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Preliminary draft of the Soil Quality Regulation

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Regulation of the State Secretary for Housing, Planning and the Environment and the State Secretary for Transport, Public Works and Water Management of …, no. ………… ....

The State Secretary for Housing, Planning and the Environment, the Minister for Agriculture, Nature and Food Quality and the State Secretary for Transport, Public Works and Water Management;

Having regard to articles 10 (2), 12 (4), 27 (1) and (2), 29 (1), (2) and (3), 31 (2) and (3), 31a (3), 34 (1) and (4), 38 (2), 39 (1), (2) and (3), 40, 41, 42 (2), 45 (4), 47 (1), 55 (2) and (3), 57 (3), 59 (1) and 60 (1), (2), (5) and (6) of the Soil Quality Decree;

Decree:

Chapter 1 – General provisions

Article 1.1 Definitions

For the purposes of this Regulation, the following definitions shall apply:

Construction of soil-protecting facilities: construction of soil-protecting facilities, as defined and further defined in the standard documents designated under category 1 in Annex C;

Detectability limit: the lowest concentration of a parameter at which the presence of that parameter is detectable with an adequate degree of certainty. This limit has, for building materials, been laid down in AP 04;

Issue of quality declarations: issue of quality declarations for building materials, earth or dredging sludge by virtue of a National BRL which has been designated under category 2 in Annex C;

Analysis of building materials, earth or dredging sludge: analytical activities on building materials, earth or dredging sludge performed by a laboratory as defined and further specified in the standard documents designated under category 3 in Annex C;

Analysis for environmentally hygienic soil research: analytical activities conducted by a laboratory during an exploratory study, a preliminary study, a more specific study, a decontamination study or another similar study of the soil, including the soil under surface water, as defined and further specified in the standard documents designated under category 4 in Annex C;

ASTM standard: standard document issued by the American Society for Testing and Materials, a copy of which is set out in Annex D to this Regulation;

Determination limit: the lowest concentration of a parameter that is quantifiable with an adequate degree of certainty. This limit is defined as three times the detectability limit for building materials. For soil, earth and dredging sludge, the determination limit is set out in Annex M to this Regulation;

Decree: the Soil Quality Decree;

Treatment of contaminated earth or dredging sludge: process-related ex situ cleaning of contaminated earth or dredging sludge via thermal, extractive or biological methods, immobilisation of contaminants, or sand separation, ripening or land farming of dredging sludge, as defined and further specified in the standard documents designated under category 5 in Annex C;

Bodem+: part of the SenterNovem agency in The Hague;

Soil quality zone: connected part or several unconnected parts of a management area with an identical developmental and usage history as a result of which the soil is of comparable current quality;

BRL: assessment guidelines, a document declared as being binding by the respective Board of Experts and that is adopted as the basis for the issue and maintenance of certificates;

CAS no.: the unique identification number assigned to all chemical substances registered by the Chemical Abstracts Service, which forms part of the American Chemical Society.

Certification of legal entities: certification of legal entities, as defined and further specified in the standard documents designated under category 6 in Annex C;

Board of Experts: a Board accepted by the Dutch Accreditation Council that manages one or more BRLs and representing the parties with interests in certification;

CROW publication: publication of the CROW, a copy of which is set out in Annex D to this Regulation;

Sub-batch: a batch inspected as part of a larger batch;

Inspection of liquid-tight facilities: periodic inspection of liquid-tight facilities as defined and further specified in the standard documents designated under category 7 in Annex C;

Declaration of equivalence: declaration of Our Ministers that the use of a method of determination or insulating facility described therein leads to equivalent or reduced contamination of the soil compared with the prescribed techniques in the Decree;

Standardised levels: Levels in soil below surface water, earth or dredging sludge that have been corrected for standard soil in accordance with Part II of Annex G.

Index: statistical measure of the distribution of the levels measured within a soil quality zone.

Lutum: the percentage by weight of mineral constituents with a diameter of less than 2 mm, based on the total dry weight of earth or dredging sludge;

Environmental monitoring: environmental process control or environmental verification during the performance or during aftercare in connection with decontamination operations of the soil, including soil below surface water, as defined and further specified in the standard documents designated under category 8 in Annex C;

Sampling during batch inspections: sampling of building materials, earth or dredging sludge for batch inspections, as defined and further specified in the standard documents designated under category 9 in Annex C;

National BRL: assessment guidelines for the issue of quality declarations accepted by the Construction Harmonisation Commission;

NEN: Dutch standard, issued by the Netherlands Standardisation Institute, a copy of which is set out in Annex D to this Regulation;

NEN-EN: European Standard, issued by the Netherlands Standardisation Institute, a copy of which is set out in Annex D to this Regulation;

NEN-ISO: International Standard, issued by the Netherlands Standardisation Institute, a copy of which is set out in Annex D to this Regulation;

NPR: Dutch Practical Guidelines of the Netherlands Standardisation Institute, a copy of which has been set out in Annex D to this Regulation;

NVN: Dutch Preliminary Standard in anticipation of a NEN standard, a copy of which is set out in Annex D to this Regulation;

Organic matter: the percentage by weight of loss on loss on ignition, based on the total dry weight of earth or dredging sludge;

P95: level of a substance in the soil (in mg/kg dry matter) in respect of which 95% of the measurement results for that substance are lower than that level;

Batch: a quantity of building materials, earth or dredging sludge of similar environmentally hygienic quality that is intended to be sold or used as a whole;

Production on the basis of a National BRL: production of building materials, earth or dredging sludge by virtue of a NBRL designated under category 10 in Annex C;

Producer: manufacturer of a building material;

Standard soil: soil containing 25% lutum and 10% organic matter.

Performance of soil decontamination operations: performance or aftercare of decontamination of the soil, including the soil below surface water, as defined and further specified in the standard documents designated under category 11 in Annex C;

Fieldwork: placement of bore holes and dip sticks for the purpose of taking earth and groundwater samples, taking groundwater samples or site inspection and sampling of asbestos in soil as defined and further specified in the standard documents designated under category 12 in Annex C.

Chapter 2 – quality of performance

Article 2.1 Designation of activities

1. The following shall be designated as activities as referred to in article 1 (1) of the Decree:

a. construction of soil-protecting facilities;
b. issue of quality declarations;
c. analysis of building materials, earth or dredging sludge;
d. analysis for environmentally hygienic soil research;
e. treatment of contaminated earth or dredging sludge;
f. certification of legal entities;
g. inspection of liquid-tight facilities;
h. environmental monitoring;
i. sampling during batch inspections;
j. production on the basis of a National BRL;
k. performance of soil decontamination operations;
l. fieldwork.

2. Paragraph 1 shall apply only in so far as the activities referred to in that paragraph are performed:

a. in order to secure a decision issued on the basis of a legal provision referred to under or by virtue of article 22 (2) of the Decree;
b. in order to comply with an obligation that applies under or by virtue of article 23 (2) of the Decree, or
c. in order to comply with a legal provision in so far as it has been specified under or by virtue of that provision that the activity is performed by a person or institution duly recognised by virtue of the Decree.

3. Recognition shall apply only to the operations within the scope of the standard documents as referred to in article 2.3, for which the respective person or institution has been certified or accredited and that are specified on the recognition.

4. Recognition for the activities referred to in paragraph 1, subsections a, e, h, i, j and k shall be based on a certificate. Recognition for the activities referred to in paragraph 1, subsections b, c, d, f and g shall be based on accreditation. Recognition for the activity referred to in paragraph 1, subsections i and l may be based both on a certificate and on accreditation.

5. Recognition for the activity referred to in paragraph 1, subsection c shall be granted only if the institution in question has been accredited for all the operations in one of the packages as referred to in the subsections referred to under category 3 in the Annex. If the application relates to the composition of earth element or the composition of building materials element, the recognition may be granted only if the institution has been accredited for package SG1 or package SB1. Notwithstanding the first sentence, it is permitted, with the exception of the operations relating to leaching research, to contract out one operation in a package to an institution in possession of recognition.

Article 2.2 Personal registration

1. The following shall be designated as activities as referred to in article 10 (2) of the Decree:

a. sampling during batch inspections;
b. environmental monitoring, and
c. fieldwork.

2. In relation to paragraph 1, article 2.1 (2) shall apply *mutatis mutandis*.

Article 2.3 Designation of standard documents

The certification guidelines, accreditation guidelines, protocols and other subsections referred to under the respective category of activities in Annex C to this Regulation shall be designated as standard documents as referred to in article 26 of the Decree.

Article 2.4 Independence requirements

1. Persons who perform one of the following activities shall be designated as persons as referred to in article 18 (1) of the Decree: analysis of building materials, earth or dredging sludge, analysis for environmentally hygienic soil research, environmental verification of environmental monitoring subsection, sampling during batch inspections and fieldwork.

2. Institutions that perform one of the following activities shall be designated as institutions as referred to in article 18 (2) of the Decree: inspection of liquid-tight facilities, certification of legal entities and issue of quality declarations.

3. Article 2.1 (2) shall apply *mutatis mutandis* in relation to paragraphs 1 and 2.

Article 2.5 Forms for applications, requests and notifications

1. The application for recognition, the request for the amendment of recognition, notification of a bankruptcy or suspension of payments handed down by the courts and notification of a suspension or withdrawal of a certificate or accreditation as referred to in article 11, article 13 (1), article 20 and article 21 of the Decree shall be submitted to Bodem+ with the forms laid down for this purpose by Our Ministers, which are available from Bodem+. These forms may also be downloaded from the following website: http://www.senternovem.nl/Bodemplus.

2. The following shall be designated as the website on which the lists of recognised persons and institutions referred to in article 10 (4) of the Decree are published: http://www.senternovem.nl/Bodemplus.

Chapter 3 - Building materials

Section 3.1 Determination of whether a material is a building material

Article 3.1.1 Sampling and pre-treatment

1. In cases where the stony nature of a material and thus the question of whether the material is a building material is not clear beforehand, the total levels of silicon, calcium or aluminium in a material shall be measured.

2. Sampling shall take place as for a batch inspection as referred to in section 3.5. 'Methodically agreed sampling', as referred to in Chapter 7.3 of NVN 7302, shall not be used in this connection.

3. Twelve random selections shall be taken, divided between three mixed samples. These mixed samples shall, where necessary, be dried at 40^{o}C in accordance with NVN 7312.

4. Each mixed sample shall be ground to a maximum particle size of 250 µm, in accordance with section 7.6.3 'Comminution to particles of less than 125 µm' of NVN 7312. A disintegrator with a 500 µm sieve or a similar mill shall first be used for this. The mixed sample is then to be distributed by means of rotary distribution, in accordance with NVN 7312, section 7.7.2. One sub-sample of at least 250 grams shall then be further ground to at least 250 µm per mixed sample and then analysed.

5. If the material to be investigated consists of elements or test pieces, pieces of at least 80 grams shall be removed from it. These shall then be ground in the manner specified in the fourth paragraph. Rotary distribution is unnecessary for this.

Article 3.1.2 Analysis and calculation

1. The opening-up of the sample and the analysis of silicon, calcium or aluminium in the sample shall be performed in accordance with ASTM standard D 3682-01.

2. The procedure as described in Annex E to this Regulation shall, notwithstanding ASTM standard D 3682-01 (sections 9.5, 10.5 and 12.5), be used for calculating the masses of silicon, calcium or aluminium in the sample.

Article 3.1.3 Reporting

The results of the investigation shall be recorded in a report comprising at least the following details:

a. a description of the method followed, in the present case the sampling strategy;
b. details needed for the identification of the sample;
c. details relating to the nature of the material investigated;
d. details relating to the variables calculated, in dimensions, with the standard deviation;
e. a description of the operations performed that have not been laid down in the standard or foregoing articles or diverge therefrom, and that may influence the result and a reasoned explanation for those operations.

Section 3.2 Determination of whether a building material is moulded

Article 3.2.1 General

1. Determination of the volume of the smallest unit of a building material shall take place:
a. in implementation of article 3.2.2 in the case of building materials consisting of elements of roughly equal size, or;
b. in implementation of article 3.2.3 in the case of granular building materials with a grain distribution structure.

2. Determination of whether a building material is permanently non-deformable shall take place in accordance with article 3.2.4.

3. If a building material has a smallest unit volume of less than 50 cm^3 or is not permanently non-deformable, the building material shall be considered to be un-moulded building material.

Article 3.2.2 Determination of the smallest unit volume on the basis of dimensions

1. The volume of a building material shall be determined by determining the dimensions of the building material and deducting the volume of the cavities and holes in the surface.

2. If the volume determined in the first paragraph is less than 100 cm^3, but greater than 50 cm^3, the volume shall be further determined by submerging the element in water in the manner indicated in Chapter 8 of NEN-EN 13383-2. The ultimate calculation of the volume shall take place in accordance with the formula given in Annex F to this Regulation.

Article 3.2.3 Determination of the smallest unit volume on the basis of sieve test

1. In relation to sampling, six samples shall be taken if the sampling is conducted from a static batch, and three samples if the sampling is conducted from a stream. The random selections shall be taken aselectively throughout the batch. One random selection shall be taken for each sample. The collection of samples shall take place in accordance with section 4.5 of NEN-EN 13383-2.

2. The sampling shall be performed by a person or institution recognised for sampling during batch inspections.

3. In relation to the minimum size of the samples, the numerical value of the mass in kg shall be at least twice the numerical value of d95, in mm, with d95 being equal to the size of the sieve, through which at least 95% of the mass of a sample passes.

4. Grain distribution shall be determined in accordance with Chapter 5 of NEN-EN 13383-2. If this grain distribution conforms to the provisions of Annex F to this Regulation, the volume of the smallest unit shall meet the requirement of 50 cm^3.

Article 3.2.4 Determination of permanent non-deformability

1. A building material shall be regarded as permanently non-deformable if, in a diffusion test lasting 64 days to NEN 7375, it exhibits mass loss of less than:

a. 1500 g/m^2 for lightly bound stone mixtures for road foundations, tested directly after a hardening time of 28 days; or

b. 500 g/m^2 for lightly bound stone mixtures, tested directly after a hardening time of 91 days (hardening at 20°C and at relative humidity of at least 90%); or

c. 30 g/m^2 for all other materials.

2. By way of exception from paragraph 1, a building material shall be regarded as non-permanently deformable if it has been designated as such in accordance with Annex F to this Regulation.

Section 3.3 Determination of other materials in building materials

Article 3.3.1 Determination of percentage of earth

1. When a building material is sampled, an estimate shall be made of the level of earth present in the batch as loose additional constituent.

2. If the level of earth on the basis of the estimate is higher than 20%, the batch shall not be used as building material.

3. An absolute error margin of ±10% shall be adopted in the estimate as referred to in paragraph 2.

Article 3.3.2 Determination of presence of wood and other materials

1. During the sampling, an estimate shall be made of the level of material other than earth and stony material that is present in the batch as loose additional constituent.

2. The batch shall not be used as building material if the following materials are visibly present as loose additional constituent:

a. asbestos, asbestos-containing and asbestos-like materials;
b. tarry asphalt;
c. contaminants with soot;
d. minor chemical waste;
e. roofing materials;
f. household refuse;
g. gypsum or gypsum-containing material.

3. If the level of wood waste in the batch on the basis of the estimate is higher than 10%, the batch shall not be used as building material.

4. If, in relation to a material other than as referred to in paragraph 2 or 3, the content on the basis of the estimate is higher than 5%, the batch shall not be used as building material.

5. An absolute error margin of ±10% shall be adopted in the estimate as referred to in paragraphs 3 and 4.

Section 3.4 Review against compositional and emission requirements

Article 3.4.1 Determination of compositional and emission values

1. The emission of parameters from un-moulded building materials and from moulded building materials whose leaching is not determined by diffusion shall be determined by means of the column test to NEN 7373 or NEN 7383.

2. The emission of parameters from moulded building materials whose leaching is determined by diffusion shall be determined by means of the diffusion test to NEN 7375.

3. Notwithstanding paragraph 2, the emission of moulded building materials may also be determined by means of the column test to NEN 7373 or NEN 7383, or by means of the availability test to NEN 7371. The results shall then be reviewed against the requirements laid down for un-moulded building materials in Annex A to this Regulation.

4. The compositional values of building materials shall be determined by the techniques described in draft NVN 5710, NVN 5731, NEN, 5733, NEN 5735, draft NEN 7331, NEN-ISO 10382 or NEN-ISO 15009.

5. Notwithstanding paragraph 2, moulded building materials with an open, dewatering structure shall always be determined with the aid of the column test. These building materials are set out in Annex F to this Regulation.

Article 3.4.2 Determination of emission values from non-conforming materials

1. If, in the column test to NEN 7373 or NEN 7383, insufficient liquid flows through the column as a result of poor permeability of the material investigated, emission shall be calculated with the aid of the formula in Annex L.

2. If emission in paragraph 1 is less than L/S=2, no emission requirements shall apply to the material in question.

3. If, in a diffusion test to NEN 7375, no diffusion-controlled sequence can be established for a parameter, the upper limit of the leaching for T=36500 days shall be calculated in accordance with the methods given in NEN 7375. This calculated upper limit divided by 24 shall be regarded as the emission from the building material.

Article 3.4.3 Ratio between the measurement values

1. The ratio between the highest and lowest measurement value shall be laid down per parameter. If this ratio is greater than 2.1, it should be checked whether errors have been committed in the procedure followed for sampling, sample preparation and analysis.

2. If, following checking as referred to in paragraph 1, errors exist (or presumed), the step in question and the following steps should be repeated.

3. The provision of paragraph 1 shall not apply to the determination of the dry matter content.

Article 3.4.4 Compliance with the requirements

1. The requirements governing emission from building materials and the composition of building materials are set out in Annex A to this Regulation, with separate emission requirements applying to moulded, un-moulded and IBC building materials.

2. The mean of the results for the mixed samples analysed shall be calculated. A batch shall be satisfactory if the mean emission and compositional values are less than or equal to the requirements in Tables 1 and 2 respectively.

3. If the determination limit reported by the laboratory is above the compositional requirement, this increased determination limit shall be adopted as the requirement. The laboratory shall justify this non-conformity in the report.

4. Measurement values below the determination limit that form part of a sum parameter shall be arithmetically determined by multiplying the determination limit by 0.7 to be able to calculate the sum.

Article 3.4.5 Review rule for building materials

1. Notwithstanding article 3.4.4 (1), an increased requirement shall apply to the reuse of building materials that had already been used before the entry into force of the Decree for a maximum of two parameters provided that the building materials are reused without treatment.

2. An increase as referred to in paragraph 1 shall be no more than twice the specified requirement as indicated in Annex A to this Regulation.

3. This article shall not apply to the requirements for asbestos or IBC building materials.

Section 3.5 Batch inspections

Article 3.5.1 Performance of batch inspection

1. The sampling shall be performed by a person or institution recognised for sampling during batch inspections.

2. The samples taken for the performance of a batch inspection shall consist of at least random selections taken aselectively throughout the batch. These random selections shall be distributed proportionally across at least two mixed samples to be analysed.

3. The sample preparation and analysis shall be performed by an institution recognised for the analysis of building materials, earth and dredging sludge.

4. The outcome of the batch inspection shall be recorded in a report. At least the elements as set out in article 3.5.3 shall be set out therein.

5. Based on the outcome of this report, an environmental hygiene declaration shall be issued concerning whether the batch meets the requirements of the Decree.

6. If it is known that demonstrable elements of the batch are more contaminated than the rest, these elements shall be inspected as a separate batch.

7. If it is known that the batch consists of building materials of divergent quality, more samples shall, notwithstanding paragraph 2, be taken in the manner as set out in NVN 7301, 7302 or 7303.

Article 3.5.2 Negligible parameters

1. In the case of a batch inspection, a parameter pursuant to article 29 (1) (b) of the Decree shall be considered to have been determined if:

a. on the basis of numerical information, it can be substantiated that a specific parameter is not present in the building material, or only in such low concentrations that the probability of breaching of the compositional and emission requirements is negligibly low. This numerical information shall be obtained from a person or institution recognised for sampling during batch inspections and from an institution recognised for the analysis of building materials, earth and dredging sludge;

b. on the basis of non-numerical information, for example in relation to the raw materials and production process used, it can be substantiated that a specific parameter cannot be present in the building material, or only in such low concentrations that the probability of breaching of the compositional and emission requirements is negligibly low.

2. Substantiation as referred to in paragraph 2 shall be included in the report with the results of the batch inspection or the licensing check.

Article 3.5.3 Fleshing-out of batch inspection

1. A batch inspection shall under all circumstances contain the following elements in the report:

a. the name and address of the person who or institution which has taken the samples and the institution which has analysed the samples, and also the name of the natural person who has actually taken the samples;

b. the dates on which sampling, sample preparation and analysis have been performed;

c. a reference to the standard documents and methods used, and substantiation of any departures from if, if these may influence the result of the analysis;

d. the fully completed sampling form and sampling plan or a copy of it;

e. a description of the batch, including location, characteristics and batch size;
f. a description of the sample, including the presence of any metal parts, the mass and (probable) composition;
g. the laboratory's analysis report, including the mean compositional and emission values, a substantiation of the chosen parameters, and the relationship between the measurement values and ensuing conclusions;
h. a unique number.

2. A batch inspection shall under all circumstances contain the following elements in the environmental hygiene declaration:
a. the name and address of the party making the declaration;
b. the name of the building material;
c. any usage conditions.

Section 3.6 Manufacturer's own declarations

Article 3.6.1 The use of a manufacturer's own declaration

1. A producer shall solely provide a manufacturer's own declaration for a building material if:
a. the building material, for all parameters in Annex A to this Regulation, meets the compositional requirements and the emission requirements for un-insulated applications;
b. the k values for all parameters in the building material conform to the criterion in article 3.6.3, and;
c. the producer is in possession of a quality manual and an effective system of internal quality control, as described in article 3.6.4.

2. The producer shall demonstrate in a licensing check as referred to in article 3.6.2 that he fulfils the criteria in paragraph 1.

Article 3.6.2 The licensing check

1. The licensing check shall be performed under the supervision of an institution recognised for the certification of legal entities, on the basis of the relevant National BRL, or, if this does not exist, on the basis of a National BRL for a similar building material.

2. In the licensing check, a product check shall be performed in which at least ten different batches are investigated in duplicate by means of a batch inspection, as set out in section 3.5. The following shall apply in this connection:
a. the batches investigated in terms of batch size, production process, raw materials, production period and sales in which the licensing check is performed should be representative of production and proportionally distributed over the period, and;
b. the aspects set out in (a) have been substantiated in a report on the licensing check.

3. Notwithstanding paragraph 1, it shall be authorised to use historic quality data provided that the sampling has been performed by a person who or institution which has been recognised for sampling during batch inspections and the analyses by an institution recognised for the analysis of building materials, earth and dredging sludge.

4. The term 'historic information' as referred to in paragraph 3 shall also be understood to mean historic information from joint licensing research and verification provided that:
a. at least one inspection has been performed on one's own building material;
b. it is substantiated that the method of production and raw materials link up with the joint cluster, and;

5. The sampling for the licensing check in paragraph 2 and referred to in paragraph 3 may be performed by the producer himself provided that this is performed in accordance with the provisions of AP 04-M. This shall be checked in the licensing check.

6. If the licensing check shows that all the criteria of article 3.6.1 (1) have been fulfilled, the certifying institution shall issue a one-off declaration confirming that the producer may, under the specified circumstances, use a manufacturer's own declaration.

7. The producer shall report the use of the manufacturer's own declaration to Our Minister and shall send the declaration from the certifying institution with this notification.

8. Our Minister shall take care of the drafting and notification of a summary of all producers and associated building materials that may be supplied under the manufacturer's own declaration.

Article 3.6.3 Determination of k value

1. During the licensing check, the k value for each parameter in Annex A to this Regulation shall be calculated, as given in Annex H.

2. A building material shall conform to the k value criterion if the k values of all parameters in a building material are greater than 2.07.

3. If measurement values for calculating the k value are below the determination limit, the determination limit itself shall be used for the calculation.

4. A parameter shall automatically conform to the k value criterion if all ten measurement values of the parameter in question:

a. are below the determination limit;
b. for emission from a moulded building material are below 0.37 x requirement;
c. for emission from an un-moulded building material are below 0.26 x requirement, or;
d. for the compositional value in a building material are below 0.26 x requirement.

Article 3.6.4 Internal quality control

1. The internal quality control shall encompass at least:

a. a quality system that supervises compliance with the compositional and emission requirements associated with the Decree;
b. a quality manual in which the quality system has been clearly documented, with all accepted elements, requirements and provisions being systematically recorded in the form of written regulations and procedures;
c. a register in which the results of the quality system are kept updated. These include a description of the product, the production date, the test method used, the production characteristics, the acceptance criteria used for raw materials and a summary of batches supplied with details of the customer.

2. The quality system as referred to in paragraph 1 (a) shall under all circumstances encompass:

a. an official entrusted with management of the quality system, designated as part of the organisational structure;
b. a functioning IKB scheme relating to the raw materials, the production process, the end products, the status of methods of measurement and determination, internal transport, storage and the identification of semi-manufactured products and end-products. This IKB scheme shows that building materials that meet the requirements are continuously manufactured, and;
c. a description of how each of the elements in (b) are checked, what inspection method and frequency is adopted and the way in which the inspection results are recorded and kept.

3. If building materials or batches diverge from the quality of the licensing inspection, corrective action is taken. This is kept updated in the register.

4. The producer shall keep all information on the quality system and the register for at least five years.

Article 3.6.5 Fleshing-out of the manufacturer's own declaration

1. The manufacturer's own declaration shall contain at least:

a. an environmental hygiene declaration from the producer that the building material conforms to the criteria laid down;
b. the name and address of the producer;
c. a precise specification or description of the product;
d. any special conditions for the use of the product;
e. a unique number.

2. The format available from Bodem+ shall be used for drawing up a manufacturer's own declaration.

Section 3.7 Recognised quality declarations

Article 3.7.1 What a recognised quality declaration is

A recognised quality declaration is a quality declaration which:

a. has been issued by an institution recognised for the certification of legal persons, and

b. relates to a building material from a person or institution recognised for production on the basis of the National BRL.

Article 3.7.2 The licensing check

1. The licensing check shall be performed under the supervision of an institution recognised for the certification of legal entities, on the basis of the National BRL in question.

2. The licensing check shall consist of a certification check, a product check and an assessment of the quality system.

3. During the certification check, the institution as referred to in paragraph 1 shall check that the building material meets the emission requirements in its respective application.

4. During the product check, the institution as referred to in paragraph 1 shall check that the building material meets the compositional requirements and other product requirements of the Decree.

5. In the check referred to in paragraphs 3 and 4, five or ten different batches shall be investigated in duplicate by means of a batch inspection, as set out in section 3.5. The following shall apply in this connection:

a. the batches investigated in terms of batch size, production process, raw materials, production period and sales in which the licensing check is performed should be representative of production and should be proportionally distributed over the period, and;

b. the aspects set out in (a) have been substantiated in a report on the licensing check.

6. The sampling for the check referred to in paragraphs 3 and 4 may be performed by the producer himself provided that this is performed in accordance with the provisions of AP 04-M. This shall be checked in the licensing check.

7. During the assessment of internal quality control, the institution as referred to in paragraph 1 shall assess the effectiveness and correct use of the quality system at the production location.

8. Based on the results of the licensing check, the institution as referred to in the first paragraph may issue a quality declaration as referred to in article 3.7.1 (a) for the production of the building material in question.

Article 3.7.3 Inspection frequency

1. During the licensing check, the k value for each parameter in Annex A to this Regulation shall be calculated for five or ten batches as set out in Annex H.

2. During the production check on the certified building material, at least an inspection frequency for a parameter associated with the k value calculated for this purpose, as set out in Annex H, shall be adopted.

3. After each inspection during the production check, the k value shall be recalculated on the basis of the advancing mean, with the following applying to the calculation:

a. the oldest inspection data lapse, and;

b. the newest inspection data are added.

4. If measurement values for calculating k value are below the determination limit, the determination limit itself shall be used for the calculation.

5. Notwithstanding paragraph 2, the calculation of the k value may be dispensed with for a parameter and a specified inspection frequency may be assumed if all five or ten measurement values of the parameter in question:

a. are below the determination limit, with the inspection frequency being allowed to be set equal to once every three years, or

b. are below ? times the compositional or emission requirement in question, with the inspection frequency being allowed to be used as set out in Annex H.

6. Notwithstanding paragraph 3, in the event of structural improvement of the compositional or emission value for a parameter, the progressive mean may temporarily be dispensed with. The following shall apply in this connection:

a. the new value is reviewed while retaining the old spread in measurement values;

b. the new spread is determined once five new inspections have been performed, and

c. authorisation is needed from the certifying institution.

7. If the inspection frequency of a parameter proves to be correct in he batch inspection regime, as indicated in Annex H, individual batches shall be rejected in the event of breaching of the compositional and emission requirements of the Decree.

8. A parameter shall pass from the batch inspection regime to the sampling regime if:

a. the calculated k value is high enough, and
b. this k value has been determined with the aid of ten inspections, of which at least five have been performed under the batch inspection regime.

Article 3.7.4 Fleshing-out of quality declarations
A quality declaration shall under all circumstances contain the following elements:
a. the name and address of the person or institution recognised for production on the basis of a National BRL;
b. the certification requirements against which the products have been reviewed;
c. the specification of the product;
d. the date from which the certificate is effective;
e. any special conditions for the use of the product;
f. a unique number whereby reference can be made to the declaration.

Section 3.8. Further aspects of environmental hygiene declarations

Article 3.8.1 Use of environmental hygiene declarations
A producer shall not use more than one type of environmental hygiene declaration per building material.

Article 3.8.2 Delivery note
1. A delivery note shall exist for each batch of building material.
2. At least the following aspects shall be specified on the delivery note:
a. the number of the environmental hygiene declaration;
b. the date of issue of the batch of building material;
c. the producer, supplier and the production location;
d. the name of the building material to which the delivery note relates;
e. the nature of the product;
f. the size of the associated batch in tonnes.
3. The owner of the batch shall make clear in his records where it comes from, whether it has been split and where each batch goes to. The owner of the batch shall supply this information at the request of the competent authority up to five years after supply or use.
4. Paragraph 1 shall not apply if:
a. an associated batch inspection is made for the batch;
b. the batch is reused by the same owner by virtue of article 30 (1) (c) of the Decree;
c. the batch is used by natural persons other than in the carrying-on of a profession or business, by virtue of article 30 (1) (d) of the Decree.

Article 3.8.3 Splitting of batches
1. If a batch is split into sub-batches, the sub-batches shall meet the compositional and emission requirements of Annex A to this Regulation.
2. The environmental hygiene declaration relating to the original batch may be used for the sub-batches provided that the relationship between the sub-batch and original batch, who has performed the splitting and when is indicated on a delivery note.
3. Whosoever performs or arranges for the splitting shall be responsible for the provisions of paragraphs 1 and 2.

Article 3.8.4 Combining of batches
1. If batches are combined, the environmental hygiene declarations that related to the original batches may be used provided that the relationship between the combined batch and the original batches, who has performed the combining and when is indicated on a delivery note.
2. Paragraph 1 shall not apply to the combining of various types of building materials.
3. It is not authorised to combine building materials with non-building materials, other than in the production of a building material.

Section 3.9 Enforcement of building materials

Article 3.9.1 Notifications
Notification of the plan to use IBC building materials or of the usage without treatment, under the same conditions, of building materials by the same owner shall be carried out with the form intended for this purpose, which is available from Bodem+.

Article 3.9.2 Enforcement inspection
1. To determine a breach as referred to in article 29 (3) of the Decree, the composition and emission of the building material shall be determined by means of a batch inspection as set out in section 3.5.
2. The supervisor shall inspect and assess a batch as a whole, as indicated on the environmental hygiene declaration or the delivery note, or as used in the structure.
3. Notwithstanding paragraph 2, the supervisor may assess part of a larger batch provided that this part is at least 10,000 tonnes.
4. Where applicable, the supervisor shall assume a declaration of equivalence.

