Highways, Journal
- 4. Director, IAHE, Noida
- 5. PS to Hon'ble Minister (RT&H)
- 6. PS to Hon'ble MOS(T)
- 7. PS to Hon'ble MOS(S)
- 8. Sr.PPS to Secretary (MoRT&H)
- 9. PPS to DG(RD)&SS, PPS to ADG-1, PPS to ADG-2, PPS to ADG-3
- 10. PS to JS(T), MoRT&H
- 11. NIC With request to upload on web page of the Ministry
- 12. General Secretary, Hydraulic Trailer Owners Association, Mumbai

CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR : 1.T-1 LOADING (WITH 4 AXLE TRAILER UNITS)





TYPICAL CROSS SECTION SHOWING TRANSVERSE WHEEL ARRANGEMENT OF HYDRAULIC TRAILER UNITS

Safe to carry marked reduced GVW

CWAY TYPE 1 2 LANE SINGLE CARRIAGEWAY OR 2 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY CWAY TYPE 2 3 LANE SINGLE CARRIAGEWAY OR 3 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY C'WAY TYPE 3 4 LANE SINGLE CARRIAGEWAY OR 4 LANE DUAL C' WAY WITH STRUCTURAL DISCONTINUITY OR

CWAY TYPE 4 3 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

CWAY TYPE 5 4 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

- 1 THE ABOVE CONCLUSIONS ARE FOR BRIDGES HAVING DECK SLAB WITHOUT ANY TRANSVERSE PRESTRESSING
- 2 THE OWC CAN SAFELY BE PERMITTED OVER ALL TYPES OF CULVERTS HAVING SPAN LENGTH < 6m
- 4 WHEREVER REDUCED GVW IS MARKED "RED" IN THE CHART, CORRESPONDING REDUCED AXLE LOAD CAN BE CALCULATED BY THE FORMULA RAL = (RGVW-25) / 4
- where RAL = Reduced Axle Load (in tonnes), RGVW = Reduced Gross Vehicle Weight (in tonnes)
- 5 THE TRANSPORTER SHALL TAKE PERMISSION FROM THE CONCERNED REGULATORY AGENCY BEFORE TAKING THE HT LOADS OVER THE BRIDGES
- 5 IN CASE OF STRUCTURES MARKED TO CARRY ROWN, FOR INTERMEDIATE SPAN LENGTHS, THE VALUES OF GVW OF CRITICAL OF THE TWO ADJACENT SPANS HAVE TO BE TAKEN

CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR HT-2 LOADING (WITH 6 AXLE TRAILER UNITS)

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CHART NO. C-2

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4.10		TOW BAR	٩		٦	RAIL	EK UNI	т	
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40 m		NOT APP	PLICABLE		C'WAY T	YPE 4 : 3 L	ANE DUAL C	ARRIAGEWAY	WITHOUT STRUCTU
45 m		NOT APP			C'WAY T	YPE5 4L	ANE DUAL C	ARRIAGEWAY	WITHOUT STRUCTU
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15 m		an shi shan analar ang							
15 m 20 m 25 m			0			CALCUL	ATED BY TH	E FORMULA	RAL = (RGVW-25) / 6
15 m 20 m 25 m 30 m 35 m	n Steel Beams and Concrete stat	b bridges - Without In	<u>t. X. Girder</u>			Where	RAL = Redu	ced Axle Load	(in tonnes), RGVW =
15 m 20 m 25 m 30 m 35 m 0 <u>Composite decks with</u> 15 m	1 Steel Beams and Concrete slab	<u>o bridges - Without In</u>	<u>t. X. Girder</u>			Where 5 THE TR/	RAL = Redu ANSPORTER	ced Axle Load SHALL TAKE	(in tonnes), RGVW = PERMISSION FROM
15 m 20 m 25 m 30 m 35 m 2 Composite decks with 15 m 20 m	1 Steel Beams and Concrete slab	<u>a bridges - Without In</u>	<u>L X Girder</u>			Where 5 THE TR/ THE HT	RAL = Redu ANSPORTER LOADS OVER	ced Axle Load SHALL TAKE R THE BRIDGE	(in tonnes), RGVW = PERMISSION FROM 1 S
20 m 25 m 30 m 35 m 0 <u>Composite decks with</u> 15 m	Steel Beams and Concrete stat	<u>a bridgen - Without In</u>	<u>t. X. Girder</u>			Where 5 THE TRA THE HT 6 IN CASE	RAL = Redu ANSPORTER LOADS OVER	ced Axie Load SHALL TAKE R THE BRIDGE URES MARKE	RAL = (RGVW-25) / 6 (In tonnes), RGVW = PERMISSION FROM 1 :S D TO CARRY RGVW, DJACENT SPANS HAY



