

Dated: 16th March, 2023

CIRCULAR

To

1. The Chief Secretaries of all the State Governments/ UTs.
2. The Principal Secretaries/ Secretaries of all States/ UTs Public Works Department/ Road Construction Department/ Highways Department (dealing with National Highways and other centrally sponsored schemes).
3. The Chairman, National Highways Authority of India, G-5 & 6, Sector-10, Dwarka, New Delhi-110 075.
4. The Managing Director, NHIDCL, PTI Building, New Delhi-110001.
5. The Director General (Border Roads), Seema Sadak Bhawan, Ring Road, New Delhi-110 010.
6. All Engineers-in-Chief and Chief Engineers of Public Works Department of States/ UTs/ Road Construction Department/ Highways Departments (dealing with National Highways and other centrally sponsored schemes).
7. All CE-ROs, ROs and ELOs of the Ministry.

Subject: - Safety in Road Construction Zones in National Highway Projects - effective and adequate measures to be taken- Reg.

Madam/Sir,

Safety of normal traffic, construction traffic and construction workers during construction and maintenance of National Highway (NH) is an important requirement. There are enough provisions in contract agreement including specifications for construction zone safety measures. However, there are serious implementation issues.

2. Some of the provisions in EPC contract agreement with regards to construction zone safety measures are reproduced below. There are similar provisions in HAM and BOT (Toll) concession agreements.

2.1 Safety in Construction of Project Highway:

- i. Obligations of the Contractor include that the Contractor and its Sub-Contractors comply with the safety measures for labour in accordance with applicable laws and good industry practice. (Cl 4.1 (vii) (g))
- ii. Contractor's Construction methodology will be reviewed and consented to by the AE will give details of traffic management and measures for ensuring safety. (Cl 11.3)
- iii. Health and Safety: All necessary precautions shall be taken by the Contractor to ensure the health & safety of the staff and labour engaged for the work. The Contractor shall appoint a safety officer to be responsible for the safety of personnel at the Site. (Cl 11.18 (vi))
- iv. The Contractor shall take all the required measures and make arrangements for the safety of Users during the Construction of the Project Highway or a Section thereof in accordance with the provisions of MORTH Specifications. It shall provide, erect and maintain all such barricades, signs, markings, flags, and lights as may be required

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by Good Industry Practice for the safety of the traffic passing through the Section under construction. (Cl 16.1 (i))

- v. All works shall be carried out in a manner creating least interference to traffic passing through the Project Highway or a Section thereof. In sections where construction Works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Wherever it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. 'ROBOTS' may be used for diversion and control of traffic during Construction. The Contractor shall take prior approval of the Authority's Engineer for any proposed arrangement for traffic regulation during Construction. (Cl 16.1 (ii))

2.2 Provisions in 2/4/6-Laning Manual for Work Zone Traffic Management:

- i. Before taking up any construction work, the Concessionaire shall furnish to IE for comments duly incorporating:

(a) Site Safety Team headed by qualified Safety Officer

(b) Traffic Safety Devices as per IRC:SP:55 "Guidelines on Traffic Management in Work Zones" including signages of High Intensity Grade Retroreflecting Sheeting, Delineators in the form of Cones/Drums with Bulb/Flashers using solar energy on the top, Barricades etc. (Section 1.14, IRC:SP:84)

- ii. Traffic Diversion Plan during construction shall be prepared as per IRC: SP: 55 for the entire Project Highway. Separate Traffic Diversion Plan shall be prepared for Structures and C&D works. Clause 112 of MoRT&H Specification shall also be considered. (Section 9.9, IRC: SP: 84)
- iii. Provisions of IRC: SP:91 "Guidelines for Road Tunnels" shall generally be followed for safety during construction of tunnels. (Section 14.12.4, IRC:SP:84)

3. However, inadequate safety measures leading to accidents have been frequently noticed during highway construction and maintenance works. A few shortcomings as generally observed in construction sites are given below:

- i. Excavations adjoining to running carriageway (>30cm level difference is unsafe) without proper barricade.
- ii. Contractor doesn't raise RFI for the excavation.
- iii. No timeline specified for the backfilling of the excavation or specified timeline not adhered to.
- iv. Many times, excavated pits are left open for long, posing continuous safety hazard.
- v. During rains, water filled pit become invisible to road users which becomes highly hazardous in absence of adequate barricading, cautionary signs and markings.
- vi. New Jersey type Crash Barrier provided for protection of excavated pits become unnoticeable due to maintenance issues. Dust/mud accumulated on reflective tapes.
- vii. Barricades missing/broken/of unacceptable configuration
- viii. Inadequate signs & marking
- ix. Signs not cleaned reducing reflectivity
- x. Diversion road ill-designed and ill-maintained
- xi. Traffic allowed on partly built road sections without adequate safety measures.

