

No. NHIII-33 (125)/72

Dated the 20th March, 1973

To

The Chief Engineers of all State PWDs and Union Territories dealing with National Highways

Subject : Regulation of traffic on National Highway (i) in the event of a flood breach or damage due to certain other reason, or (ii) when widening/reconstruction of an existing cross-drainage structure is in progress or construction of a new structure on an existing section

At occasions, it may become unavoidable to suspend traffic on or divert it from a section of a National Highway breached by flood waters or damaged due to certain other reason. Likewise, there may be need for proper regulation of traffic on a highway when widening/reconstruction of an existing cross-drainage structure or construction of a new structure on an existing section is involved. While every effort should be made to restore the road for normal use as expeditiously as possible, by carrying out restoration/improvement work(s) to preconceived construction schedules, it is important that during the construction schedules, the time restrictions on movement of traffic last and suitable precautions are taken to regulate the flow of traffic and warn it of the danger ahead so as to obviate any untoward accident.

2. For suitable arrangements to be made in such exigencies, a note outlining points of good engineering practice for the safety and smooth flow of traffic is enclosed. It is requested that instructions contained in the note may be strictly followed in future, and the same may be circulated among all officers concerned in your Department.

NOTE ON THE ARRANGEMENTS NECESSARY WHEN TRAFFIC ON NATIONAL HIGHWAYS HAS TO BE SUSPENDED OR DIVERTED FOR ANY SECTION DUE TO FLOOD BREACH OR SIMILAR REASON, OR WHEN WIDENING/RECONSTRUCTION OF AN EXISTING CROSS-DRAINAGE STRUCTURE OR CONSTRUCTION OF A NEW STRUCTURE ON AN EXISTING SECTION IS INVOLVED

1. Introduction

In the interest of safety and convenience of traffic, appropriate measures must be taken whenever traffic on any section of a National Highway is to be diverted to another route, or made to swerve from its normal path into another. Basic principles to be kept in mind are (i) that the traffic must be guided properly where it is required to follow an alternative facility and (ii) given a clear warning of any hazards that may be present ahead.

2. Arrangements when traffic is suspended on a section of a National Highway because of flood breach or damage caused due to certain other reason

- (i) If the duration of suspension is such as to necessitate diversion of traffic to another route, guidance about this should be provided at the appropriate road intersection, on either side of the damaged section, where it would be possible for the through traffic to alter its course. This should be done with the help of suitable warning signs put up in a pair, one just close to the intersection and the other 120 metres away. In addition, a prominent 'road closed' sign should be fixed on the far side of the intersection blocking half the width of the carriageway. Word message on the signs may be in more than one language according to needs of the traffic. To regulate traffic at the points of re-routing, police help may also be requisitioned. Together with this, press and other mass media should be availed of to notify the public about road closure, and alternative routing for the through traffic;
- (ii) Strong inviolable barriers should be erected in the immediate vicinity of the damaged section on both sides so that traffic can have no chance of going through imprudently. Besides, regulatory signs announcing that the road ahead was closed should be installed on the approaches, one sign at 10 m from the barrier and the other 120 metres further away. These should be supplemented by a "road closed" sign affixed to the barrier in prominent position. Word messages on the sign may be in more than one language as dictated by needs of the road users;
- (iii) The barricades should be protected by red warning lamps at night which should stay lit from sunset to sunrise. In addition, alternate black and white diagonal strips should be marked on these for effective advance warning. Preferably, reflectorised paint should be used for this purpose;
- (iv) A watchman should be present at the barrier at all times. Whenever the barrier is to be temporarily opened for construction traffic in connection with repairs to the damaged section, a responsible officer must be present at the site for supervising traffic arrangements and explaining the hazard ahead to adamant drivers. The construction traffic may be allowed through a small opening (about 3 m wide) at the extreme edge of the roadway, normally kept blocked with a double row of painted tar drums which should be removed only for permitting the construction vehicles to pass each time and put back in position immediately thereafter;
- (v) Signs, lights, barriers and other traffic control devices should be kept maintained in a satisfactory condition till such time that the traffic is restored and allowed to follow its normal path; and
- (vi) Typical arrangements according to the above plan are illustrated in Fig. 1.