ANSVERSE WHEEL ARRANGEMENT OF RAILER UNITS

RRIAGEWA', WITH STRUCTURAL DISCONTINUITY RRIAGEWAY WITH STRUCTURAL DISCONTINUITY WAY WITH STRUCTURAL DISCONTINUITY OR

DISCONTINUITY DISCONTINUITY

DISCONTINUITY

- ECK SLAB WITHOUT ANY TRANSVERSE PRESTRESSING
- OF CULVERTS HAVING SPAN LENGTH < 6m
- ONS / ASSUMPTIONS GIVEN SEPARATELY
- ART, CORRESPONDING REDUCED AXLE LOAD CAN BE
- duced Gross Vehicle Weight (in tonnes) CONCERNED REGULATORY AGENCY BEFORE TAKING
- INTERMEDIATE SPAN LENGTHS, THE VALUES OF TO BE TAKEN.



CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR HT-3 LOADING (WITH 8 AXLE TRAILER UNITS)

PULLER TRACTOR TRAILER UNH FOW BAR 27 646464646 181 18t 18t 18t 18t 18t 18t 18t 18t 9 5t 9 5t 6t 3200 5427 11370 10500 (7 X 1500) pan, <u>CW</u>type C' WAY TYPE 1 C' WAY TYPE : C' WAY TYPE 3 C WAY TYPE 4 C WAY TYPE S TOTAL GVW INCLUDING PULLER TRACTOR= 169 t 1. Masonary Arch bridges 5 m NOT APPLICABLE 10 m NOT APPLICABLE NOT APPLICABLE 15 m RCC Solid/Voided slab bridges 5 m 10 m 15 m 20 m 3. RCC Precast/Cast In-Situ Beam and Slab bridges - With Int, X Girder 10 m 15 m 20 m 25 m 4 RCC Precast/Cast in-Situ Beam and Slab bridges - Without Int. X Girder 10 m 15 m 20 m 25 m 244 PSC Precast/Cast in-Situ Beam and Slab bridges - With Int. X Girder 20 m 375 25 m 30 m 35 m 40 m 6. PSC Precast/Cast in-Situ Beam and Slab bridges - Without Int. X Girder 20 m 25 m 30 m 35 m 40 m 7. PSC Cast in Situ Box Girders type bridges Legend Safe to carry the specified load 30 m 35 m 40 m Safe to carry marked reduced GVW 7.9 % 45 m 50 m 8. PSC Precast Sean ntal Box Girders type bridges - With Wet Joint NOT APPLICABLE 30 m 35 m NOT APPLICABLE 40 m NOT APPLICABLE CWAY TYPE 4 3 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY 45 m NOT APPLICABLE NOT APPLICABLE 50 m 9. Composite decks with Steel Beams and Concrete slab bridges - With Int. X Girder NOTES 15 m 20 m 25 m 30 m CALCULATED BY THE FORMULA RAL = (RGVW-25) / 8 35 m Where RAL = Reduced Axie Load (in tannes); RGVW = Reduced Gross Vehicle Weight (in ton 10 Composite decks with Steel Beams and Concrete slab bridges - Without Int X Girder 15 m 20 m THE HT LOADS OVER THE BRIDGES