Article 3.9.3 Determination of breaching of requirements
1. The competent authority shall determine a breach of a compositional or emission requirement if it is 1.4 times the value set out in Annex A to this Regulation.
2. The competent authority shall determine a breach of the percentage of earth in building materials if it is twice the value set out in article 3.3.1 (2).
3. The competent authority shall determine a breach of the percentage of wood or other material in building materials if it is three times the value set out in article 3.3.2 (3) and (4).

Article 3.9.4 Enforcement of manufacturer's own declaration
1. The competent authority may compel a producer to perform a licensing check or a specific part of it again within a specific timeframe if, in connection with the supervision of a producer, it emerges that:
a. the building material does not fulfil the criteria for being allowed to issue a manufacturer's own declaration, or
b. the production or the raw materials have been changed without adequate checking of whether the criteria are still satisfied.
2. Historic information cannot be used in a licensing check in paragraph 1.
3. If only a specific part of the licence check is performed again, the competent authority may choose not to engage a certifying institution in this connection.
4. Paragraph 1 shall not apply if the producer relinquishes the use of the manufacturer's own declaration in question.
5. If the producer no longer uses a manufacturer's own declaration on the basis of the provisions of paragraph 1 or 4, the producer shall notify Our Minister to this effect.

Section 3.10 Insulating facilities

Article 3.10.1 Design
1. A design consisting of the following elements shall be produced for the structure in which an IBC building material is used:
a. a description of how articles 3.10.2 - 3.10.5 are observed;
b. a situation drawing, longitudinal sections and cross-sections;
c. a description of how the points of special interest from the design checklist included in Annex I to this Regulation are observed, and
d. a calculation of the settlement that will occur when the structure is finished and after fifty years.
2. The structure shall be designed for the final settlement calculated for a period of fifty years, plus a safety margin of 30% of the calculated settlement.
3. The design referred to in paragraph 1 shall be approved in accordance with CROW publication 144 by a person or institution recognised for the construction of soil-protecting facilities.

Article 3.10.2 Insulating facilities

1. The top and sides of the IBC building material shall be provided with an insulating facility consisting of:
a. a bentonite mat that conforms to CUR Recommendation 49 and CUR Recommendation 50;
b. a layer of sand bentonite polymer gel that conforms to the product specifications described in BRL 1148, the version as set out in Annex D, or
c. a plastic HDPE film with a layer thickness of 2 mm that conforms to the product specifications described in BRL 1149, the version as set out in Annex D.

2. The insulating facility as described in paragraph 1 shall have a maximum leakage of 6 mm per year.

3. A bentonite mat as referred to in paragraph 1 (a) and a layer of sand bentonite polymer gel as referred to in paragraph 1 (b) shall be protected against impairment by the IBC building material via the application of bitumen emulsion in a quantity of 4 kg/m^2, or by a plastic film.

4. If a bentonite mat as referred to in paragraph 1 (a) or a layer of sand bentonite polymer gel as referred to in paragraph 1 (b) is used in a road structure, the insulating facility shall be protected against impairment by road salts via the application of a plastic film, in accordance with BRL 1149, the version as set out in Annex D.

5. If an IBC building material is used as road foundation material, the liquid-tight paving shall, notwithstanding paragraph 1, function as insulating facility in accordance with the clean shoulder structure as referred to in CROW publication 125, in which a building material other than an IBC building material is applied below the edges of the paving over a width of at least 0.50 m.

6. If an IBC building material is used as foundation material below buildings, the liquid-tight buildings including the perimeter beams of the buildings shall, notwithstanding paragraph 1, be used as an insulating facility.

7. The structure in which an IBC building material is used shall be designed in such a way that infiltrating rainwater without stagnation is removed by under all circumstances taking care of:
a. a permeable covering layer on the seal;
b. such a gradient that, after the final settlement as referred to in article 3.10.1 (2), this is at least 2%, and
c. a soil in which the run-off water can infiltrate adequately.

8. The materials as referred to in paragraphs 1 – 7 shall be chosen and used in such a way that they can entirely fulfil their function during the service life of the structure.

Article 3.10.3 Drainage

1. The design level of the groundwater shall be set at being ground level.

2. If the area in which the IBC building material is used is characterised by groundwater stage VI or higher, the design level of the groundwater may, notwithstanding paragraph 1, be laid down by successively performing the following steps:
a. determination of the groundwater level relative to Normal Amsterdam Level (NAP) in the closest dip stick of a national measurement network that is not achieved in 99% of observations;
b. positioning of a dip stick at the location at which the IBC building material is to be used and measurement of the groundwater level for a period of at least three months relative to NAP on or around the 14th and 28th day of the month;
c. increasing the groundwater level referred to in subsection (a) by the difference between the mean groundwater level in the installed dip stick at the location where the IBC building material is used and the mean groundwater level over the same measurement period in the dip stick referred to in subsection (a). If the difference is negative, the groundwater level under subsection (a) shall not be corrected.

3. In laying down the design level of the groundwater pursuant to paragraph 1 or 2, account shall be taken of flooding that may occur more frequently than once every hundred years.

4. It must be ensured that the IBC building material does not come into contact with groundwater by placing the underside of the IBC building material on such a material that the latter, after the final settlement as referred to in article 3.10.1 (2), is at least 0.50 m above the design level of the groundwater as referred to in paragraph 1. There must be no contact between the groundwater and the IBC building material as a result of capillary rise from the groundwater.

5. Determination of the design level of the groundwater shall be performed by a person or institution recognised for this purpose.

Article 3.10.4 Minimum quantities

An IBC building material shall be applied in a continuous quantity of at least 5,000 m^3 and in layer thicknesses of at least 0.5 metre.

Article 3.10.5 Management and inspection facilities

1. Dip sticks shall be installed for monitoring the level and quality of the groundwater. The number of dip sticks per 50,000 m^3 shall be at least one upstream and two downstream.

2. Facilities shall be installed for monitoring settlement during construction of the structure.

Article 3.10.6 Management and inspection plan

1. A management and inspection plan shall be drawn up describing how the management and inspection measures are complied with during the construction and use of the structure.

2. The management and inspection plan shall describe how identified non-conformities are dealt with.

3. The management and inspection plan referred to in paragraph 1 shall consist at least of the management checklist included in Annex I to this Regulation and also the inspection activities referred to in article 3.10.9 and article 3.10.12.

4. The management and inspection plan shall be approved by a body recognised for this purpose.

Article 3.10.7 Baseline check

1. Before the IBC building material is applied, the soil including the groundwater shall be investigated by means of a baseline check pursuant to the Soil investigation (environmental licensing) protocol and BSB, the version as set out in Annex D.

2. In the baseline check, the analytical package set out in NEN 5740 shall be extended to include the parameters critical to the IBC building material.

3. The fieldwork for the baseline check shall be performed by a person or institution recognised for fieldwork.

4. The analysis of the samples from the baseline check shall be performed by an institution recognised for analysis for environmentally hygienic soil research.

Article 3.10.8 Construction in accordance with design

1. The structure in which an IBC building material is used shall be constructed in accordance with the design referred to in article 3.10.1.

2. Departures from the design that are so significant that approval of the design as referred to in article 3.10.1 (3) is inadequate shall be permitted provided that:

a. the departure is at least equivalent;
b. the departure is notified in advance to Our Minister;
c. the departure is approved beforehand in accordance with CROW publication 144 by an institution approved for this purpose.

3. The insulating facility as referred to in article 3.10.2 shall be applied by an institution recognised for the construction of soil-protecting facilities.

4. A person or institution recognised for the inspection of liquid-tight facilities shall check whether the provisions of paragraphs 1 and 2 are observed.

5. The user shall notify the competent authority within fourteen days of any non-conformities found during the inspection as referred to in paragraph 4.

6. The person or institution referred to in paragraph 4 shall, following the completion of the parts of the structure essential to compliance with the requirements laid down in the Decree and this Regulation, as indicated in the design, report its findings to the competent authority within fourteen days. Part of this is a drawing showing the as-built situation.

7. If the competent authority so requires, departures other than as referred to in paragraph 2 shall be rectified.

Article 3.10.9 Inspection of the structure, settlement

1. From the time that the first layer of IBC building material is placed in the structure, settlement of the structure shall be measured during construction of the structure.

2. On completion of the structure, the settlement measured shall be compared with the settlement calculated before that time, as referred to in article 3.10.1 (1) (d). If the settlement

measured is different, the calculated settlement that will arise after fifty years, as referred to in article 3.10.1 (2), shall be adjusted.

3. If the adjusted calculated settlement, as referred to in paragraph 2, shows that article 3.10.3 (1) is not observed, the user shall notify the competent authority to this effect.

Article 3.10.10 Timeframe within which the seal must be applied

1. The insulating facility as referred to in article 3.10.2 shall be installed within three months after the first layer of the IBC building material has been installed in the relevant part of the structure.

2. If the timeframe referred to in paragraph 1 is not feasible, a temporary insulating facility shall be installed within that timeframe.

3. If no IBC building material is installed in the structure or in a part of the structure for seven or more days, a temporary insulating facility shall be installed.

4. If a temporary insulating facility is installed, article 3.10.2 (6) shall remain in full force.

Article 3.10.11 Management of the structure

Management shall be performed in accordance with the management and inspection plan referred to in article 3.10.6.

Article 3.10.12 Inspection of the structure, groundwater

1. The provisions of this article shall come into force from the time that the first layer of IBC building material is installed in the structure.

2. The distance between the underside of the IBC building material and the groundwater shall be checked annually by measuring the groundwater level in the period that the groundwater level is at its peak and by determining the height of the underside of the IBC building material.

3. The quality of the groundwater shall be determined once every two years by sampling and analysing for substances critical to the IBC building material.

4. The current state of the structure shall be checked each year with the aid of the checklist in Annex I to this Regulation.

5. The inspection activities referred to in paragraphs 1 – 3 shall be performed by an institution in possession of recognition for this purpose.

6. The results of the inspection activities referred to in paragraphs 1 – 3 shall be reported every two years to Our Minister, unless a non-conformity is established, in which case Our Minister shall be notified by return of post.

7. If, after a period of two years, it has emerged that the distance referred to in paragraph 1 has never been less than 2.0 metres, the measurements of the groundwater level and the reporting of the distance between the groundwater level and the underside of the IBC building material may be brought to an end.

Article 3.10.13 Signalling of non-conformities and required action

1. An approach plan for rectifying the non-conformities shall be drawn up and supplied to the competent authority if the inspection activities referred to in article 3.10.12 show that:

a. the distance between the underside of the IBC building material and a measured groundwater level is less than the distance referred to in article 3.10.3 (4);

b. there is a significant increase in the concentration of a substance, which can be related to the IBC building material, in the groundwater as compared with the baseline;

c. the structure is in a state in which the satisfactory operation of the insulating facilities is not ensured.

2. The shortcoming referred to in paragraph 1 should be rectified immediately.

Article 3.10.14 Removal of IBC building material following removal of insulating facility

Following removal of the insulating facility, the IBC building material in the respective part of the structure shall be completely removed within six weeks.

Article 3.10.15 Assessment soil investigation

1. Following removal of the structure in which an IBC building material has been used, the end situation of the soil shall be investigated in accordance with the Soil investigation (environmental licensing) protocol and BSB, the version as set out in Annex D.

2. The competent authority shall be notified of the results of the investigation no later than two months after the time of removal of the IBC building material.

3. If, during the final investigation, soil pollution is identified as a result of use of the IBC building material, this shall be eliminated.

4. During the final investigation, the samples shall be taken by a person or institution recognised for fieldwork.

5. The analysis of the samples from the final investigation shall be performed by an institution recognised for the analysis for environmentally hygienic soil research.

Article 3.10.16 Designated bodies for IBC structures

The following activities shall be performed by a duly recognised body:

a. approval of the design as referred to in article 3.10.1 (3);

b. determination of the design level of the groundwater and determination of fleshing-out other than the combination described of the minimum distance from the groundwater and the material below the IBC building material as referred to in article 3.10.3 (5);

c. approval of the management and inspection plan as referred to in article 3.10.6 (3);

d. checking of whether the structure is constructed in accordance with the design as referred to in article 3.10.8 (4) and approval of a departure from the design as referred to in article 3.10.8 (2) subsection c;

e. application of the insulating facility as referred to in article 3.10.8 (3);

f. checking of whether the structure is constructed in accordance with the design as referred to in article 3.10.8 (4), including the reporting of non-conformities as referred to in article 3.10.8 (5) and reporting of findings to the competent authority as referred to in article 3.10.8 (6);

g. performance of checking as referred to in article 3.10.12 (4).

Section 3.11 Equivalence

Article 3.11.1 Application for declaration of equivalence

1. The application for a declaration of equivalence shall be submitted to Bodem+ using the form intended for this purpose, which is available from Bodem+.

2. Bodem+ shall decide on the application within four months at the latest.

Article 3.11.2 Assessment of equivalence

1. Our Ministers shall, in connection with the issue of a declaration of equivalence, be advised by an independent advisory committee.

2. Assessment of the equivalence of measurement methods and methods of determination shall be based on the following criteria:

a. The measurement method or method of determination is in principle usable throughout the Netherlands, independently of the local situation of the soil.

b. The measurement method of method of determination is representative of the actual situation in the structure.

c. The anomalous practical situation simulated by the measurement method or method of determination is simple to determine.

d. The measurement method or method of determination is sufficiently precise.

e. The outcome of the measurement method or method of determination can be checked against the existing requirements of Annex A to this Regulation.

3. If a measurement method may, in the opinion of the advisory committee, be suitable to replace a standard measurement method in AP 04, this shall be included in the circuit established for this purpose. The measurement method shall in this context at least:

a. be applicable in all circumstances, and;

b. provide results that are readily comparable with those of the standard measurement method.

4. Assessment of the equivalence of insulating facilities shall be carried out on the basis of the method set out in CROW publication 144.

5. When issuing the declaration of equivalence, Our Ministers shall make the associated information freely available via the Bodem+ website.

Article 3.11.3 Use of declaration of equivalence

1. If equivalence applies only under certain circumstances, the building material checked shall be used only under those circumstances.

2. In the cases as described in paragraph 1, the equivalent measurement method or method of determination shall not be used for the licensing check as referred to in article 3.6.2.

3. Inspection of a batch of building material with the aid of an equivalent measurement method or method of determination shall be performed by an institution recognised for the analysis of building materials, earth or dredging sludge. In its report, the institution shall indicate which equivalent method has been used.

4. In the inspection as referred to in paragraph 3, all standardised parameters shall be reviewed with the aid of the equivalent measurement method or method of determination.

Chapter 4 – Earth and dredging sludge

PART 1. GENERAL PROVISIONS

Section 4.1 Material extraneous to soil

Article 4.1.1 Authorised percentages by weight and types of material extraneous to soil

1. Earth or dredging sludge used in accordance with the review frameworks in sections 1 and 2 of Part 2 of the Decree shall contain no more than 5 per cent by weight of material extraneous to soil.

2. Notwithstanding paragraph 1, the competent authority may, for earth or dredging sludge used in accordance with the review framework in section 1 of Chapter 4, Part 2 of the Decree, use a percentage by weight that differs from the percentage by weight as referred to in paragraph 1, up to no more than 20 per cent by weight of material extraneous to soil.

3. Earth or dredging sludge used in a large-scale application as referred to in article 60 of the Decree, not relating to the biotic layer on that application, shall contain no more than 1% per cent by weight of non-mineral materials not of natural origin.

Section 4.2 Determination of breaching of values for the earth or dredging sludge to be used

Article 4.2.1 Determination of breach of values

1. The quality of the earth or dredging sludge to be used shall be expressed as the arithmetic mean of the levels measured in the earth or dredging sludge to be used.

2. Notwithstanding paragraph 1, the local council or water quality manager may, for applications in accordance with the review framework in section 1 of Chapter 4, Part 2 of the Decree, under the decision as referred to in article 47 of the Decree, determine that if the quality of a batch of earth or dredging sludge is deduced from the soil quality map, the quality is to be expressed by an index of the soil quality zone other than the mean, provided that this index for all substances investigated corresponds to a higher level than the arithmetic mean level of the substances investigated in the soil quality zone.

3. Where earth or dredging sludge is used on or in the soil, other than the soil below surface water, in accordance with the review framework in section 1 of Chapter 4, Part 2 of the Decree, a correction for lutum and organic matter as referred to in Part II of Annex G shall be carried out when establishing whether the quality of the earth or dredging sludge to be used breaches the local maximum values.

4. Where earth and dredging sludge are used on or in the soil, other than the soil below surface water, in accordance with the review frameworks in sections 2 and 3 of Chapter 4, Part 2 of the Decree, a correction for lutum and organic matter shall be carried out in accordance with the calculation rules in Part I of Annex G when establishing whether there is a breach in the quality of the soil or dredging sludge to be used in respect of:

a. the background values, as referred to in article 4.5.1;
b. the maximum values for residential and industrial purposes, as referred to in article 4.11.1 (1);
c. the maximum values for the application of dredging sludge on land, as referred to in article 4.12.1.

5. Where earth or dredging sludge is applied on or in the soil below surface water, a correction for lutum and organic matter shall be carried out, in accordance with the calculation rules in Part III of Annex G, for establishing whether there is a breach in the quality of the soil or dredging sludge to be used in respect of:
a. the background values, as referred to in article 4.5.1;
b. the maximum values for soil quality class A or B, as referred to in article 4.11.1 (2);
c. the intervention values for soil below surface water, as referred to in articles 45, 52 and 60 of the Decree.

6. In the case of the review in accordance with paragraphs 1 – 4, a breach in the background values for the earth or dredging sludge to be used shall not be involved if:
a. where at least 7 substances are measured in the earth or dredging sludge, a maximum of 2 substances are elevated relative to the background values;
b. where at least 16 substances are measured in the earth or dredging sludge, a maximum of 3 are elevated relative to the background values;
c. where at least 27 substances are measured, a maximum of 4 substances in the earth or dredging sludge are elevated relative to the background values;
d. where at least 37 substances are measured, a maximum of 5 substances in the earth or dredging sludge are elevated relative to the background values.

7. An increase as referred to in paragraph 5 shall, per substance, be no more than twice the level of the background value for that substance, with the levels being less than or equal to the maximum values for the residential soil function class for all elevated values.

8. Where dredging sludge is applied in surface water, a correction for lutum and organic matter shall be carried out in accordance with the calculation rules in Part III of Annex G for determining whether there is a breach in the quality of the dredging sludge to be applied in respect of:
a. the maximum values for the application of dredging sludge in sweet surface water, as referred to in article 4.12.1 (b);
b. the maximum values for the application of dredging sludge in salt surface water, as referred to in article 4.12.1 (c).

Article 4.2.2 Determination of breaching of the emission and immission requirements

1. Breaching of the emission requirements for the earth or dredging sludge to be applied shall be involved if the environmental hygiene declaration, as referred to in section 4.3 of this Regulation, shows that, for one or more substances, the arithmetic mean of the measured emission of the earth or dredging sludge to be used is higher than the emission requirement.

2. The earth or dredging sludge to be used shall exceed the immission requirements if the environmental hygiene declaration, as referred to in section 4.3 of this Regulation, shows that, for one or more substances, the arithmetic mean of the calculated immission of the earth or dredging spoil to be used is higher than the immission requirement.

Section 4.3 Environmental hygiene declarations

Article 4.3.1 Splitting of batches

1. Following the splitting of a batch, the environmental hygiene declaration relating to the original batch may be used for the sub-batches provided that the following details are specified on the notification form:
a. the relationship between the sub-batch and the original batch;
b. the person who or institution which has performed the splitting;
c. the date on which the splitting has been performed.

2. Whosoever performs or arranges for the splitting shall be responsible for compliance with the provisions of paragraph 1.

Article 4.3.2 Combining of batches

1. The combining of various batches of earth or dredging sludge shall solely be authorised if:
a. the individual batches have been assigned to the same soil quality class;

b. the individual batches have been inspected in accordance with National BRL 9335 and the combining takes place under the conditions laid down in the National BRL 9335, as designated in Annex C.

2. In the case of combining in accordance with paragraph 1, the environmental hygiene declarations relating to the batches to be combined shall lapse, and an environmental hygiene declaration shall be drawn up for the combined batch.

Article 4.3.3 Batch inspections

1. The sampling of earth or dredging sludge shall be performed by an institution recognised for sampling during batch inspections.

2. The size of the batch inspected for the purposes of the batch inspection shall be max. 10,000 tonnes.

3. The samples taken for the performance of a batch inspection shall consist of at least 100 random selections taken aselectively throughout the batch. These random samples shall be proportionally distributed across at least two mixed samples to be analysed.

4. The sample preparation and analysis shall be performed by an institution recognised for the analysis of building materials, earth or dredging sludge.

5. The outcome of the batch inspection shall be recorded in a report. The report shall set out at least the following elements:

a. the name and address of the sampler and the laboratory;
b. the dates on which sampling, sample preparation and analysis have been performed;
c. a reference to the standard documents and methods used, and substantiation of any departures from them, if these may influence the result of the analysis;
d. the fully completed sampling form and sampling plan or a copy of them;
e. a description of the batch, including the location, characteristics and batch size;
g. the laboratory's analytical report, including the means of the levels measured and, where applicable, the measured emissions and immissions calculated, substantiation of the parameters chosen, and the relationship between the measurement values and conclusions arising from this;
h. a unique number.

6. The quality of the earth or dredging sludge to be used shall be calculated per substance as the mean of the measurement values of the mixed samples analysed.

7. If, in the case of substances that form part of a total parameter, the measurement value is less than the determination limit, this measurement value shall, in calculating quality and the emission value for the total parameter in question, be arithmetically determined by multiplying the determination limit by 0.7.

8. Paragraph 7 shall not apply if, for a total parameter, the measurement values of all individual parameters are less than the determination limit.

9. The ratio between the highest and lowest measurement value for quality and emission shall be established per parameter.

10. If this ratio as referred to in paragraph 9 is more than 2.5, it shall be checked whether errors have been made in the procedure adopted for sampling, sample preparation and analysis.

11. If possible errors are identified during the check as referred to in paragraph 10, the procedure for sampling, sample preparation and analysis shall be performed again.

12. The emission and immission of parameters from earth and dredging sludge used in large-scale applications as referred to in article 60 of the Decree shall be deduced from the column test to NEN 7373 or NEN 7383.

13. If paragraph 2 or paragraph 4 of article 4.13 applies, a dispensation shall be granted for the performance of the test as referred to in paragraph 12.

14. If, during the column test to NEN 7373 or NEN 7383, insufficient liquid flows through the column as a result of poor permeability of the material investigated, emission shall be calculated with the aid of the formula in Annex L.

15. If, during a diffusion test to NEN 7375, a diffusion-controlled sequence cannot be established for a parameter, the upper limit of the leaching for T=35600 days shall be calculated by the methods given in NEN 7375. This calculated upper limit divided by 24 shall be regarded as the emission from the earth or dredging sludge.

Article 4.3.4 Soil test

1. Where earth or dredging is used in accordance with the review framework in section 2 of Part 2 of the Decree, the environmental hygiene declaration for the quality of the soil in or on

which the earth or dredging sludge is used shall be based on a soil test in accordance with one of the following test strategies from NEN 5740:
a. ONV;
b. ONV-GR;
c. ONB;
d. TOETS-S;
e. TOETS-S-GR;
f. KEU-I-HE.

2. An environmental hygiene declaration for the quality of the earth to be used may be based on a soil test in accordance with one of the following test strategies from NEN 5740:
a. TOETS-S;
b. TOETS-S-GR;
c. KEU-I-HE.

3. Where earth or dredging sludge is used in accordance with the review framework in section 2 of Part 2 of the Decree, the environmental hygiene declaration for the quality of the soil below surface water in or on which the earth or dredging sludge is used shall be based on a soil test to NEN 5720, or on a test protocol for the soil below surface water, as referred to in Part II of Annex D.

4. An environmental hygiene declaration for the quality of the dredging sludge to be used may be based on a soil test to NVN 5720, or on a test protocol for the soil below surface water, as referred to in Part II of Annex D.

5. In relation to the performance of the soil test as referred to in paragraph 1 (a), (b) or (c), the fieldwork shall be performed by a person or institution recognised for fieldwork.

6. In relation to the performance of the soil test as referred to in paragraph 1 (d), (e) or (f) or paragraph 2, the sampling shall be performed by a person or institution recognised for sampling associated with batch inspection.

7. In relation to the performance of soil testing as referred to in paragraph 1 (a), (b) or (c) or paragraph 3, 4 or 5, the sample preparation and analysis shall be performed by an institution recognised for analysis for environmentally hygienic soil research.

8. In relation to the performance of the soil test as referred to in paragraph 1 (d), (e) or (f) or paragraph 2, the sample preparation and analysis shall be performed by an institution recognised for analysis of building materials, earth or dredging sludge.

9. In the case of a large-scale application pursuant to article 60 of the Decree, and if paragraphs 2 and 4 of article 4.13.1 of this Regulation apply, emission and immission shall be determined in accordance with the requirements in article 4.3.3 (12), (14) and (15) of this Regulation.

Article 4.3.5 Soil quality map

1. Soil quality maps that form the basis for an environmental hygiene declaration for the quality of soil in or on which the earth or dredging sludge is used in accordance with the review framework in section 2 of Chapter 4, Part 2 of the Decree shall be drawn up in accordance with the requirements in Annex J.

2. The environmental hygiene declaration for the earth or dredging sludge to be used may be based on a soil quality map drawn up in accordance with the requirements in Annex J if:
a. both the location at which the earth or dredging sludge is used and the location from which the earth or dredging sludge comes are located within the area to which the soil quality map relates;
b. the P95 in the soil quality zone of origin of the earth or dredging sludge to be used with the aid of the risk module “consequences of local maximum values”, as referred to in article 4.9.1, for the place of use does not lead to the outcome of an unacceptable risk in connection with the current and future soil function or the current or future use of the surface water.

3. If, in the soil quality zone of origin of the earth or dredging sludge to be used, the P95 is less than or equal to the intervention value, the condition as referred to in paragraph 2 (b) shall be fulfilled.

4. In the case of a large-scale application in accordance with article 60 of the Decree, and if paragraphs 2 and 4 of article 4.13.1 of this Regulation do not apply, emission and immission shall be determined in accordance with the requirements in article 4.3.4 (12), (14) and 15 of this Regulation.

Article 4.3.6 Manufacturer’s own declarations

1. In relation to the procurement of a manufacturer's own declaration for earth and dredging sludge, the provisions of section 3.6 apply, with:
a. the term 'building material' having to be replaced by the terms 'earth' and 'dredging sludge';
b. a review being carried out against the background values as set out in Annex B, instead of against the compositional requirements and emission requirements as set out in Annex A;
c. the batch inspection in the licensing check in article 3.6.2 being carried out as set out in article 4.3.3.
2. In relation to the analysis of the findings, article 4.3.3(6) – (11) shall apply *mutatis mutandis*.

Article 4.3.7 Recognised quality declarations
1. In relation to the procurement of a recognised quality declaration for earth and dredging sludge, the provisions of section 3.7 apply, with:
a. a review being carried out against the background values as set out in Annex B, instead of against the compositional requirements and emission requirements as set out in Annex A;
b. the batch inspection in the licensing check of article 3.7.3 being carried out as set out in section 4.3.3.
2. The applicable National BRLs for earth and dredging sludge are set out in Annex C.
3. In relation to the analysis of the findings, article 4.3.3 (6) – (11) shall apply *mutatis mutandis*.

Article 4.3.8 Declaration of equivalence
In relation to the application, assessment and use of declarations of equivalence for environmental hygiene declarations for the purpose of using earth or dredging sludge, the provisions of section 3.11, with the exception of article 3.11.2 (4), shall apply *mutatis mutandis*.

Section 4.4 Soil quality classes

Article 4.4.1 Soil quality classes of earth and dredging sludge to be used

1. Anyone planning to use earth or dredging sludge shall classify the quality of the earth or dredging sludge used on or in the soil, other than soil below surface water, in the ‘residential soil quality class’ or ‘industrial soil quality class’.

2. The classification pursuant to paragraph 1 shall solely take place if:
a. the quality of the soil or of the earth or dredging sludge to be used breaches the background values;
b. the quality of the soil or the earth or dredging sludge to be used does not breach the intervention values for soil, other than soil below surface water.

3. Anyone planning to use earth or dredging sludge shall classify the quality of earth or dredging sludge used on or in the soil below surface water in ‘soil quality class A’ or ‘soil quality class B’.

4. The classification pursuant to paragraph 3 shall solely take place if:
a. the quality of the soil or of the earth or dredging sludge to be used breaches the background values;
b. the quality of the soil or of the earth or dredging sludge to be used does not breach the intervention values for soil below surface water.

Section 4.5 Background values

Article 4.5.1

The background values are set out in Tables 1 and 2 of Annex B.

Section 4.6 Package of substances

Article 4.6.1 Package of substances

1. Anyone planning to use earth or dredging sludge shall check the earth or dredging sludge for:
a. the substances which, based on the investigation of background values in the Netherlands, it has been established that, in unpolluted areas of the Netherlands, the probability of breaching of the background values referred to in Annex B is greater than 5%;
b. other substances of natural origin that may be present in levels above the background values in the area;
c. other substances which, owing to historic or current use, may be present above the background values in the area from which the earth or dredging sludge comes.

2. For determining the quality of the soil, the same requirements apply to the package of substances as set out in paragraph 1.

3. The package of substances referred to in paragraphs 1 and 2 has been laid down in the National BRL relevant for earth or dredging sludge and the NEN relevant for soil, namely:
a. BRL 9335, as designated in Annex C;
b. NEN 5740, as designated in Annex D;
c. NEN 5720, as designated in Annex D.

Section 4.7 Notification

Article 4.7.1 Data to be supplied

1. Anyone planning to use earth or dredging sludge shall, in addition to the details to be supplied as referred to in article 42 (2), of the Decree, supply the following details when providing notification of that plan:
a. date of start and completion of use;
b. quantity of earth or dredging sludge to be used;
c. the location of origin of the batch of earth or dredging sludge to be used;
d. the mean levels of the substances measured in the batch of earth or dredging sludge for the purpose of securing the environmental hygiene declaration;

e. where earth or dredging sludge is used in or on the soil below surface water: the mean levels of the substances, corrected for standard soil, measured in the batch of earth or dredging sludge for the purpose of securing the environmental hygiene declaration;
f. the percentage of material extraneous to soil;
g. the basis for the environmental hygiene declaration, and, if the environmental hygiene declaration has been based on a soil test, the test protocol adopted.

2. Where earth or dredging sludge is used in large-scale applications in accordance with article 60 of the Decree, details on the following aspects shall be supplied in addition to the details in paragraph 1:
a. the thickness of the layer of earth or dredging sludge to be used, not including the thickness of the biotic layer;
b. the percentage of the type of material extraneous to the soil as referred to in article 4.1 (3) of this Regulation.

Article 4.7.2 Notification form
The model notification form as referred to in article 42 (3) of the Decree shall be available from Bodem+.

PART 2. AREA-SPECIFIC REVIEW FRAMEWORK FOR GENERAL USE

Section 4.8 Soil functions

Article 4.8.1 Soil functions

1. In describing soil functions within a soil management area, the Municipal Executive of the local council shall adopt the following classification:
a. residential with garden;
b. places where children play;
c. kitchen gardens and allotments:
- large kitchen gardens; large town and village gardens and farmhouse gardens with a high level of crop growing;
- smaller kitchen gardens; large town and village gardens with a reasonable level of crop growing;

d. agriculture;
e. nature;
f. parks and gardens with natural values;
g. other parks and gardens, buildings, infrastructure and industry:
i. virtually completely paved;
ii. not virtually completely paved.

2. The Municipal Executive may, in translating the functions in the zoning plan into the soil functions referred to in paragraph 1, use the guide in Annex N of this Regulation.

Section 4.9 Local maximum values

4.9.1 Method for determining the consequences of local maximum values

1. The consequences as referred to in article 47 (1) (f) (3) of the Decree shall be determined by the competent authority using the risk module “consequences of local maximum values” of Soil Management Risk Tool box 1.0.