3M WIDTH AT EXTREME EDGE OF FORMATION, BARRICADED BY DOUBLE ROW OF TAR DRUMS PAINTED BLACK AND WHITE, TO BE OPENED FOR USE OF CONSTRUCTION TRAFFIC ONLY IN THE PRESENCE OF A RESPONSIBLE OFFICIAL.

ARRANGEMENTS FOR TRAFFIC ON THIS SIDE TO BE ON THE SAME LINES AS ON THE OTHER SIDE.

BREACH OR UNPASSABLE SECTION

INVIOABLE BARRIER WITH 'ROAD CLOSED' BOARD FIXED THERE TO.

ROADWAY

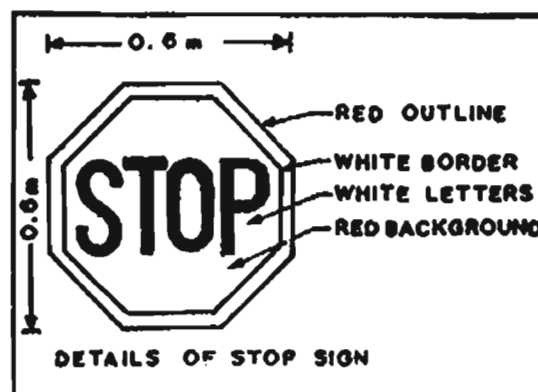
CARRIAGEWAY



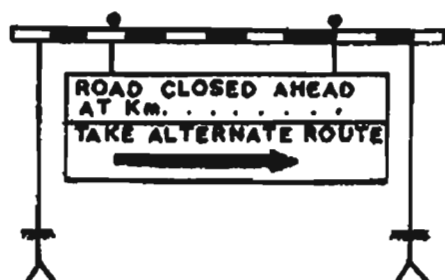
SIGN-1

SIGN-1

SIGN-1



DETAILS OF STOP SIGN

