Highway structures
Testing and inspection

DIN 1076

ICS 93.010

Supersedes
March 1998 edition.

Ingenieurbauwerke im Zuge von Straßen und Wegen – Überwachung und Prüfung

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Contents

Foreword

This standard has been prepared by the *Normenausschuss Bauwesen* (Building and Civil Engineering Standards Committee).

Amendments

This standard differs from the March 1998 edition in that it has been revised in form and content and new concepts have been introduced. In addition, the list of contents of the structure project file has been reworked.

Previous editions

DIN 1076: 1930-08, 1959-12, 1983-03; DIN 1077: 1933-06.

Continued on pages 2 to 10.

Translation by DIN-Sprachendienst.
In case of doubt, the German-language original should be consulted as the authoritative text.

1 Scope

This standard contains specifications relating to the inspection, monitoring and testing of highway structures*) with regard to their stability, durability and highway safety.

The aim of regular testing, inspection and monitoring is to enable any defects and damage to be recognized and assessed at an early stage, enabling the bodies or agencies responsible to take action before major damage occurs or highway safety is endangered. The actual elimination of defects and damage is not dealt with in this standard, but any remedial work undertaken is to be recorded in the structure log.

2 References

This standard incorporates, by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text, and the titles of the publications are listed below. For dated references, subsequent amendment to or revisions of any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

Bauwerksbuch (Structure log) to DIN 1076, March 1983 edition[1])

Anweisung Straßeninformationsbank (ASB) – Teilsystem Bauwerksdaten (Instructions relating to highway structure databases – Structures)

Zusätzliche technische Vertragsbestimmungen und Richtlinien für das Füllen von Rissen in Betonbauteilen (ZTV-RISS) (Additional technical contract conditions and regulations for the filling of cracks in precast concrete elements)

Zusätzliche technische Vertragsbestimmungen und Richtlinien für Schutz und Instandhaltung von Betonbauteilen (ZTV-SIB) (Additional technical contract conditions and regulations in respect of the protection and maintenance of precast concrete elements)

3 Concepts

3.1 Major highway structures

3.1.1 Bridge

A structure forming a traffic route over another traffic route, or over a body of water or low-lying terrain, inasmuch as its clear width measures two metres or more at right angles to the abutments.

3.1.2 Gantry

For the purposes of this standard, a gantry is an overhead structure spanning traffic lanes to which signs or signals are affixed. Structures cantilevered to one or both sides and structures forming a portal over the whole or part of a carriageway are also considered to be gantries.

3.1.3 Tunnel

A structure for use by vehicular traffic, that is situated below ground or water level and either is enclosed or is open to a length of 80 m or more. The term ‘tunnel’ also includes auxiliary structures and installations required for the construction and operation of the tunnel in so far as these form integral parts of the tunnel structure.

Moreover, the following structures count as road tunnels if 80 m or more in length:

a) partly covered underground or overground traffic structures (e.g. with narrow, elongated openings or grid ceilings);
b) overground road enclosures (e.g. noise barriers);
c) flyover junctions with other highways;
d) galleries.

3.1.4 Trough structures

Trough structures are retaining structures (including ramps), or caissons comprising retaining walls and a closed sole plate that are sunk into the groundwater.

3.1.5 Retaining structures

Retaining structures are highway structures that provide support to the ground, the road construction or a body of water and have a visible height of 1,50 m or more.

3.1.6 Noise barrier

A noise barrier is a wall 2 m or more in height, that is provided for noise abatement purposes.

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*) In the following, sometimes referred to as ‘structures’.

[1]) Obtainable from *Beuth Verlag GmbH*, Burggrafenstraße 6, 10787 Berlin, Germany (order no. 11430).

3.1.7 Other major highway structures

For the purposes of this standard, the term 'other major highway structures' particularly includes structures such as pipe and conveyor system bridges, reinforced concrete stormwater retention tanks and shafts.

3.2 Minor highway structures

The concept of 'minor highway structures' particularly covers:

a) culverts with an opening or a clear width of less than 2 m, measured at right angles to the walls or abutments;
b) simple tubular masts or upsweep arm columns to which traffic signs or signals are affixed;
c) drainage systems;
d) retaining structures of exposed height less than 1,50 m;
e) noise barriers of exposed height less than 2 m;
f) steep embankments;
g) earth structures;
h) gabions.

4 Documentation for testing and inspection

4.1 General

The following documentation shall be provided for testing and inspection purposes:

a) register of structures (cf. subclause 4.2);
b) structure log (cf. subclause 4.3);
c) structure project file (cf. subclause 4.4).

4.2 Register of structures

The register of structures provides basic details of all the highway structures of relevance to highway safety that are located along the route and cross the route, even when these are subject to the public obligation of another party.

It is usually convenient to organize the register according to sections or stretches of road.

The register of structures shall include the following minimum information:

a) structure number;
b) bearer of public obligation;
c) section designation;
d) nearest town or village;
e) position (above/below);
f) type of structure;
g) main dimensions;
h) maintenance obligations;
i) loadbearing capacity.

4.3 *Bauwerksbuch* (Structure log)

The *Bauwerksbuch* provides a summary of the key data on the structure and is also used for recording the results of tests and inspections carried out. It should be available in time for the initial major tests.

The scope of data to be recorded in the *Bauwerksbuch* is laid down in the *Anweisung Straßeninformationsbank (ASB) – Teilsystem Bauwerksdaten*. The table of contents of the structure log is reproduced in Appendix B.3 of this standard. Using suitable computer software, the structure log is automatically produced from the relevant data on the structure.

NOTE: A core data sheet and a cover sheet for the *Bauwerksbuch*, taking a bridge as an example, are also given (in Appendix B.1 and B.2 respectively).

If no database exists specific to the road, the *Bauwerksbuch* reproduced in the March 1983 edition of DIN 1076 may continue to be used.

Details of any remedial work, including the time at which it was carried out, shall be entered in the log.

Depending on their nature, their location, or particular condition, certain structures may require special test instructions to be followed. Such instructions shall also be recorded in the log.

4.4 Structure project file

Structure project files shall be compiled for all major structures as defined in subclause 3.1. In the case of new constructions, this shall be done during the construction phase. The files shall contain all data of relevance to the maintenenance and administration of the structure.