2. The risk module as referred to in paragraph 1 shall solely use the following risk module forms:
a. CSOIL 2000_RTB_1.0;
b. Sedisoil 2.0;
c. Omega 7.0.

3. The risk module as referred to in paragraph 1 shall calculate the consequences of the use of earth or dredging sludge on or in the soil, other than soil below surface water, for the soil functions as referred to in article 4.8.1 of this Regulation.

4. The risk module as referred to in paragraph 1 shall calculate the consequences of the use of earth or dredging sludge in surface water for the current use of the surface water.

5. The risk module as referred to in paragraph 1 shall classify the consequences as referred to in paragraph 1 as follows:
a. at the local maximum values, soil quality shall be suitable for the current or future soil functions or for the current or future forms of use of the surface water;
b. at the local maximum values, soil quality with the current or future soil functions or with the current or future use of the surface water leads to unacceptable risks;
c. at the local maximum values, neither outcome a nor outcome b is involved.
6. The consequences as referred to in paragraph 1 shall be deduced from the following details:
a. the local maximum values referred to in article 45 (1) of the Decree;
b. the fraction of organic matter and lutum of the soil in the area for which these values are laid down;
c. the acidity of the soil, other than soil below surface water, in the area for which the local maximum values are laid down.
7. The risk module as referred to in paragraph 1 shall generate a report indicating:
a. the details as referred to in paragraph 6;
b. the consequences as referred to in paragraph 5.

4.9.2 Map of current soil quality
The maps of current soil quality, as referred to in article 47 (1) of the Decree, shall be drawn up in accordance with the requirements in Annex J.

4.9.3 Substances for which no local maximum values are laid down
The competent authority shall, for applications as referred to in article 35 (1) (i) of the Decree, not lay down for tributyltin any local maximum value above the maximum value for application in salt surface water as set out in Table 2 of Annex B to this Regulation.

PART 3. GENERIC REVIEW FRAMEWORK FOR GENERAL USE

Section 4.10 Soil function classes for soil other than soil below surface water

Article 4.10.1 Maximum values for soil function classes
The maximum values for the residential and industrial soil function classes are set out in Table 1 of Annex B.

Article 4.10.2 Setting of soil function classes
1. Areas with the following soil functions, as referred to in article 4.8.1 (3) 3 of this Regulation, shall be classified in the residential soil function class:
a. residential with a garden;
b. places where children play;
c. parks and gardens with natural values.
2. Areas with the soil function ‘other parks and gardens, buildings, infrastructure and industry’, as referred to in article 4.8.1 (3) of this Regulation, shall be classified in the industrial soil function class.
3. The requirements as referred to in article 55 (3) of the Decree for setting the soil function classes on a map are set out in Annex K.
4. If the map as referred to in paragraph 3 has not yet been decided upon, the local authority may take a decision in which translation to the soil function classes is laid down for all zoning plan designations within the local authority, by virtue of the guidelines on this in Annex N.

Section 4.11 Determination of soil quality classes

Article 4.11.1 Maximum values of soil quality classes
1. The maximum values for the residential and industrial soil quality classes for soil, other than soil below surface water, are set out in Table 1 of Annex B.
2. The maximum values for soil quality classes A and B for soil below surface water are set out in Table 2 of Annex B.

Article 4.11.2 Determination of soil quality classes of soil, other than soil below surface water

1. The soil quality class of the soil, other than the soil below surface water, shall be laid down as the residential soil quality class if the environmental hygiene declaration shows that the arithmetic means of the levels in the soil or in the soil quality zone breach the background values, and do not breach the maximum values for the residential soil quality class.

2. In determining the quality of the soil, other than the soil below surface water, breaches the background values, article 4.2.1 (5) and (6) of this Regulation shall apply *mutatis mutandis*.

3. In determining whether the quality of the soil breaches the maximum values for the residential soil quality class, a breach is not involved if:

a. where at least 7 substances are measured, a maximum of 2 substances are elevated relative to the maximum values for the residential soil quality class;
b. where at least 16 substances are measured, a maximum of 3 substances are elevated relative to the maximum values for the residential soil quality class;
c. where at least 27 substances are measured, a maximum of 4 substances are elevated relative to the maximum values for the residential soil quality class;
d. where at least 37 substances are measured, a maximum of 5 substances are elevated relative to the maximum values for the residential soil quality class.

4. An increase as referred to in paragraph 3 shall, per substance, be no higher than the maximum value for the residential soil quality class for that substance, plus the background value for that substance, with the corollary that, for all elevated substances, the levels are less than or equal to the maximum values for the industrial soil quality class.

5. The soil quality class of the soil, other than soil below surface water, shall be laid down as the industrial soil quality class if the environmental hygiene declaration shows that the arithmetic means of the levels in the soil or in the soil quality zone exceed the maximum values for the residential soil function class, and do not breach the maximum values for the industrial soil function class.

Article 4.11.3 Determination of soil quality classes of soil below surface water

1. The soil quality class of soil below surface shall be determined as soil quality class A if the environmental hygiene declaration shows that the arithmetic means of the levels in the soil or in the soil quality zone breach the background values, and do not breach the maximum values for soil quality class A.

2. In determining whether the quality of soil below surface water breaches the background values, article 4.2.1 (5) and (6) of this Regulation shall apply *mutatis mutandis*.

3. The soil quality class of soil below surface water shall be determined as soil quality class B if the environmental hygiene declaration shows that the arithmetic means of the levels in the soil or in the soil quality zone breach the maximum values for soil quality class A, and do not breach the maximum values for soil quality class B.

Section 4.12 Maximum values for the application of dredging sludge

Article 4.12.1 Maximum values for the application of dredging sludge

1. Table 2 of Annex B to this Regulation sets out the maximum values for:

a. the application of dredging sludge on the adjoining plot;
b. the application of dredging sludge in sweet surface water;
c. the application of dredging sludge in salt surface water.

2. The quality of dredging sludge to be applied may solely conform to the maximum values for the application of dredging sludge in sweet surface water if the mean standardised levels are below the intervention values for soil below surface water.

3. In performing a review against the maximum values as referred to in paragraph 1 (c), no more than two non-priority substances may be elevated relative to the maximum values, with the increase per substance being no more 50% relative to the maximum value for the application of dredging sludge in salt water.

4. The substances in the group of PCBs shall be exempt from paragraph 3.

PART 4. REVIEW FRAMEWORK FOR LARGE-SCALE APPLICATIONS

Section 4.13 Large-scale applications

Article 4.13.1 Further rules to protect the quality of groundwater or surface water and soil

1. Where earth and dredging sludge are used on or in the soil, other than soil below surface water, in applications as referred to in article 60 of the Decree, the emission and immission of the earth or dredging sludge to be used shall not exceed the emission and immission requirements as set out in Table 1 of Annex B to this Regulation.

2. If, in applications as referred to in paragraph 1, the levels in the earth or dredging sludge to be used do not breach the emission test values as set out in Table 1 in Annex B to this Regulation, the requirements in section 1 are met, and a dispensation shall be granted for measuring the emission of the earth or dredging sludge to be used.

3. Where earth and dredging sludge are used on or in the soil below surface water, in applications as referred to in article 60 of the Decree, the emission and immission of the earth or dredging sludge to be used shall not breach the emission and immission requirements as set out in Table 2 of Annex B to this Regulation.

4. In applications as referred to in paragraph 3, the requirements as referred to in paragraph 3 shall be met in the following situations, and a dispensation shall be granted from measurement of the emission of the earth or dredging sludge to be used:

a. the levels in the earth or dredging sludge to be used do not breach the emission test values as set out in Table 2 in Annex B to this Regulation;
b. the large-scale application is below the water level;
c. the application is within the management area of the water quality manager from whom the dredging sludge originates.

Chapter 5 – Transitional provisions

Section 5.1 Transitional provisions

Article 5.1.1 Withdrawals

The following regulations shall be withdrawn:
a. the Implementing Regulation for the Building Materials Decree;
b. the Design Quality (Soil Management) Regulation;
c. the Exemption Regulation for Earthmoving;
d. the Designation Decree (Building Materials Decree) for Marks;
e. the Designation of Major Surface Waters (Building Materials Decree) Regulation;
f. the Notifications (Building Materials Decree) of Surface Water Regulation;
g. the Enactment model notification form for the use of building materials on or in the soil.

Article 5.1.2 Building materials used and recognition granted

1. Building materials as referred to in the Building Materials (Soil and Surface Water Protection) Decree that are used under the terms of the Design Quality (Soil Management) Regulation before the entry into force of this Regulation shall, until five years after the entry into force of the present Regulation, be governed by the provisions of the Design Quality (Soil Management) Regulation.

2. Recognition granted under the terms of the Design Quality (Soil Management) Regulation shall be deemed to have been granted by virtue of this Regulation.

Article 5.1.3 IBC structures constructed under earlier regulations

In the case of structures constructed under the terms of the IPO Interim Policy on “Structures with secondary raw materials” and the Building Materials (Soil and Surface Water Protection) Decree with category 2 building materials or the special category of waste incinerator bottom ash, articles 3.10.1 - 3.10.11 need not be observed.

Article 5.1.4 Entry into force of recognition of activities

1. Up to and including 30 June 2007, a dispensation from the ban in article 16 (1) of the Decree shall apply to analysis for environmentally hygienic soil research, treatment of

contaminated earth or dredging sludge, environmental monitoring, performance of soil decontamination operations and fieldwork.

2. Up to and including 30 June 2007, a dispensation from the ban in article 16 (1) of the Decree shall apply to sampling during batch inspections if the person who or institution which performs this activity is in possession of a valid designation as sampler by virtue of the Building Materials (Soil and Surface Water Protection) Decree, granted before 1 October 2006.

3. Up to and including 31 December 2007, a dispensation from the ban in article 16 (1) of the Decree shall apply to the issue of quality declarations if the institution that performs this activity is in possession of a valid designation as a certifying body for the issue of quality declarations for building materials by virtue of the Building Materials (Soil and Surface Water Protection) Decree, granted before 1 October 2006.

4. Up to and including 31 December 2007, a dispensation from the ban in article 16 (1) of the Decree shall apply to the analysis of building materials, earth or dredging sludge if the person who or institution which performs this activity is in possession of a valid designation as a laboratory by virtue of the Building Materials (Soil and Surface Water Protection) Decree, granted before 1 October 2006.

5. Up to and including 31 December 2007, a dispensation from the ban in article 16 (1) of the Decree shall apply to production on the basis of a National BRL if the person who or the institution which performs this activity is in possession of valid recognition for a quality declaration granted before 1 January 2007.

6. Article 13 of the Decree shall not apply to the designations referred to in paragraphs (3), (4) and (5) and the recognition referred to in paragraph 5.

7. Up to and including 31 December 2008, no recognition shall be needed for the performance of the activities as referred to in article 3.10.16.

Article 5.1.5 Phasing of requirements for building materials

1. The increase in the compositional requirements for PAHs (total) for bitumen products shall apply until five years after the entry into force of this Regulation unless a research programme shows that:

a. the extra costs are unacceptably high, or

b. the required analytical technique does not prove to be sufficiently feasible.

2. The increase in the emission requirement for sulphate shall apply until one year after the entry into force of this Regulation unless research shows that the requirement of 1,730 mg/kg d.m. is not feasible without unacceptably high costs.

Article 5.1.6 Entry into force

1. This Regulation shall come into force at a time to be specified by Royal Decree.

2. Notwithstanding paragraph 1, article 2.2 shall come into force as of 1 July 2007.

Article 5.1.7

This Regulation shall be cited as: the Soil Quality Regulation.

This Regulation shall be published with the explanatory memorandum in the Government Gazette.

The Hague,

The State Secretary for Housing,
Planning and the Environment,
P.L.B.A. van Geel

The State Secretary for Transport, Public Works and Water Management.
M.H. Schultz van Haegen

Annex A, associated with section 3.4 of the Soil Quality Regulation

Emission and compositional requirements

Table 1 – emission requirements for inorganic parameters

Parameter	Moulded building materials (mg/m^2)	Un-moulded building materials (mg/kg d.m.)	IBC building materials (mg/kg d.m.)
antimony (Sb) CAS no. 7440-36-0	8.7	0.16	0.7
arsenic (As) CAS no. 7440-38-2	260	0.9	2
barium (Ba) CAS no. 7440-39-3	1,500	22	100
cadmium (Cd) CAS no. 7440-43-9	3.8	0.04	0.06
chromium (Cr) CAS no. 7440-47-3	120	0.63	7
cobalt (Co) CAS no. 7440-48-2	60	0.54	2.4
copper (Cu) CAS no. 7440-50-8	98	0.9	10
mercury (Hg) CAS no. 7439-97-6	1.4	0.02	0.08
lead (Pb) CAS no. 7439-92-1	400	2.3	8.3
molybdenum (Mo) CAS no. 7439-98-7	144	1	15
nickel (Ni) CAS no. 7440-02-0	81	0.44	2.1
selenium (Se) CAS no. 7782-49-2	4.8	0.15	3
tin (Sn) CAS no. 7440-31-5	50	0.4	2.3
vanadium (V) CAS no. 7440-62-2	320 [1)]	1.8 [1)]	20
zinc (Zn) CAS no. 7440-66-5	800	4,5	14
bromide (Br) CAS no. n.a.	670 [2)]	20 [2)]	34
chloride (Cl) CAS no. n.a.	110,000 [2)]	616 [2)]	8,800
fluoride (F) CAS no. n.a.	2,500 [2)]	18 [2)]	1,500
sulphate (SO_4) CAS no. n.a.	165,000 [2)]	1,730 [2) 3)]	20,000

1) Notwithstanding the emission requirements given in Table 1, a requirement of 460 mg/m^2 for vanadium applies in the case of the use of moulded steel slag in surface water, and a requirement of 4.6 mg/kg dry matter applies in the case of un-moulded steel slag.
2) Notwithstanding the emission requirements set out in Table 1, the following applies to the use of building materials in places where direct contact is (possible) with seawater or brackish surface water with a natural chloride content of more than 5,000 mg/l: a) no emission requirements for chloride and bromide, and b) the emission requirements given in the Table for fluoride and sulphate multiplied by a factor of 4.
3) For a period as indicated in article 5.1.6 (2), an emission requirement of 2,430 mg/kg d.m. applies.

Table 2 – Compositional requirements for organic parameters

Parameter	**compositional requirement (mg/kg d.m.)**
Aromatic substances	
benzene CAS no. 71-43-2	1 [1)]
ethylbenzene CAS no. 100-41-4	1.25 [1)]
toluene CAS no. 108-88-3	1.25 [1)]
xylenes (sum) being the sum of m-xylene, p-xylene and o-xylene CAS no. 95-47-6, 108-38-3, 106-42-3	1.25 [1)]
phenol CAS no. 108-95-2	1.25
Polycyclic aromatic hydrocarbons (PAHs)	
naphthalene CAS no. 91-20-3	5 [2)]
phenanthrene CAS no. 85-01-8	20 [2)]
anthracene CAS no. 120-12-7	10 [2)]
fluoranthene CAS no. 206-44-0	35 [2)]
chrysene CAS no. 56-55-3	10 [2)]
benzo(a)anthracene CAS no. 218-01-9	40 [2)]
benzo(a)pyrene CAS no. 207-08-9	10 [2)]
benzo(k)fluoranthene CAS no. 50-32-8	40 [2)]
indeno (1,2,3cd) pyrene CAS no. 191-42-2	40 [2)]
benzo(ghi)perylene CAS no. 193-39-5	40 [2)]
PAHs (sum) being the sum of the aforementioned polycyclic aromatic hydrocarbons	50 [3)]
Other parameters	
PCBs (sum 7) being the sum of PCB 28, 52, 101, 118, 138, 153 and 180 CAS no. 7012-37-5, 35693-99-3, 37680-37-2, 35065-28-2, 35065-27-1, 35065-29-3, 31308-00-6	0.5
mineral oil CAS no. n.a.	500 [1)]
asbestos (weighed) being the concentration of serpentine asbestos plus ten times the concentration of amphibole asbestos CAS no. n.a.	0 [4)]

1) in the case of bitumen products, no compositional requirement applies to benzene, ethylbenzene, toluene and xylenes (sum) and mineral oil. The term ‘bitumen products’ should be understood to mean bitumen roofing and sealing materials, secondary bitumen granules in moulded applications and moulded building materials with a bitumen coating.
2) in the case of bitumen products and granules from building and demolition waste, no compositional requirement applies to the individual PAHs.
3) in the case of bitumen products, a compositional requirement of 75 mg/kg d.m. applies to PAHs (sum) for a period as indicated in article 5.1.6 (1).
4) in the case of granules from building and demolition waste and also in the case of waste incinerator bottom ash, a compositional requirement of 100 mg/kg d.m. applies in accordance with the Asbestos Product Decree.

Annex B, associated with various subsections of article 4 of the Soil Quality Regulation

Background values and maximum values for earth and dredging sludge

Table 1. Standard values for the use of earth or dredging sludge on or in the soil, other than soil below surface water (for standard soil, in mg kg/dm).

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Maximum values for residential soil function class / Maximum values for residential soil quality class	Maximum values for industrial soil function class / Maximum values for industrial soil quality class	Intervention values for soil, other than soil below surface water	Maximum values for large-scale applications on terrestrial soil: Immission requirement (2)	Maximum values for large-scale applications on terrestrial soil: Emission requirement	Maximum values for large-scale applications on terrestrial soil: Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
1. Metals								
antimony (Sb)	0.80		15	15	15	39		9
arsenic (As)	20	X	27	76	76		0.610	42
barium (Ba)	190		550	920	920	6300		413
beryllium (Be)	1.5		1.9	30	30	-	-	-
cadmium (Cd)	0.60	x and 7.5	1.2	4.3	13		0.051	4.3
chromium (Cr)	55	x	62	180	180		0.169	180
cobalt (Co)	15		35	190	190	300		130
copper (Cu)	40	x	54	190	190		1.03	113
mercury (Hg)	0.15	x	0.83	4.8	36		0.494	4.8
lead (Pb)	50	x	210	530	530		15.3	308
molybdenum (Mo)	0.030 (*)		86	190	190	150		105
nickel (Ni)	30	x	34	95	95		0.207	95
thallium (Tl)	0.75		2.6	15	15	-	-	-
tin (Sn)	6.5		180	900	900	300		450
vanadium (V)	80		97	250	250	2400		146
zinc (Zn)	140	x	200	720	720		2.115	430
2. Other inorganic substances								
bromide								
chloride	200							
cyanide (free) (3)	pm		pm	pm	pm			
cyanide (complex)	5.5		5.5	50	50			

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Maximum values for residential soil function class / Maximum values for residential soil quality class	Maximum values for industrial soil function class / Maximum values for industrial soil quality class	Intervention values for soil, other than soil below surface water	Maximum values for large-scale applications on terrestrial soil: Immission requirement (2)	Maximum values for large-scale applications on terrestrial soil: Emission requirement	Maximum values for large-scale applications on terrestrial soil: Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
fluoride								
thiocyanates (sum)	6.0		6.0	20	20			
sulphate								
3. Aromatic substances								
benzene	0.025 (*)		0.025	1	1	n.a.	n.a.	n.a.
ethylbenzene	0.030 (*)		0.030	1.25	110	n.a.	n.a.	n.a.
toluene	0.030 (*)		0.030	1.25	32	n.a.	n.a.	n.a.
xylenes (sum)	0.075 (*)		0.075	1.25	17	n.a.	n.a.	n.a.
styrene (vinylbenzene)	0.030 (*)		0.030	86	86	n.a.	n.a.	n.a.
phenol	0.25		0.25	1.25	14	n.a.	n.a.	n.a.
cresols (sum o-, m-, p-)	0.10 (*)		0.10	5	13	n.a.	n.a.	n.a.
dodecylbenzene	0.050 (*)		0.050	0.050	1000	n.a.	n.a.	n.a.
aromatic solvents	0.30		0.30	0.30	200	n.a.	n.a.	n.a.
4. Polycyclic aromatic hydrocarbons (PAHs)								
naphthalene		x				n.a.	n.a.	n.a.
phenanthrene		x				n.a.	n.a.	n.a.
anthracene		x				n.a.	n.a.	n.a.
fluoranthene		x				n.a.	n.a.	n.a.
chrysene		x				n.a.	n.a.	n.a.
benzo(a)anthracene		x				n.a.	n.a.	n.a.
benzo(a)pyrene		x				n.a.	n.a.	n.a.
benzo(k)fluoranthene		x				n.a.	n.a.	n.a.
indeno(1,2,3cd)pyrene		x				n.a.	n.a.	n.a.
benzo(ghi)perylene		x				n.a.	n.a.	n.a.
PAHs total (sum 10)	1,5		6.8	40	40	n.a.	n.a.	n.a.
5. Chlorinated hydrocarbons								
a. (volatile) chlorohydrocarbons								
monochloroethene (vinylchloride) (4)	0.10 (*)		0.10	0.1	0.1	n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Maximum values for residential soil function class / Maximum values for residential soil quality class	Maximum values for industrial soil function class / Maximum values for industrial soil quality class	Intervention values for soil, other than soil below surface water	Maximum values for large-scale applications on terrestrial soil: Immission requirement (2)	Maximum values for large-scale applications on terrestrial soil: Emission requirement	Maximum values for large-scale applications on terrestrial soil: Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
dichloromethane	0.10		0.10	4	4	n.a.	n.a.	n.a.
1,1-dichloroethane	0.020 (*)		0.020	0.020	15	n.a.	n.a.	n.a.
1,2-dichloroethane	0.020 (*)		0.020	4	6.4	n.a.	n.a.	n.a.
1,1-dichloroethene	0.040 (*)		0.040	0.040	0.3	n.a.	n.a.	n.a.
1,2-dichloroethene (sum cis and trans)	0.050 (*)		0.050	0.050	1	n.a.	n.a.	n.a.
dichloropropanes	0.15 (*)		0.15	0.15	2	n.a.	n.a.	n.a.
trichloromethane (chloroform)	0.030 (*)		0.030	3	5.6	n.a.	n.a.	n.a.
1,1,1-trichloroethane	0.035 (*)		0.035	0.035	15	n.a.	n.a.	n.a.
1,1,2-trichloroethane	0.040 (*)		0.040	0.040	10	n.a.	n.a.	n.a.
trichloroethene (Tri)	0.035 (*)		0.035	2.5	2.5	n.a.	n.a.	n.a.
tetrachloromethane (Tetra)	0.050 (*)		0.050	0.7	0.7	n.a.	n.a.	n.a.
tetrachloroethene (Per)	0.15		0.15	4	8.8	n.a.	n.a.	n.a.
b. chlorobenzenes								
trichlorobenzenes	pm		pm	5	11	n.a.	n.a.	n.a.
tetrachlorobenzenes	pm		pm	2.2	2.2	n.a.	n.a.	n.a.
pentachlorobenzenes	0.0025		0.0025	5	6.7	n.a.	n.a.	n.a.
hexachlorobenzene	0.0085		0.027	1.4	2.0	n.a.	n.a.	n.a.
chlorobenzenes (sum)								
c. chlorophenols								
trichlorophenols	0.0015		0.0015	6	22	n.a.	n.a.	n.a.
tetrachlorophenols	0.0060 (*)		1	6	21	n.a.	n.a.	n.a.
pentachlorophenol	0.00030 (*)		1.4	5	12	n.a.	n.a.	n.a.
chlorophenols (sum)								
d. Polychlorobiphenyls (PCBs)								
PCB 28		x				n.a.	n.a.	n.a.
PCB 52		x				n.a.	n.a.	n.a.
PCB 101		x				n.a.	n.a.	n.a.
PCB 118		x				n.a.	n.a.	n.a.
PCB 138		x				n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Maximum values for residential soil function class Maximum values for residential soil quality class	Maximum values for industrial soil function class Maximum values for industrial soil quality class	Intervention values for soil, other than soil below surface water	Maximum values for large-scale applications on terrestrial soil		
						Immission requirement (2)	Emission requirement	Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
PCB 153		x				n.a.	n.a.	n.a.
PCB 180		x				n.a.	n.a.	n.a.
PCBs (sum 7)	0.020		0.020	0.5	1	n.a.	n.a.	n.a.
e. Other chlorinated hydrocarbons								
pentachloroanilines (sum)	pm		pm	pm	10	n.a.	n.a.	n.a.
dioxin (sum I-TEQ)	0.000010 (*)		0.000010	0.000010	0.00036	n.a.	n.a.	n.a.
chloronaphthalene (sum a, ß)	0.0060 (*)		0.0060	10	23	n.a.	n.a.	n.a.
6. Pesticides								
a. organochloro pesticides								
chlordane	0.0020	x	0.0020	0.0020	4	n.a.	n.a.	n.a.
DDT	0.20	x	0.20	1	1	n.a.	n.a.	n.a.
DDE	0.10	x	0.13	1.3	1.3	n.a.	n.a.	n.a.
DDD	0.020	x	0.84	34	34	n.a.	n.a.	n.a.
DDT/DDE/DDD (sum)						n.a.	n.a.	n.a.
aldrin		x				n.a.	n.a.	n.a.
dieldrin		x				n.a.	n.a.	n.a.
endrin		x				n.a.	n.a.	n.a.
isodrin		x				n.a.	n.a.	n.a.
telodrin		x				n.a.	n.a.	n.a.
drins (sum aldrin dieldrin endrin isodrin)	0.015		0.04	0.14	0.14	n.a.	n.a.	n.a.
a-endosulphate		x				n.a.	n.a.	n.a.
a-endosulphan	0.00090	x	0.00090	0.00090	4	n.a.	n.a.	n.a.
a-HCH	0.0010	x	0.0010	0.5	17	n.a.	n.a.	n.a.
ß-HCH	0.0020	x	0.0020	0.5	1.6	n.a.	n.a.	n.a.
?-HCH (lindane)	0.0030	x	0.04	0.5	1.2	n.a.	n.a.	n.a.
δ-HCH		x				n.a.	n.a.	n.a.
ε-HCH		x				n.a.	n.a.	n.a.
HCH compounds (sum α - ε)						n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Maximum values for residential soil function class / Maximum values for residential soil quality class	Maximum values for industrial soil function class / Maximum values for industrial soil quality class	Intervention values for soil, other than soil below surface water	Maximum values for large-scale applications on terrestrial soil: Immission requirement (2)	Maximum values for large-scale applications on terrestrial soil: Emission requirement	Maximum values for large-scale applications on terrestrial soil: Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
heptachlor	0.00070	x	0.00070	0.00070	4	n.a.	n.a.	n.a.
heptachlor epoxide (sum)	0.0020	x	0.0020	0.0020	4	n.a.	n.a.	n.a.
hexachlor butadiene		x				n.a.	n.a.	n.a.
organochlorinated pesticides	0.40		0.40	0.5		n.a.	n.a.	n.a.
b. organophosphorus pesticides								
azinfos-methyl	0.0050 (*)		0.0050	0.0050	2	n.a.	n.a.	n.a.
c. organotin pesticides								
organotin compounds	0.15		0.5	2.5	2.5	n.a.	n.a.	n.a.
tributyltin (TBT)	0.065		0.065	0.065		n.a.	n.a.	n.a.
d. chlorophenoxy acetic acid herbicides								
MCPA	0.070 (*)		0.070		4	n.a.	n.a.	n.a.
e. other pesticides								
atrazine	0.0045 (*)		0.0045	0.5	0.71	n.a.	n.a.	n.a.
carbaryl	0.020 (*)		0.020	0.5	0.50	n.a.	n.a.	n.a.
carbofuran	0.020 (*)		0.020	0.020	0.02	n.a.	n.a.	n.a.
4-chloromethyl phenols	0.050 (*)		0.050	0.050	15	n.a.	n.a.	n.a.
non-chlorinated pesticides (sum)	0.070		0.070	0.5		n.a.	n.a.	n.a.
7. Other substances								
asbestos	-		100	100	100	n.a.	n.a.	n.a.
cyclohexanone	2.0 (*)		2.0	2.0	150	n.a.	n.a.	n.a.
dimethyl phthalate	-				82	n.a.	n.a.	n.a.
diethyl phthalate	-				53	n.a.	n.a.	n.a.
di-isobutyl phthalate	-				17	n.a.	n.a.	n.a.
dibutyl phthalate	-				36	n.a.	n.a.	n.a.
butyl benzyl phthalate	-				48	n.a.	n.a.	n.a.
dihexyl phthalate	-				220	n.a.	n.a.	n.a.
di(2-ethylhexyl) phthalate	-				60	n.a.	n.a.	n.a.
mineral oil	190	3000	190	500	5000	n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Maximum values for residential soil function class / Maximum values for residential soil quality class	Maximum values for industrial soil function class / Maximum values for industrial soil quality class	Intervention values for soil, other than soil below surface water	Maximum values for large-scale applications on terrestrial soil: Immission requirement (2)	Maximum values for large-scale applications on terrestrial soil: Emission requirement	Maximum values for large-scale applications on terrestrial soil: Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
pyridine	0.15 (*)		0.15	1	11	n.a.	n.a.	n.a.
tetrahydrofuran	0.45		0.45	2	7	n.a.	n.a.	n.a.
tetrahydrothiophene	0.15 (*)		0.15	8.8	8.8	n.a.	n.a.	n.a.
tribromomethane (bromoform)	0.030 (*)		0.030	0.030	75	n.a.	n.a.	n.a.
ethylene glycol	5.0		5.0	5.0	100	n.a.	n.a.	n.a.
diethylene glycol	8.0		8.0	8.0	270	n.a.	n.a.	n.a.
acrylonitrile	2.0 (*)		2.0	2.0	0.1	n.a.	n.a.	n.a.
formaldehyde	0.30 (*)		0.30	0.30	0.1	n.a.	n.a.	n.a.
isopropanol (2-propanol)	0.75		0.75	0.75	220	n.a.	n.a.	n.a.
methanol	3.0		3.0	3.0	30	n.a.	n.a.	n.a.
butanol (1-butanol)	2.0 (*)		2.0	2.0	30	n.a.	n.a.	n.a.
butyl acetate	2.0 (*)		2.0	2.0	200	n.a.	n.a.	n.a.
ethyl acetate	2.0 (*)		2.0	2.0	75	n.a.	n.a.	n.a.
methyl-tert-butyl ether (MTBE)	0.025 (*)		0.025	0.025	100	n.a.	n.a.	n.a.
methyl ethyl ketone	2.0 (*)		2.0	2.0	35	n.a.	n.a.	n.a.

Explanation of symbols in Table 1:

(*) Background value is based on the determination limit because insufficient data are available to derive a reliable P95.

(**) The actual background value = 120 mg/kg dm. In policy terms, the application standard has been put on a par with the standard in the sea sand NBRL.

(1) The substances indicated by x form part of the range of substances that must be introduced to calculate the msPAF. With the aid of TOWABO 4.0, is checked for msPAF-organic < 15% and msPAF metals < 50%. For substances that do not form part of the PAF, the background value applies.

(2) Review against immission requirement in accordance with Building Materials Decree 2005.

(3) Still discussion about measurement method, determination limit, level of Background value and level of Intervention value.

(4) At values above the determination limit (0.1), the groundwater must be investigated.