25 m

30 m 35 m

3000 75±300 403 506 900

TYPICAL CROSS SECTION SHOWING TRANSVERSE WHEEL ARRANGEMENT OF HYDRAULIC TRAILER UNITS

C'WAY TYPE 1 2 LANE SINGLE CARRIAGEWAY OR 2 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY CWAY TYPE 2 3 LANE SINGLE CARRIAGEWAY OR 3 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY C'WAY TYPE 3 4 LANE SINGLE CARRIAGEWAY OR 4 LANE DUAL C' WAY WITH STRUCTURAL DISCONTINUITY OR

2 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

CWAY TYPE 5 - 4 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

- 1 THE ABOVE CONCLUSIONS ARE FOR BRIDGES HAVING DECK SLAB WITHOUT ANY TRANSVERSE PRESTRESSING
- 2 THE OWC CAN SAFELY BE PERMITTED OVER ALL TYPES OF CULVERTS HAVING SPAN LENGTH < 8m
- 3 THE ABOVE CONCLUSIONS ARE BASED ON THE CONDITIONS / ASSUMPTIONS GIVEN SEPARATELY A WHEREVER REDUCED GVW IS MARKED 'RED' IN THE CHART, CORRESPONDING REDUCED AXLE LOAD CAN BE
- 5 THE TRANSPORTER SHALL TAKE PERMISSION FROM THE CONCERNED REGULATORY AGENCY BEFORE TAKING
- 6 IN CASE OF STRUCTURES MARKED TO CARRY RGVW, FOR INTERMEDIATE SPAN LENGTHS, THE VALUES OF GVW OF CRITICAL OF THE TWO ADJACENT SPANS HAVE TO BE TAKEN.

CHART NO. C-3

CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR <u>HT-'</u> LOADING (WITH 10 AXLE TRAILER UNITS)





CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR

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HT-5 LOADING (WITH 12 AXLE 1	TRAILER UNITS)	
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		(11 A 400)
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Masonary Arch bridges		IUTAL GVW INCLUDING PULLER TRACTOR= 241 t
5 m	NOT APPLICABLE	
10 m	NOT APPLICABLE	
15 m	NOT APPLICABLE	
RCC Solid/Voided slab bridges		
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25 m		
30 m		
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40 m		HTDRAULE, TRAILER UNITS
epital surfactory, reveal shares and an entry of	Slab bridges - Without Int X Girder	
20 m		
25 m		
30 m		
35 m		A STATUS AND
40 m		
SC Cast in Situ Box Girders type bi	ridges	
30 m		Safe to carry the specified load
35 m		
40 m		Safe to carry marked reduced GVW
45 m		
50 m		CWAY TYPE 1 2 LANE SINGLE CARRIAGEWAY OR 2 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY
SC Precast Segmental Box Girders	type bridges - With Wet Joint	C'WAY TYPE 2 3 LANE SINGLE CARRIAGEWAY OR 3 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY
30 m	NOT APPL	ICABLE CWAY TYPE 3 4 LANE SINGLE CARRIAGEWAY OR 4 LANE DUAL C' WAY WITH STRUCTURAL DISCONTINUITY OR
35 m	NOT APPL	ICABLE 2 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY
40 m	NOT APPL	ICABLE CWAY TYPE 4 3 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY
45 m	NOT APPL	ICABLE CWAY TYPE 5 4 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY
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Composite decks with Steel Beams (and Concrete slab bridges - With Int. X Gi	rder NOTES
15 m		1 THE ABOVE CONCLUSIONS ARE FOR BRIDGES HAVING DECK SLAB WITHOUT ANY TRANSVERSE PRESTRESSIN
20 m		2 THE OWC CAN SAFELY BE PERMITTED OVER ALL TYPES OF CULVERTS HAVING SPAN LENGTH < 8m.
25 m		3 THE ABOVE CONCLUSIONS ARE BASED ON THE CONDITIONS / ASSUMPTIONS GIVEN SEPARATELY
30 m		4 WHEREVER REDUCED GVW IS MARKED "RED" IN THE CHART, CORRESPONDING REDUCED AXLE LOAD CAN BE
35 m		CALCULATED BY THE FORMULA RAL = (RGVW-25) / 12
CIV. IN COLUMN	and Concrete size bridges - Without Int	X Girder
15 m		5 THE TRANSPORTER SHALL TAKE PERMISSION FROM THE CONCERNED REGULATORY AGENCY BEFORE TAKING
20 m		THE HT LOADS OVER THE BRIDGES
25 m		5 IN CASE OF STRUCTURES MARKED TO CARRY RGVW, FOR INTERMEDIATE SPAN LENGTHS, THE VALUES OF
30 m		GVW OF CRITICAL OF THE TWO ADJACENT SPANS HAVE TO BE TAKEN
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CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR HT-6 LOADING (WITH 14 AXLE TRAILER UNITS)