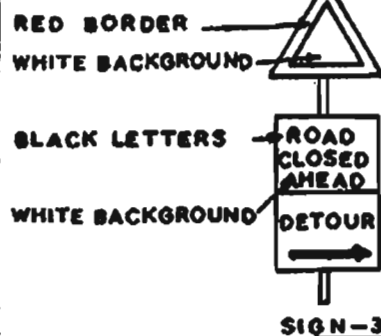


SIGN-2 - PROMINENT SIGN BLOCKING HALF THE CARRIAGEWAY AND FIRMLY FIXED TO THE GROUND

15-CM WIDE LINE TO BE PAINTED WHITE

SIGN-2

NEAREST ROAD FOR DETOUR FOR THROUGH TRAFFIC



SIGN-3

SIGN-3

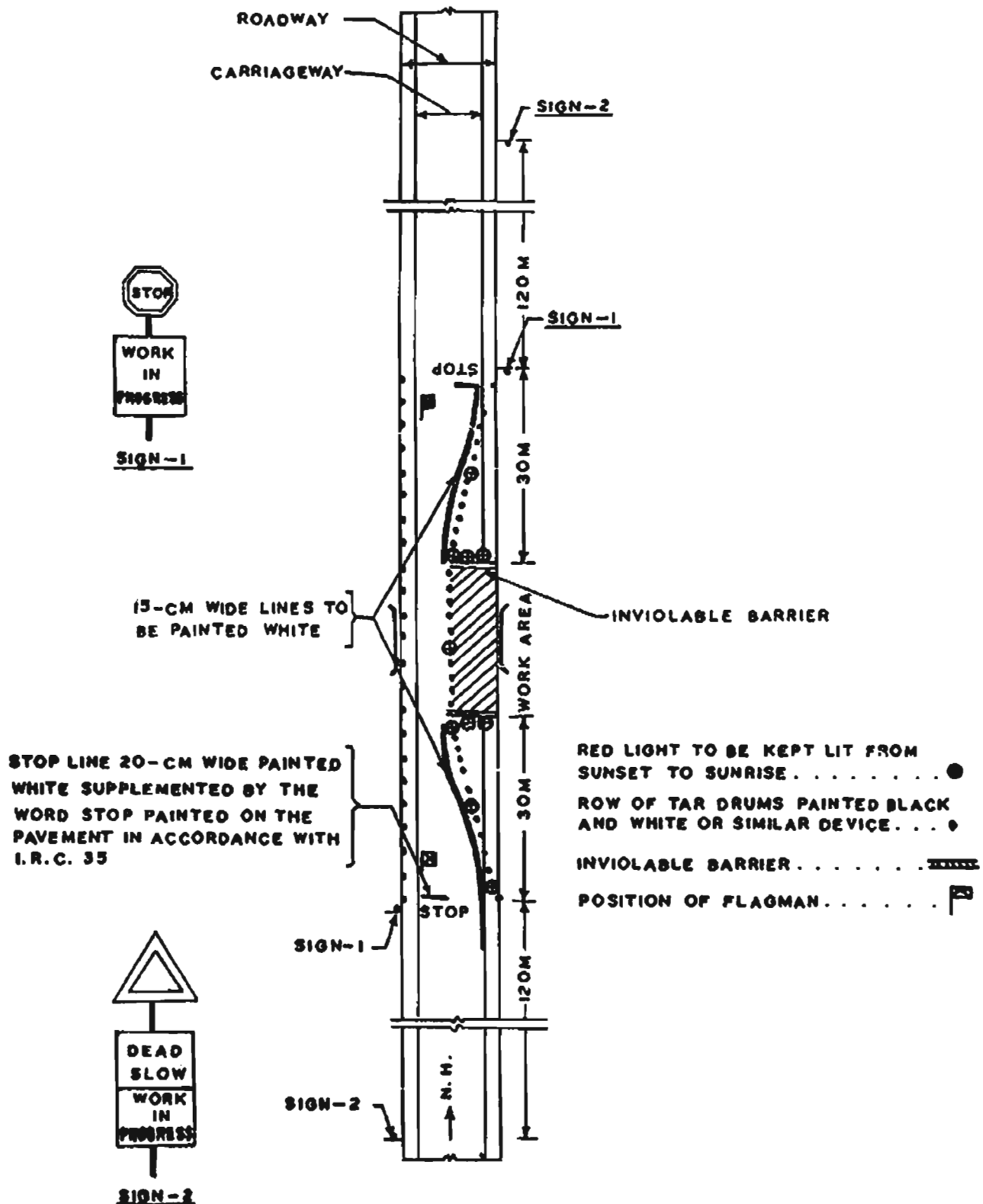
SIGN-3

LEGEND

RED LIGHT TO BE KEPT LIT FROM SUNSET TO SUNRISE ●
DOUBLE ROW OF TAR DRUMS PAINTED BLACK AND WHITE ●

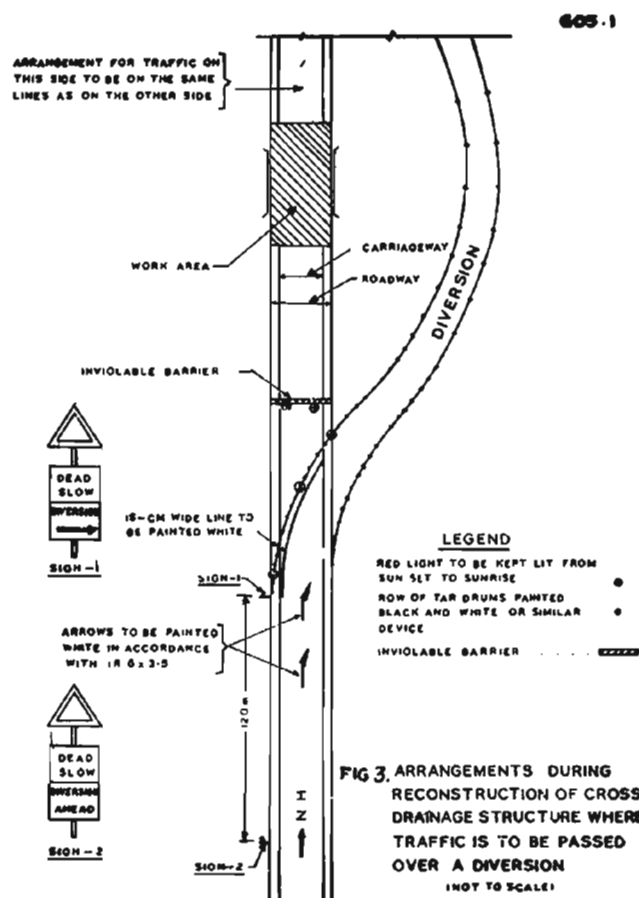
FIG. 1 ARRANGEMENTS FOR TRAFFIC WHEN A SECTION OF N.H. IS TO BE CLOSED DUE TO BREACH OR DAMAGE