Table 2. **Standard values for the use of earth and dredging sludge and for the application of dredging sludge in or on the soil below surface water (values for a standard soil, in mg/kg dm)**

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Intervention value for soil below surface water / Maximum values for soil quality class B	Maximum values for industrial soil function class (2)	Maximum values for application of dredging sludge in sweet surface water (3) / Maximum soil quality class A (3)	Maximum values for application of dredging sludge in salt surface water (4)	Immission requirement (7)	Emission requirement	Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
1. Metals									
antimony (Sb)	0.8		15	15			39		9
arsenic (As)	20	X	85	76	24	29(@)		0.610	42
barium (Ba)	190		625	920			6300		413
beryllium (Be)	1.5		30	30			-	-	-
cadmium (Cd)	0.60	x and 7.5	14	4.3	2.7	4		0.051	6.4
chromium (Cr)	55	x	380	180	94	120(@)		0.169	240
cobalt (Co)	15		240	190			300.00		130
copper (Cu)	40	x	190	190	96	60(@)		1.03	113
mercury (Hg)	0.15	x	10,0	4.8	1.2	1.2		0.494	5.2
lead (Pb)	50	x	580	530	138	110		15.3	308
molybdenum (Mo)	0.030 (*)		200	190			150		105
nickel (Ni)	30	x	210	95	50	45		0.207	123
thallium (Tl)	0.75		15	15			-	-	-
tin (Sn)	6.5		900	900			300		450
vanadium (V)	80		250	250			2400.00		146
zinc (Zn)	140	x	2000	720	563	365(@)		2.115	430
2. Other in organic substances									
bromide									
chloride	200 (**)								
cyanide (free) (5)	pm		pm	pm					
cyanide complex	5.5		50	50					
fluoride									
thiocyanates (sum)	6.0		20	20					

	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Intervention value for soil below surface water Maximum values for soil quality class B	Maximum values for industrial soil function class (2)	Maximum values for application of dredging sludge in sweet surface water (3) Maximum soil quality class A (3)	Maximum values for application of dredging sludge in salt surface water (4)	Immission requirement (7)	Emission requirement	Emission test value
Substance	**mg/kg dm**	**mg/kg dm**	**mg/kg dm**	**mg/kg dm**	**mg/kg dm**	**mg/kg dm**	**mg/m2 per 100 years**	**mg/kg L/S 10**	**mg/kg dm**
sulphate									
3. Aromatic substances									
benzene	0.025 (*)		1	1			n.a.	n.a.	n.a.
ethylbenzene	0.030 (*)		50	1.25			n.a.	n.a.	n.a.
toluene	0.030 (*)		130	1.25			n.a.	n.a.	n.a.
xylenes (sum)	0.075 (*)		25	1.25			n.a.	n.a.	n.a.
styrene (vinylbenzene)	0.030 (*)		100	86			n.a.	n.a.	n.a.
phenol	0.25		40	1.25			n.a.	n.a.	n.a.
cresols (sum o-, m-, p-)	0.10 (*)		5	5			n.a.	n.a.	n.a.
dodecylbenzene	0.05 (*)		1000	0.05			n.a.	n.a.	n.a.
aromatic solvents	0.30		200	0.30			n.a.	n.a.	n.a.
4. Polycyclic aromatic hydrocarbons (PAHs)									
naphthalene		x							
phenanthrene		x							
anthracene		x							
fluoranthene		x							
chrysene		x							
benzo(a)anthracene		x							
benzo(a)pyrene		x							
benzo(k)fluoranthene		x							
indeno(1,2,3cd)pyrene		x							
benzo(ghi)perylene		x							
PAHs total (sum 10)	1.5		40	40	9	8	n.a.	n.a.	n.a.
5. Chlorinated hydrocarbons **a. (volatile) hydrocarbons**									
monochloroethene (vinylchloride) (6)	0.10 (*)		0,1	0.1			n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Intervention value for soil below surface water / Maximum values for soil quality class B	Maximum values for industrial soil function class (2)	Maximum values for application of dredging sludge in sweet surface water (3) / Maximum soil quality class A (3)	Maximum values for application of dredging sludge in salt surface water (4)	Immission requirement (7)	Emission requirement	Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
dichloromethane	0.10		10	4			n.a.	n.a.	n.a.
1,1-dichloroethane	0.020 (*)		15	0.020			n.a.	n.a.	n.a.
1,2-dichloroethane	0.020 (*)		4	4			n.a.	n.a.	n.a.
1,1-dichloroethene	0.040 (*)		0.3	0.040			n.a.	n.a.	n.a.
1,2-dichloroethene (sum cis and trans)	0.050 (*)		1	0.050			n.a.	n.a.	n.a.
dichloropropanes	0.15 (*)		2	0.15			n.a.	n.a.	n.a.
trichloromethane (chloroform)	0.030 (*)		10	3			n.a.	n.a.	n.a.
1,1,1-trichloroethane	0.035 (*)		15	0.035			n.a.	n.a.	n.a.
1,1,2-trichloroethane	0.040 (*)		10	0.040			n.a.	n.a.	n.a.
trichloroethene (Tri)	0.035 (*)		60	2.5			n.a.	n.a.	n.a.
tetrachloromethane (Tetra)	0.050 (*)		1	0.7			n.a.	n.a.	n.a.
tetrachloroethene (Per)	0.15		4	4			n.a.	n.a.	n.a.
b. chlorobenzenes									
trichlorobenzenes	pm			5					
tetrachlorobenzenes	pm			2.2			n.a.	n.a.	n.a.
pentachlorobenzenes	0.0025			5	0.007		n.a.	n.a.	n.a.
hexachlorobenzene	0.0085	x		1.4	0.044	0.02	n.a.	n.a.	n.a.
chlorobenzenes (sum)	0.40		30				n.a.	n.a.	n.a.
c. chlorophenols									
trichlorophenols	0.0015			6			n.a.	n.a.	n.a.
tetrachlorophenols	0.0060 (*)			6			n.a.	n.a.	n.a.
pentachlorophenol	0.00030 (*)	x		5	0.016		n.a.	n.a.	n.a.
chlorophenols (sum)	0.040		10				n.a.	n.a.	n.a.
d. polychlorobiphenyls (PCBs)									
PCB 28		x			0.014		n.a.	n.a.	n.a.
PCB 52		x			0.015		n.a.	n.a.	n.a.
PCB 101		x			0.023		n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Intervention value for soil below surface water / Maximum values for soil quality class B	Maximum values for industrial soil function class (2)	Maximum values for application of dredging sludge in sweet surface water (3) / Maximum soil quality class A (3)	Maximum values for application of dredging sludge in salt surface water (4)	Immission requirement (7)	Emission requirement	Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
PCB 118		x			0.016		n.a.	n.a.	n.a.
PCB 138		x			0.027		n.a.	n.a.	n.a.
PCB 153		x			0.033		n.a.	n.a.	n.a.
PCB 180		x			0.018		n.a.	n.a.	n.a.
PCBs (sum 7)	0.020		1	0.5	0.139	0.1(@)	n.a.	n.a.	n.a.
e other chlorinated hydrocarbons									
pentachloroanilines (sum)	pm		10	pm			n.a.	n.a.	n.a.
dioxin (sum I-TEQ)	0.000010 (*)		0.001	0.000010			n.a.	n.a.	n.a.
chloronaphthalene (sum a, ß)	0.0060 (*)		10	10			n.a.	n.a.	n.a.
6. Pesticides									
a. organochloro pesticides									
chlordane	0.0020	x	4	0.0020			n.a.	n.a.	n.a.
DDT	0.20	x		1			n.a.	n.a.	n.a.
DDE	0.10	x		1.3			n.a.	n.a.	n.a.
DDD	0.020	x		34			n.a.	n.a.	n.a.
DDT/DDE/DDD			4		0.027	0.02	n.a.	n.a.	n.a.
aldrin		x			0.0013		n.a.	n.a.	n.a.
dieldrin		x			0.0079 ($)		n.a.	n.a.	n.a.
endrin		x			0.0034 ($)		n.a.	n.a.	n.a.
isodrin		x					n.a.	n.a.	n.a.
telodrin		x					n.a.	n.a.	n.a.
drins (sum aldrin dieldrin endrin isodrin)	0.015		4	0.14	0.015 $		n.a.	n.a.	n.a.
a-endosulphate		x					n.a.	n.a.	n.a.
a-endosulphan	0.00090 (*)	x	4	0.00090	0.0021		n.a.	n.a.	n.a.
a-HCH	0.0010	x		0.5	0.0012		n.a.	n.a.	n.a.
ß-HCH	0.0020	x		0.5	0.0065		n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Intervention value for soil below surface water / Maximum values for soil quality class B	Maximum values for industrial soil function class (2)	Maximum values for application of dredging sludge in sweet surface water (3) / Maximum soil quality class A (3)	Maximum values for application of dredging sludge in salt surface water (4)	Immission requirement (7)	Emission requirement	Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
?-HCH (lindane)	0.0030	x		0.5	0.003 ($)		n.a.	n.a.	n.a.
δ-HCH		x					n.a.	n.a.	n.a.
ε-HCH		x					n.a.	n.a.	n.a.
HCH compounds (sum α - ε)	0.010		2		0.01 ($)		n.a.	n.a.	n.a.
heptachlor	0.00070	x	4	0.00070	0.004		n.a.	n.a.	n.a.
heptachlor epoxide (sum)	0.0020	x	4	0.0020	0.004		n.a.	n.a.	n.a.
hexachlorobutadiene	0.003 (*)	x			0.493 (#)		n.a.	n.a.	n.a.
organochlorinated pesticides	0.40			0.5			n.a.	n.a.	n.a.
b. organophosphorus pesticides									
azinfos-methyl	0.0050 (*)		2	0.0050			n.a.	n.a.	n.a.
c. organotin pesticides									
organotin compounds	0.15		2.5	2.5			n.a.	n.a.	n.a.
tributyltin (TBT)	0.065			0.065	250 µg Sn/kg dm(7) 115 µg Sn/kg dm(8)	250 µg Sn/kg dm (7) 115 µg Sn/kg dm (8)	n.a.	n.a.	n.a.
d. chlorophenoxy acetic acid herbicides									
MCPA	0.070 (*)		4				n.a.	n.a.	n.a.
e. other pesticides									
atrazine	0.0045 (*)		6	0.5			n.a.	n.a.	n.a.
carbaryl	0.020 (*)		5	0.5			n.a.	n.a.	n.a.
carbofuran	0.020 (*)		2	0.020			n.a.	n.a.	n.a.
4-chloromethyl phenols	0.050 (*)		15	0.050			n.a.	n.a.	n.a.
non-chlorinated pesticides (sum)	0.070			0.5			n.a.	n.a.	n.a.
7. Other substances									
asbestos	-		100	100	100	100	n.a.	n.a.	n.a.
cyclohexanone	2.0 (*)		45				n.a.	n.a.	n.a.
dimethyl phthalate			82				n.a.	n.a.	n.a.

Substance	Background values	Maximum values for application of dredging sludge on adjoining plot (1)	Intervention value for soil below surface water / Maximum values for soil quality class B	Maximum values for industrial soil function class (2)	Maximum values for application of dredging sludge in sweet surface water (3) / Maximum soil quality class A (3)	Maximum values for application of dredging sludge in salt surface water (4)	Immission requirement (7)	Emission requirement	Emission test value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm	mg/m2 per 100 years	mg/kg L/S 10	mg/kg dm
diethyl phthalate			53				n.a.	n.a.	n.a.
di-isobutyl phthalate			17				n.a.	n.a.	n.a.
dibutyl phthalate			36				n.a.	n.a.	n.a.
butyl benzyl phthalate			48				n.a.	n.a.	n.a.
dihexyl phthalate			220				n.a.	n.a.	n.a.
di(2-ethylhexyl) phthalate			60				n.a.	n.a.	n.a.
mineral oil	190	3000	5000	500	815	1250(@)	n.a.	n.a.	n.a.
pyridine	0.15 (*)		0.5	1			n.a.	n.a.	n.a.
tetrahydrofuran	0.45		2	2			n.a.	n.a.	n.a.
tetrahydrothiophene	0.15 (*)		90	8.8			n.a.	n.a.	n.a.
tribromomethane (bromoform)	0.030 (*)		75	0.030			n.a.	n.a.	n.a.
ethylene glycol	5.0		100	5.0			n.a.	n.a.	n.a.
diethylene glycol	8.0		270	8.0			n.a.	n.a.	n.a.
acrylonitrile	2.0 (*)		0.1	2.0			n.a.	n.a.	n.a.
formaldehyde	0.3 (*)		0.1	0.3			n.a.	n.a.	n.a.
isopropanol (2-propanol)	0.75		220	0.75			n.a.	n.a.	n.a.
methanol	3.0		30	3.0			n.a.	n.a.	n.a.
butanol (1-butanol)	2.0 (*)		30	2.0			n.a.	n.a.	n.a.
butyl acetate	2.0 (*)		200	2.0			n.a.	n.a.	n.a.
ethyl acetate	2.0 (*)		75	2.0			n.a.	n.a.	n.a.
methyl-tert-butyl ether (MTBE)	0.025 (*)		100	0.025			n.a.	n.a.	n.a.
methyl ethyl ketone	2.0 (*)		35	2.0			n.a.	n.a.	n.a.

Explanation of symbols in Table 2:

(1) The substances indicated by x form part of the range of substances that must be introduced to calculate the msPAF. With the aid of TOWABO 4.0, is checked for msPAF-organic < 15% and msPAF metals < 50%. For substances that do not form part of the PAF, the background value applies.

(2) In surface water, no earth is used that does not come from soil below surface water and that breaches the maximum values for the industrial function class.

(3) If no HVN has been derived for a specific substance, the background value applies.

(4) No soil type correction is applied in the review against the maximum values for application in salt water.

(5) Still discussion about measurement method, determination limit, level of Background value and level of Intervention value.

(6) At values above the determination limit (0.1), the groundwater must be investigated.

(7) Review against immission requirement in accordance with Building Materials Decree 2005.

(*) Background value is based on the determination limit because insufficient measurements above the determination limit are available to derive a reliable P95.

(**) The actual background value = 120 mg/kg dm. In policy terms, the application standard has been put on a par with the standard in the sea sand NBRL.

(@) Concerns standard value for a non-priority substance by virtue of the KRW.

(#) No value derived, but a priority substance has been derived; value derived from KRW standards.

($) HVN is lower than Background value, therefore assumed.

(8) Standard value for Tributyltin of 250 µg Sn/kg dm applies to the application of dredging sludge in the Waddenzee and the Zeeland Delta.

(9) Standard value for Tributyltin of 115 µg SN/kg dm applies to the application of dredging sludge in the North Sea along the North Sea coast

Annex C associated with Chapter 2 of the Soil Quality Regulation

Summary of recognised activities

Activities for which persons and institutions must have recognition and the associated standard documents.

Category	Activities	Standard documents	
		Certification and accreditation guidelines	**Subsections**
1	Construction of soil-protecting facilities	BRL 2319, National Assessment guidelines for the KOMO process certificate for the construction of liquid-tight facilities with prefab elements made of concrete, version of 1 September 2000, with amending sheet dated 5 April 2006. BRL 2362, National Assessment guidelines for the KOMO process certificate for the construction of liquid-tight facilities in cast-in-place concrete, version of 1 September 1998, with amending sheet of 5 April 2006. BRL 2371, National Assessment guidelines for the KOMO process certificate for making bearing floors made of concrete liquid-tight, version of 1 April 1998, with amending sheet dated 5 April 2006. BRL 2372, National Assessment guidelines for the KOMO process certificate for the construction of liquid-tight facilities made of asphalt, version of 1 June 2001, with amending sheet dated 5 April 2006. BRL K908/02, Construction of plastic geomembrane basic systems	
2	Issue of quality declarations	BRL 0203 Cantilevered system floors of pre-manufactured heavy concrete, version of 02-02-2006. BRL 1004 Sandlime brick, version of 26-08-2002, with amending sheet dated 18-03-2004. BRL 1005 Glue mortars for brick, sandlime brick, and cellular concrete, version of 05-07-1999, with amending sheet dated 18-03-2004. BRL 1007 Masonry brick, version of 18-05-2000, with amending sheet dated 18-03-2004.	

		BRL 1008 Bearing internal and external walls, version of 16-12-2003. BRL 1010 Ceramic tiles, version of 18-05-2000, with amending sheet dated 18-03-2004. BRL 1103 Roofs and outer walls with profiled fibre cement boards, version of 06-10-2005. BRL 1104 Industrial flooring boards made of structural concrete, version of 01-02-1999, with amending sheet dated 27-01-2006. BRL 1510 Ceramic roof tiles, version of 01-05-2000, with amending sheet dated 18-03-2004. BRL 1511/2 Channel-shaped. Specific provisions for roofing systems on the basis of reinforced roof channels with a top layer made of SBS-modified bitumen, version of 1-9-2004, with amending sheet dated 22-12-2005. BRL 1511/3 Channel-shaped roofing systems. Specific provisions for roofing systems on the basis of reinforced concrete channels with a top layer made of APP modified bitumen, version of 25-10-2005. BRL 1712 Hollow piles made of steel fibre concrete, version of 01-03-2002, with amending sheet dated 30-01-2006. BRL 1721 Concrete pile caps, version of 01-01-2003, with amending sheet dated 30-01-2006. BRL 1801 Concrete mortar (stationary and mobile concrete mixing plants), version of 05-11-2004, with amending sheet dated 01-06-2006. BRL 1904 Dry cement-bound mortars, version of 15-02-2005 BRL 1905 Mortars for brickwork, version of 11-10-2001, with amending sheet dated 01-02-2005. BRL 2307 Waste incinerator bottom ash for non-bound use on or in the soil, in earth or hydraulic engineering structures, version of 05-01-2006. BRL 2310 Large format concrete tiles, version of 01-12-1995, with amending sheet dated 01-05-2000. BRL 2312 Concrete paving stones, version of 01-01-	

		2005. BRL 2313 Concrete tiles, version of 01-01-2005. BRL 2314 Concrete bands, version of 01-01-2005. BRL 2315 Roof terrace tiles, version of 01-12-1995, with amending sheet dated 01-05-2000. BRL 2316 Prefab paving elements made of concrete that are leaktight for motor fuels and lubricants, version of 01-05-1994, with amending sheet dated 01-05-2000. BRL 2340 Building blocks and stones made of concrete for "dirty brickwork ", version of 01-04-2006. BRL 2352 Concrete piles, version of 15-03-2002, with amending sheet dated 12-01-2006. BRL 2360 Road brick, version of 01-05-2000, with amending sheet dated 30-05-2006. BRL 2368 Non-structural concrete products, version of 07-07-2003, with amending sheet dated 30-1-2006. BRL 2506 Recycled granules for use in concrete, road construction, earth construction and structures, version of 10-12-2004, with amending sheet dated 02-06-2006. BRL 2811 Ferrocement products, version of 1-9-2004, with amending sheet dated 7-2-2006. BRL 2812 Agricultural concrete products, version of 15-09-2002, with amending sheet dated 30-01-2006. BRL 2813 Structural components made of concrete, version of 15-05-2000, with amending sheet dated 30-06-2003. BRL 2817 Cement-bound spacers, version of 01-01-2002, with amending sheet dated 30-01-2006. BRL 4101/9 Part 9: Flat fibre cement panels for outer wall cladding, version of 1-6-2005. BRL 4705 Concrete roof tiles, version of 15-02-1995, with amending sheet dated 29-03-2004. BRL 5063 High-strength concrete, version of 01-01-1996. BRL 5068 Cellular concrete for use in outer walls (type B walls) in structures, version of 05-07-1999, with amending sheet dated 18-03-2004.	

		BRL 5070 Components made of concrete that may come into contact with rainwater, groundwater and/or surface waters, version of 01-12-2003, with amending sheet dated 01-12-2004. BRL 5071 Components made of fibre cement, version of 01-12-2003, with amending sheet dated 16-11-2004. BRL 5075 Cement concrete pavings produced with concrete sludge produced in mobile installations, version of 26-02-2003. BRL 5211 Components for line dewatering, version of 15-07-1996 BRL 52230 Ceramic tubes for drainage, version of 16-09-2003. BRL 5230 Pre-stressed concrete tubes for the transport of waste water, version of 01-06-2000. BRL 5231 Tubes and aids made of reinforced concrete with a plate steel core for the transport of waste water, version of 01-06-2000. BRL 5251 Concrete oil traps and sludge collecting pits, version of 29-09-2005. BRL 5252 Concrete grease traps and sludge collecting pits, version of 29-09-2005. BRL 9080 Gradient components made of concrete, version of 11-11-1997, with amending sheet dated 15-05-2000. BRL 9201 Round tubes made of un-reinforced, reinforced and steel fibre concrete, version of 01-09-2004, with amending sheet dated 01-06-2006. BRL 9202 Pits made of un-reinforced, reinforced and steel fibre concrete, version of 01-09-2004. BRL 9203 Covers for pits and lock chambers, version of 01-02-1996, with amending sheet dated 01-05-2000. BRL 9204 Lock chambers composed of concrete and cast iron, version of 01-02-1996, with amending sheet dated 01-05-2000. BRL 9205 Culvert components made of reinforced concrete, version of 01-07-1995, with amending sheet	

		dated 31-01-2006. BRL 9209 Ovoid tubes made of un-reinforced concrete, version of 01-09-2004. BRL 9210 Drip tubes, version of 01-07-2000. BRL 9301 Mine stone for civil engineering, version of 30-07-2001, with amending sheet dated 02-11-2004. BRL 9302 E bottom ash for unbound use on or in the soil in earth and road building structures, version of 02-11-2004, with amending sheet dated 12-04-2006. BRL 9304 Phosphorus slag mixture for use in road building, phosphorus slag for use in coastal and bank works, version of 07-06-2005. BRL 9305 Environmental hygiene quality of blast furnace slag for use in road building, version of 01-05-2000, with amending sheet dated 02-11-2004. BRL 9309 Products from treatment plants, version of 25-05-1999, with amending sheet dated 01-01-2006. BRL 9310 LD mixtures for use in road building and LD steel slag for use in earth, hydraulic and road building structures, version of 07-07-2005. BRL 9311 Recycled gravel for use on roofs, in unbound layers in civil structures and as aggregate for asphalt, version of 16-07-2002. BRL 9312 Hydraulic engineering stone for use in earth, hydraulic and road building structures, version of 12-04-2006. BRL 9313 Sand from dynamic extraction areas, version of 26-08-2003. BRL 9315 Environmental hygiene quality of expanded clay granules for unbound use in structures, version of 01-03-2000, with amending sheet dated 02-11-2004. BRL 9316 High-grade sand for unbound use on or in the soil in earth, road and hydraulic engineering structures, version of 23-06-2000, with amending sheet dated 02-11-2004. BRL 9317 Lava for unbound use on or in the soil in earth, road and hydraulic engineering structures, version	

		of 20-04-2000, with amending sheet dated 02-11-2004. BRL 9319 The environmental hygiene quality of drinking water residues for use in earthworks, version of 29-03-2001, with amending sheet dated 02-11-2004. BRL 9320 Environmental hygiene quality of bituminous bound mixtures, version of 10-02-2003, with amending sheet dated 02-11-2004. BRL 9321 Environmental hygiene quality of industrial sand and gravel, version of 01-10-2000, with amending sheet dated 01-12-2003. BRL 9322 Cement bound mineral residues as bound foundation in construction, version of 19-04-2005. BRL 9324 Chippings in unbound use, version of 12-04-2006. BRL 9326 Shells, version of 01-09-2000, with amending sheet dated 19-06-2002. BRL 9327 Environmental hygiene quality of bituminous sealing materials for use in water-resistance and water sealing systems, version of 19-01-2005. BRL 9328 ELO steel slag for use in road building and coastal and bank structures, version of 20-06-2002, with amending sheet dated 02-11-2004. BRL 9329 KSP granules in earth, hydraulic and road building structures as drainage material and KSP granules in earth, hydraulic and road building structures as sand in addition or increase, version of 22-12-2003. BRL 9333 Stony products from separating installations for drill rinsing, version of 29-01-2002, with amending sheet dated 19-06-2002. BRL 9335 Earth, version of 18-05-2005. BRL 9336 E fly ash, version of 27-07-2005, with amending sheet dated 12-04-2006.	
3	Analysis of building materials, earth or dredging sludge	NEN-EN-ISO/IEC 17025	
		AP 04-V, Accreditation programme under Building Materials Decree, Sample Preparation section, version 4, laid down on 3 March 2005	

		AP 04-SG, Accreditation programme under Building Materials Decree, section relating to Composition of earth, version 7, laid down on 3 March 2005.	Package SG1, Standard package for pre-treatment of earth samples, compositional operations relating to earth. Package SG2, Addition to SG1, additional operations relating to non-volatile organic substances. Package SG3, Addition to SG1, additional operations relating to volatile organic substances. Package SG4, Addition to SG1, additional operations relating to inorganic substances. Package SG5, Addition to SG1, other operations for a full compositional analysis.
		AP 04-SB, Accreditation programme under Building Materials Decree, section relating to Composition of building materials (other than earth), version 3, laid down on 3 March 2005.	Package SB1, Standard package for sample pre-treatment and determination of composition in relation to the content of dry matter, PAH (with the exception of bituminous materials), EOX and mineral oil in building materials. Package SB2, Addition to SB1, additional operations relating to the determination of the content of PCB/OCB, ONB and OPB in building materials. Package SB3, Addition to SB1, additional operations relating to determination of the content of BTEX in building materials. Package SB4, Addition to SB1, additional operations relating to determination of content of PAH in bituminous materials and the research protocol for other parameters.

		AP 04-U, Accreditation programme under Building Materials Decree, section relating to Leaching research, version 3, laid down on 3 March 2005. AP 04-E, Accreditation programme under Building Material Decree, section relating to Analysis of eluates, version 3, laid down on 3 March 2005.	Package U1, Leaching research for earth, un-moulded and moulded building materials, non-diffusion-determined leaching. Package U2, Leaching research for moulded building materials, diffusion-determined leaching in the case of no or limited leaching or rapid exhaustion expected. Package U3, Leaching research for moulded building materials, diffusion-determined leaching in the case of limited leaching or rapid exhaustion expected.
4	Analysis for environmentally hygienic soil research	NEN-EN-ISO/IEC 17025	
		AS 3000, Accreditation scheme for Laboratory analyses for environmentally hygienic soil test, version 1, laid down on 9 December 2004.	SIKB protocol 3001, Preservation methods of preservation timescales for environmental samples, version 1.0, laid down on 10 December 2003. SIKB protocol 3010, Laboratory analyses for environmentally hygienic soil test, Basic package, version 2.1, laid down on 7 March 2006. SIKB protocol 3020, Laboratory analyses for environmentally hygienic soil test, Additional I, version 2, laid down on 9 December 2004. SIKB protocol 3030, Laboratory analyses for environmentally hygienic soil test, Additional II, version 2, laid down on 9 December 2004. SIKB protocol 3040, Laboratory analyses for environmentally hygienic soil test, Additional III, version 2, laid down on 9 December 2004. SIKB protocol 3050, Laboratory analyses for environmentally hygienic soil test, Additional IV, version 2, laid down on 9 December 2004.
5	Treatment of contaminated earth or dredging sludge	BRL SIKB 7500, Assessment guidelines relating to Treatment of contaminated earth and dredging sludge, version 2.0, laid down on 28 September 2005.	SIKB protocol 7510, Process ex situ cleaning of earth and dredging sludge, version 2.0, laid down on 28 September 2005. SIKB protocol 7511, Sand separation, maturation and land farming of dredging sludge, version 2.0, laid down on 28 September 2005.

6	Certification of legal entities	NEN EN 45011 / 45013 and one or more standard documents included in this Table with the exception of the standard documents set out under category 2.	
7	Inspection of liquid-tight facilities	NEN-EN-ISO/IEC 17020 CUR/PBV Recommendation 44, Assessment of liquid tightness of liquid-tight facilities, fourth issue, 2005. WF98-01 "Expertise requirements concerning expert inspector of soil-protecting facilities"	Inspection of floor, wall and paving. Inspection of industrial drainage. Inspection of geomembrane basin systems.
8	Environmental monitoring (environmental process control or environmental verification)	BRL SIKB 6000, Assessment guidelines relating to environmental monitoring and evaluation of soil decontamination, version 1.3, laid down on 10 December 2003.	VKB protocol 6001, Environmental monitoring and evaluation of terrestrial soil decontamination with conventional methods, version 1.3, laid down on 10 December 2003. VKB protocol 6002, Environmental monitoring and evaluation of terrestrial soil decontamination with in situ methods, version 1.2, laid down on 12 May 2003. VKB-protocol 6003, Environmental monitoring and evaluation of sediment decontamination, version 1.2, laid down on 12 May 2003.
9	Sampling during batch inspections	AP 04-M, Accreditation programme under Building Materials Decree, section relating to sampling, version 3, laid down on 20 April 2006. Until 1 May 2007, it is authorised to use version 2, laid down on 6 December 2001.	Package M1, Sampling of earth from static batches. Package M2, Sampling of earth. Package M3, Sampling of un-moulded building materials. Package M4, Sampling of moulded building materials

		BRL SIKB 1000, Assessment guidelines relating to the SIKB process certificate for sampling for batch inspections under the Building Materials Decree, version 7, laid down on 3 March 2005.	Sampling of earth for batch inspections. Sampling of earth from material streams for batch inspections. Sampling of un-moulded building materials from static batches for batch inspections. Sampling of un-moulded building materials from material streams/dumping streams for batch inspections. Sample pre-treatment on site for batch inspections. Sampling of moulded building materials from static batches for batch inspections. Sampling of materials for paving structures for batch inspections. Sampling of moulded building materials during production process for batch inspections.
10	Producers on the basis of a NBRL	The standard documents included in category 2.	
11	Performance of soil decontamination operations	BRL SIKB 7000, Assessment guidelines relating to the performance of soil decontamination operations, version 3.1, laid down on 10 December 2003.	SIKB protocol 7001, Performance of terrestrial soil decontamination operations with conventional methods, version 3.1, laid down on 10 December 2003. SIKB protocol 7002, Performance of terrestrial soil decontamination operations with in situ methods, version 1, laid down on 24 September 2003. SIKB protocol 7003, Performance of sediment decontamination operations, version 1.0, laid down on 24 September 2003.
12	Fieldwork	BRL SIKB 2000, Assessment guidelines relating to the SIKB process certificate for fieldwork in connection with environmentally hygienic soil test, version 3, laid down on 3 March 2005.	VKB protocol 2001, Installation of hand bore holes and dip sticks, production of drilling descriptions, collection of earth samples and spirit levels, version 3, laid down on 3 March 2005. VKB protocol 2002, Collection of groundwater samples, version 3, laid down on 3 March 2005. VKB protocol 2018, Location of inspection and sampling of asbestos in soil, version 2.1, laid down

			on 3 March 2005.

