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Page

Plans for public supplies, water engineering and long-distance pipelines Maps and plans for water engineering



Planwerke für die Versorgungswirtschaft, die Wasserwirtschaft und für Fernleitungen; Karten und Pläne der Wasserwirtschaft

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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.

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1 Field of application

This standard applies to maps and plans describing topics relating to water engineering. DIN 19711 shall be used for hydrogeological representations.

2 Scope

The purpose of the standard is to establish uniform criteria for the composition and contents of the following types of maps and plans:

- a) water engineering outline plans¹);
- b) other specialized water engineering plans (e.g., relating to drinking water supplies, water conservation, hydrological metrology, flood protection);
- c) plan and map series (e.g., maps of protected drinking water areas);
- d) water engineering construction drafts;
- e) individual plans and maps (e.g., ground water level maps, gauge maps, plans for water law procedures);
- f) working maps or plans and sketches

The procedures specified in this standard shall also be adopted for water engineering representations, e.g., in land registers for regional planning, regional plans, landscaping outline plans, agricultural zoning plans, forestry function plans. The standard is to be applied from the drafting stage onwards.

3 General

Maps and plans shall be compiled on the basis of the official topographical regional maps and cadastral maps. They shall be orientated towards the north and shall bear details on the scale, the date of the contents, the basis and sources used for the maps, giving an explanation of the symbols used and, in the case of maps not orientated towards the north, show the north cardinal point.

4 Type and contents

4.1 Maps and plans

Maps and plans in the water engineering field provide information on conditions and relationships significant for water engineering by displaying characteristic values (technical data), along with the location and, where appropriate, boundaries of water supply installations and equipment.

4.1.1 Contents

A distinction shall be made between the following basic types of maps and plans according to their content:

- a) maps and plans dealing with **one** particular type of characteristic value (e.g., discharge volume, average height of precipitation, water quality data) or with installations (e.g., water level gauges, precipitation measurement points, sewage treatment plants). They usually assume the form of separate maps or parts belonging to a series of plans (e.g. maps of protected drinking water areas);
- b) maps and plans dealing with several types of characteristic values or installations (e.g. map of discharge volumes along with the water gauge network). They usually assume the form of separate maps and plans. The aim should be to combine them into a series of plans of uniform sheet size.

These basic types can be further subdivided according to the date of the contents into:

- c) maps and plans showing the situation applicable at one particular period of time only (past, present, future);
- d) maps and plans showing the situation applicable at two or more points in time (e.g. present and future states);

- e) maps and plans showing changes between two or more points in time (e.g., changes in the period between 1950 to 1980);
- or according to spatial boundaries into:
- f) general regional maps, larger regional sections and river basins;
- g) maps and plans representing a small sector;
- h) maps and plans conforming to the sheet size of the topographical, regional map series.

4.1.2 Scales and use

Three different groups of scales allocated for use in specific areas are employed for maps and plans in the field of water engineering (see table 1).

4.2 Longitudinal sections in water engineering

Longitudinal sections in water engineering provide a survey of specific characteristic values for the length of a watercourse.

4.2.1 Contents

A quick survey can be obtained if several major characteristic values for a particular complex are presented together, for example:

- a) for hydrological purposes, e.g., size of the catchment area, temporally uniform discharge volumes for low, mean and high water;
- b) for matters pertaining to flow regulation, e.g., the probable high water discharges that can be expected, discharge capacity of the river bed upon commencement of overflooding;
- c) for thermal load calculations, e.g., standard low water discharge volume, mean depth of water, flow velocity and water temperatures, for more than one load case if required;
- d) for oxygen balance calculations, e.g., mean water discharge volume, oxygen requirement and concentration.

5 Draft and design

The draft and design should aim at providing clarity of information in the map or plan through a clear method of presentation. For this reason, excessive detail shall be avoided. As a rule, maps and plans containing characteristic values for more than one point in time shall display only one type of characteristic value.

If official maps are employed as the basic maps, the topographical situation shall remain clearly distinguishable in the background of the specialized subject.