CHART NO. C-6

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20 m 25 m 30 m 35 m



TYPICAL CROSS SECTION SHOWING TRANSVERSE WHEEL ARRANGEMENT OF HYDRAULIC TRALER UNITS

Safe to carry the specified load

Safe to carry marked reduced GVW

CWAY TYPE 1 2 LANE SINGLE CARRIAGEWAY OR 2 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONT C'WAY TYPE 2 3 LANE SINGLE CARRIAGEWAY OR 3 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUTY SWAY TYPE 3 4 LANE SINGLE CARRIAGEWAY OR 4 LANE DUAL C' WAY WITH STRUCTURAL DISCONTINUITY OR 2 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

CWAY TYPE 4 3 LANE DUAL CARRIADEWAY WITHOUT STRUCTURAL DISCONTINUITY

CWAY TYPE 5 4 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

NOTES

THE ABOVE CONCLUSIONS ARE FOR BRIDGES HAVING DECK SLAB WITHOUT ANY TR

2 THE OWE CAN SAFELY BE PERMITTED OVEN ALL TYPES OF CALVERTS NAMEN SPAN LENGTH 4 6m. 3 THE ABOVE CONCLUSIONS AND BASED ON THE CONDITIONS / ASSUMPTIONS GREW SEPARATELY 4 WHEREVER REACTOR OWN IS MARKED REPORT THE CHATT, CORRESPONDING REDUCED ATLE LOAD CAN BE CALCULATED BY THE FORMULA RAL + (ROWN 23) / 14

Where RAL = Reduced Axia Load (in tonnes) RGVW = Reduced Gross Vehicle Weight (in to S THE TRANSPORTER SHALL TAKE PERMISSION FROM THE CONCERNED REGULATORY AGENCY REFORE TAKIN

THE HT LOADS OVER THE BRIDGES

6 IN CASE OF STRUCTURES MARKED TO CARRY ROVM, FOR INTERMEDIATE SPAN LENGTHS, THE VALUES OF GVW OF CRITICAL OF THE TWO ADJACENT SPANS HAVE TO BE TAKEN



CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR HT-7 LOADING (WITH 16 AXLE TRAILER UNITS) PULLER TRACTOR

TOV: BAR

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35 m

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			× + +	· · · · · · · · · · · · · · · · · · ·	1 1 1	
		6t	95t 9.5	t	181 181 18	1 181 181 181 181 181 181 181 181 181 1
			3200 2370 -	5127		22500 (15 X 1500)
span CW type	C WAY TYPE 1	C WAY TYPE 2	C' WAY TYPE 3	C' WAY TYPE 4	C WAY TYPE S	TOTAL GVW INCLUDING PULLER TRACTOR= 313 t
lasonary Arc	h bridges					`
5 m			NOT APP			
10 m 15 m			NOT APP			
	Ided slab bridges	 5	NOT APP	LICABLE		
5 m			100 - 10 all.			
10 m		a sanan sana Tanàna amin'ny sanana				
15 m		and a second				
20 m						
10 m	Cast in-Situ Bear	n and Slab br	idges - With Int.)	K Girder		3000
15 m				C. C. C. C.		
20 m					C. S. S. Sector C.	
25 m		Carl Sec. 2				
	Cast in-Situ Bear	n and Slab br	idaes - Without I	nt. X Girder		
10 m						
15 m 20 m						
25 m						
	ast in-Situ Bean	and Slab bri	dges - With Int)	Girder		244 403
20 m						
25 m						375 900 506
30 m						
35 m						TYPICAL CROSS SECTION SHOWING TRANSVERS HYDRAULIC TRAILER U
40 m	ast in-Situ Beam	and Slah br	dges - Without in	at X Gurder		
20 m						
25 m		a da na fallifica anticipation a c				
30 m						
35 m						
40 m	ita Bay Cladam t	un e heldenes		<u></u>		Lorend
30 m	itu Box Girders t	vpe priddes	States	12.000 2.000		Legend Safe to carry the specified load
35 m						
40 m	1.163745					Safe to carry marked reduced GVW
45 m	撮いれて					
50 m						CWAY TYPE 1 . 2 LANE SINGLE CARRIAGEWAY OR 2 LANE DUAL CARRIAGE
	egmental Box G	irders type bri	daes - With Wet			C'WAY TYPE 2 3 LANE SINGLE CARRIAGEWAY OR 3 LANE DUAL CARRIAGE C'WAY TYPE 3 4 LANE SINGLE CARRIAGEWAY OR 4 LANE DUAL C' WAY WIT
30 m 35 m					PLICABLE	2 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCON
40 m					PLICABLE	C'WAY TYPE 4 3 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCO
45 m	500				PLICABLE	C'WAY TYPE 5 4 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCO
50 m				NOT APP	PLICABLE	
Composite dei	cks with Steel Be	ams and Con	crete slab bridge	s - With Int. X (<u> Girder</u>	NOTES
15 m						1 THE ABOVE CONCLUSIONS ARE FOR BRIDGES HAVING DECK SL
20 m 25 m						2 THE OWC CAN SAFELY BE PERMITTED OVER ALL TYPES OF CUL 3 THE ABOVE CONCLUSIONS ARE BASED ON THE CONDITIONS / AS
25 m 30 m		energi sering politik References	e orbi Maria			4 WHEREVER REDUCED GVW IS MARKED "RED" IN THE CHART, CO
35 m		- 10: A	· Katal			CALCULATED BY THE FORMULA RAL = (RGVW-25) / 16
	ecks with Steel B	eams and Cor	ncrete slab brida	es - Without In	t, X Girder	Where RAL = Reduced Axle Load (In tonnes), RGVW = Reduced G
15 m						5 THE TRANSPORTER SHALL TAKE PERMISSION FROM THE CONCE
20 m					4 4 4 4	THE HT LOADS OVER THE BRIDGES
25 m					-	6 IN CASE OF STRUCTURES MARKED TO CARRY RGVW, FOR INTER GVW OF CRITICAL OF THE TWO ADJACENT SPANS HAVE TO BE T.
30 m						GVW OF GRITICAL OF THE EWO ADJACENT SPANS HAVE TO BE I



ROSS SECTION SHOWING TRANSVERSE WHEEL ARRANGEMENT OF HYDRAULIC TRAILER UNITS

uced GVW

RRIAGEWAY OR 2 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY RRIAGEWAY OR 3 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUITY RRIAGEWAY OR 4 LANE DUAL C' WAY WITH STRUCTURAL DISCONTINUITY OR

- AGEWAY WITHOUT STRUCTURAL DISCONTINUITY
- RIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

RIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY

- ONS ARE FOR BRIDGES HAVING DECK SLAB WITHOUT ANY TRANSVERSE PRESTRESSIN
- BE PERMITTED OVER ALL TYPES OF CULVERTS HAVING SPAN LENGTH < 6m
- ONS ARE BASED ON THE CONDITIONS / ASSUMPTIONS GIVEN SEPARATELY
- SVW IS MARKED "RED" IN THE CHART, CORRESPONDING REDUCED AXLE LOAD CAN BE ORMULA RAL = (RGVW-25) / 16
- Axie Load (in tonnes), RGVW = Reduced Gross Vehicle Weight (in tonnes)
- ALL TAKE PERMISSION FROM THE CONCERNED REGULATORY AGENCY BEFORE TAKING IE BRIDGES
- ES MARKED TO CARRY RGVW, FOR INTERMEDIATE SPAN LENGTHS, THE VALUES OF HE TWO ADJACENT SPANS HAVE TO BE TAKEN



