



SLOVENSKI STANDARD

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Ugotavljanje in ocenjevanje stanja drenažnih in kanalizacijskih sistemov zunaj stavb - 1. del: Splošne zahteve

Investigation and assessment of drain and sewer systems outside buildings - Part 1: General Requirements

Untersuchung und Beurteilung von Entwässerungssystemen außerhalb von Gebäuden - Teil 1: Allgemeine Anforderungen

Investigation et évaluation des réseaux d'assainissement à l'extérieur des bâtiments - Partie 1: Exigences générales

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93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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Investigation and assessment of drain and sewer systems outside buildings - Part 1: General Requirements

Investigation et évaluation des réseaux d'assainissement à
l'extérieur des bâtiments - Partie 1: Exigences générales

Untersuchung und Beurteilung von
Entwässerungssystemen außerhalb von Gebäuden - Teil 1:
Allgemeine Anforderungen

This European Standard was approved by CEN on 18 August 2012.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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EN 13508-1:2012 (E)**Foreword**

This document (EN 13508-1:2012) has been prepared by Technical Committee CEN/TC 165 "Waste water engineering", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13508-1:2003.

This European Standard, EN 13508, *Investigation and assessment of drain and sewer systems outside buildings*, contains the following parts:

- *Part 1: General requirements* (the present document)
- *Part 2: Visual inspection coding system*

Other parts, dealing with other investigation and assessment aspects may be added later.

In drafting this document, account has been taken of other available standards, in particular EN 752, *Drain and sewer systems outside buildings*.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Drain and sewer systems are part of the overall wastewater system that provides a service to the community.

This can be briefly described as:

- removal of wastewater from premises for public health and hygienic reasons;
- prevention of flooding in urbanised areas;
- protection of the environment.

The overall wastewater system has four successive functions:

- collection;
- transport;
- treatment;
- discharge.

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Drain and sewer systems provide for the collection and transport of wastewater.

Historically, drain and sewer systems were installed because there was a need to remove the polluted water to prevent diseases.

Traditionally, drain and sewer systems were constructed to collect and transport all types of wastewater together, irrespective of the initial source. This led to difficulties in handling the peak flows in times of heavy rainfall and to the introduction of combined sewer overflows, which discharged polluted water to surface receiving waters.

Although many drain and sewer systems started out as combined systems there are arguments for considering the separation of foul wastewater and surface water. The pollutant effects are not the same and the separation of effluents allows for the different treatment for each element of wastewater, providing more environmentally friendly solutions.

This concept is included in the approach of integrated sewer system management.

EN 752 provides a framework for the design, construction, rehabilitation, maintenance and operation of drain and sewer systems outside buildings. This is illustrated in the upper part of Figure 1. EN 752 is supported by more detailed standards for the investigation, design, construction, organisation and control of drain and sewer systems such as those listed in the lower part of the diagram.

This standard is one of a number of standards which support the general principles set out in EN 752. The relationship between these standards is illustrated in Figure 1.

