SLOVENSKI STANDARD
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[Not translated]

Soil quality - Sampling - Part 205: Guidance on the procedure for investigation of natural, near-natural and cultivated sites

Qualité du sol - Échantillonnage - Partie 205: Lignes directrices pour les procédures d'investigation des sites naturels, quasi naturels et cultivés

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13.080.05	Preiskava tal na splošno	Examination of soils in general

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Soil quality — Sampling —

Part 205: Guidance on the procedure for investigation of natural, near-natural and cultivated sites

Qualité du sol — Échantillonnage —
Partie 205: Lignes directrices pour les procédures d'investigation des sites naturels, quasi naturels et cultivés

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 190/SC 2.

This first edition cancels and replaces together with ISO 18400-104 and ISO 18400-202 the first edition of ISO 10381-4:2003, which has been technically and structurally revised. The new ISO 18400- series is based on a modular structure and cannot be compared to ISO 10381-1 clause by clause.

A list of all parts in the ISO 18400- series can be found on the ISO website.

Introduction

This part of ISO 18400 is one of a group of standards providing guidance on site investigation in general, and sampling in particular, for the principal purpose of determining soil quality. It should be used in conjunction with the other parts of ISO 18400 (see Foreword). The role/position of the standards within the total investigation programme is shown in Figure 1.

This document describes investigation and sampling procedures for determination of soil quality on natural, near natural and cultivated sites. Its structure is generally similar to that of ISO 18400-203[1)] which provides guidance on the investigation of potentially contaminated site. In accordance with ISO 18400-104[1)] it recommends that investigations should be undertaken in three phases:

— preliminary investigation (desk study and site reconnaissance) in accordance with ISO 18400-202[1)];

— exploratory investigation (this document); and

— detailed site investigation (this document).

It is recognised that:

— the preliminary investigation needs to be no more detailed than required by the task in hand (objectives of the investigation), but some basic information is always required for reasons of legality, safety of those carrying out site work including site reconnaissance, and protection of the environment;

— the preliminary investigation might show that no intrusive investigation is required;

— an exploratory investigation might suffice in some cases with no requirement for a detailed investigation;

— an exploratory investigation is not always needed in advance of a detailed investigation;

— it might be desirable to carry out each phase of an investigation in stages;

— during any phase of an investigation it might become apparent that the site should be treated as a potentially contaminated site — decisions will then be required whether to proceed as planned, to delay the investigation, and/or carry out an investigation in accordance with ISO 18400-203[1)].

The guidance also calls for the formulation of a conceptual site model as described in ISO 18400-202[1)]. This synthesis and interpretation of the available information needs to be no more detailed than required by the task in hand but helps in the design of intrusive phases of investigation. In practice, the investigator will always have a mental view of the site and formal development of the conceptual site model helps to reveal what could be serious flaws in this mental view.

NOTE Clauses 4, 5 and 6 provide guidance applicable to sampling on the generality of natural, near-natural and cultivated sites. Clause 7 provides additional guidance in relation to sampling for particular purposes (e.g. determination of mobile nitrogen) and soil types (e.g. peat soils).

1)) Under Preparation.

