

**TRANSPORT SCOTLAND (Agency of the Scottish Executive)  
TRUNK ROAD NETWORK MANAGEMENT (Bridges)  
TS INTERIM AMENDMENT N° 21 - PRINCIPAL AND GENERAL INSPECTION OF  
SIGN / SIGNAL GANTRIES, AND GANTRIES WITH LOW HANDRAILS OR OPEN  
MESH FLOORING.**

## **Introduction**

Recent reported problems at gantries include:

- Plastic cable ties locating aluminium mesh to walkways on Gifford lattice gantries degrading and failing, resulting in the mesh being lost or damaged and needing to be replaced.
- Aluminium pop rivets used to attach small signs to gantries and in contact with steel corroding and failing, allowing a sign to fall.
- Weld failures to the upper aluminium pivot trunion on matrix lane signs giving rise to extensive remedial works.
- Structural bolts to many MS2 cantilever VMS gantries and masked by bituminous tape were incorrectly used with large slotted holes without suitable structural washers, and have had to be replaced.
- The dropping of a spanner from a gantry onto the carriageway below.

Enhanced inspections are being introduced to ensure that all the equipment, signs, screening panels etc on a gantry are checked for security against falling or blowing onto the carriageway.

In addition, it is recognised that action may be required in relation to older gantries that have handrail heights less than the current BD51 design requirement of 1100mm, since the "Workplace (Health, Safety and Welfare) Regulations 1992" also requires the minimum height of guard rails for new construction to be 1100mm.

This Interim Amendment therefore:

- a) Provides further advice for gantries regarding the inspection requirements given in BD 63/94 and BA 63/94 "Inspection of Highway Structures",
- b) Addresses actions needed where gantries have handrails lower than 1100mm.
- c) Provides measures to be taken where gantries have open mesh flooring.
- d) Encompasses but does not supersede CHE 149/05 "Inspection and Maintenance of Gifford Truss Portal Gantries – Mesh Tie Fixing".

## **a) Guidance on Enhanced Inspections for Gantries**

### **Current Requirements.**

BD 63/94 Inspection of Highway Structures, clause 1.7 (g) requires the document to apply to "structural aspects of sign/signal gantries". Further, BD 63/94 clause 2.4 requires that a General Inspection be "a visual examination of representative parts of the structure."

### **Actions to be taken**

It is intended that the proposed revision to BD63 will require a General Inspection to include a visual inspection of **all** visible parts of a structure that can be inspected without special access equipment or traffic management arrangements. It is also the intention to incorporate additional advice on inspection of gantries in the proposed new Inspection Manual.

Therefore until these are issued, and to address the current above concerns in relation to sign/signal gantry structures, at the next due date for a structural inspection of the gantry

(whether General or Principal) following the date of issue of this Interim Amendment an enhanced Principal Inspection shall be undertaken, in which in addition to the requirements of BD 63/94, Operating Companies (OCs) shall:

- i. Ensure that attachments to all signs and gantry equipment are inspected and defects recorded, and that insecure cable trays and cables are either properly secured or recorded and reported immediately.
- ii. Examine all fixings for corrosion, security and if plastic for UV degradation (inspection of plastic cable ties to Gifford lattice gantries and subsequent actions is already covered by CHE memo 149/05 "Inspection and Maintenance of Gifford Truss Portal Gantries - Mesh Tie Fixings").
- iii. Gently shake rotating frames to any matrix lane signs over each lane and look for any excess play, weld fracture or other problems with the pivot mechanism and associated components. The inspector shall have due regard to the risks to personnel, plant and equipment below when considering this action.
- iv. In examining for structural defects as referred to in (i) above, examine all structural joints (removing and where appropriate replacing any protective covering such as bituminous tape to bolts) for evidence of movement, bolt distortion, structure distortion or other problems
- v. Look for corrosion where aluminium pop rivets are used for any purpose including fixing signs, cover plates or cladding to the gantry, and record and report condition.
- vi. Look for trip hazards on access walkways and either remove or report for removal

The above list is not comprehensive and the inspector shall critically view the gantry and its equipment (including all signs, electrical equipment, and any covers screens or similar). At any inspection, where it is considered that items could fall or be dislodged from the gantry, the inspector should ensure that immediate action is taken to have them secured.

The above enhanced Principal Inspection may be undertaken earlier than the next due inspection date if it considered by the OC and agreed with Transport Scotland (TS) Unit Bridge Managers (UBMs) that:

- The inspections should be prioritised differently in the light of the background to this TS IA and current knowledge.
- Undertaking this more detailed inspection at an earlier time than the next due inspection would benefit significantly from making use of other planned work on the network.

In all cases the enhanced Principal Inspection shall then constitute the new beginning of the PI/GI cycle for the gantry, and inspection scheduling shall be adjusted accordingly. However, where the previous inspection prior to the issue of this TS IA was a Principal Inspection, the enhanced Principal Inspection may be substituted by an enhanced GI, and the normal PI/GI cycle maintained, provided the enhanced GI includes the requirements detailed in i) to vi) above.

### **Actions arising from Inspections**

Where deficiencies are found as a result of the above requirements (i) to (vi), OCs shall ensure that these are recorded in the Inspection Report for the structures, and shall take what short term actions are necessary to safeguard the public. Where longer term maintenance or other actions are deemed appropriate the OC shall prepare a proposed programme of intervention work and/or further inspections. This programme shall be incorporated into the normal maintenance programme in agreement with TS UBMs, giving due regard to risk. Actions taken with regard to plastic mesh tie fixings in (ii) above are covered in CHE Memorandum 149/05.

With regard to inspection of pop rivets in (v) above, any replacement fastenings shall be of a type that do not cause bi-metallic corrosion at the fastening, for example nickel copper alloy rivets that are non-reactive with steel or aluminium.

#### **b) Gantries with Handrails Less than 1100mm**

Sign/Signal Gantries have been built to varying standards over the years and consequently not all gantries have handrails to the current standard height of 1100 mm as given in BD 51/98. Since this is also the requirement for new construction under the Workplace (Health, Safety and Welfare) Regulations 1992, OCs are advised to ensure that their staff are suitably trained and equipped for access and working on gantries, giving due regard to the walkway handrail height.

OCs are also advised to ensure that employees and other contractors involved with working on gantries are aware which gantries have handrail heights lower than 1100mm, and must at the next available General or Principal Inspection of the gantry confirm any walkway handrail height less than 1100mm and record this in the F11 comments section on the Trunk Road Bridges Database (TRBDB).

Where the handrail is less than 1100mm, the OC shall propose for consideration any maintenance actions considered appropriate to either bring the handrail up to standard or to install suitable safety provisions such as adequate attachment points for harnesses, "latchway" type systems, etc.

Proposed Maintenance Actions shall be assessed by the OC and such assessment may be based on the consideration of, but not limited to:

- Suitability of raising rail or alternatively installing other safety equipment
- Actual handrail height
- Condition of handrail
- Frequency of access and by whom
- type of work undertaken and nature of equipment on the gantry

Where any major maintenance (including painting) or structural works are carried out to any gantry with low handrails the OC shall consider upgrading the access provision to current standards as given in BD 51/98. OCs shall check if raising handrails would obscure the view of any sign by the road user.

#### **c) Gantries with "Open Mesh Floors"**

Where gantries have openings or open mesh floors such that tools etc can be dropped onto traffic, during any maintenance activity the tools must be tied with lanyards either to the operative or to the structure.