In many cases, it is necessary to adapt the topographical situation to meet the demands of the specialized subject being treated (e.g., if only the network of waters with selected localities is to be shown). The topographical situation shall be displayed over the entire map even when the specialized subject is confined to a specific area thereof. As a rule, the use of inset maps shall be avoided.

¹) See article 36 of the Wasserhaushaltsgesetz (Water Resources Policy Act) of 26 October 1976, BGBI. I (Federal Law Gazette I), p. 3017, and the Richtlinien für die Aufstellung von wasserwirtschaftlichen Rahmenplänen (Code of practice for the preparation of outline plans in the field of water engineering), dated 6 September 1966, Appendix to the Bundesanzeiger (Federal Gazette) No. 177 of 21 September 1966.

Table 1.

Group, scales	Type of maps and plans, use
Group 1 Layout plans, 1 : 10 000 and larger	Draft construction plans for water installations and water engineering plants in residential areas, planning supplements for administrative procedures (e.g., water rights and regional planning procedures)
	planning supplements to specialized articles on water engineering and commentaries on planning in other specialized fields (e.g. constructional zoning, land consolidation, site in- vestigations).
Group 2	In addition to the maps and plans listed in group 1:
General layout plans and series of plans, 1 : 25 000 and 1 : 50 000	series of water engineering plans (e.g. series of maps showing the constituent parts of valleys, maps of protected areas, supervisory plans for the technical inspection of waters),
	planning supplements to specialized articles on water engineering related to regional plans and reports and to supraregional planning in other specialized fields (e.g. outline landscaping plans, specialized agricultural structural plans, forestry function plans).
Group 3	General survey water engineering maps of lands, larger land areas or larger catchment a
General survey maps	as separate maps (e.g. general hydrographic map of the Federal Republic of Germany, water quality maps of the Federal Republic and of individual Federal <i>Laender</i>),
	general hydrological and water engineering maps comprising part of water engineering out- line plans, regional planning schemes, development programmes for the Federal <i>Laender</i> and planning atlases.

The graphic representation of the specialized subject, especially the question as to whether black and white or colours shall be employed, shall depend primarily on the use to which the maps and plans shall be put.

The identifying colours suggested for printing are quoted in section 6 as colour samples and in the remarks column as colorimetric coordinates T, S, D in accordance with DIN 6164 Parts 1 and 2 (DIN colour chart) (T = hue number, S = saturation degree, D = darkness degree).

Plans which are to be photocopied or microfilmed shall be presented in black and white. This is standard procedure for working plans and planning documents which are required in large numbers. Cadastral maps which can be traced, and combined unicoloured editions of the sets of topographical maps, shall serve for example as the basis.

Coloured representation is appropriate for maps and plans containing a wide variety of planning details, e.g. general layout plans for structural drafts and general water engineering maps.

Deviations from the identifying colours are permitted if there are compelling reasons, e.g., in maps covering a very wide range of topics.

The order of precedence of the various plan details shall be made clear by the means of representation chosen. For this purpose, the following rule shall apply: area before line and colour before black and white. Maps and plans which have to be duplicated shall always be examined to see whether the use of colours can be avoided by using additional marking (e.g. detailed lettering).

The use of the same type of marking for one and the same type of plan content, irrespective of what type of plan it is or the use to which it shall be put, is not always possible as there are too many different types of requirements in such a wide field of application. Provision has deliberately been made in this standard for different types of representation for certain types of plan contents which frequently appear in very different types of maps, such as protected drinking water areas. However, the same type of marking for a particular type of fact shall be consistently employed within the context of one and the same map, plan or series of plans. The lettering employed for a specialized subject shall be clearly distinguishable from that used for the topographical situation.

The possibility of combining individual maps into a series of maps shall be taken into consideration.

6 Plan symbols, specimen plans

The following summary specifies the symbols to be used for a range of frequently required characteristic values and water engineering installations.

The specimens depicted in Appendices A to F are examples of maps. Their contents do not correspond to real circumstances.