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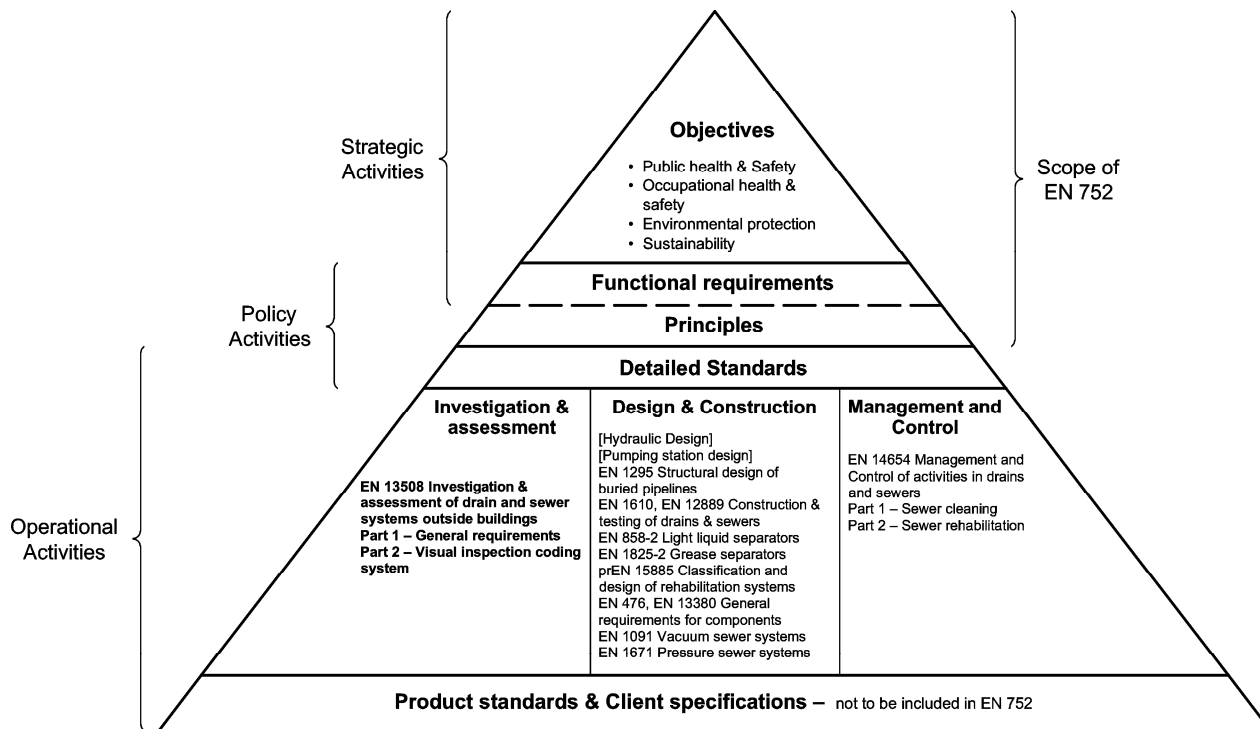


Figure 1 — Relationship between EN 752 and other drain and sewer standards

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1 Scope

This European Standard is applicable to the investigation and assessment of drain and sewer systems outside buildings. It is applicable to drain and sewer systems, which operate essentially under gravity, from the point where the sewage leaves a building or roof drainage system, or enters a road gully, to the point where it is discharged into a treatment works or receiving water. Drains and sewers below buildings are included provided that they do not form part of the drainage system of the building.

This part of this European Standard specifies general requirements for the investigation and assessment of drain and sewer systems outside buildings.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 752:2008, *Drain and sewer systems outside buildings*

EN 13508-2, *Investigation and assessment of drain and sewer systems outside buildings — Part 2: Visual inspection coding system*

EN 14654 (all parts), *Management and control of cleaning operations in drains and sewers*

3 Terms and definitions

For the purposes of this document, the following term and definition together with those given in EN 752:2008 apply.

3.1

resilience

ability of a component or group of components to continue to perform or quickly recover from an endangering incident

4 General

EN 752:2008, Clause 6, describes the process for integrated sewer system management. This process involves the integrated planning of the rehabilitation, maintenance and operation of existing drain and sewer systems.

This European Standard specifies general requirements for the investigation and assessment of aspects of the integrated sewer system management procedure (see Figure 2) to establish the condition of drain and sewer systems. This process can be applied to the development of the integrated sewer system management plan in accordance with EN 752:2008, Clause 6, as well as in the development of programmes of work and projects in accordance with EN 14654 (all parts).