Annex D associated with the Soil Quality Regulation

Summary of standard documents and research protocols used

I. Standard documents

In relation to the standards referred to in this Regulation, the following versions should be used:

- ASTM standard D 3682-01, Standard test methods for major and minor elements in coal and coke ash by atomic absorption, 2006, available from the American National Standards Institute's website (www.ansi.org)

- BRL 1148, National Assessment guidelines for the KOMO process certificate for the construction of sealing layers with sand bentonite polymer gel including combination seals, 1 September 1998
- BRL 1149, National Assessment guidelines for the KOMO process certificate for the processing of plastic film, 14 June 2002

- CROW publication 125, Working with the guidelines on IBC measures – Evaluation of regular structures and experience-based projects, 1 April 1998
- CROW publication 144, Review framework for IBC measures, March 2000

- CUR Recommendation 49, Bentonite mats in soil-protecting facilities, 1 June 1997
- CUR Recommendation 50, Bentonite mats in soil-protecting facilities, 1 November 1997

- NVN 5710, Soil, building materials and sediment – Determination of the contents of ten (sixteen) polycyclic aromatic hydrocarbons (PAH) in soil by on-line purification and high pressure liquid chromatography (HPLC), March 2003 draft
- NVN 5720, Soil – Sediment – Investigation for exploratory survey, March 2000
- NVN 5731, Soil – Determination of the content of ten polycyclic aromatic hydrocarbons by high pressure liquid chromatography, December 1998
- NEN 5733, Soil – Determination of mineral oil content in soil and sediments with gas chromatography, July 1997
- NEN 5735, Soil – Determination of the halogen content originated from non-volatile, with acetone and petroleum ether extractable organohalogen compounds (EOX), June 1999
- NEN 5740, Soil – Investigation strategy for exploratory survey – Investigation of the environmental quality of soil and soil lots, April 2000

- NPR 6416, Atomic absorption spectrometry – Flame analysis – General guidelines, June 1995
- NPR 6417, Atomic absorption spectrometry – Graphite furnace technique – General guidelines, July 1997

- NEN 7300, Leaching characteristics of solid earthy and stony building and waste materials - Sampling – General instructions, November 1999 draft
- NVN 7301, Leaching characteristics of solid earthy and stony earthy and stony building and waste materials - Sampling - Sampling of granular materials from streams, November 1999 draft
- NVN 7302, Leaching characteristics of solid earthy and stony building and waste materials - Sampling - Sampling of granular materials from static heaps, November 1999 draft
- NVN 7303, Leaching characteristics of solid earthy and stony building and waste materials - Sampling - Sampling of moulded and monolithic materials, November 1999 draft

- NEN 7310, Leaching characteristics of solid earthy and stony building and waste materials – Sample pre-treatment – General instructions, June 1995
- NVN 7311, Leaching characteristics of solid earthy and waste materials – Sample pre-treatment – Sample storage and preservation, June 1995
- NVN 7312, Leaching characteristics of solid earthy and stony building and waste materials – Sample pre-treatment – Sample pre-treatment for leaching tests and the analysis of inorganic components, June 1995
- NEN 7331, Bitumen and bitumen containing materials – Determination of the content of polycyclic aromatic hydrocarbons (PAH) and of benzene, toluene, ethylbenzene and xylene (BTEX) – Gas-chromatographic method with mass spectrometric detection, December 2004 draft
- NEN 7371, Leaching characteristics – Determination of the availability of inorganic components – Solid earthy and stony materials, January 2004
- NEN 7373, Leaching characteristics – Determination of the leaching of inorganic components from granular materials with a column test – Solid earthy and stony materials, January 2004
- NEN 7375, Leaching characteristics – Determination of the leaching of inorganic components from moulded or monolithic materials with a diffusion test – Solid earthy and stony materials, January 2004
- NEN 7383, Leaching characteristics – Determination of the cumulative leaching of inorganic components from granular materials with a simplified procedure of the column – Solid earthy and stony materials, January 2004

- NEN-ISO 3310-2, Test sieves – Technical requirements and testing – Part 2: Test sieves of perforated metal plate, September 1999
- NEN-ISO 10382, Soil quality – Determination of organochlorine pesticides and polychlorinated biphenyls – Gas-chromatographic method with electron capture detection, March 2003
- NEN-ISO 15009, Soil quality – Gas chromatographic determination of the content of volatile aromatic hydrocarbons, naphthalene and volatile halogenated hydrocarbons - Purge-and-trap method with thermal desorption, December 2002

- NEN-EN 13383-1, Armourstone – Part 1: Specification, June 2002
- NEN-EN 13383-2, Armourstone – Part 2: Test methods, May 2002

II. Test protocols

Test protocols for soil, other than soil below surface water:

- Soil investigation (environmental licensing) protocol and BSB, October 1993 (SIKB)

Test protocols for soil below surface water, applicable nationally:

- Test protocol for laying down classification for maintenance sludge, Ministry of Housing, Planning and the Environment, 2006.
- Guidelines on further research for sediments, Institute for Inland Water Management and Waste Water Treatment, 2002.
- Protocol for preliminary research, Ministry of Housing, Planning and the Environment, 1993.
- Protocol on Further Research, Part 1, SDU, 1994.
- Guidelines on Further Research, Part 1, SDU, 1995.

Test protocols for soil below surface water, applicable to specific areas or applications:

- Sample campaign for Rotterdam harbours and waterways, twice-yearly monitoring of harbour area, Department of Public Works and Municipal Port Authority of Rotterdam, pm year
- Guidelines on Environmental chemistry research on Maas structures, Department of Public Works, 2002.
- Memorandum on elaboration of dredging policy III, South Holland Province, 2004.
- Intermediate guidelines on test strategy for river forelands in the management area of the Department of Public Works, East Netherlands Directorate, Department of Public Works, 1996.
- Guidelines on sediment test in river forelands, Department of Public Works, 2006.
- Test plan for sand supplementation operations, Department of Public Works, 2005.

Annex E associated with section 3.1 of the Soil Quality Regulation

Determination of whether a building material is stony

Determination of masses

Calculation of the masses of aluminium (Al), calcium (Ca) and silicon (Si) is carried out by the following method. To determine the content of Al, Ca and Si, a calibration curve is drawn up. This curve is based on the absorption values of the standard solutions ('Standards') as described in ASTM standard D 3682-01 (section 9.1, section 10.1 and section 12.1). At low enough concentrations, the calibration curve satisfies Lambert-Beer's Law, forming a straight line. If this proves not to be the case, the standard solutions are diluted.
The absorption levels of the blank and the sample to be investigated ('sample solution'), prepared as described in section 9.3, section 10.3 and section 12.3 of ASTM standard D 3682-01, are measured. The calibration curve is used to determine the concentration in the blank (c_b in ppm) and the sample (c_m in ppm). These two concentrations are deducted from each other, giving the concentration in the measured sample:

$$c'_m \text{ (ppm)} = c_m \text{ (ppm)} - c_b \text{ (ppm)}$$

If it emerges during the measurements that the sample to be investigated is outside the measurement range, the sample to be investigated is further diluted (dilution factor f) with the blank solution. Information on the performance of analyses with the aid of atomic absorption spectrometry can be obtained from NPR 6416 and NPR 6417.
The following formulae are elaborated to calculate the percentage of Al, Ca and Si in the material investigated (%Al, %Ca and %Si respectively):

$$\% \text{ Al} = \frac{c'_m \text{ (Al)} * f * V_o}{m} * 100\%$$

$$\% \text{ Ca} = \frac{c'_m \text{ (Ca)} * f * V_o}{m} * 100\%$$

$$\% \text{ Si} = \frac{c'_m \text{ (Si)} * f * V_o}{m} * 100\%$$

where:

- f is the factor (dimensionless) with which the sample to be investigated (where appropriate, extra) has been diluted;
- m is the mass of the sample to be investigated that has been taken up, in g;
- V_o is the total volume of destruate, in ml;
- Vo/m is 1/200 ml/g for Al, 1/200 ml/g for Ca and 1/50 ml/g for Si (see ASTM standard D 3682-01 section 9.3, section 10.3 and section 12.3, 'sample of solution').

Determination of the mean

The percentage of aluminium, silicon and calcium is determined for each mixed sample. The mean of this is then determined. Based on this mean, it is checked whether the total contents of silicon, aluminium and calcium together account for more or less than 10% (m/m) of the material to be investigated.

Annex F associated with section 3.2 of the Soil Quality Regulation

Determination of whether a building material can be regarded as moulded and permanently non-deformable

Determination of the volume of the smallest unit on the basis of dimensions

The following formula is used for calculating volume:

$V = 1000 * (M_1 - M_2) / \rho$

where:
V = volume of the element, in m^3
M_1 = the mass of the moist test piece, in g
M_2 = the apparent mass under water of the element referred to in Chapter 8 of NEN-EN 13383-2, in g
ρ = the density of water at the test temperature of the water bath, in g/cm^3

Determination of the volume of the smallest unit on the basis of a sieve test

A building material is, based on the results of a determination of the grain distribution by means of a sieve test, regarded as building material with a volume per smallest unit of at least 50 cm^3 if the grain distribution diagram of a sample of that building material, determined by sieving in accordance with the given standard documents, conforms to the values below:

sieve size	percentage by mass (m/m) of sieved material	standard document
90 mm	0 - 90%	NEN-EN 13383-2
63 mm	0 - 60%	NEN-EN 13383-2
45 mm	0 - 35%	NEN-ISO 3310-2
31.5 mm	0 - 10%	NEN-ISO 3310-2
16 mm	0 - 5%	NEN-ISO 3310-2

Non-permanently non-deformable applications

The list below sets out combinations of applications and building materials that are not regarded as permanently non-deformable.

Area of use	Application	Non-permanently non-deformable building materials
Road building	foundation layer	- stabilised clay - stabilised loam - stabilised E fly ash
	paving layer	- surface treatment
Hydraulic engineering	top layer	- sand cement blocks - non-moisture-resistant steel slag, as referred to in the Standard RAW provisions 1990 (see note 1)
	dynamically stable construction	- all building materials
	core	- non-moisture-resistant steel slag, as referred to in the Standard RAW provisions 1990 (see note 1)

Note 1. Testing takes place in accordance with the regulations and criteria of the Standard RAW provisions 2005 (CROW, Ede).

Moulded building materials that must be determined by the column test

Area of use	Application	Building materials
	paving layer	- very open asphalt concrete (VOAC) - very open cement concrete
Hydraulic engineering	top layer	- open colloidal concrete

Annex G associated with article 4.2.1 of the Soil Quality Regulation

Formulae for soil type correction

I. Formulae for soil type correction for soil, other than soil below surface water, where earth or dredging sludge is used in accordance with the review frameworks in sections 2 and 3 of Chapter 4, Part 2 of the Decree

The background values and the maximum values in Tables 1 - 2 in Annex B are dependent on the lutum content and/or the organic matter content.

The formulae for correcting the measurement values in earth and dredging sludge for the soil type are in accordance with the formulae for this in Annex A to the Circular on target values and intervention values for soil decontamination.

When assessing the quality of the soil or the batch of earth or dredging sludge to be used or applied, the values set out in the Tables (background values and maximum values for a standard soil) are converted to the values for the soil in question or the batch of earth or dredging sludge to be used or applied. The measured contents of organic matter and lutum in the soil or the batch of earth and dredging sludge to be used or applied are used in this connection. The converted maximum values can then be compared with the contents measured.

The organic matter content is as follows for this: the percentage by weight of loss on ignition based on the total dry weight of the earth.
The lutum content is as follows for this: the percentage by weight of mineral constituents with a diameter of less than 2 µm based on the total dry weight of the earth.

<u>Metals</u>
The following soil type correction formula is used for the conversion to standard soil for metals:

$$(MW)_{b,g,bs} = (MW)_{sb} \times \{\{(A + (B \times \%lutum) + (C \times \%\ organic\ matter)\} / \{(A + (B \times 25) + (C \times 10)\}\}$$

Where:

$(MW)_{b,g,bs}$	=	maximum value or background value that applies to the place of use or to the batch of earth and dredging sludge to be used or applied, corrected on the basis of the arithmetic mean of the lutum and organic matter content, as measured in the soil or the earth or dredging sludge to be used
$(MW)_{sb}$	=	maximum value or background value for standard soil, which applies as the usage requirement for the place of use
% lutum	=	measured percentage of lutum in the soil, earth or dredging sludge to be assessed
% organic matter	=	measured percentage of organic matter in the soil, earth or dredging sludge to be assessed
A,B,C	=	substance-dependent constants for metals (see below)

Substance-dependent constants for metals:

Substance	A	B	C
Arsenic	15	0.4	0.4
Barium	30	5	0
Beryllium	8	0.9	0
Cadmium	0.4	0.007	0.021
Chromium	50	2	0
Cobalt	2	0.28	0
Copper	15	0.6	0.6

Mercury	0.2	0.0034	0.0017
Lead	50	1	1
Nickel	10	1	0
Tin	4	0.6	0
Vanadium	12	1.2	0
Zinc	50	3	1.5

Organic compounds

The following soil type correction formula is used for converting to standard soil for organic compounds, with the exception of PAHs:

$(MW)_{b,g,bs}$ = $(MW)_{sb}$ x / (%organic matter / 10)

Where:

$(MW)_{b,g,bs}$ = maximum value or background value that applies to the place of use or the batch of earth or dredging sludge to be used or applied, corrected on the basis of the arithmetic mean of the lutum and organic matter content as measured in the earth or dredging sludge to be used

$(MW)_{sb}$ = maximum value or background value for the standard soil, which applies as the application requirement for the place of use

% organic matter = measured percentage of organic matter in the soil, earth or dredging sludge to be assessed. Contents of 30% and 2% respectively are adopted for soil, earth or dredging sludge with a measured organic matter content of more than 30% and less than 2%.

PAHs

For PAHs, the method of correction to standard soil depends on the percentage of organic matter. For PAHs, no soil type correction is performed for soils with an organic matter content of up to 10%. Between 10% and 30% organic matter content, the following soil type correction formula is used:

$(MW)_{b,g,bs}$ = $(MW)_{sb}$ x (% organic matter / 10)

Where:

$(MW)_{b,g,bs}$ = maximum value or background value that applies to the place of use or to the batch of earth or dredging sludge to be used or applied, corrected on the basis of the arithmetic mean of the lutum and organic matter content as measured in the soil and the earth or dredging sludge to be used

$(MW)_{sb}$ = maximum value or background value for standard soil that applies as the usage requirement for the place of use

% organic matter = measured percentage of organic matter in the soil, earth or dredging sludge to be assessed

The following soil type correction formula is used for soils with an organic matter content of upwards of 30%:

$(MW)_{b,g,bs}$ = $(MW)_{sb}$ x 3

Where:

$(MW)_{b,g,bs}$ = maximum value or background value that applies to the place of use or to the batch of earth or dredging sludge to be used or applied, corrected on the basis of the arithmetic mean of the lutum and organic matter content as measured in the soil or the earth or dredging sludge to be used

$(MW)_{sb}$	=	maximum value or background value for standard soil, which applies as the usage requirement for the place of use
% organic matter	=	measured percentage of organic matter in the soil, earth or dredging sludge to be assessed

II. Formulae for soil type correction for soil, other than soil below surface water, where earth or dredging sludge is used in accordance with the review framework in section 1 of Chapter 4, Part 2 of the Decree

When determining whether local maximum values are breached, the soil type correction takes place in two steps:

1. Conversion of the local maximum values for the soil quality zone to standardised local maximum values, on the basis of the mean lutum and organic matter contents in the soil quality zone in question.

2. Conversion of the standardised local maximum value to the maximum values for the batch of earth or dredging sludge to be used, on the basis of the mean lutum and organic matter contents in the earth or dredging sludge to be used.

Step 2 takes place in accordance with the description in Part I of this Annex.

The way in which step 1 is performed is described below:

Conversion of local maximum values to standardised local maximum values

<u>Metals</u>

When converting local maximum values to standardised local maximum values for metals, the following soil type correction formula is used:

$(LMW)_{sb} = (LMW)_b$ / {{(A + (B x % lutum) + (C x % organic matter)} / {(A + (B x 25) + (C x 10)}}

Where:

$(LMW)_b$	=	local maximum values as laid down by the local council or the water quality manager, not corrected for lutum and organic matter
$(LMW)_{sb}$	=	local maximum values corrected for standard soil
% lutum	=	arithmetic mean of the measured percentages of lutum in the soil quality zone or in the area to which the local maximum values relate
% organic matter	=	arithmetic mean of the measured percentages of organic matter in the soil quality zone or in the area to which the local maximum values relate
A,B,C	=	substance-dependent constants for metals (see below)

Substance-dependent constants for metals:

Substance	A	B	C
Arsenic	15	0.4	0.4
Barium	30	5	0
Beryllium	8	0.9	0
Cadmium	0.4	0.007	0.021
Chromium	50	2	0
Cobalt	2	0.28	0
Copper	15	0.6	0.6
Mercury	0.2	0.0034	0.0017

Lead	50	1	1
Nickel	10	1	0
Tin	4	0.6	0
Vanadium	12	1.2	0
Zinc	50	3	1.5

Organic compounds

The following soil type correction formula is used for converting local maximum values to standardised local maximum values for organic compounds, with the exception of PAHs:

$(LMW)_{sb} = (LMW)_b$ / (% organic matter / 10)

Where:

$(LMW)_b$ = local maximum values as laid down by the local council or the water quality manager, not corrected for lutum and organic matter
$(LMW)_{sb}$ = local maximum values corrected for standard soil
% organic matter = measured percentage of organic matter in the soil, earth or dredging sludge to be assessed

PAHs

For PAHs, the method of correction to standard soil depends on the percentage of organic matter. For PAHs, no soil type correction is performed for soils with an organic matter content of up to 10%. Between 10% and 30% organic matter content, the following soil type correction formula is used:

$(LMW)_{sb} = (LMW)_b$ / (% organic matter / 10)

Where:

$(LMW)_b$ = local maximum values as laid down by the local council or the water quality manager, not corrected for lutum and organic matter
$(LMW)_{sb}$ = local maximum values corrected for standard soil
% organic matter = measured percentage of organic matter in the soil, earth or dredging sludge to be assessed

The following soil type correction formula is used for soils with an organic matter content of upwards of 30%:

$(LMW)_{sb} = (LMW)_b / 3$

Where:

$(LMW)_b$ = local maximum values as laid down by the local council or the water quality manager, not corrected for lutum and organic matter
$(LMW)_{sb}$ = local maximum values corrected for standard soil
% organic matter = measured percentage of organic matter in the soil, earth or dredging sludge to be assessed

III. Formulae for soil type correction for soil below surface water

The conversion of measured concentrations in sediment to a standard soil has been assumed from the Fourth Water Management Memorandum. This conversion is carried out via the following formula:

$$G_{standaard} = G_{gemeten} \frac{A + B \times 25 + C \times 10}{A + B \times \%L + C \times \%H}$$

Translation of captions:
standaard = standard
gemeten = measured

Where:

$G_{standaard}$	standardised content
$G_{gemeten}$	measured content
A	standardisation factor A
B	standardisation factor B
C	standardisation factor C
$\%L$	lutum content [%]
$\%H$	humus content [%] = organic matter content [%]

Standardisation factors A, B and C have been recorded per parameter or substance group in the Towabo database `Towabo95.mdb`. A priority sequence is adopted for determining the lutum and humus content. In addition, a minimum en maximum value have been defined for the humus content. The priority sequence, conditions of the methods of determination and any minimum and maximum values have been set out in the tables below.

Table 1 Method of determining lutum content

Sequence	Condition	Method of determination
1	If KGF2 > 20%	Measured value KGF2
	If KGF2 < 20%	0.63 * measured value KGF16
2	If KGF2 unknown	0.63 * measured value KGF16
3	If KGF16 unknown	Measured value KGF2

Table 2 Method of determining humus content

Sequence	Condition	Method of determination
1	If %OC unknown	1.724 *measured value% OC
2	If %OC unknown	90% * (100 – measured value %GR)
3	If %GR unknown	measured value %OS

Table 3 Minimum and maximum value for humus content

Substance group	Min	Max
Inorganic parameters	-	-
Organic parameters	2	30
PAHs	10	30

If the parameters for determining %L and/or %have been measured below the determination limit, the determination limit is used as the measurement value and the following is stated for the test result: "*Calculation has been carried out with the value of the determination limit; in the event of further assessment, you should take this into account*".
If the measured or calculated value for %L is less than 3%, the following is stated for the test result: "*According to the regulations, the lutum content is unreliable; in the event of further assessment, you should take this into account*".

Annex H associated with sections 3.6 and 3.7 of the Soil Quality Regulation

Calculation of k values

Definition of k value

The k value is defined as:

$$k = \frac{\log(\text{test value}) - y}{s_y}$$

Where:
- test value = the relevant emission or compositional requirement of Annex A to this Regulation
- y = the mean of the log transformed observations
- sy = the standard deviation of the log transformed
- observation = the mean emission or composition of a batch.

The mean and standard deviation are determined on the basis of the last five or ten observations (ten for manufacturer's own declaration). The logarithm of the individual observation is first taken in order then to determine the mean of these log-transformed observations.

Summary of k values for certification

The Table sets out, for the various classes, the minimum k values required and the associated minimum frequencies of the production inspection. In this context, N denotes the number of observations for which the k value has been calculated.

Class	k value (N=5)	k value (N=10)	Inspection frequency
			Sampling regime
90 / (> 99.9)	> 6.12	> 4.63	Once every 3 years
90 / (99 – 99.9)	= 6.12	= 4.63	Once every year
90 / (90 - 99)	= 4.67	= 3.53	Once every 10 batches (with a minimum of 5 times every 3 years)
90 / (70 - 90)	= 2.74	= 2.07	Once every 4 batches (with a minimum of 10 times every 3 years)
90 / (50 - 70)	= 1.46	= 1.07	Once every 2 batches (with a minimum of 5 times a year)
			Batch inspection regime
90 / (< 50)	= 0.69	= 0.44	Every batch (with a minimum of 10 times a year)

Gamma scheme for certification

The value of ? depends on, among other things, the number of inspections for which the k value is calculated (five or ten) and whether a moulded or an un-moulded building material is involved.

Determination	Number	?	Inspection frequency
composition of building materials or leaching of un-moulded building materials	five	0.27	once every year
	five	0.17	once every 3 years
	ten	0.26	once every 3 years
leaching of moulded building materials	five	0.41	once every year
	five	0.29	once every 3 years
	ten	0.37	once every 3 years

Annex I associated with section 3.10 of the Soil Quality Regulation

Insulating facilities

Draft checklist

Rooting/undermining - overgrowth that impairs insulating facility - activities of burrowing animals
Slope - gradient that allows for maintenance and inspection
Road furniture - sufficient earth cover (1.5 m) not to damage the seal in the case of: a. installation of lighting masts, road portals, guide rails, traffic lights, emergency telephones, etc. b. replacement of cabling and piping. - minimise bushings
Stability - match slope gradients to sliding resistance of layers to be applied - mechanical and chemical erosion of the materials by one another
Paving as insulating layer - leak-tight surface without cracks, even after any settlement
Frost damage - prevention by sufficient earth cover (which is also specified for Road furniture)
Durability of insulating facilities - impairment of the quality of the materials used; in the case of waste incinerator bottom ash, always install a barrier - insulating facility resistant to black ice control (road salt) - method of installation (sharp edges, wrinkle formation) - sensitivity to soil-forming processes and wet-dry cycles - damage in the event of disasters
Settlement differences - settlement differences as a result of inhomogeneous subsoils - pay special attention to raised ditches and channels
Soil situation - height of the ground level - soil profile - groundwater levels - groundwater flow (current and after construction of structure) - course of brooks, ditches, old foundations - earlier activities, use
Method of installation - damage from equipment

Management checklist

Drainage system operation	
Laterally emerging water	
Crack formation	
Drying operations	
Settlement differences in slopes	
Shearing of slopes	
Animal activities - presence of burrows (of rabbits, etc.)	
Vegetation - vegetation indicative of water embankment (reeds) - vegetation in a poor state (as a result of gas formation in embankment) - vegetation taking root too deeply	
Cracking	
Odour	

Annex J associated with article 4.3.5 of the Soil Quality Regulation

Guidelines on drafting of soil quality maps

1. Drafting of soil quality maps for soil, other than soil below surface water

This Chapter describes the method for drawing up soil quality maps for soil, other than soil below surface water, pursuant to the Soil Quality Decree.

The procedure for the drafting of soil quality maps is set out on the basis of a step plan. The various steps are explained in the text of this Chapter. Where applicable, the minimum requirements to be met are specified for those steps.

It is in practice unnecessary actually to follow the step plan one step at a time in accordance with the outline in section 1.1. However, it is necessary for the elements of the step plan given here to feature in one's procedure.
If a procedure of one's own is adopted, this should at least meet the minimum requirements laid down at the end of the various sections of Chapter 1.

1.1 Outline

The outline of the step plan is set out in Figure 1.1

The various steps are further defined and elaborated in the following subsections.

In **Step 1**, the choices of policy and technical substance are made. These jointly form the framework within which the soil quality map is produced: the programme of requirements.

In **Step 2**, it is defined on the basis of a checklist what characteristics are expected to play a major role in defining subareas within the management area.

In **Step 3**, the information available from the management area is collected and sent for processing into a soil quality map.

In **Step 4**, the management area is divided into subareas. This takes place on the basis of the characteristics expected in Step 2 to be crucial to soil quality.

In **Step 5**, it is established on the basis of the available measurement results whether the division into subareas in Step 4 is correct.

In **Step 6**, additional information is collected for the subareas for which this is necessary. In total, adequate information must be available after Step 6 to be able to define the subareas as a soil quality zone.

In **Step 7**, the various types of data available from each soil quality zone are interpreted coherently. Based on this, a report is drawn up setting out and justifying the definition of the soil quality zone.

In **Step 8**, on the basis of the soil quality zone and the function map, the usage requirement per soil quality zone is formulated (generic, area-specific parameters) and it is indicated for each soil quality zone under what condition earthmoving without additional inspection has been authorised (excavation map). Step 8 has been divided into a Step 8 for usage of the generic framework and Step 8 for using the area-specific framework.

Lastly, the soil quality map now available is defined in policy terms.

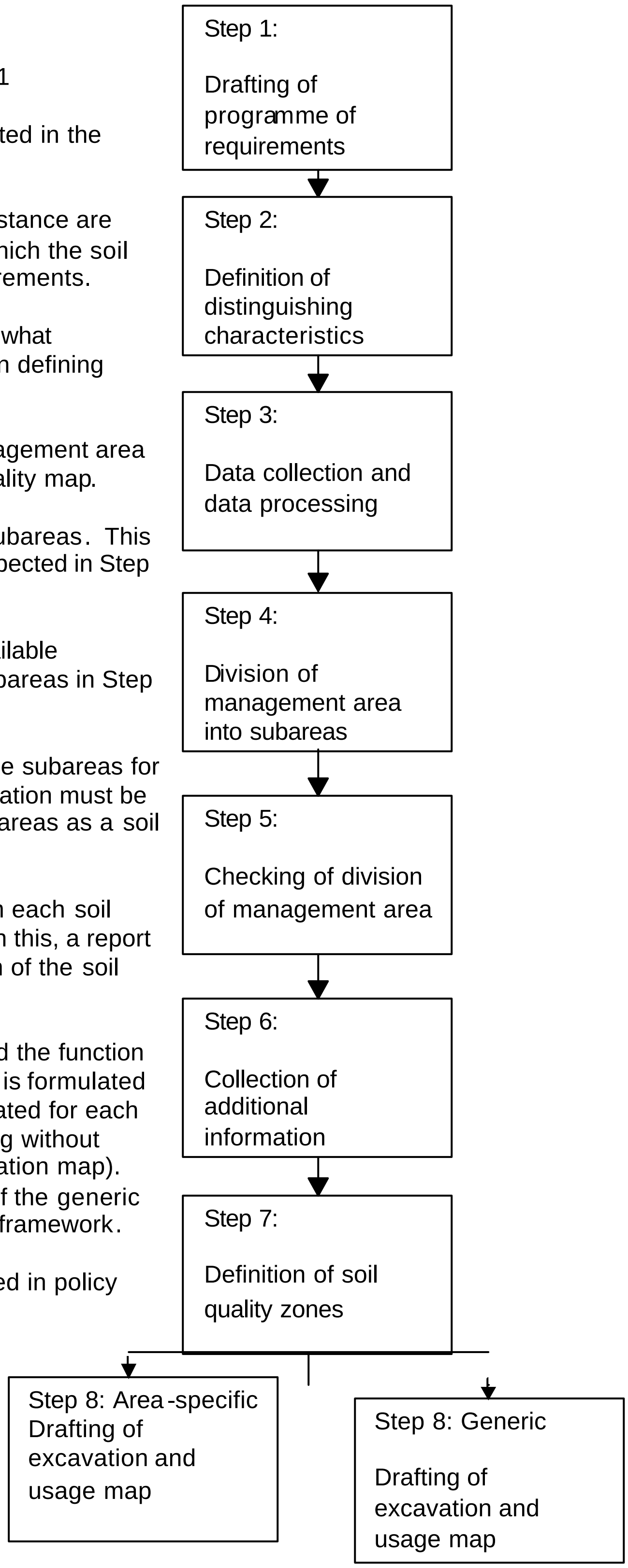

Figure 1.1 *Outline of step plan*

Minimum requirements:
The following is necessary for drawing up a soil quality map:
- the definition of a step plan, which must provide for at least the following elements:
  - drafting of a programme of requirements;
  - definition of the characteristics on which the area classification is based;
  - division of the management area into subareas;
  - definition of whether the subareas have been defined in such a way that they meet the quality requirements laid down to be defined as a soil quality zone;
  - translation of the soil quality zones into the usage map and the excavation map and also the map with excluded locations/subareas and the policy definition of this, either in a soil management memorandum (area-specific) or as an independent map (generic).

1.2 Step 1 Definition phase, Programme of requirements

The starting point for the drafting of the soil quality map is provided by the policy decision to facilitate earthmoving with a soil quality map.

As a first step in producing a soil quality map, the programme of requirements that applies to the map must be drawn up. It is specified in this programme of requirements what requirements must be met by the soil quality map. The programme of requirements arises not only from the policy desires and requirements but also from the technically substantive requirements as set out in these guidelines.

Policy substantiation of area-specific policy in soil management memorandum
In a generic framework, no further policy substantiation needs to be given: facilitating earthmoving with a soil quality map in accordance with the generic system provides adequate policy substantiation. The **policy substantiation** in an area-specific framework should address the objective and the use for which the soil quality map is drawn up. This is further fleshed out in the soil management memorandum. The soil management memorandum indicates how and under what conditions earthmoving is possible within and from outside the management area. The conditions cited depend on, among other things, the soil quality. The soil management memorandum thus forms the “stepping stone” for, among other things, the soil quality maps to be drawn up with the aid of these guidelines.

Exclusion of point source locations from soil management
In policy terms, the point of departure is that soil management is geared to proceeding sustainably with earth and dredging sludge released as a result of diffuse contamination. It is expressly not the intention to incorporate in soil management any point source locations which, in terms of pollution profile, differ sharply from the general area quality via the soil quality map. For those point source locations, the curative decontamination route is still the route to be followed. It is known that in decontamination operations, earth is also released which, following inspection, proves to conform to the diffuse area quality or for example the maximum values that apply to large-scale applications. Of course, such earth may be used as soil or in large-scale applications. The point source locations themselves may, however, never form part of the soil quality map. The reasons for this are both policy-related (the management route is for sustainable handling with diffuse soil pollution) and substantive (the quality of the soil at point source locations differs sharply from the quality of the soil in the rest of the management area). The active exclusion of all suspect locations on the soil quality map should form a compulsory element in the programme of requirements. This is done by including a separate map layer on a list of all locations suspected of local soil contamination and thus do not form part of the soil quality map (locations marked in the nationwide profile (NWP list) may be used as a (potential) case of (severe) contamination. In addition, prior to the excavation of earth from a zoned area, it should be determined on the basis of historical research on a case by case basis that there is actually not a point source that influences the quality of the earth to be excavated.

Banded diffusely contaminated locations as a separate zone
We also know of a number of banded diffusely contaminated locations (railways, road verges, old building bands and sediments) with a source which in many cases still takes care of the supply of contaminants. In many cases, these banded locations have a clearly different level of pollution than the background quality of the management area. These locations should in that case be regarded as a separate zone. It will then usually be possible for the earth and dredgings released to be earmarked within the same banded zone so that the spread of the pollution to less contaminated parts of the management area is prevented.

The soil quality map drawn up in accordance with these guidelines facilitates earthmoving. Besides this objective, other facilities may also prompt the drafting of a soil quality map. However, these guidelines only provi de directions and instructions for the drafting of soil quality maps in connection with earthmoving.

Substantiation of technical content
The substantiation of technical content should address the requirements to be met by the soil quality map. These guidelines specify a part of these requirements, namely those requirements deemed essential for the quality of the earthmoving.

This specification is partly given at generic level. In addition, the guidelines assume the minimum requirements to be met. This means that (in part) a further elaboration of the technically substantive requirements must be carried out for the drafting of a soil quality map for one's own management area.

Elements that must be included in the substantiation of technical content are as follows:
- the depth and number of depth profiles to be distinguished about which the soil quality map must provide a verdict;
- the substance to be included in the quality map;
- the (part of the) management area for which a soil quality map is drawn up;
- the part of the management area (including the suspected locations) for which the soil quality map is not valid;
- the banded diffusely contaminated subareas distinguished;
- the distinguishing characteristics on the basis of which the soil quality zones are defined;
- the quality requirements that must be met by a soil quality zone to be capable of being laid down;
- the statistical indices on the basis of which the soil quality zones are characterised;
- whether the map functions in a generic framework (classification) or in an area-specific framework.

For the purposes of the substantiation and definition of the soil quality map, the substantiation of policy and technical content must be defined in writing.