(NOT TO SCALE)



ARRANGEMENTS DURING RECONSTRUCTION
OF CROSS DRAINAGE STRUCTURES WHERE TRAFFIC CAN
BE PASSED OVER PART WIDTH OF THE STRUCTURE

(NOT TO SCALE)



3. Arrangements for traffic when widening/reconstruction of an existing cross-drainage structure or construction of a new structure on an existing section is to be carried out

The following instructions should be kept in mind when undertaking above works :

- (i) Traffic may be passed either over part width of the structure, or a temporary diversion, depending on site conditions, intensity & volume of traffic, preferability on economic considerations and other related matters. The former method should be employed as far as possible, specially when the work could be conveniently carried out in half width at a time and there are no undue problems in channeling the traffic through the available road width. In both cases, the work should be so planned that widening/reconstruction of the cross drainage facility is over in the shortest time possible following properly conceived construction schedules. This will be facilitated if all the materials and other equipment are collected at site in advance before the work actually commences;
- (ii) Where for any reason traffic cannot be passed over part width of a structure, a temporary diversion should be constructed. The width and paving specifications for the diversion should be decided on factors like the period for which diversion will be in use, intensity & volume of traffic and climatic conditions. Appropriate consideration must also be given to the avoidance of dust nuisance. On both ends, the diversion should be joined to the main carriageway with smooth transitions, with visibility requirements fully taken care of.
- (iii) One-way traffic operation should be established whenever the traffic is to be passed over part width of a structure. This should be done with the help of flagmen, positioned on opposite sides, who should be on duty during all hours. For regulation of traffic, the flagmen should be equipped with red/green flags and lanterns/lights;
- (iv) At the points where traffic is to deviate from its normal path (whether on temporary diversion or part width of the carriageway), the channel for traffic should be clearly marked with the aid of pavement markings, and painted drums or a similar device. At night, the passage should be delineated with lanterns or other suitable light source. To enhance night visibility, reflectorised paint may be used for the painting of markings and drums;
- (v) Strong barriers of suitable design should be erected on either side of the portion of carriageway closed to traffic, both when the traffic is to be turned to a diversion road or channeled onto part width of the structure. For protection of traffic, red lanterns or warning lights of similar type should be mounted on the barriers at night and kept lit throughout from sunset to sunrise. Besides, barricades should be painted with alternate black and white markings, for which reflectorised paint should be preferred to improve their night visibility;
- (vi) On both sides, suitable regulatory/warning signs should be installed for the guidance of road users. Word message on the signs may be in more than one language as necessary. On each approach at least two signs should be put up, one close to the point where transition of carriageway begins and the other 120 metres away;
- (vii) Signs, lights, barriers and other traffic control devices, as also the temporary diversion, should be kept well-maintained till such time that the traffic is again able to follow its normal path; and
- (viii) Typical arrangements for the two cases where traffic may be passed (i) over part width of a structure or (ii) over a temporary diversion, are illustrated, respectively, in Figs. 2 and 3.