4. In order to ensure safety of traffic during construction and maintenance of a NH section, work zone traffic management plans are to be worked out and followed by

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judiciously applying the measures described in IRC-SP-55 based on the fundamental principles of road safety.

5. The EPC contract conditions, especially Clause 19.1(v) is clear in its stipulation and intent that unless otherwise stated in the agreement, the contract price covers all the contractor's obligations for the works under this agreement and all things necessary for the construction and remedying of any defects in the Project Highway which include traffic management and safety during construction/maintenance.

6. Clause 19.5(iv) of the Contract Agreement further stipulates that the Authority's Engineer may for reasons to be recorded withhold from payments the estimated value of work or obligation that the Contractor has failed to perform in accordance with the EPC Contract Agreement. In the light of various provisions of the EPC Contract highlighted above, the contract price included in the Contract Agreement is deemed to be the amount for carrying out all the operations of construction and maintenance of the highway and for meeting all the obligations of the contractor as per the standards specifications, stipulations and scope of the Contract Agreement irrespective of a particular obligation is explicitly mentioned or not in Schedule H. Any obligation or component not explicitly stipulated in Schedule H is deemed to be included in other items of Schedule H. In the light of these stipulations, there is no doubt or ambiguity, whatsoever, about the responsibility and obligation on the part of the contractor towards ensuring safety and smooth traffic flow in the construction zone with minimum inconvenience to the road users.

7. Traffic space to route all categories of road users through activity zone with traffic worthy pavement surface with safety is to be ensured by the contractor during the construction and maintenance period. Buffer space between activity area/ unsafe area and the traffic space shall be suitably provided to ensure safety. Various measures like installation of speed-reduction devices like rumble strips, speed limit signs, regulatory signs, rolling-up signs, etc., should be adequately installed to achieve smooth traffic flow with safety in work zone. Retro reflective work zone warning signs and work zone informative signs should be installed and maintained during the entire construction and maintenance period in construction zones. Hazard markers, channelizing devices with retro reflective surfaces visible and identifiable from sufficient distance are to be used for regulating and managing the traffic in the construction zones. Ready to use components like traffic cones tubular markers, hazard markers, barricades, road studs and lighting devices, etc., as per standard designs with specified colours as per IRC-SP-55 should be used.

8. Installation and maintenance of required signs, markings, traffic channelizing devices, road studs, temporary local widening of pavement / shoulders for facilitating routing of the road users with smooth movement of traffic and safety in construction zones is the obligation of the contractor and is deemed to be covered in the quoted price of the contractor. However explicit separate traffic diversion arrangements across Natural streams / channels / canals through diversion roads of appropriate specifications, bailey bridges, vented causeways etc., are to be incorporated in the scope of the work of the EPC contracts. In such cases the scope of such diversions is to be adequately detailed in the schedules indicating 50% of payment for diversion on completion of diversion road as per specifications and the balance after its proper maintenance upkeep till the completion of the new bridge and its dismantling / removal after completion of the new bridge. Re-usability of the components like bailey bridges and Hume pipes can be duly considered while assessing the cost of diversion.

9. To ensure scrupulous implementation of the construction zone safety and traffic management measures, the following Standard Operating Procedure may be followed.

- i. Construction works shall not be allowed until & unless Contractor has placed adequate traffic safety measures and traffic diversion, wherever required, on the

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ground. There will not be go ahead to any work without adequate safety measures in-place.