Minimum requirements:
The following requirements must be met for the drafting of a soil quality map for the performance of earthmoving within the scope of the Soil Quality Decree:
- the policy substantiation (in a soil management memorandum associated with an area-specific framework) and embedding must be elaborated;
- the substantiation of technical content must be elaborated;
- both foregoing aspects must be defined in writing.

1.3 Step 2 Identification of distinguishing characteristics

In this step, it is determined on the basis of the checklist of possibly distinguishing characteristics described in section 1.3.2 which characteristics are included in the definition of subareas.

1.3.1 Procedure

Depending on the situation in the management area, some of the characteristics included in the checklist will be crucial to soil quality. Characteristics that may be assumed actually to have a vital impact on soil quality must be selected when the checklist is supervised. Selection of the characteristics must be substantiated in the report of the drafting of the soil quality map.

The checklist does not comprise an exhaustive list of characteristics, but sets out a number of important characteristics. It should be checked whether the characteristics included in the checklist suffice or whether additional characteristics must be included.

The number of characteristics selected for the definition of subareas is crucial to the number of soil quality zones to be identified. So long as a soil quality zone has not yet been laid down (Step 5/6), these guidelines refer to subareas. The definition of the characteristics crucial to the area classification is therefore an essential step, with a balance being struck between the following aspects:

- the number of soil quality arising on the basis of the distinguishing characteristics;
- the degree of variability that exists within a soil quality zone;
- the order of magnitude of the number of soil quality zones that is desirable in policy terms.

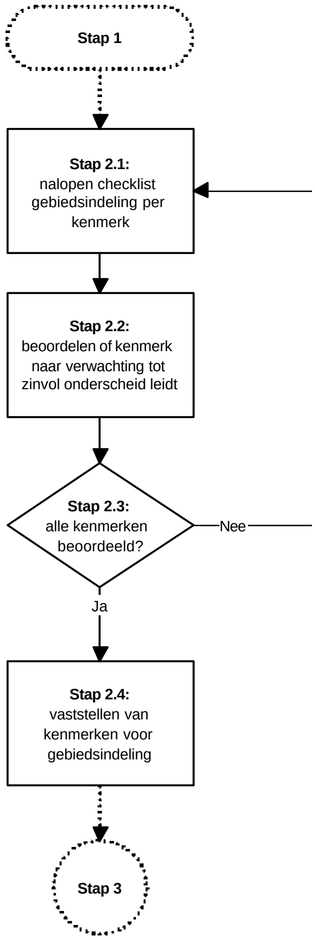

Figure 1.2 *Step 2: Identification of distinguishing characteristics*

<u>Translation of captions to Figure 1.2</u>
1. **Step 1**
2. **Step 2.1:**
run-through of checklist for area classification per characteristic
3. **Step 2.2:**
assessment or whether characteristic is expected to lead to appropriate difference
4. **Step 2.3:**
all characteristics assessed?
5. No
6. **Step 2.4:**
determination of characteristics for area classification
7. **Step 3**

1.3.2 Checklist

The checklist comprises at least the following characteristics:
a) soil structure;

b) usage history;
c) development of districts or areas;
d) geomorphology;
e) current soil use.

A Soil structure
Soil structure may be crucial in determining the environmental hygiene quality of the soil.

Important points of particular interest in connection with soil structure are as follows:
- presence of various earth types;
- flood areas;
- height profile;
- filling operations, dumping operations and embankments.

Examples:

Sedimentation of contaminated sludge:	The height profile of the original subsoil may affect (may have affected) the quality of the sludge that has been sedimented and is thus crucial to the expected soil quality.
Embankment layers/biotic layers:	Knowledge of the (expected) quality of soil layers applied.
Earth type:	In relation to, for example, the extent to which contaminants are defined. In cases in which the earth type indicates whether the original soil or a soil layer applied is involved.

B Usage history
Soil use is in many cases crucial to the environmental hygiene quality of the soil. In the event of fundamentally different forms of soil use, this will lead to different expectation levels for soil quality. This characteristic covers soil use in both the urban environment and in the countryside.

It should be pointed out that known or suspected local soil pollution is to be characterised as a separate unit in the soil quality map. This means that (possible) cases of soil pollution do not directly influence the expectation level for soil quality. It is assumed in this context that a soil quality zone usually comprises at least several hectares and the scale of most contamination situations is smaller. Large-scale contamination situations may, where appropriate, depending on the nature and severity of contamination, be regarded as forming a soil quality zone of their own.

The following points of particular interest should be noted in connection with usage history:
- (potential) sources of diffuse and local soil pollution;
- historic soil use;
- filling operations, dumping operations and embankments;
- (industrial) developments;
- soil testing and soil decontamination operations conducted;
- differences in growing and pesticides used in this context.

C Development of districts or areas
The development of districts may, specifically for the urban area, be crucial to soil quality. The method adopted for preparing a site for building and the “mean” (possibly) soil-contaminating activities that have taken place in the district are, in combination with the period during which the soil is in use, crucial to expectations for soil quality in a district.

Important points of particular interest in the development of districts are as follows:
- preparation of a site for building;
- nature and duration of soil-contaminating activities in the district;
- history of the area in which the district is situated;
- soil testing and soil decontamination operations conducted.

In relation to the countryside, changes in land use may be considered in this context.

D Geomorphology

The geomorphology of an area can be crucial to expectations of the environmental hygiene quality of soil. This will be the case, for example, if there is deposition of contaminated sediment. In the river area, geomorphology will therefore be an important characteristic for distinguishing soil quality zones.

Important points of special interest in geomorphology are as follows:
- height profile;
- flood areas;
- natural deposition with increased background values;
- geohydrological situation (seepage, infiltration, dewatering, presence of surface water, etc.).

E Current soil use

Current use of the soil is not so much a reason for classification on the basis of the expectation of environmental hygiene quality – rather, that represents historic use. Current use has, however, been mentioned here as a distinguishing characteristics because, within the generic system, the function of the soil is, in addition to soil quality, determined by the soil class in which the soil is classified. In an area-specific context, it must also be checked to what extent the proposed usage requirement is compatible with the function of the soil.

Minimum requirements:
To draw up a soil quality map for the performance of earthmoving, it is necessary for:
- the distinguishing characteristics relevant for the management area to be identified
- the management area to be classified into various soil functions in accordance with the criteria set out in the Soil Quality Regulation

1.4 Step 3 Pre-processing of available information

In the case of the management area for which a soil quality map is to be drawn up, the available information must be collected. In a number of cases, the information must also be sent for inclusion in a database. This database forms the basis for the soil quality map.

If so wished, the activities in this step can be combined with the activities in Step 2 and Step 4.

What information must be collected depends on the technically substantive definition of the soil quality map to be drawn up as laid down in Step 1; see section 1.2. However, at least the following forms of information should be collected:

- measurement details of soil quality within the management area.
  At least the basic package as laid down in the Soil Quality Regulation is assumed.
  In addition to the basic package, if other substances may also be frequently present in increased (background) concentrations for the management area, these substances must be added to the basic package.
  Within each of the subareas, a mean lutum and organic matter percentage must be determined for the purpose of converting standard values to the standard soil. Available data on this are thus also collected;
- information on special circumstances in the management area (such as information from soil testing conducted, the quality of landfill layers used, suspected locations, etc.). This information is obtained from, among other things, the details of the nationwide profile (NWP list);
- information on soil structure;
- information on the current usage functions;

- topography.

Besides the foregoing forms of information, relevant supporting information may arise from, for example, land registry data. The inclusion of such forms of information is, however, unnecessary.

An important aspect for the drafting of the soil quality map is the question of what the soil quality map describes. This is, after all, crucial to the question of what observations from the management area form part of the soil quality map. The objective of the soil quality map is facilitation in earthmoving. Given this objective, the soil quality map is not geared to describing “pure” background levels. The map must provide a representative idea of soil quality in parts of the management area. Known and expected cases of local soil contamination are shown as specific locations (including large-scale defined cases) on the map (**are not part of the soil quality map**). These are therefore not included in the determination of soil quality. More diffuse contamination of the soil does, however, form part of the soil quality profile.
The appraisal of what information is or is not included in the soil quality profile is crucial to scope for earthmoving. This appraisal must therefore be well documented. All available information on soil quality must be assessed in this appraisal. It is, for example, not allowed to select 20 soil tests aselectively.

If, during the collection of the data, it is found that an extreme level is present, it should be determined whether a) this forms part of the background levels b) this comes from a local point source or c) it is an aberrant value resulting from an error in the investigation or an error during the inputting of the data. Statistical tests may be helpful in identifying aberrant values. Only rarely can it be proven that an extreme level is an aberrant value – it usually constitutes an observation in the distribution tail. The elimination of aberrant values on the basis of a statistical test is therefore not allowed for this reason. Duplicate analyses or disclaimers from laboratories can be used in identifying test errors.
In assessing an observation as an aberrant value, it is not authorised to remove it from the database of background levels. If this has been caused by b) a case of local soil contamination or c) arises from an error, this observation is marked as such in the database. This observation no longer counts in determining background levels. If the observation is caused by a case of local soil contamination that does not yet appear on the NWP list of (potentially) severely contaminated locations, this is added.

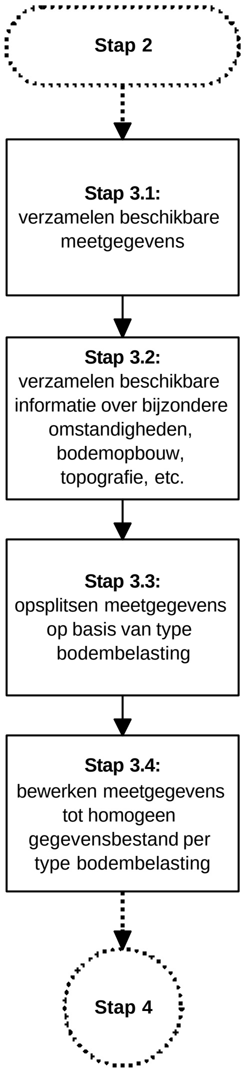

Figure 1.3 *Pre-processing of available information*

<u>Translation of captions to Figure 1.3</u>
1. **Step 2**
2. **Step 3.1:**
collection of available measurement data
3. **Step 3.2:**
collection of available information on special circumstances, soil structure, topography, etc.
4. **Step 3.3:**
splitting of measurement data on the basis of type of soil contamination
5. **Step 3.4:**
processing of measurement data into homogeneous database per type of soil contamination

6. **Step 4**

Each of the forms of information to be collected is to be included in a map layer. The various map layers form part of the soil quality map. It is important in this context that the scale on which information has been collected for the various map layers is comparable: this must be taken into account when collecting the information and must be documented.

The available measurement data must undergo further treatment, with the following steps being conducted:

1) The measurement data must be split on the basis of expectations/knowledge about the question of whether background levels or levels determined by local soil pollution are involved. A test for aberrant values can be helpful in this connection, but only provides an indication. The classification should in the first place be conducted on the basis of knowledge of historic soil use and the expectation that this will have led to elevated levels. For situations in which doubt exists as to whether an observation must be included in the local contamination data, the observation is to be included with the data for background levels. For the purpose of defining soil quality in a soil quality zone, primarily the information assumed to form part of the background levels is used.

2) A "cleaning routine" must then be performed for the resulting databases. This is geared to keeping the data collection consistent. This means that:
   - it must be clearly established how values at the determination limit must be converted into "arithmetic values".
     The values that are "smaller than the determination limit" are multiplied by a factor of 0.7 to arrive at an arithmetic value;
   - the depth of the samples must be within the depth profile to be included in the soil quality map.
     At least the soil quality of the top layer from 0 to 0.5 metres below ground level must be recorded in the soil quality map. In an area-specific framework, the competent authority may be justified to record a smaller thickness for the top layer. If a soil quality map is drawn up for a larger depth profile, a separate map is drawn up for the top layer and the deeper layer/layers. The differentiation in soil layers below the top layer must take place on the basis of the local soil structure;
   - the method of summing substances in total parameters (for example, PAHs) is clear.
     The way in which individual values must be summed in a total parameter is particularly important for the eventuality of "smaller than" values occurring. The way in which this correction is performed should be established clearly, but has not been laid down in these guidelines. In the case of "smaller than" values, it is recommended, however, to set these at zero for summation purposes. If all the values to be summed are "smaller than" values, a value equal to 0.7 times the sum of the individual determination limit values is adopted for the total parameter;
   - the same type of data are involved for EOX and EOCl;
   - the methods of determination for the various substances are similar (in particular for mineral oil and PAHs);
   - the date of the investigation is sufficiently recent to ensure that the data still apply. Data are sufficiently recent if they are no more than 5 years old. If the data are more than 5 years old, it should be tested (for example, via comparison with more recent data) whether the data are still applicable. This will often be the case, particularly for the heavy metals;
   - the spatial co-ordinates of the observations must be known;
   - it must be clear whether individually analysed samples or mixed samples are involved. In the later case, it must be known how many random selections have been combined in that mixed sample and what soil volume is represented by the mixed sample. The data must also come from batch inspections for batches that have been used. These batch inspections are only representative of the soil area on which the batches have been used.

A different significance should therefore be attached to such data than to the other data that usually come from exploratory soil tests.

A check must also be conducted on the correctness of the data themselves, for example in relation to the unit in which the levels have been expressed. If data are digitised specifically for the drafting of the soil quality map, a check must be performed for type errors.

Clear recording of the format of the database should in fact take place before the data are combined. All treatments to be distinguished in the database should be documented so that the production of the soil quality map can be reproduced at all times.

Minimum requirements:
In drawing up a soil quality map for the performance of earthmoving, the following requirements must be met:

- it must be established which data are and are not recorded in the determination of soil quality, in which account must be taken of aspects such as:
  - the policy appraisal of what information does and does not form part of the soil quality profile depicted by the soil quality map;
  - the exclusion of data for the suspected and known locations of soil pollution from the dataset;
  - the depth from which the samples come;
  - the way in which total parameters have been defined;
  - the age of the analytical results in connection with representativeness and comparability of methods of analysis;
  - the orientation of the observations;
- at least the substances in the basic package must be included in the soil quality map;
- data must be collected on the level of lutum and organic matter per subarea;
- information on special circumstances must be included;
- the soil structure must be included;
- the usage function of the soil must be included;
- the topography must be included.

1.5 Step 4 Classification of management area into subareas

On the basis of the characteristics set out in Step 2, the management area is divided into various subareas in this step.

In the case of the characteristics laid down in Step 2, it must be determined whether these have a certain hierarchical sequence with respect to one another. This may be the case, for example in the countryside, for geomorphology and (historic) soil use. Namely, where geomorphology controls (or has controlled) land use.
If such hierarchical links are present, they dictate the order in which, based on the characteristics, it must be established whether several soil quality zones are involved.
If no hierarchical links can be made, the characteristics can thus be adopted in any desired sequence for classification of the management area.
The division of the management areas into soil quality zones is performed for each characteristic.
The management area is then divided into subareas on the basis of the various characteristics. In the case of the subareas, the classification is based on the expected soil quality, but the actual soil quality does not yet play a role in this. In relation to the generic system, the expected soil quality is subdivided into three classes: residential, industrial and a class in which soil quality does not breach the background values.

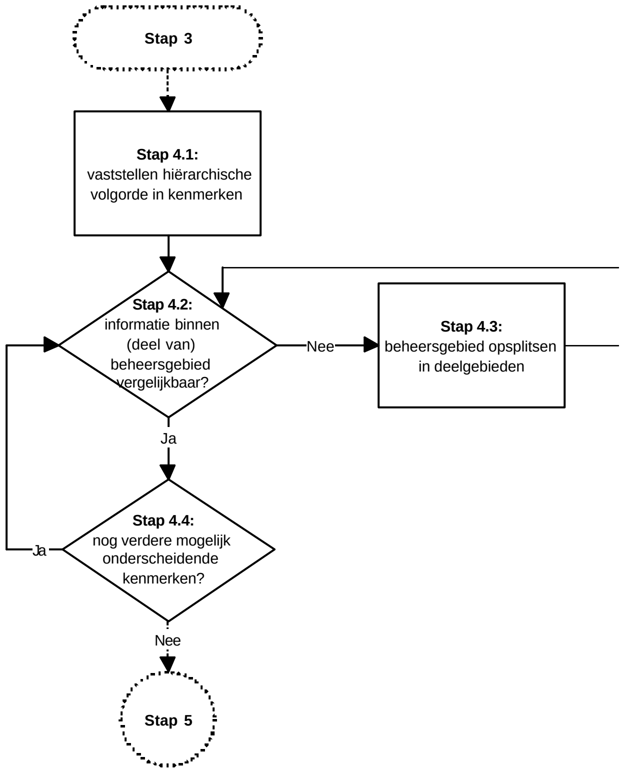

Figure1.4 *Classification of management area into subareas*

Translation of captions to Figure 1.4
1. **Step 3**
2. Determination of hierarchical sequence in characteristics
3. **Step 4.2:**
information within (part of) management area comparable?
4. Nee = No
5. **Step 4.3:**
split management area into subareas
6. Ja = Yes
7. **Step 4.4:**
distinguishing characteristics still possible?
8. **Step 5**

Example:
For a management area, the characteristics of earth type and land use are classified as distinguishing characteristics. Following classification of the management area, the following subareas arise:
- sand, natural area
- sand, residential area
- clay, natural area
- clay, cattle farming and arable farming
- sand and clay, residential area
- sand and clay, natural area

Minimum requirements:
To draw up a soil quality map for the performance of earthmoving, the following requirements must be met:
- the hierarchy (if any) of the distinguishing characteristics must be defined;
- in the case of a hierarchy, the management area must be subdivided in accordance with this hierarchy into subareas on the basis of the distinguishing characteristics.

1.6 Step 5 Evaluation of area classification on the basis of available information

In Step 4, the area has been subdivided into subareas. If this classification proves to be appropriate, the subareas become the soil quality zones. In this step, it is checked to what extent the subdivision into subareas is crucial to soil quality.

The division into subareas performed in Step 4 is performed in the database, as set out in Step 3. This entails the database containing the information assumed to relate to background levels. The question of whether the classification on the basis of the characteristic in question is crucial to the classification into soil quality zones is for the time being answered on the basis of the data available for the various subareas. Assessment is performed for each subarea. Two appraisals are performed in this connection, namely:
- whether sufficient subareas have been defined;
- whether too many subareas have been defined.

The soil quality map is drawn up for at least the basic package of substances, where necessary supplemented by those substances that are also present in elevated background levels within the management area.

In relation to the subarea, it must be established per substance whether sufficient measurement data are already available to be able to make a (provisional) judgement about soil quality. The measurement data must come from the same soil layer.

There is sufficient information if at least 20 measurement data are available per subarea for each of the substances.

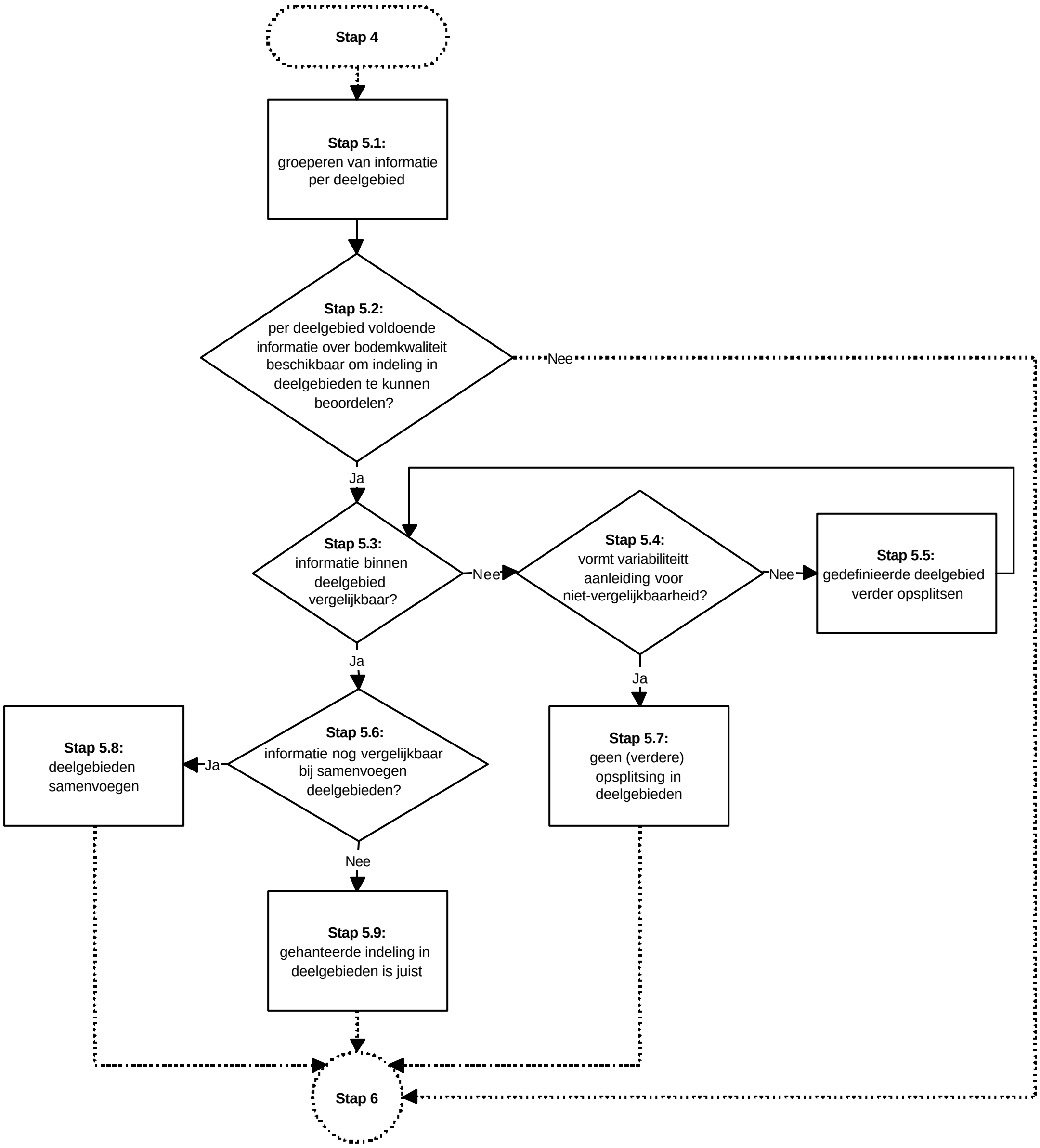

Figure 1.5 *Evaluation of area classification on the basis of available information*

<u>Translation of captions to Figure 1.5</u>

1. **Step 4**
2. **Step 5.1:**
grouping of information per subarea
3. **Step 5.2:**
adequate information on soil quality per subarea available to be able to assess classification into subareas?
4. Nee = No
5. Ja = Yes
6. **Step 5.3:**
information within subarea comparable?
7. **Step 5.4:**
does variability provide grounds for non-comparability?

8. **Step 5.5:**
further split defined subarea
9. **Step 5.6:**
information still comparable for combining of subareas?
10. **Step 5.7:**
no (further) splitting into subareas
11. **Step 5.8:**
combine subareas
12. **Step 5.9:**
classification adopted in subareas is correct
13. **Step 6**

If the minimum conditions are not observed, it cannot (yet) be established whether the classification into subareas as has taken place in Step 4 is correct for the definition of soil quality zones. Additional information for the subarea in question must in that case be collected in Step 6.

The collection of additional information is also necessary if, despite sufficient data from the subarea being available, these are not spatially distributed in a uniform fashion across the subarea. Two situations are conceivable in this connection:
1. it is a connected subarea;
2. the subarea comprises several unconnected locations.

In both situations, requirements are imposed on the spatial distribution of the data:

> re 1. Connected subarea
> To obtain a balanced distribution of the necessary observations, stratified aselective sampling can be assumed. The subarea is in this context systematically subdivided into 20 (globally) equally large sections (strata). In principle, an observation should now be present in each section. Given the fact that at least 20 observations are already available from the subarea, a less stringent criterion is, however, adopted. As a guide, it is assumed that an observation must be available in at least half the sections. All this must be assessed with sound understanding.
>
> Re 2. Unconnected subarea
> A subarea consists of two or more parts of the management area that are spatially separate from one another. No observations are available in one or more of those parts. Additional observations are needed to ensure that at least 3 observations must be available for each “spatially independent” part of the subarea.

If sufficient data are available, the data must be reviewed in the subarea. This review is intended to establish whether a subarea can be regarded as a soil quality zone. This is the case if there is no spatial structure in the levels or variability exists[1]. If there is a spatial structure in the level or if variability exists, the relevant part of the subarea must be separated as an independent subarea. This leads to lower variability for the total subarea investigated. This may mean that additional observations must be performed to have 20 observations available per subarea. See section 1.7 in this regard.

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[1] A spatial structure in the levels should in this context be understood to mean that there is a certain trend within the subarea (increasing or decreasing levels in a specific direction or a connected part with substantially higher or lower levels). A spatial structure in variability is in this context assumed to mean that one or more parts of the subarea are involved for which the levels vary or instead vary less than for the rest of the subarea.
In these guidelines, no criterion is laid down for the degree of variability. Nor has it been laid down on the basis of which characteristics/indices variability must be characterised. It should be pointed out that, in general terms, soil quality zones of low and high variability are involved. In the case of a highly variable soil quality zone, it must be checked whether variability cannot be reduced sensibly by dividing the subarea into several pieces.

If no spatial structure in levels or variability is established, the condition is satisfied. This means that the subarea can in principle be laid down as the soil quality zone. It may, however, still be established whether the foregoing requirement is also met in a more limited number of soil quality zones.

This check is performed by combining the data from various subareas that may qualify for this. If the requirements are also now met, a more limited number of soil quality zones is sufficient.

Minimum requirements:
To draw up a soil quality map for the performance of earthmoving, the following requirements must be met for each soil layer (top layer and deeper layer(s)) to be distinguished:

- at least 20 observations must be available for the subareas for all substances;
- the observations must be spatially adequately distributed across the subarea, namely:
    - for connected subareas in the case of a systematic classification into 20 sections, one or more observations have been made in at least 10 sections;
    - for each unconnected part of the subarea, at least 3 observations are available;
- for the subareas for which sufficient information is available, it is established whether the classification into subareas is optimal, with:
    - no spatial structure being present, as far as possible, in the levels or variability of the substances.

If additional research is necessary, skip to Step 6. If no additional research is necessary, skip to Step 7.

1.7 Step 6 Collection of additional information

In this step, additional information is collected for the subareas for which insufficient information is as yet available to be able to establish whether soil quality zones exist.

The collection of additional information for a subarea is necessary if:
- less than observations are available for the substances to be specified on the soil quality map for the subarea;
- there is insufficient spatial spread for the substances specified on the map. This applies both to connected and unconnected sublocations – see what has been stated about this in section 1.6.

The term 'substances specified on the map' should be understood to mean at least the basic package.

If additional information must be collected for one or more subareas, two routes that are in principle different are to be followed for this:
1. information is collected specifically for the purpose of establishing the soil quality zone;
2. the necessary information for establishing the soil quality zone is obtained by adding the data for earthmoving and soil testing that occurs in the subarea to the information already available.

Re 1: specific collection of information:
If information is collected specifically for establishing the soil quality zone, the investigation should be organised as follows:
- For the substances for which a soil quality map must be drawn up, it is established how much additional measurement data are still needed. In connection with a fixed package choice, the substance with the fewest observations is assumed in this context. For most substances, more information than the minimum of 20 observations per subarea is consequently generated. It should also be borne in mind that some of the new data may be regarded as aberrant values and that the risk then exists of there being insufficient data.
- If no data are yet available for an area, a preliminary investigation should be conducted in accordance with NEN 5725, with the following aspects being important in particular:
  - Knowledge of diffuse contamination of the area;
  - Knowledge of soil types with possibly naturally elevated levels of substances (e.g. arsenic in peat areas);
  - Knowledge of local suspected and investigated locations so that no fieldwork will take place there;
  - Knowledge of decontaminated locations, which are probably of different quality from the surrounding soils.
- The sampling points are distributed in an aselectively stratified manner across the subarea, bringing about a (more or less) uniform/balanced distribution of the sampling points across the subarea. The places from which samples have already been taken are taken into account in this regard. The requirement of a uniform balanced distribution of the sample points is also intended to prevent drilling only being carried out in places that are readily accessible (e.g. public parks and gardens);
- In principle, the test strategy for soil quality maps in NEN 5740 is assumed. Three drillings should be combined in this connection per sampling point to form 1 mixed sample;
- The resultant mixed samples are analysed for at least the basic package. The frequency with which the measurements of the level of lutum and organic matter are performed is determined by what has been described about this in the strategy adopted in NEN 5740;
- All fieldwork activities are performed in accordance with NEN 5740;
- All laboratory work is performed in accordance with AS3000 or AP04.

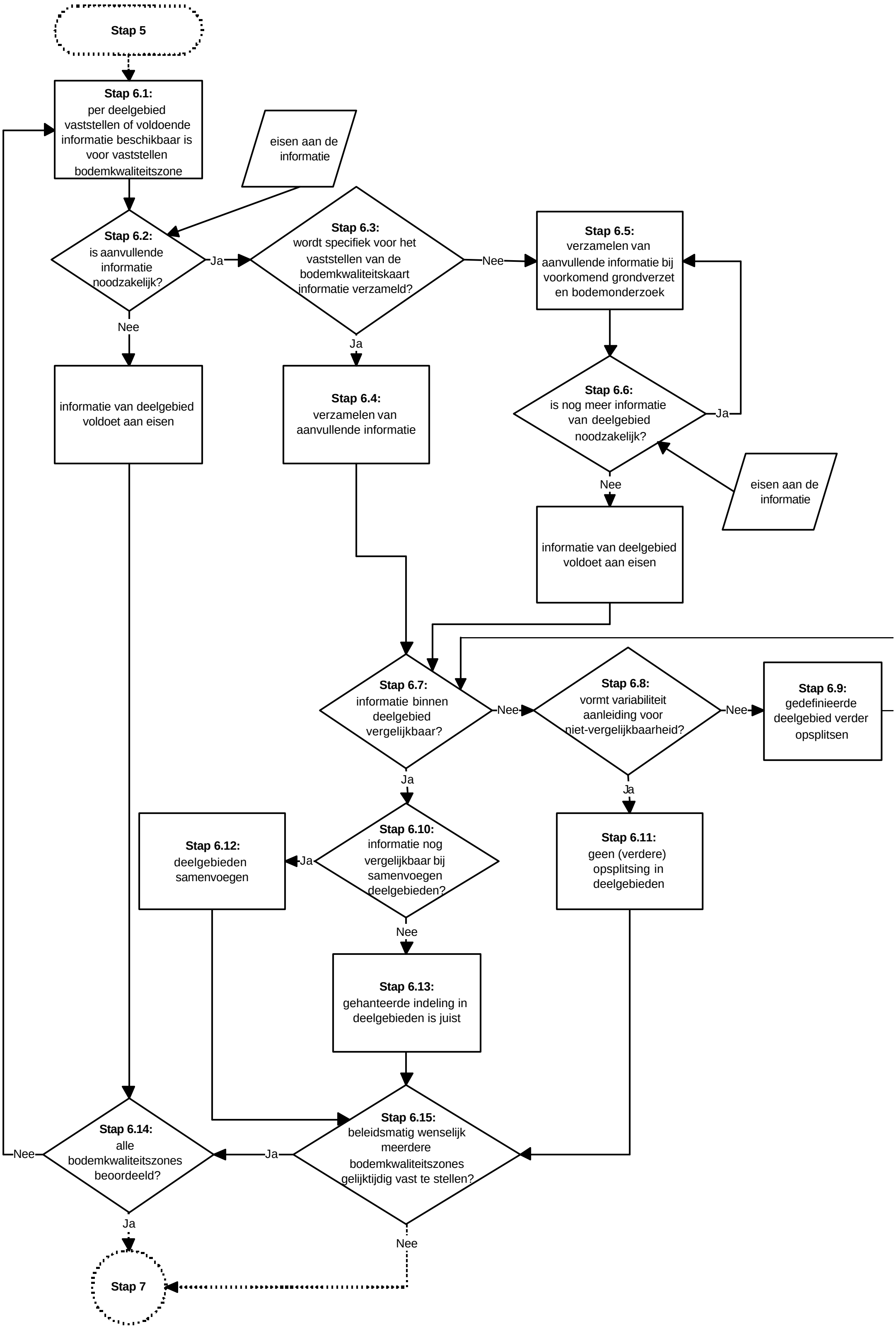


Figure 1.6 *Collection of additional information*

Translation of captions to Figure 1.6

1. **Step 5**
2. **Step 6.1:**
determination per subarea of whether adequate information is available for determining soil quality zone
3. requirements concerning information
4. **Step 6.2:**
is additional information necessary?
5. **Step 6.3:**
is information collected specifically for defining the soil quality map?
6. Nee = No
7. **Step 6.5:**
collection of additional information in connection with any earthmoving and soil research
8. information from subarea meets requirements
9. **Step 6.4:**
collection of additional information
10. **Step 6.6:**
is more information from subarea necessary?
11. requirements concerning the information
12. information from subarea meets requirements
13. **Step 6.7:**
information within subarea comparable?
14. **Step 6.8:**
does variability provide grounds for non-comparability?
15. **Step 6.9:**
further split defined subarea
16. **Step 6.12:**
combine subareas
17. **Step 6.10:**
information still comparable for combining of subareas?
18. **Step 6.11:**
no (further) splitting into subareas
19. **Step 6.13:**
adopted classification into subareas is correct
20. **Step 6.14:**
all soil quality zones assessed?
21. **Step 6.15:**
desirable in terms of policy to lay down several soil quality zones at the same time?
22. **Step 7**

Re 2: Additional information from other investigations
It can be chosen to supplement the information on the subarea with information that becomes available from earthmoving and soil testing in the subarea.
The requirements that the data must meet arise from the current policy under which the test data are collected. Where possible, it is recommended to have the test method fit in with what is required under these guidelines for the specific generation of information. Of course, the requirement nevertheless applies that the data must come from unsuspected locations.