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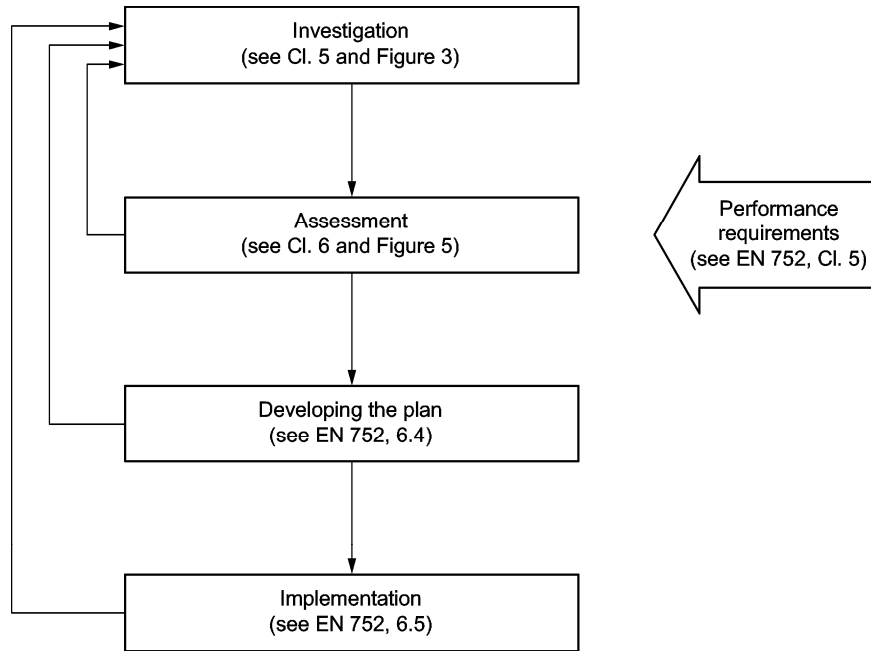


Figure 2 — Integrated sewer system management process

The investigation and assessment can be used in developing the integrated sewer system management plan which includes the

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- new development plan,
- rehabilitation plan,
- operational plan and
- maintenance plan.

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It can also be used in the development of any programmes and projects to implement the integrated sewer system management plan (see EN 14654, all parts). The approach can also be applied at different levels of complexity across a sewer system. For example, it can be applied at a strategic level across a large catchment (e.g. a whole city) and then at a more detailed level in the major sub-catchments and also at the still more detailed level of individual components.

The performance of the system can be measured in terms of the functional requirements of the system listed in EN 752:2008, 5.1 (for example protection from flooding, protection of surface receiving waters and maintaining the flow etc.). In some cases, it is only possible to determine the performance at one of the strategic or sub-catchment levels of detail (for example protection from flooding). In other cases, performance can be determined at the component level (for example maintaining the flow).

The investigation and assessment of a drain and sewer system and its components is a necessary part of the process of the establishment of the condition and the performance of the system. The components can include:

- a) gravity drains, sewers and ancillary structures such as manholes, inspection chambers, combined sewer overflows, tanks and outfalls;
- b) pumping installation including rising mains, vacuum mains and associated control and monitoring equipment;
- c) gullies and associated structures such as grit separators, light liquid separators and grease separators.

5 Investigation

5.1 Introduction

The process of investigation of drain and sewer systems is outlined in EN 752:2008, 6.2. This process is summarised in Figure 3. This process involves the investigation of the hydraulic, environmental, structural and operational condition of the system. This should be in an integrated manner as the results from many of the investigations will cover more than one of these aspects.

The stages of the investigation are described in more detail in Figure 3.