CHART SHOWING ADEQUACY OF SPAN, CARRIAGEWAY WIDTHS & STRUCTURE TYPE FOR HT-8 LOADING (WITH 18 AXLE TRAILER UNITS)

CHART NO. C-8

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	PULIER RATION
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	† • • • • • • • • • • • • • • • • • • •
	<u>3200</u> <u>1370</u> <u>5427</u> <u>(17 X 1500)</u>
Span CW type C' WAY TYPE 1	C WAY TYPE 2 C WAY TYPE 3 C WAY TYPE 4 C WAY TYPE 5 TOTAL GVW INCLUDING PULLER TRACTOR= 349 t
1. Masonary Arch bridges	
5 m	NOT APPLICABLE
10 m	NOT APPLICABLE
15 m	NOT APPLICABLE
2. RCC Solid/Voided slab bris	<u>688</u>
5 m	
10 m	
15 m	
	eem and Slab bridges - With Int, X Girder
10 m	
15 m	
20 m	
25 m	
EXH H CHINA SALAR AND A SA	eam and Slab bridges - Without Int. X Girder
10 m	eam and Slab bridges - Without Int X Girder
15 m	
20 m 25 m	
	aam and Slab bridges - With Int, X Girder 244 403
20 m	
25 m	375 900 506
30 m	
35 m	TYPICAL CROSS SECTION SHOWING TRANSVERSE WHEEL ARRANGEMENT OF
40 m	HARD HARD HARD HARD HARD HARD HARD HARD
E COMPANY AND A STREET AND A	aam and Slab, bridges. Without int, X. Girder
20 m 25 m	
30 m	
35 m	
40 m	
7. PSC Cast in Situ Box Girde	rs type bridges Legend
30 m	Safe to carry the specified load
35 m	
40 m	Safe to carry marked reduced GVW
45 m	
50 m	CWAY TYPE 1 2 LANE SINGLE CARRIAGEWAY OR 2 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUIT K Girders type bridges - With Wet Joint C'WAY TYPE 2 3 LANE SINGLE CARRIAGEWAY OR 3 LANE DUAL CARRIAGEWAY WITH STRUCTURAL DISCONTINUIT
30 m	
35 m	NOT APPLICABLE C WAT TIPE 3 & LARE SINGLE CARRIAGEWAY OR & LARE DUAL C WAT WITH SINGL DRAL OSCONTINUITY OR NOT APPLICABLE 2 LARE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY
40 m	NOT APPLICABLE C'WAY TYPE 4 3 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY
45 m	NOT APPLICABLE C'WAY TYPE 5 4 LANE DUAL CARRIAGEWAY WITHOUT STRUCTURAL DISCONTINUITY
50 m	NOT APPLICABLE
PART 1 No. 5 Lawrence - Torner	Beams and Cor Trets slab bridges - With Int, X Girder NOTES
15 m	1 THE ABOVE CONCLUSIONS ARE FOR BRIDGES HAVING DECK SLAB WITHOUT ANY TRANSVERSE PRESTR
20 m	2 THE OWC CAN SAFELY BE PERMITTED OVER ALL TYPES OF CULVERTS HAVING SPAN LENGIN < 8m
25 m 30 m	
35 m	4 WHEREVER REDUCED GVW IS MARKED "RED" IN THE CHART, CORRESPONDING REDUCED AXLE LOAD C. CALCULATED BY THE FORMULA RAL = (RGVW-25) / 15
	Seams and Concrete slab bridges - Without Int, X Girder Where RAL = Reduced Axie Load (in tonnes), RGVW = Reduced Gross Vehicle Weight (in tonnes)
15 m	5 THE TRANSPORTER SHALL TAKE PERMISSION FROM THE CONCERNED REGULATORY AGENCY BEFORE T
20 m	THE HT LOADS OVER THE BRIDGES
25 m	6 IN CASE OF STRUCTURES MARKED TO CARRY RGVW, FOR INTERMEDIATE SPAN LENGTHS, THE VALUES
30 m	GVW OF CRITICAL OF THE TWO ADJACENT SPANS HAVE TO BE TAKEN