If adequate information is available from the subarea, it is investigated whether the subarea can be regarded as a soil quality zone.

This is the case if there is no spatial structure in the levels or if variability is present[2].

If a spatial structure in the level or variability is present, the relevant part of the subarea must be separated as an independent subarea. This leads to lower variability for the total subarea investigated. This may mean that additional observations have to be made to have 20 observations available per subarea.

If no spatial structure[4] in levels or variability is established, the condition is satisfied. This means that the subarea can in principle be established as the soil quality zone. It can, however, still be established whether the foregoing requirement is satisfied with a classification into a more limited number of soil quality zones.
This check is performed by combining the data for various potentially qualifying subareas. If the requirements are now also met, a more limited number of soil quality zones may suffice.

Minimum requirements:
For the drafting (and use) of a soil quality map for the performance of earthmoving under the Exemption Regulation for Earthmoving, the following requirements must be met:

- at least 20 observations must be available for all the substances for the subareas;
- the observations must be spatially adequately distributed across the subarea, namely:
    - with one or more observations having been made in at least 10 sections for connected subareas in connection with a systematic classification into 20 sections;
    - at least 3 observations being available for every unconnected part of a subarea;
- for the subareas for which adequate information is available, it is established whether the classification into subareas is optimal, with:
    - there being, where possible, no spatial structure in the levels or variability for the substances.

Following the collection of additional information, skip to Step 5.

[4] A spatial structure in the levels should in this context be understood to mean that there is a certain trend within the subarea (increasing or decreasing levels in a specific direction or a connected part with substantially higher or lower levels). A spatial structure in variability is in this context assumed to mean that one or more parts of the subarea are involved for which the levels vary clearly more or instead vary less than for the rest of the subarea.
In these guidelines, no criterion is laid down for the degree of variability. Nor has it been laid down on the basis of which characteristics/indices variability must be characterised. It should be pointed out that, in general terms, soil quality zones of low and high variability are involved. In the case of a highly variable soil quality zone, it must be checked whether variability cannot be reduced sensibly by dividing the subarea into several pieces.

1.8 Step 7 Characterising of soil quality per soil quality zone

In this step, data collected on the soil quality zone are interpreted in context to reach a verdict on soil quality. In addition, the process of the drafting of the soil quality map is reported.

The data on soil quality collected in steps 1 - 6 must be interpreted in context. Based on this interpretation, an idea is formed of soil quality in a soil quality zone. This expressly represents a combination of the available numerical and non-numerical information.
In steps 5 and 6, the soil quality zones have been laid down on the basis of a selection of the total measurement data available. This concerns that element of the data assumed to form part of the distribution of background levels in the management area or the relevant soil quality zone. In this step 7, the other numerical information from local effects on soil quality is also considered.

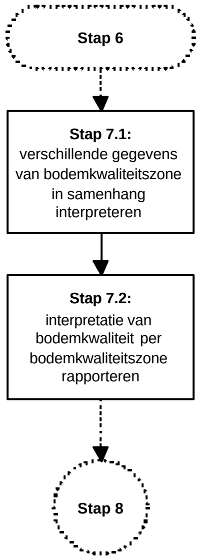


Figure 1.7 *Characterising of soil quality per soil quality zone*

Several statistical indices relevant for the performance of earthmoving are calculated for each soil quality zone. These indices are calculated on the basis of the data that form part of the data set with (assumed) background levels. In this data set, no correction has taken place for lutum and organic matter. The following parameters are determined from these data for each substance:

- the mean;
- several percentile values, such as P80, P90 and P95.

Translation of captions to Figure 1.7
1. **Step 6**
2. **Step 7.1:**
interpret various data from soil quality zone in context
3. **Step 7.2:**
report interpretation of soil quality per soil quality zone
4. **Step 8**

The soil quality zone is characterised by the mean and the various P values. The mean lutum and organic matter content is also specified for each soil quality zone.

If the **95 percentile value** (P_{95}) is above the intervention value, the chance exists of earth being present in the soil quality zone that leads to breaching of the decontamination criterion. The P95 value is therefore introduced in the “consequences of local maximum values” risk module for such zones. If this risk module results in a breaching of the decontamination criterion for one or more soil uses, this means a restriction for earthmoving without additional inspection from that soil zone. It is then not justified to perform earthmoving from that zone, without additional inspection, to areas with soil use for which the risk module has indicated that the decontamination criterion is breached with the introduction of the P95 value.

A good description of the operations performed in steps 1 to 8 should be given in the report on the drafting of the soil quality maps. Where (policy) choices have been made, these should be included and substantiated in the report.

Minimum requirements:
The following requirements apply to the drafting of a soil quality map for the performance of earthmoving:
- the soil quality must be characterised per soil quality zone on the basis of the following indices:
- the mean;
- the 80, 90 and 95 percentile value;
- the mean lutum and organic matter content.

1.9 Step 8 Results of reporting in soil quality map

In this last step, the data made available are reported in a soil quality map. This map consists of 3 main maps:

1. a map with excluded locations and subareas
2. the excavation map
3. the usage map

For the drafting of the excavation map and the usage map, there is a clear difference between the generic and area-specific schedule. See also the detailed description on this.

The soil quality map consists functionally of various layers – see also section 1.4. The following map layers should at least form part of the soil quality map:
- measurement data subdivided into the top layer and any mapped subsoil;
- soil structure;
- topography;
- terrain use/function in accordance with zoning plan

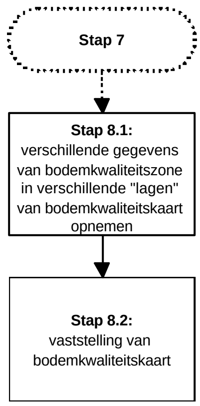


Figure 1.8 *Results of reporting in soil quality map*

<u>Translation of captions to Figure 1.8</u>
1. **Step 7**
2. **Step 8.1:**
include various data from soil quality zone in various “layers” of soil quality map
3. **Step 8.2:**
determination of soil quality map

<u>The usage map – area-specific</u>
The usage map sets out which requirements must be met by the use of earth and dredgings in that zone. In an area-specific context, the competent authority has certain policy freedom in laying down the usage requirements. The boundaries of this policy freedom are defined by the Soil Quality Decree. These guidelines do not set out additional guidelines for the setting of the usage requirements; only a list of the frameworks applied by the Soil Quality Decree is set out below:
- In an area-specific framework, the usage requirements are partly based on soil quality;
- The usage requirements for all substances are between AW2000 and the decontamination criterion;
- Usage requirements that are above the intervention values apply exclusively to earth and dredgings from one's own area;
- The usage requirements should be reviewed with the aid of the “consequences of local maximum values” risk module.

Reference is also made to the route planner for soil targets. Within the frameworks mentioned, the ultimate setting of usage requirements consists of an appraisal that must be conducted by the manager of the area and that must be justified in the soil management memorandum. The ultimate usage requirements are set out on the usage map for each substance per soil quality zone.

In an area-specific framework, the soil manager may, with a view to standstill within the management area, lay down different usage requirements for earth within his own area than for earth from another management area. A local authority may in this way specify in its soil management memorandum that, in the case of the inspection of earth from its own area, the inspection results must be tested against the maximum value for soil quality in the zone of use instead of against the usage requirement laid down for that zone (which applies also to earth from outside the area). In this way, the local soil manager checks whether earth from his own area is involved, which is also used again within his own area. A standstill at area level is thus maintained for that local authority.

The excavation map – area-specific
The excavation map indicates with which value a review must be performed against the usage requirements in the usage zone if earthmoving without additional inspection is desired:

The following applies in this context:
- In the case of breaching of the P95 of the intervention value, it is indicated for each zone for which soil functions earthmoving without additional inspection can take place (see step 7);
- In the area-specific framework, it is indicated for each zone with what statistical index from the zone of origin a review is performed against the usage requirement (the local maximum value) in the zone of use for assessing the question of whether earthmoving to zones within the management area is authorised without additional inspection. The statistical index to be chosen can only correspond to levels higher than the mean level in the zone in question.

In addition to this, the following general parameters apply to use of the soil quality map as a basis for the environmental hygiene declaration:
- In the case of specific location testing or batch testing at the excavation site and testing meeting the requirements for an environmental hygiene declaration by virtue of a soil test, the soil quality map cannot be used as the basis for the environmental hygiene declaration, with this specific test being used as the basis for the environmental hygiene declaration;
- The batch is excavated from the layer to which the excavation map applies (this will as a rule be the top half metre). If the batch is excavated more deeply, the batch must be excavated in separate layer thicknesses corresponding to the layer thickness of the soil quality map. For each excavated batch per depth profile, the soil quality map thus forms the basis for the environmental hygiene declaration. If a batch is excavated in mixed fashion from various layer thicknesses, the soil quality map may in many cases not serve as the basis for the environmental hygiene declaration and the batch to be used should be inspected, with the inspection results then being reviewed against the usage requirements in the usage zone. An exception to this is provided by the situation in which a batch is transferred in its entirety from several depth profiles to a location where the review of both (or more) excavation maps against the usage map does not lead to breaching of the usage requirements.

The usage map – generic
The usage map – generic makes use of the system of classes. Both soil quality and the function of the soil are subdivided into either the residential or industrial class. Each class has a list of

standard values that form the usage requirements. A class is assigned in the following way to each zone:

1. For each soil quality zone, the function is laid down in accordance with the rules set out in the implementing regulation for the Soil Quality Decree.
2. Soil type correction standard values: For each substance measured in the soil quality zone, the “mean” standard value for the residential and industrial class is calculated, and also the mean background value. The mean lutum and organic matter content per soil quality zone and (where applicable) per depth layer is used for this. The data underlying the soil quality map have thus not been corrected for lutum and organic matter content.
3. In relation to the substances measured in the soil quality zone, it is established what the mean is relative to the class limits, with account being taken of the following permitted breaches:

   Conforms to the background values:
   - maximum of twice the background values;
   - each breach lower than the standard for the residential class limit;
   - with regard to the number of permitted breaches, see Table.

   Residential class:
   - maximum of the standard for the residential class limit plus the background values;
   - any breach lower than the standard for the industrial class limit;
   - with regard to the number of permitted breaches, see Table.

   Industrial class:
   - If the soil quality does not conform to the background values and the classification does not lead to classification in the residential class, soil quality is classified in the industrial class.

Number of substances measured	Number of breaches only for background values and residential, not for industrial?
Package of substances	2
16-26	3
27-36	4
37-48	5

4. Each soil quality zone is then classified in accordance with the following Table, with the class limits representing the usage requirements for the soil quality zones.

Soil function (class) (see 1)	Soil quality class (see 2-3)	Usage requirement
Agriculture, Nature, Kitchen gardens and allotments	Background values	Background values
Agriculture, Nature, Kitchen gardens and allotments	Residential	Background values
Agriculture, Nature, Kitchen gardens and allotments	Industrial	Background values
Residential	Background values	Background values
Residential	Residential	Residential
Residential	Industrial	Residential
Industrial	Background values	Background values
Industrial	Residential	Residential
Industrial	Industrial	Industrial

The excavation map – generic
The excavation map indicates with what value a review must be conducted against the usage requirements in the usage zone if there is a desire for earthmoving without additional inspection:

The following applies in this connection:

- In the case of breaching of the P95 of the intervention value, it is indicated for each zone for which soil functions earthmoving may and may not take place without additional inspection (see Step 7);
- Earthmoving to zones within the management area is permitted in the generic framework if the mean levels of all substances from the zone of origin meet the usage requirement (the applicable maximum values) in the usage zone.

In addition to this, the following general parameters apply to use of the soil quality map as means of proof:

- If a specific location investigation or batch investigation at the excavation location is involved and that investigation meets the requirements for an environmental hygiene declaration from the Soil Quality Decree, the soil quality map cannot be used as means of proof, with the results of that specific investigation being used instead;
- The batch is excavated from the layer to which the excavation map applies (this will as a rule be the top half metre). If the batch is excavated more deeply, the batch must be excavated in separate layer thicknesses corresponding to the layer thickness of the soil quality map. For each excavated batch per depth profile, the soil quality map thus forms the means of proof. If a batch is excavated in mixed fashion from various layer thicknesses, the soil quality map may in many cases not serve as the means of proof and the batch to be used should be inspected, with the inspection results then being reviewed against the usage requirements in the usage zone. An exception to this is provided by a situation in which a batch is transferred in its entirety from several depth profiles to a location where the review of both (or more) excavation maps against the usage map does not lead to breaching of the usage requirements.

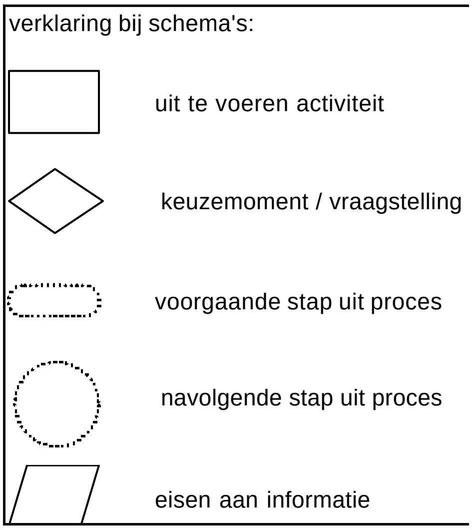
Establishment
The requirements that apply to the establishment of a soil quality zone may not yet be met for the entire management area. For the remaining subarea, no soil quality map is (yet) established in this situation. This means that earthmoving in that subarea is not supported by a soil quality map, but that the generic system is available for that subarea by determining the quality and function of the usage location.

The soil quality map of the management area including the full description of its development must be established by the competent authority before the earthmoving can be facilitated with the soil quality map. In an area-specific framework, this establishment is linked to the setting of the local maximum values by the local authority. In a generic framework, the soil quality map is established by means of a decision by the local authority to which the General Administrative Law Act procedure applies.

If new data become available within the management area, these are also included in the database. A current database thus arises. These new data may prompt a revision of the soil quality map. The current quality of the soil quality map and the need for revision is officially reviewed with some regularity. Following revision, the soil quality map should be laid down again in policy terms. Even in the event of no changes arising in the soil quality map, however, this map must be laid down again periodically (once every 5 year) in policy terms.

During the revision, all the steps for the drafting of a soil quality map must in principle be followed again to establish whether the current soil quality map still adequately reflects reality.

Minimum requirements:
The following requirements apply to the drafting of a soil quality map for the performance of earthmoving:
- the soil quality map must consist of several “map layers” as specified in section 1.4;
- the usage requirement must be laid down for each soil quality zone. In an area-specific fashion within set parameters, and generically as set out below:
- the soil function is established per soil quality zone;
- the mean class limits must be calculated for each soil quality zone;
- it must be established for all substances included how the mean for those substances relates to the class limits, taking account of the classification rule for classes;
- the soil quality zone must be characterised on the basis of the substance(s) leading to the highest classification;
- the usage requirement must be formed by the strictest soil quality class or soil function class linked to a soil quality zone;
- it must be specified on en excavation map for each zone under what conditions earthmoving is possible without additional inspection;
- the resultant soil quality map must be laid down in policy terms;
- it must be established how new information is incorporated in the soil quality map, with it being recommended to work on the basis of a current database in day-to-day practice.



Translation of captions to diagram above
verklaring bij schema’s = declaration for diagrams:
uit te voeren activiteit = activity to be performed
keuzemoment / vraagstelling = selection time/question
voorgaande stap uit proces = previous step from process
navolgende stap uit process = following step from process
eisen aan informatie = requirements governing information

2. The drafting of soil quality maps for soil below surface water

2.1 Introduction

This Chapter describes the method for drafting soil quality maps for soil below surface water, the so-called sediment quality map (SQM) pursuant to the Soil Quality Decree.

The sediment quality map can usually be drawn up in a similar way to the soil quality map for the soil, other than soil below surface water. There are, however, also a number of specific aspects that should be taken into account when drawing up an SQM. These specific aspects are chiefly connected with:

- Different standards for use on or in the soil below surface water;
- Specific standards for the application of dredging sludge on adjoining plots;
- The fact that no soil functions are assigned to soil below surface water.

Definition

As for terrestrial soils, the SQM can be used for two purposes:

- The SQM defines the quality of the sediment. Based on this quality, usage requirements are laid down on the usage map.
- The SQM may in certain cases be used as a means of demonstrating the quality of the dredging sludge arising from the sediment.

An SQM can be used for the two purposes mentioned above in the following situations:

- in stagnant waters with little dynamics;
- in dynamic aquatic systems with homogeneous pollution.

An SQM cannot be used for the two purposes mentioned above in the following situations:

- in dynamic aquatic systems with heterogeneous pollution.

The term ‘sediments' should also be understood to cover the forelands of major rivers. These forelands behave completely differently and are less dynamic than, for example, the sediment of the summer bed of the same river. Sediment from a local ditch is also difficult to compare with an area that sometimes floods and sometimes is dry. A separate way of dealing with these locations is therefore wanted.

The usability of an SQM for the two purposes mentioned above is summarised in the table below.

1	Non-stagnant waters with dynamic sediment that is heterogeneously contaminated.	Use of SQM is not permitted; fall back on the other facilities offered by the Soil Quality Decree.
2	Stagnant waters with not very dynamic sediment and dynamic waters with homogeneous contamination	Use of SQM is permitted, with the SQM being essentially the same as the method in Chapter 1 with certain specific points of special interest for sediment as set out in section 2.3
3	River forelands	Use of Soil expectations map (SEM) and an SQM for those parts where intervention will actually take place, with the SQM being drawn up in accordance with section 2.4.

2.2 Non-stagnant waters with dynamic, heterogeneously contaminated sediment

Use of the SQM is not permitted. For the use of dredgings on such sediment or the use of dredgings from such sediment, specific research should at all times be conducted on the quality of the receiving sediment and the quality of the dredging sludge to be excavated.

2.3 Stagnant waters with not very dynamic sediment and dynamic waters with homogeneous sediment contamination

A soil quality map may be drawn up for the water quality manager's management area. Collaboration may in this context take place with local authorities to arrive at an integrated map for both terrestrial soil and sediment.

Dynamic waters with homogeneous sediment contamination must meet the following requirement: it must be substantiated to the competent authority that the classification in soil quality zones does not change within the period of validity of an SQM.

A conceivable example is a small river in which all sediments form part of the zone that conforms to class B sediments (Zone b). It is in this case very likely that the sediment quality of this system will not change zone within the period of validity of an SQM.

The SQM is drawn up in accordance with the method as described in Chapter 1. To be able to take account of the specific properties of sediments, certain additions to this method are set out below.

The water quality manager is free to draw up an SQM separately for subareas, with a link being sought with the regular maintenance dredgings cycle.

Classification of management area into subareas
In relation to sediments, there are various specific characteristics that should be taken into account when carrying out classification into soil quality zones. Besides relevant characteristics as set out in section 1.3.2, the following characteristics should be taken into account:

- sedimentation from the surface water
- use of the surface water (overflow, Surface Water Pollution Act discharge points)
- leaching from adjoining plots (for example, adjoining orchard plots, urban area)
- level and timing of earlier dredging activities.

Point sources should be excluded during the classification into soil quality zones. They should not form part of the SQM.

Collection of additional information
Additional sediment test to meet the requirements of an SQM are performed in accordance with the (current) NVN 5720 test strategy for exploratory testing of the sediment or one of the area-oriented test protocols referred to in article 4.10.1 (3) of the Ministerial Regulation. The protocols referred to in this article may only be used at the specific locations for which they have been drawn up.

Classification of management area into sediment quality zones
In the case of stagnant waters with not very dynamic sediment and dynamic waters with homogeneous contamination, a distinction is made between sediment zones on the basis of scope for use. In this context, a distinction is made under all circumstances between zones that conform to the background values, zones in soil quality class A and zones in soil quality class B.

The standard against which a review is conducted depends on the desired use.

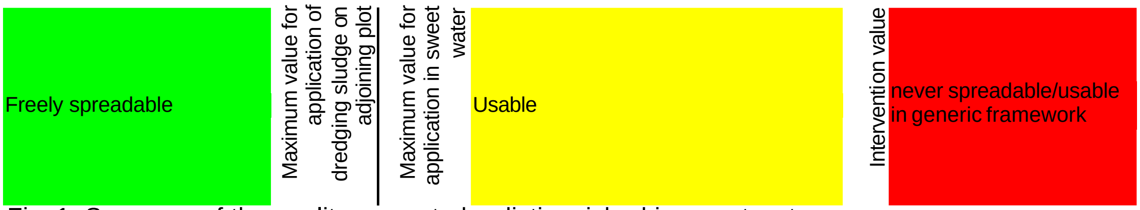


Fig. 1: Summary of the quality zones to be distinguished in sweet water.

Subareas that do not conform to the maximum values that apply to the application of dredging sludge on the adjoining plot and/or the maximum value for application in sweet water should be zoned separately.

During this zone classification, a link may be made with the expected greatest usage/application.

The generic review framework will in many cases provide inadequate scope for the use of dredging sludge on the soil, other than soil below surface water. This is owing to the fact that the zoning locations for dredging sludge on the soil, other than soil below surface water, generally have an agricultural or nature function, and the earth and dredging sludge to be used in the generic review framework for this must conform to the background values. In drawing up an SQM with a view to the use of dredging sludge on terrestrial soil, it is therefore recommended, in consultation with the local authority/authorities, to formulate an area-specific policy that also caters for the dredging task.

The SQM is laid down for a period of 10 years via a procedure similar to that of the SOQMs for dry soil.

Use of the SQM as a basis for the environmental hygiene declaration
A short check is prescribed for basing an environmental hygiene declaration on the SQM. It is examined whether recent circumstances have arisen that may adversely affect the soil quality described in the SQM, for example activities, a disaster, etc. If this is the case, this location is excluded from the use of the SQM as a mean of proof until new data from that location are available. It can then be checked whether the quality of the soil or dredging sludge conforms to the zone quality.

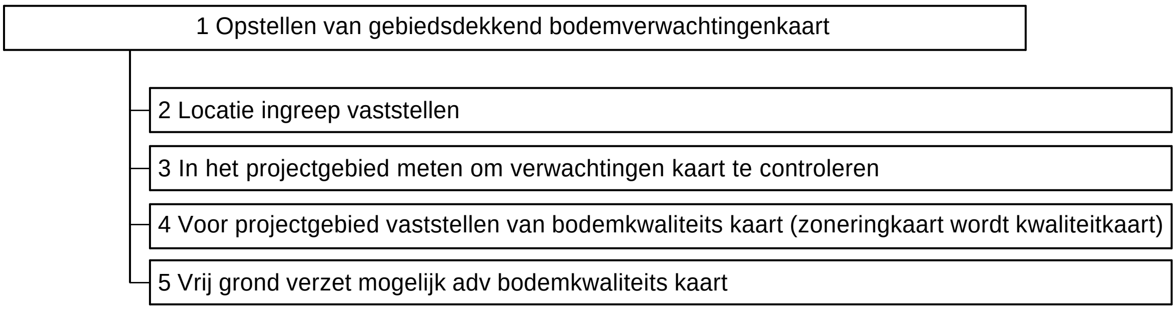
Application of dredging sludge
In the case of application from the “spreadable on the side” zone to adjoining plots or in sweet surface water, a review is performed on the basis of the mean quality in the excavation zone.

2.4 River forelands

As the river forelands have to deal with alternating wet and dry periods, and with relatively higher dynamics than stagnant sediment, it has in this situation been chosen to measure soil quality again at the location.

For river forelands, a soil expectation map is drawn up which, in the case of planned intervention by measurements in the field, is updated to an SQM.

The steps involved in the production and use of the soil quality map to be produced and used for sediments in river forelands are set out below in more detail:



Translation of captions to diagram above
1 Drafting of soil expectation map covering areas
2 Establish location of intervention
3 Measurement in project area to check expectations map
4 Establishment of soil quality map for project area (zoning map becomes quality map)
5 Free earthmoving possible in connection with soil quality map

Step 1: Drafting of soil expectation map
The soil expectation map describes the expected current soil quality on the basis of the water manager's existing data (including sediment testing and morphological knowledge). The soil expectation map can be used to meet the requirement of article 4.7.1 of the Ministerial Regulation on earth and dredgings (article 47 (1) of RvS version) when laying down area-specific policy. The soil expectation map is in that case drawn up for the entire management area as defined in the area-oriented policy.

The expectation map is drawn up by the method described in Chapter 1, with the proviso that existing data (testing) and knowledge (morphology, etc.) of the water system are used.

Certain aspects that must be included in this are as follows:
- Existing measurement data
- Scale and timing of earlier scouring; none, historic (< 1975) or recent
- Silting-up period: before or after 1850 (beginning of industrial revolution)
- Flood period

Within river forelands, a distinction is made between a minimum of 3 zones. One option is to have the zones match the new classification of sediments. 4 zones are then formed.

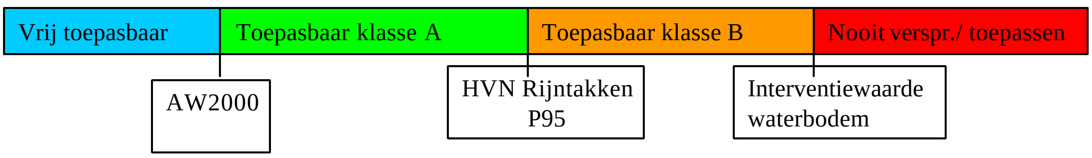


Figure 1: Summary of the new forms of use.

Translation of captions to Figure 1
Vrij toepasbaar = Freely usable
Toepasbaar klasse A = Class A usable
Toepasbaar klasse B = Class B usable
Nooit verspr./toepassen = Never spreadable/usable
HVN Rijntakken = HVN Rhine branches
Interventiewaarde waterbodem = Intervention value for sediment

Other possibilities as a limit for soil zoning below the intervention value may, for example, be the local HVN and/or the $MTR_{sediment}$.

Permanently wet bodies of water such as brick holes, gravel holes, sand pits, banks, wheels, channels and the summer bed are regarded as a separate part of the terrain (zone).

If the number of analyses required per zone (for example, from earlier testing) prescribed under Step 3 is already achieved when the SEM is drawn up, this zone is shown in a shaded format on the map. The requirements of an SQM are met for these zones. These zones may therefore be adopted without further measurements in the SQM to be drawn up later.

Prior to adoption, a brief check is prescribed that examines possible changes in soil quality at that location.

It is examined whether circumstances have recently arisen that may have adversely affected soil quality, e.g. activities, a disaster, etc. If this is the case, the zone cannot be included in the SQM without further measurements.

The SEM is administratively laid down for a period of 10 years.

Step 2: Establish location of intervention
If intervention has been planned at a specific location in the management area, a soil quality map is laid down for the part where dredgings are actually excavated or earth or dredgings are used. In a project in which earthmoving is not yet clear beforehand, a soil quality map is drawn up for the entire project area.

Step 3: Measurement in project area to check expectations map
To achieve a soil quality map for the delineated project area, the expected soil quality may must now be reviewed with actual (extra) measurements in the field. As a hypothesis already exists for soil quality, the number of bore holes needed to support the expectation (hypothesis) is sufficient.

In relation to the number of bore holes and analyses to produce a soil quality map, a distinction is drawn between “drier” river forelands and locations that are permanently under water, such as gravel holes, ancillary channels, etc.

For parts that are not permanently under water, measurement must be performed in accordance with the (current) NEN 5740 test strategy for suspected, diffuse soil pollution, homogeneously distributed contaminated matter on a sampling scale to test the hypothesis. For parts that are permanently under water, the zone must be measured in accordance with the (current) NVN 5720 test strategy for exploratory testing of the sediment. For these locations, there is no expected soil quality to be tested.

If manual drilling is only possible as a result of, say, high flow speeds or a considerable water depth, a lower number of drill holes is sufficient.

The number of drill holes per zone:

	Number of drill holes
Periodically flooded areas (including road bodies, summer quays, etc.) (River forelands).	7 + 1.5 * P
Areas that are permanently under water, in the case of non-mechanical drilling.	30 * vP with a minimum of 9
Areas that are permanently under water, except in the case of mechanical drilling.	3 * vP

P is the size of the zone in hectares.

The number of analyses per zone:

	Number of analyses
Periodically flooded areas (including road bodies, summer quays, etc.) (River forelands).	2 + 0.5* p
Areas that are permanently under water.	3 * v p

P is the size of the zone in hectares.

In area-specific policy, it is possible, by means of (geo)statistics, to deviate in a substantiated manner from the prescribed numbers of drill holes and analyses. This is at the discretion of the competent authority.

Step 4: Establishment of soil quality map for project area. (soil expectations map becomes Soil quality map)
With the measurement data obtained from Step 3, it is checked whether the expected soil quality is correct or whether any adjustments are needed.

Possible adjustments are:

- Zone contains point source -> The position of the point source is mapped out and is no longer covered by free earthmoving.
- Higher or lower values than expected are encountered -> Zone is assigned to a different class.
- Within the Zone, greater differences than expected are encountered -> where appropriate, splitting of Zone.
- Little difference is found between Zones -> where appropriate, combine zones.

The soil quality map is then laid down.

Annex K associated with article 4.10.2 of the Soil Quality Regulation

Guidelines on the drafting of map soil function classes

Areas with the residential soil function class and the industrial soil function class are indicated in the map of soil function classes.

The point of departure for the classification method is that, in the generic review framework for general use, no soil function class is laid down that is less stringent than the most sensitive soil function within a zone. The sensitivity of the soil function classes and soil functions with respect to one another is set out in the table below.

Soil function (class)	More sensitive soil function class	More sensitive soil functions
Industrial	Residential	Kitchen gardens and allotments, agriculture, nature
Residential	-	Kitchen gardens and allotments, agriculture, nature
Kitchen gardens and allotments, agriculture, nature	-	-

The guidelines for the drafting of these maps are described in this Annex, with a distinction being made between the following two situations:

- soil quality map available;
- no soil quality map available.

Drafting of map of soil function classes where a soil quality map is available
The point of departure for the drafting of the map of soil function classes is formed by the soil quality zones as laid down in the soil quality map, in accordance with the requirements in Annex J to this Regulation.