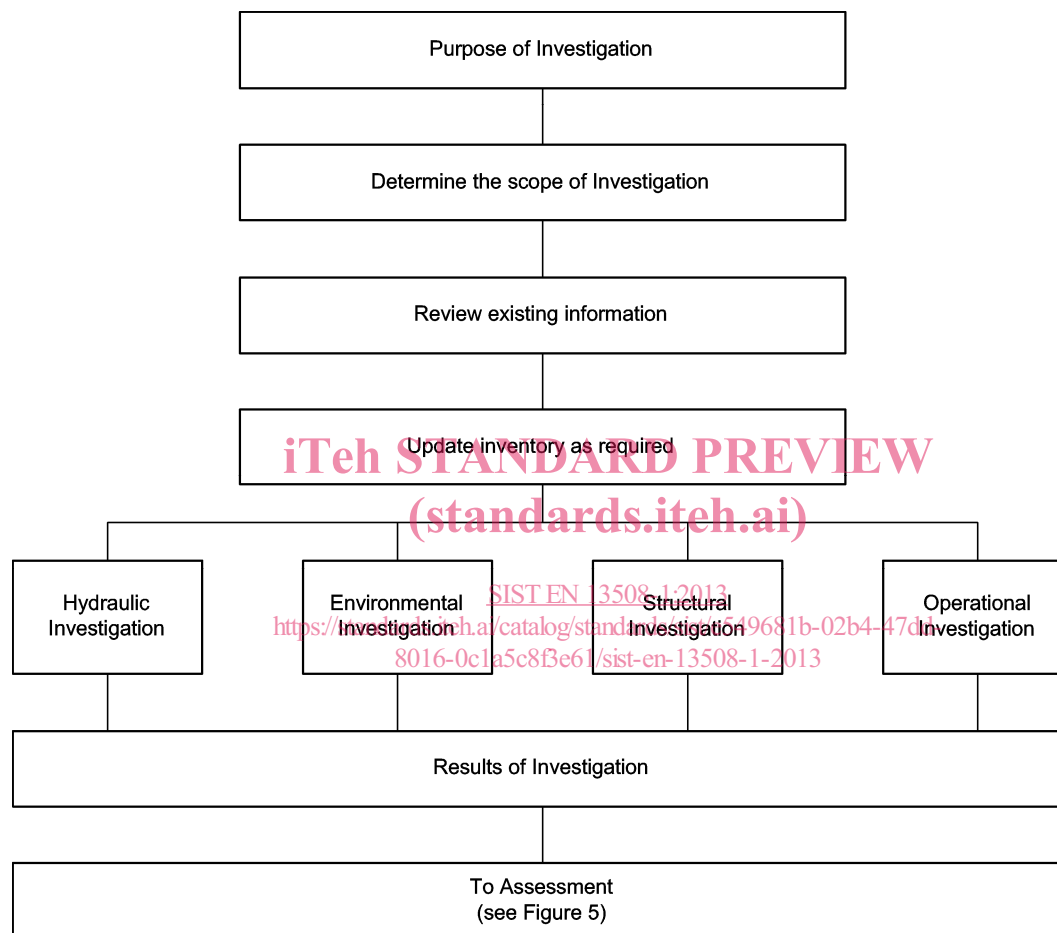


Figure 3 — The process for investigation (based on EN 752:2008, Figure 6)

5.2 Purpose of investigation

Prior to commencing the investigation, the purpose of the investigation should be established. The purpose of the investigation can include:

- an investigation to establish an overview of the condition and performance of a drain and sewer system in order to produce an integrated sewer system management plan in accordance with EN 752:2008, Clause 6;
- a more detailed investigation in order to establish a programme of measures to implement the proposals in an integrated sewer system management plan in accordance with EN 14654 (all parts);

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- c) investigation as part of the development of a specification for works to implement all or part of an integrated sewer system management plan;
- d) the investigation of a drain or sewer system following an incident in order to determine the maintenance requirements;
- e) an investigation of the resilience of a drain or sewer system to various hazards or threats.

5.3 Determine the scope of the investigation

The scope of the investigation should be determined, including:

- a) the geographical extent of the investigation;
- b) the level of detail at which the system is to be investigated (e.g. at strategic level of whole catchment, more detailed level of sub-catchment or detailed level of components);
- c) which components of the system are to be included in the investigation;
- d) which aspects of condition or performance are to be investigated for example:
 - 1) protection from flooding (see EN 752:2008, 5.1.2);
 - 2) maintainability (see EN 752:2008, 5.1.3);
 - 3) protection of surface receiving waters (see EN 752:2008, 5.1.4);
 - 4) protection of groundwater (see EN 752:2008, 5.1.5);
 - 5) prevention of odours and toxic, explosive and corrosive gases (see EN 752:2008, 5.1.6);
 - 6) prevention of noise and vibration (see EN 752:2008, 5.1.7);
 - 7) sustainable use of products and materials (see EN 752:2008, 5.1.8);
 - 8) sustainable use of energy (see EN 752:2008, 5.1.9);
 - 9) structural integrity and design life (see EN 752:2008, 5.1.10);
 - 10) maintaining the flow (see EN 752:2008, 5.1.11);
 - 11) watertightness (see EN 752:2008, 5.1.12);
 - 12) not endangering adjacent structures and utility services (see EN 752:2008, 5.1.13);
 - 13) inputs quality (see EN 752:2008, 5.1.14).
- e) the extent to which each aspect of condition or performance is investigated;
- f) the interactions with other parts of drain and sewer systems;
- g) the external influences on the system and its components (e.g. soil conditions, traffic loads);
- h) the interactions with other infrastructure (e.g. other utility services, urban environment);
- i) the resilience of the system.