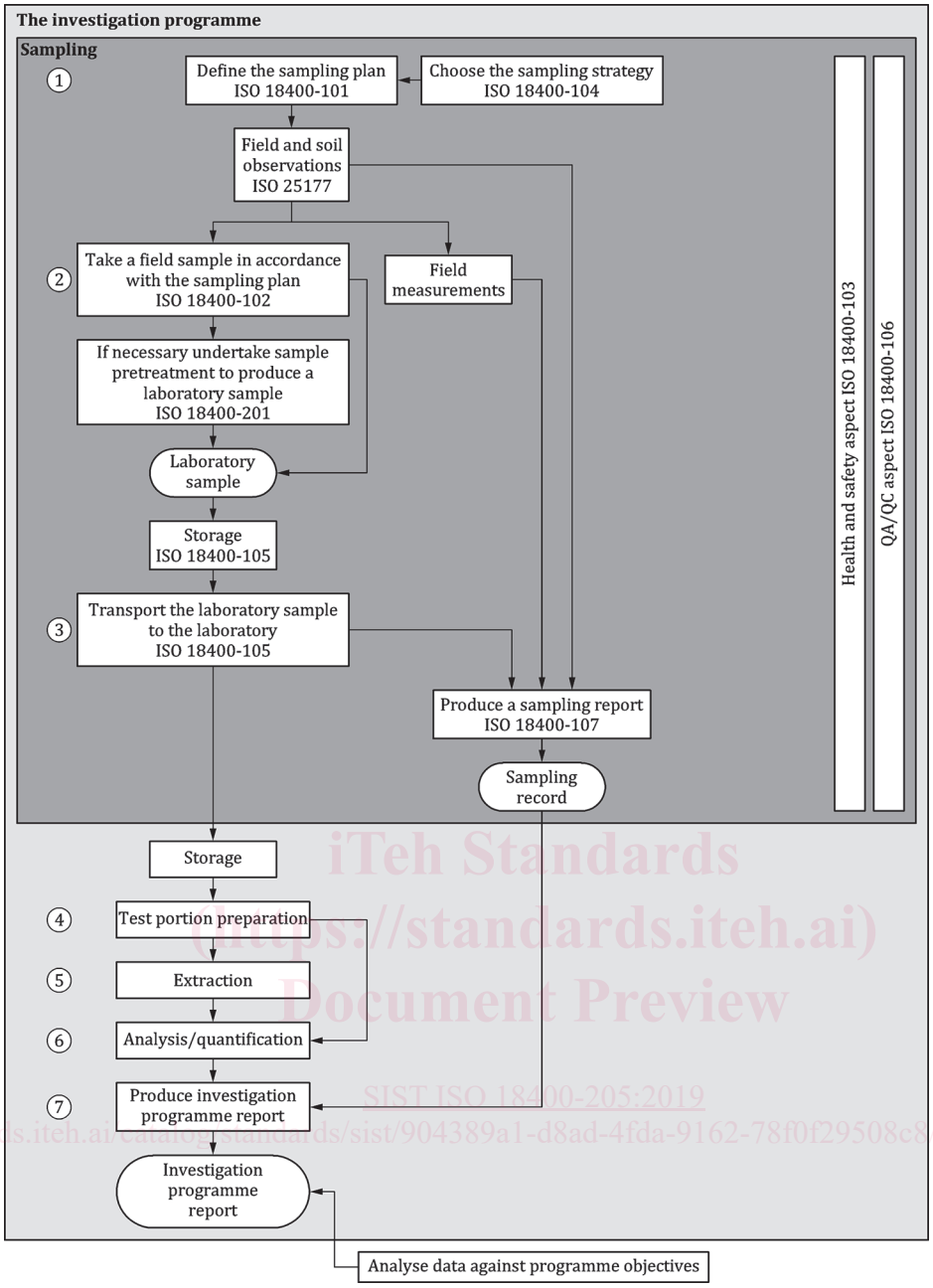

Figure 1 — Links between the essential elements of an investigation programme

NOTE 1 Numbers in circles define the key elements (1 to 7) of the investigation programme.

NOTE 2 Figure 1 displays a generic process which can be amended when necessary.

Soil quality — Sampling —

Part 205:
Guidance on the procedure for investigation of natural, near-natural and cultivated sites

1 Scope

This part of ISO 18400 provides guidance on the sampling of soils of:

— natural and near-natural sites;

— natural arboreal areas including forests and woods;

— areas used for agriculture (arable and pasture sites);

— areas used for horticulture (including domestic gardens, allotments);

— areas used for special crop-cultivation, orchards, vineyards, commercial plantations and forests etc.

It is applicable to:

— soil investigations and evaluations in the field;

— collection of samples for chemical, geochemical, physical, and biological characterization of soil and soil materials in the laboratory.

This document sets out appropriate strategies for the design of sampling programmes, field procedures and subsequent treatment of samples for transport and storage prior to sample pretreatment (e.g. drying, milling). It should be used in conjunction with the other parts of ISO 18400 as appropriate. In particular, attention should be paid to the requirements concerning collection, handling and storage of soil for assessment of biological functions in ISO 18400-206[1)].

NOTE 1 Groundwater and surface water can be adversely impacted by agricultural and related activities, e.g. by nitrates and pesticides, and by translocation of soil particles. In turn, knowledge about water quality can provide information about possible sources of groundwater contamination or contaminating run-off. Investigation of groundwater and surface water quality is outside of the scope of this standard: relevant guidance is given in the ISO 5667- series of standards. ISO 15175 provides guidance on the relationship between soil properties and groundwater quality.

NOTE 2 It could also be appropriate to investigate ambient air, vegetation, potable water supplies and a variety of other media depending on the findings of the preliminary investigation.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11074, *Soil quality — Vocabulary*

ISO 18400-102, *Soil quality — Sampling — Part 102: Selection and application of sampling techniques*

ISO 18400-103, *Soil quality — Sampling — Part 103: Safety*

ISO 18400-104, *Strategies ISO 18400-105, Packaging, transport, storage and preservation of samples1)*

ISO 18400-107, *Soil quality — Sampling — Part 107: Recording and reporting*

ISO 18400-201, *Soil quality — Sampling — Part 201: Physical pretreatment in the field*

ISO 18400-202, *Preliminary investigations1)*

ISO 18512, *Soil quality — Guidance on long and short term storage of soil samples*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11074 and ISO 18400-104 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

Note 1 to entry When the definitions in these two standards differ, those in ISO 18400-104 take precedence.

4 Objectives of sampling

The investigation, sampling and analytical strategies are determined mainly by:

— the objective of the investigation; and

— current and previous soil/land use.

The objective of investigations can be various but might be:

— collection of information on general soil quality with regard to preservation and improvement of ecological soil functions;

— collection of information for evaluation of soil quality and nutrient supply or nutrient demand with regard to preservation and improvement of the productivity of soils;

— collection of information to manage and evaluate the effects of the addition of soil amendments materials such as sewage sludge;

— collection of information for soil mapping, classification and taxation;

— collection of information on the quality of forest and woodland (arboreal) soils in connection with study of damaged trees or other vegetation;

— collection of information for establishment and maintenance of soil monitoring areas;

— collection of information for replicate samples used for soil specimen banks or environmental specimen banks.

Further guidance about the setting of objectives for soil sampling is given in ISO 18400-104[1)].

5 Principles, requirements and general considerations for soil sampling

5.1 General

This part of ISO 18400 should be used in conjunction with ISO 18400-104[1)] which gives general guidance on the development of site investigation strategies and detailed guidance on sampling strategies.

This clause summarizes general principles, requirements and considerations for soil sampling which should be taken into account for natural, near-natural and cultivated sites.

