The definition of the sampling strategy should follow, as far as possible, the following stages:

a) analysis of records to enable an historic study of the previous use of the sampling site;

b) site reconnaissance (in some cases, analytic investigation techniques, using portable radioactivity detectors, may be used to identify the areas to be studied in details);

c) identification of preferential migration pathways and/or accumulation areas;

d) site reconnaissance with respect to the sampling to be undertaken.

The implementation of this strategy, which also includes the definition of the data quality objectives according to the parameters to be analysed, gives rise to the sampling plan.

NOTE For the past several years, attempts have taken place to streamline and increase the efficiency of field data collection programmes, by encouraging project managers to develop data quality objectives (DQOs) prior to initiation of the sampling [17].

The sampling plan shall define the operations to be carried out as defined in 3.3.5 and any other complementary operations such as the following:

— the precise location of the sampling unit and the type of equipment needed, depending upon the type of sample being collected (surface layer or layers with depth);

— the grouping of the increments to be taken, the homogenization to be carried out and the reduction of the sample to be made in order to obtain the mass necessary for the test samples (all test portions) needed for all the laboratory measurements;

— the packaging of the sample for its transport to the laboratory to avoid any loss or contamination from external sources or, conversely, to avoid all contamination of the premises or operators;

— the identification of the samples, together with a sampling data sheet stating the relevant details describing the sampling process.

Independent of the strategy chosen and of the sampling plan, the sampling and sample-preparation processes shall be performed in accordance with ISO 18589-2.

7.2 Sampling process

The collection of samples in the field shall match the sampling plan. It shall lead to the production of single samples or increments (composite sample).

The elimination of coarse elements during the sampling step, when feasible, shall produce the sorted sample. When necessary, sub-samples of the sorted sample shall be made in order to share the sample among different laboratories.

The preparation of sorted samples shall be produced by reduction of single or composite samples. A sorted sample should be representative of the average value of one or more given soil characteristics.

The identification, labelling, packaging, transporting procedures of the sorted samples to the laboratory shall guarantee the conservation of their characteristics.

7.3 Laboratory process

7.3.1 Preparation of samples

After arrival in the laboratory, the sorted samples are considered as laboratory samples for storage and further pre-treatment before their analysis.

In all cases, prior to the measurement of the radioactive characteristics, the laboratory sample shall be subject to pre-treatment in the laboratory, except if otherwise requested by the users of the measurement results. This