- ii. AE/IE's first check shall be safety of work sites.
- iii. Traffic Safety Plan shall be certified by AE as well as PD.
- iv. AE/IE team also have a Safety Officer, who will periodically review the work sites including Contractor's establishment, quarry & major Structure construction sites.
- v. There may be CCTV surveillance of major structure construction sites.
- vi. There shall be Third Party Proof check of launching/scaffolding/prestressing etc.
- vii. RFI to be issued for all the excavations in work zones.
- viii. Contractor to specify the timeline for back filling of pits and AE to approve the minimum possible timeline as per good engineering practices. In case of failure to fill the pit after instruction for second time, backfill and levelling to be done at the risk and cost of the Contractor by the Authority. Fresh RFI to be raised for re-excavation at a later date with backfilling timeline.
- ix. AE to approve excavation only on one side in a maximum length of 500m section at one go. Further excavation to be approved only after the earlier excavation is filled/covered. Excavation on both sides of running carriageway shall not be allowed at the same time.
- x. All excavated pit to be back filled before onset of monsoon and no new excavation to be allowed during monsoon. In case of untimely rains, contractor must pump the water out within 48 hours.
- xi. Peripheral barricading and hazard markers to be provided in case of big water filled excavated pits.
- xii. No delay in back filling is to be allowed, in special cases, continuous barricading with an offset of 1-2m shall be ensured.
- xiii. Special maintenance during monsoon for cleaning of barricades to ensure their visibility.
- xiv. While submitting the Interim Payment Certificate by the EPC contractor, the same should be accompanied by a certificate in respect of construction zone safety in the format enclosed at **Annexure-I** along with a geo-tagged, date stamped video of the construction zone/zones in the project stretch in which the work is in progress including the stretches in respect of which the IPC is being presented. The video should pertain to a date within 7 days prior to the date of submission of the IPC.
- xv. The Authority's Engineer should certify the adequacy of construction zone safety arrangements in the certificate furnished by the contractor through his own inspections and based on the review of the video furnished. Before making payment, such a certificate should be countersigned by the bill passing authority.
- xvi. In case the IPC is not accompanied by the above certificate with supporting details in respect of construction zone safety, 2 per cent (2%) of the IPC amount shall be withheld before making payment, with a communication to the contractor for complying with the requirements in respect of construction zone safety within 15 days.
- xvii. In case the compliance in respect of construction zone safety is received within 15 days with supporting details, the withheld amount shall be released in the next IPC.
- xviii. In case the compliance with supporting details is not received within 15 days, the same shall be carried out at the risk and cost of the contractor and the expenditure so incurred along with damages of 20 per cent of such expenditure towards departmental charges shall be recovered and the balance amount, if any, would be released to the contractor in the next IPC.
- xix. Concerned PD shall put in place in advance a rate-running contract through competitive bidding for carrying out the items of work of construction zone safety / traffic management arrangements including their installation as per IRC-SP-55 which could be operated as and when required without the necessity of bidding on each occasion.

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- xx. In case of repeated default of the contractor in respect of construction zone safety requirements as evidenced by the implementation of such measures by the Authority at the risk and cost of the contractor, the same can be treated as deficiency in service and may lead to termination of the EPC contract.
10. The above shall come into effect from the date of issue of the circular. This circular shall be applicable to all National Highways and centrally sponsored road works.
11. This issues with the approval of the competent authority.

Yours sincerely,
Bidur Kant Jha
16/03/2023
(Bidur Kant Jha)
Director

(New Technology for Highway Development)
For Director General (Road Development) & Special Secretary

Copy to:

1. All CEs in the Ministry of Road Transport & Highways
2. All ROs of the Ministry of Road Transport & Highways
3. The Secretary General, Indian Roads Congress
4. Technical circular file of S&R (P&B) Section
5. NIC-for uploading on Ministry's website under "What's new"

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5. Sr. PPS/ PPS to Addl. Secretary (Road Safety)/ Addl. Secretary (RT&H & LA)
6. Sr. PPS/ PPS to AS&FA
7. Sr. PPS/ PPS to ADG (SKN) / ADG (RP)/ ADG(DS)
8. Sr. PPS/ PPS to JS (RT&MVL)/ JS (EIC) / JS (Logistics)/ JS (NHIDCL)

Annexure-I

Certificate in respect of Construction zone safety and traffic Management arrangements

Name of work:

IPC No: & date:

It is certified that the construction/maintenance work is in progress at the time of submission of this IPC only in the following chainages

Km ... to km , km to km

2. It is also certified that adequate arrangements as per IRC-SP-55 have been made for the smooth movement of traffic and safety in the construction zone in the above stretches. A geo-tagged, date stamped video of the above stretches taken within 7 days of date of IPC statement is being submitted herewith.

	Certified, verified and found acceptable	
Authorized signatory of the EPC Contractor/Concessionaire	Authorized signatory of the Authority Engineer/Independent Engineer	Counter signed
Name:	Name:	Name:
Signature:	Signature:	Signature:
Designation:	Designation:	Designation:
Date:	Date:	Date:

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