For the soil quality zones identified in the soil quality map, the method of classification in the 'residential' or 'industrial' soil function classes depends on the degree of variation and fragmentation of the soil function classes and soil functions.

There are two options for the classification of soil quality zones in the soil function map:

1. The entire soil quality zone is assigned the soil function (class) associated with the most vulnerable soil function present within the soil quality zone:

- If the most vulnerable functions are assigned to the industrial soil function class, the entire soil quality zone is assigned to the industrial soil function class.
- If the most vulnerable functions are assigned to in the residential soil function class, the entire soil quality zone is assigned to the residential soil function class.
- If the most vulnerable functions concern the soil function of kitchen gardens and allotments and/or agriculture and/or nature, the soil quality zone is not included in the soil function map. This means that only earth and dredging sludge that conforms to the background values may be used within the zone.

2. Dividing the soil quality zone in the soil function class map into several parts, with each part being assigned the soil function (class) associated with the most vulnerable soil function that applies within that part of the soil quality zone.

If the two options mentioned above lead to an unwanted situation with regard to scope for the reuse of earth and dredging sludge, the competent authority may consider using the area-specific review framework for general use.

Drafting of map of soil function classes without a soil quality map
If there is not a soil quality map, the soil function classes are directly derived from soil functions as laid down in the zoning plan, a draft zoning plan or a preparation decision by virtue of the Planning Act.

Annex L associated with article 3.4.2 to the Soil Quality Regulation

Determination of emission values from poorly permeable materials

Formula for the determination of emission values

The following formula is used for determining emissions from poorly permeable materials:

$$E_{L/S=10} = E_{L/S=y} * \frac{(1 - e^{(-? * 10)})}{(1 - e^{(-? * y)})}$$

Where:

- $E_{L/S=10}$: the cumulative leaching of a building material, earth or dredging sludge in the case of a liquid/solid ratio of ten.
- $E_{L/S=y}$: the cumulative leaching of a building material, earth or dredging sludge in the case of an L/S value y lower than ten but greater than or equal to two.
- ?: substance-dependent constant that is a measure of the rate of leaching. The value is given in the table below.

Substance	?	Substance	?
antimony	0.04	nickel	0.26
arsenic	0.01	selenium	0.16
barium	0.17	tin	0.10
cadmium	0.32	vanadium	0.04
chromium	0.25	zinc	0.28
cobalt	0.13	bromide	0.51
copper	0.27	chloride	0.65
mercury	0.14	fluoride	0.26
lead	0.18	sulphate	0.33
molybdenum	0.38		

Annex M associated with article 1.1 of the Soil Quality Regulation

Determination limits for soil, earth and dredging sludge

Methods of analysis used in AW2000 and applicable detectability limit and determination limit

The detectability limits and determination limits as reported by the executive laboratory after the performance of the analyses in AW2000 are specified. The data for substances not (directly) standardised (non-standardised substances and substances that only feature in a total parameter) have not been included.

In the AW2000 test, insufficient observations above the determination limit have been made for certain standardised substances to determine a reliable P95. For those substances, the determination limit has been chosen as the basis for the standard value. In this way, the standard value has actually been determined by the method of analysis adopted – after all, a different method in principle has a different determination limit, too. For a review against these standard values, the same method must therefore be adopted as in the AW2000 test and at least the same detectability limit must be reported. These requirements are set out in the table below. An asterisk (*) indicates for which substances the standard value is based on the determination limit.

If better standardised methods for routine analyses become available in the future, consideration may be given to adjusting the new determination limit. The new method with the determination limit and the detectability limit will then be implemented in the table below.

Component	Analytical standard	Determination limit	Detectability limit
1. Metals			
Antimony (Sb)	NVN 7323	0.03	0.01
Arsenic (As)	NVN 7323	0.3	0.1
Barium (Ba)	NVN 7321	0.5	0.25
Beryllium (Be)	NEN 6426	0.06	0.02
Cadmium (Cd)	NVN 7321	0.01	0.001
Chromium (Cr)	NVN 7321	0.5	0.02
Cobalt (Co)	NVN 7321	0.1	0.01
Copper (Cu)	NVN 7321	0.5	0.1
(Non-volatile) Mercury (Hg)	NVN 7324	0.03	0.001
Lead (Pb)	NVN 7321	0.2	0.05
Molybdenum (Mo) (*)	NVN 7321	0.03	0.01
Nickel (Ni)	NVN 7321	0.2	0.05
Selenium (Se) (*)	NVN 7323	4	1.33
Tellurium (Te)	NEN 6426	0.3	0.1
Thallium (Tl)	NEN 6426	0.3	0.1
Tin (Sn)	NVN 7321	0.6	0.2
Vanadium (V)	NVN 7321	0.3	0.02
Silver (Ag)	NEN 6426	0.6	0.2
Zinc (Zn)	NVN 7321	3	1
2. Inorganic compounds			

Component	**Analytical standard**	**Determination limit**	**Detectability limit**
Bromide	VPR C85-06 / NEN-EN-ISO 10304-2	2.4	0.8
Chloride	VPR C85-06 / NEN-EN-ISO 10304-2	24	8
Cyanide (free)	NEN 6655	0.3	0.1
Cyanide complex (pH < 5)	NEN 6655	0.25	0.08
Cyanide complex (pH ≥ 5)	NEN 6655	0.25	0.08
Sulphate	NEN-EN-ISO 10304-2	24	8
Fluoride	VPR C85-03 / NEN 6483	60	15
Thiocyanates (sum)	EPA 335-3	0.6	0.2
3. Macroparameters			
pH	NEN 5750		n.a.
Lutum	NEN 5753	1.5%	0.5%
Organic matter	NEN 5754	0.6%	0.2%
Dry matter	NEN 5747	0.3%	0.1%
Total organic carbon	NEN 5756	0.6%	0.2%
$CaCO_3$	NEN 5757	0.6%	0.2%
Calcium	NEN 6426	48	17
Magnesium	NEN 6426	48	17
Iron	NEN 6426	48	17
Aluminium	NEN 6426	48	17
4. Aromatic compounds			
Benzene (*)	NVN 5732	0.021	0.007
Toluene (*)	NVN 5732	0.027	0.009
Ethylbenzene (*)	NVN 5732	0.027	0.009
Xylenes (sum) (*)	NVN 5732	0.075	0.018
Styrene (vinylbenzene) (*)	NVN 5732	0.03	0.01
Phenol	AP04 SG XXII	0.063	0.021
Cresols (sum o-,m-, p-) (*)	AP04 SG XXII	0.1	0.013
Dodecylbenzene (*)	In-house method A [1)]	0.05	0.015
Aromatic solvents	NVN 5732	-	0.093
5. Polycyclic aromatic hydrocarbons (PAHs)			
Naphthalene	NVN 5731	0.006	0.002
Phenanthrene	NVN 5731	0.009	0.003
Anthracene	NVN 5731	0.009	0.003
Fluoranthene	NVN 5731	0.009	0.003
Chrysene	NVN 5731	0.009	0.003
Benzo(a)anthracene	NVN 5731	0.009	0.003
Benzo(a)pyrene	NVN 5731	0.009	0.003
Benzo(k)fluoranthene	NVN 5731	0.009	0.003
Indeno(1,2,3cd) pyrene	NVN 5731	0.009	0.003
Benzo(ghi)perylene	NVN 5731	0.009	0.003
PAHs total (sum 10)	NVN 5731	0.063	0.021

Component	**Analytical standard**	**Determination limit**	**Detectability limit**
6. Chlorinated hydrocarbons			
Monochloroethene (vinylchloride) (*)	NVN 5732	0.1	0.01
Dichloromethane	NVN 5732	0.1	0.013
1,1-Dichloorethane (*)	NVN 5732	0.02	0.007
1,2-Dichloroethane (*)	NVN 5732	0.02	0.008
1,1-Dichloroethene (*)	NVN 5732	0.036	0.012
1,2-Dichloorethene (sum cis and trans) (*)	NVN 5732	0.05	0.012
Dichloropropanes (sum) (*)	NVN 5732	0.15	0.034
Trichloromethane (chloroform) (*)	NVN 5732	0.03	0.01
1,1,1-Trichloroethane (*)	NVN 5732	0.033	0.011
1,1,2-Trichloroethane (*)	NVN 5732	0.036	0.012
Trichloroethene (Tri) (*)	NVN 5732	0.033	0.011
Tetrachloromethane (Tetra) (*)	NVN 5732	0.05	0.013
Tetrachloroethene (Per)	NVN 5732	0.01	0.01
Chlorobenzenes (sum)	NVN 5732 / NVN 5734	0.3	0.14
Pentachlorophenol (*)	VPR C85-14	0.0003	0.00012
4-Chloromethylphenols (*)	VPR C85-14	0.05	0.026
Chlorophenols (sum)	VPR C85-14	0.02	0.006
PCBs (sum 7)	NEN 5734	0.003	0.00087
Chloroanilines	In-house method A [1)]	-	0.047
Monochloroanilines (sum)	In-house method A [1)]	0.03	0.009
Dichloroanilines (sum)	In-house method A [1)]	0.03	0.009
Trichloroanilines (sum)	In-house method A [1)]	0.05	0.015
Tetrachloroaniline	In-house method A [1)]	0.02	0.006
Pentachloroaniline	In-house method A [1)]	0.02	0.006
Chloronaphthalene (sum α, β) (*)	AP04, Annex SG2	0.006	0.003
EOX (total)	NEN 5735	0.3	0.1
Dioxine (*)	EN 1948	0.00001	0.0000024
Organochlorinated pesticides	NEN 5734	-	0.0017
7. Pesticides			
Aldrin	NEN 5734	0.0002	0.00007
Chlordane	NEN 5734	0.0003	0.00014
Sum DDT/DDE/DDD	NEN 5734	0.001	0.00036
Dieldrin	NEN 5734	0.0002	0.00007
Endrin	NEN 5734	0.0002	0.00006
Drins (sum)	NEN 5734	0.0005	0.00014
α-Endosulphan	NEN 5734	0.0001	0.00003
α-HCH	NEN 5734	0.0005	0.0002
β-HCH	NEN 5734	0.0002	0.00007
γ-HCH (lindane)	NEN 5734	0.0001	0.00003
HCH compounds (sum α-, β-, γ-)	NEN 5734	0.0006	0.00018

Component	Analytical standard	Determination limit	Detectability limit
Heptachlor	NEN 5734	0.0004	0.00012
Heptachlor epoxide (sum)	NEN 5734	0.0002	0.00007
Azinfos-methyl (*)	VPR C85-18	0.005	0.0016
Organotin (sum)	In-house method B [1)]	0.003	0.001
Atrazine (*)	SG XIX	0.0045	0.0015
MCPA (*)	AP04 Annex SG2	0.07	0.024
Carbofuran (*)	In-house method C [1)]	0.02	0.006
Carbaryl (*)	In-house method C [1)]	0.02	0.006
Non-chlorinated pesticides (sum)	VPR C85-18	-	0.0197
8. Other contaminants			
Tetrahydrothiophene (*)	NVN 5732	0.15	0.05
Tribromomethane (*)	NVN 5732	0.03	0.009
Cyclohexanone (*)	In-house method E [1)]	2	0.6
Methyl-tert-butyl ether (MTBE) (*)	NVN 5732	0.025	0.008
Tetrahydrofuran	NVN 5732	0.15	0.05
Acrylonitrile (*)	In-house method E [1)]	2	0.4
Ethylene glycol	In-house method E [1)]	1.6	0.8
Diethylene glycol	In-house method E [1)]	2	1
Isopropanol	In-house method E [1)]	2	0.6
Methanol	In-house method E [1)]	2	1
Butanol (*)	In-house method E [1)]	2	0.8
1,2-Butyl acetate (*)	In-house method E [1)]	2	0.4
Ethyl acetate (*)	In-house method E [1)]	2	1
Methyl ethyl ketone (*)	In-house method E [1)]	2	0.6
Phthalates (sum)	In-house method D [1)]	0.2	0.049
Mineral oil	NEN 5733	50	17
Formaldehyde (*)	EPA1667	0.3	0.1
Pyridine (*)	In-house method A [1)]	0.15	0.05

A number of components have been analysed in accordance with in-house methods of the executive laboratory for the AW2000 test. The methods are briefly described below:

In-house method A
Pyridine, chloroanilines and dodecylbenzene

Components:
pyridine
Monochloroanilines: 2-chloroaniline, 3-chloroaniline, 4-chloroaniline
Dichloroanilines: 2,6-dichloroaniline, 2,4+2,5-dichloroaniline (as sum), 2,3-dichloroaniline,

	3,5-dichloroaniline, 3,4-dichloroaniline
Trichloroanilines:	2,4,6-trichloroaniline, 2,4,5-trichloroaniline, 2,3,4-trichloroaniline, 3,4,5-trichloroaniline

tetrachloroaniline
pentachloroaniline
dodecylbenzene

Extraction and method of analysis:
The method adopted for determining the compounds referred to above is based on EPA 8131. The point of departure is shaking extraction of the earth sample (50 g) with 125 ml of a mixture of dichloromethane and acetone (1:1 v/v) for 15 minutes. After drying with sodium sulphate, the extract is analysed on a gas chromatograph with mass spectrometric detection.

The only departure from EPA 8131 is that, in the case of AW2000, direct injection of the acetone/dichloromethane extract has been performed. In the case of EPA 8131, the extract is first transferred to toluene. This is currently no longer necessary because the acetone/dichloromethane extract can be analysed without any problems. Not evaporating the extracts to toluene avoids losses from evaporation, increasing the recovery of the volatile compounds (in particular pyridine and the monochloroanilines).

In-house method B
Organotin

Components:
tributyl tin (TBT)
triphenyl tin (TP T)

Extraction and method of analysis:
The method of analysis is based on RIKZ method A 645. The earth sample (approx. 1.0 gram cryogenically ground sample) was extracted by stirring the earth for 5 minutes with a mixture of methanol (15 ml), acetic acid (1.5 ml) and hexane (7 ml). In-situ ethylation was also performed with sodium tetraethyl borate. The extract obtained was purified by eluting the extract over an aluminium oxide column. The eluate was then concentrated, after which quantification on a gas chromatograph with mass spectrometric detection takes place.
The results have been expressed on the basis of mg Sn/kg dm per tin compound.

In the case of the AW2000 samples, the analysis has taken place in accordance with the RIKZ A645 method, with the following observations:
- The calibration has been performed with the aid of a single-point calibration on the basis of an external standard. The use of an external standard for calculating the concentration in a sample is a standard procedure that has been used in almost all GC-MS analyses.
- The final volume of the extract has been established by means of reweighing the pointed tube.

In-house method C
Carbaryl/Carbofuran

Components:
carbaryl
carbofuran

Extraction and method of analysis:
The extraction and analysis have been performed in accordance with EPA 8270D and EPA 3545 (Accelerated Solvent Extraction (ASE)).

Of the sample, 15 grams were weighed in and mixed with Isolute. Isolute is a drying agent used in ASE. This mixture was quantitatively transferred to an ASE tube and extracted with dichloromethane at high temperature ($100^{o}C$) and pressure (1500-2000 psi). The extract was reweighed and distributed between a 10 ml and a 2 ml vial. The 10 ml vial has been stored in the freezer and may be used for possible repeat analyses; the 2 ml vial has been used for the analysis. The components have been determined with a gas chromatograph with mass spectrometric detection.

In-house method D
Phthalates

Components:
dimethyl phthalate, diethyl phthalate, dibutyl phthalate, dibutylbenzyl phthalate, bis(ethylhexyl) phthalate, di-n-octyl phthalate, di-isobutyl phthalate

Extraction and method of analysis:
The cryogenically ground sample (25 g) is extracted (15 min) with 50 ml acetone. 50 ml petroleum ether is then added to the mixture and shaken again (15 mins). The extract is washed with 100 ml demineralised water. The organic phase (petroleum ether) is dried with 10 g sodium sulphate and then concentrated under nitrogen to 1 ml. The extract obtained is analysed on a gas chromatograph via mass spectrometric detection.

In-house method E
Solvents and Glycols

Components:
Solvents
methanol, 2-propanol, acrylonitrile, methyl ethyl ketone, ethyl acetate, 1-butanol, butyl acetate, cyclohexanone

Glycols:
ethylene glycol, diethylene glycol

Extraction and method of analysis:
Extraction and analysis are performed in accordance with EPA 1667, with extraction being performed in quadruplicate on subsamples of 50 grams. The extracts obtained have been combined and jointly pre-treated. The extracts have then been filtered to remove any suspended particles.

The analysis has been performed with the aid of a gas chromatograph with an FID detector. The analysis of the solvents and the glycols have been performed separately as different settings for the analytical instrument are needed for these two groups of compounds.

Annex N associated with article 4.8 and article 4.10.2 of the Soil Quality Regulation

Guidance on the translation of zoning plan designations to soil functions and soil function classes

Where earth or dredging sludge is used on or in the soil, other than soil below surface water, in accordance with the review framework in section 1 of Chapter 4, Part 2 of the Decree, understanding of the soil functions is needed.

Where earth or dredging sludge is used on or in the soil, other than soil below surface water, in accordance with the review framework in section 2 of Chapter 4, Part 2 of the Decree, understanding of the soil function class is needed.

For such time as the map of soil function classes has not yet been laid down, the local authority can take a decision setting out a translation to soil function classes for all zoning plan designations within the local authority.

Table 1 and the following explanatory memorandum provides guidelines for the translation of functions in zoning plans to soil functions and to the Residential and Industrial soil function classes.

Table 1 is not intended for the assessment of soil suitability in existing situations, but for controlling the use of earth and dredging sludge on terrestrial soil as part of soil management.

Table 1. Relationship of soil functions, soil function classes and function designations in zoning plans.

	Level of exposure of humans Level of protection of ecosystem	Nationally established soil functions	Additional explanation of nationally established soil functions	Possible functions in zoning plan
Not classifiable in a soil function class (quality of earth and dredging sludge to be used must conform to the background values)	Considerable soil contact and considerable crop consumption High level of protection of ecosystem	Kitchen gardens/allotments Agriculture Nature	Also, for example, ecologically valuable dike bodies and railway embankments or ecologically valuable parts of large industrial sites	Allotments Agricultural purposes Natural purposes All functions associated with the Residential and Industrial soil function classes
Residential Soil function class	Considerable soil contact and some crop consumption Mean protection of ecosystem	Residential with garden Places where children play Parks and gardens with natural values	Including green areas with a certain ecological value, e.g. certain sports and recreation sites and certain municipal parks, embankments and broad verges, green office locations	Play area Garden All zoning plan functions as referred to in the Industrial soil function class
Industrial Soil function class	Little soil contact and no crop consumption Moderate protection of ecosystem	Other parks and gardens, buildings, infrastructure and industry	Including 'simple' ornamental greenery in public areas, certain sports and recreation sites and certain municipal parks. Also densely built areas without gardens.	Residential purposes Centre purposes Recreation purposes Transport purposes Public parks and gardens Sports ground Social purposes Park and garden facilities Industry Commercial purposes Business purposes Office purposes Parking purposes

Explanatory notes
The table shows that the designations in zoning plans can usually not be unambiguously linked to the soil functions. The column with 'possible functions in zoning plan' makes clear that very different intended uses can end up in the same soil function class. For a large proportion of the zoning plan functions, these may be assigned to different soil function classes.

Two aspects are crucial to the classification in soil functions, and thus for the translation of functions in zoning plans to soil functions:

- the level of exposure of humans (via crops or soil contact);
- the level of protection of the ecosystem.

When assigning soil functions, the competent authority thus conducts an assessment of these two aspects, based on which it makes choices concerning the classification of the area or zoning plan designations into soil functions.

The Residential soil function class only covers functions in which there is considerable human contact with the soil: places where children play and gardens.

Soil functions in which there is considerable human contact with the soil are the soil function places where children play and live with gardens. These soil functions are classified in the Residential soil function class or are not assigned to a soil function class.

For all other functions, the competent authority determines the soil function class on the basis of:
- a choice of the level of protection of the ecosystem;
- an assessment of the level of human exposure.

By way of illustration, two examples can be given:

Example of municipal parks
Certain municipal parks are particularly valuable in ecological terms. The competent authority for such parks decide not to assign these to a soil function class. Other municipal parks have a certain ecological value and are thus covered by the Residential soil function class. Lastly, municipal parks are mainly intended as a simple green facility, for example by cycling through them. They may be covered by the Industrial soil function class. If, however, there are parts in these municipal gardens where children play regularly, these parts are again covered by the Residential soil function class because this involves considerable soil contact by humans (and the Industrial soil function class entails little soil contact by humans).

Example of residential purposes
Residential purposes may be covered by the Industrial soil function class or by the Residential soil function class. If there is little soil contact on the part of humans, i.e. if residential purposes without a garden are involved, the Industrial soil function class applies. If, at such dwellings, there are places where children play, these are, however, again also covered by the Residential soil function class. Apart from that, the competent authority may choose not to assign the areas for residential purposes to a soil function class.

Preliminary draft of the explanatory memorandum associated with the Soil Quality Regulation

Attention is drawn to the fact that this is a preliminary draft. No rights can be derived from the substance of this document.

General

[PM]

Notification

The Commission of the European Communities was notified of the proposed draft Regulation on PM October 2006 [notification number …/…/NL] in implementation of article 8 (1) of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services (OJ L 204), as amended by Directive 98/48/EC of 20 July 1998 (OJ L 217).
[With reference to the responses of … (specify Member State or Commission which submitted comment or objection), the following is pointed out.] or [With reference to this notification, no responses have been received].

Chapter 1. Definitions

Article 1.1 Definition provisions

This article contains, among other things, definitions of the activities to which the Decree relates. For the substance of these definition provisions, see the various standard documents. To ensure a proper understanding, these documents should therefore be consulted. These documents can be inspected and downloaded via the websites of the Foundation for infrastructure quality assurance in soil management (www.sikb.nl) and the Soil Protection Facilities Plan (www.bodembescherming.nl).

Detectability limit and determination limit

The detectability limit is the level at which a parameter is certainly demonstrably present in the building material, earth or dredging sludge, but is not quantifiable. This limit is also called the 'detection limit'. To be able unambiguously to determine whether a parameter has been demonstrated, the detectability limits must be laid down unambiguously. A list of detectability limits has therefore been included in AP04.

In the case of the determination limit, the concentration of a parameter is certainly quantifiable. Under this Regulation, the determination limit is by definition put on a par with three times the detectability limit. In the case of measurements covered by the determination limit, no figure is reported, but it is indicated that the measurement is lower than the determination limit.

Subbatch and batch

A batch is a manageable quantity of a building material in which the latter is sold or used. A single type of building material, such as brick, concrete or granules, must be involved. The elements of a batch must also be of similar quality, having regard to normal spread and heterogeneity.

A batch need not be transported as a complete unit, but may, for example, be transferred to the works after being split between several lorries or ships. It continues then to be classed as a single batch.

A batch may be split into several subbatches, which will then each function as a batch. In this regard, see also the article on splitting.

Chapter 2. Quality of performance

General

This Chapter of the Regulation designates activities to which the Soil Quality Decree (hereinafter referred to as: the Decree) applies and the website setting out the lists of recognised persons and institutions. In addition, the Regulation designates, for each activity, the standard documents that must be observed during performance. This Regulation also indicates what activities must be performed by the (natural) persons specified on the recognition. Furthermore, the Regulation indicates the activities that may only be performed by persons and institutions who do not have a personal or commercial right to the aspect to which the activities relate (compulsory separation of function). Lastly, the Regulation indicates where to obtain the forms laid down by the Minister for Housing, Planning and the Environment and the Minister for Transport, Public Works and Water Management that must be used for applying for recognition, amending recognition, reporting a bankruptcy or suspension of payments and reporting a suspension or withdrawal of a certificate or accreditation.

Phased entry into force
To give organisations enough time to prepare for the obligations, the latter will not come into effect in one go for all planned activities. A step-by-step extension has been chosen.

A. Building Materials Decree:
From the time of the entry into force of this Regulation, the obligations will only apply to activities that had previously been governed by the Building Materials (Soil and Surface Water Protection) Decree (hereinafter referred to as: the Bsb). This concerns the issue of quality declarations, the analysis of building materials, sampling during batch inspections and production of building materials, earth or dredgings. Persons who and institutions which, under the arrangements of the Bsb, have been designated as samplers, laboratories or certification institutions or are in possession of valid recognition for a declaration of quality (recognised declaration of quality) need only be in possession of recognition by virtue of the Decree from the time that the period of validity for that designation or recognition has elapsed. The period of validity for this designation expires for sampling during batch inspections in any event on 1 July 2007. For the other designations and recognitions, the period of validity expires in any event on 31 December 2007. The Policy rules for designation and recognition pursuant to the Building Materials Decree (Government Gazette, 21 March 2003, no. 57, p. 18) continue, for the purposes of designation and recognition, to be provided for in the basis required for this until those times. From the aforementioned dates, the organisations should thus in any event be in possession of recognition by virtue of the Decree and the samplers should, for batch inspections, be recorded on the recognition. The instructions and recognitions by virtue of the Bsb cease to be valid as of that date. This exception (dispensation) is based on article 11.2 (6) of the Environmental Management Act.

B. Soil protection facilities:
The obligations for activities for which an obligation of certification or accreditation already applies will apply as of 1 January 2007. By virtue of a number of legal regulations (including general

rules for establishments and licences by virtue of the Environmental Management Act), enterprises which construct or inspect soil protection facilities should be certified or accredited. These enterprises have, until 1 January 2007, the time to seek and secure recognition.

C. Soil testing and soil decontamination:
As from 1 July 2007, the obligations will apply to activities for which organisations can arrange for their own certification from 2006. These concern: analysis for environmentally hygienic soil research, treatment of contaminated earth or dredging sludge, environmental process control, environmental verification, performance of soil decontamination operations and fieldwork. The obligation for fieldwork relates only to terrestrial soils. For soil below surface waters, the obligation concerning fieldwork applies at a later time.

D. Other activities:
The remaining activities are designated at a later stage. To this end, the Regulation will be amended at a later stage.

Article 2.1 Designation of activities

In paragraph 1, this article designates the activities for which persons and institutions must be in possession of recognition to be granted by virtue of the Decree. By virtue of article 16 (1) and (2) of the Decree, the performance of an activity without such recognition is therefore prohibited.

Paragraph 2 indicates that the obligation to be in possession of recognition applies only if the activities are performed in order to secure specific decisions or to comply with specific obligations. This means that activities, which, though designated in this Regulation, are nevertheless performed for a purpose other than those listed in this article, are outside the scope of the obligation.

Paragraph 3 regulates the link between certification/accreditation and recognition. It is explicitly indicated in the recognition to what this relates. It is thus made clear that the recognition applies only to operations that come within the scope of certification or accreditation. By virtue of the ban in article 16 (1) of the Decree, persons and institutions are not allowed to perform, for the purposes of soil management (designated in article 2.1 of this Regulation), operations other than those specified in the recognition.

If a part of a certificate or accreditation (one or more operations) lapses (is withdrawn or suspended), the respective certification body or the Dutch Accreditation Council is obliged to notify Bodem+ to this effect (see article 21 of the Decree). Based on this recognition, Bodem+ will take care of the withdrawal of that part of the recognition.

Paragraph 4 designates, by virtue of article 12 (4) of the Decree, the activities that are based on a certificate or accreditation.

Paragraph 5 makes clear that a laboratory is recognised for analysis of building materials, earth or dredging sludge if it has been accredited for all the operations covered by a specific package. AP 04 sets out all operations that can be performed pursuant to the Bsb. The operations are split between the various parts of AP 04: sampling, sample preparation, composition of earth, composition of building materials, other than earth, leaching research and eluate analyses.

Although a laboratory can be accredited for all individual operations, recognition only takes place if the laboratory has been accredited for all the operations covered by a package. In most packages, operations from several parts have been combined, owing to the links between them. A package classification has therefore been chosen in which the sample preparation operations and eluate analysis operations have not been included in loose packages, but have been incorporated in packages for compositional and leaching research.

Packages have been formulated for which a laboratory can be recognised. This concerns packages for the composition of earth (AP 04-SG 1 - 5), composition of building materials (AP 04-SB 1 - 4), leaching research (AP 04-U 1 - 3) and sampling (AP 04-M 1 - 4).

In relation to the composition of earth or the composition of building materials, recognition takes place only if the institution has at least been accredited for package SG1 or SB1 respectively.

If the element relating to the composition of earth or the composition of building materials is concerned, a maximum of one operation in these packages may be contracted out to a laboratory recognised for that operation (with the exception of operations relating to leaching research). The laboratory is in that case recognised for the remaining operations in the package in question.

Article 2.2 Personal registration

The natural persons who perform the activities referred to in this article should, by virtue of article 10 (2) of the Decree, be specified on the recognition (personal registration). By declaring paragraph 2 of article 2.1 to be applicable, this obligation is limited to the activities performed with a view to one of the objectives referred to in that paragraph. See also the explanatory notes on article 2.1.

Article 2.3 Designation of standard documents

This article designates the standard documents used as a basis for the recognition. These standard documents, which are set out in Annex c to this Regulation, are the same as those underlying the certificate or accreditation.

If a new version of a standard document is issued, this new version will be included in the table if it meets the requirements of article 26 of the Decree. The new version of the standard document will have to be adopted from the time of entry into force of this amendment. Apart from that, a transitional arrangement will nevertheless apply each time (this will be provided for in every amendment). Both standard documents will apply alongside one another for a specific period. A person or institution will then have to apply the version that has formed the basis for the certification or accreditation.

Article 2.4 Independence requirements

This article implements article 18 of the Decree and contains some requirements governing the independence of persons who and institutions which perform certain activities. For an explanation of this article, see the explanatory memorandum relating to this Decree.

Article 2.5 Forms for applications, requests and notifications

This article designates, in paragraph 1, where the forms laid down by the Minister for Housing, Planning and the Environment and the Minister for Transport, Public Works and Water Management can be obtained to submit an application for recognition, make an amendment request or perform certain notifications. Reference is in this regard also made to the website of Bodem+.

Paragraph 2 designates the website on which the lists of recognised persons and institutions are published. This paragraph implements article 10 (4) of the Decree.

Chapter 3. Building materials

Section 3.1 Determination of whether a material is a stony building material

In the Decree, building materials are defined as stony materials. A content of at least 10% (per cent by weight) silicon, calcium and/or aluminium in the material is linked to this. One or more of these elements occur naturally in all stony materials. This content had already been set at such a low level in the Building Materials Decree in order to be able to regulate stony materials in the Decree as far as possible. In general, more than 20 – 40% of the building materials covered by the Decree will be accounted for by (compounds of) the specified elements.

Normally, it is clear beforehand which building materials are or are not classed as stony, and no further determination of this is needed or compulsory. Only for the rare cases in which doubt exists has a method been included in section 3.1 for being able clearly to determine whether a material actually contains 10% silicon, calcium and aluminium and must be regarded as building material.

Non-stony building materials have not (yet) been regulated in the Decree.

The sampling, sample preparation and laboratory determination for this test have not been included in the accreditation programme AP 04. Determination only takes place so rarely that accreditation has little added value and the costs do not outweigh the benefits. The sampling is nevertheless broadly in line with AP 04. Furthermore, the necessary regulations have been set out in section 3.1 and in Annex E to this Regulation. These regulations are the same as the method of determination that had already been incorporated in the Building Materials Decree.

Section 3.2 Determination of whether a building material is moulded

Building materials are subdivided into moulded and un-moulded building materials. This distinction is important because leaching behaviour varies sharply. This means that, among other things, various methods of determination are prescribed in the Decree (the diffusion test for moulded building materials and the column test for un-moulded building materials) and that the results of these tests must be reviewed against various quality requirements (expressed in mg/m^2 surface area for moulded building materials and in mg/kg dry matter for un-moulded building materials).

To determine whether a building material is moulded, the material must satisfy two conditions. The smallest unit of the material must at least have a volume of 50 cm^3 and the material must be permanently non-deformable under normal conditions. In other words, the building material must consist of substantial pieces and must not fall apart without any reason. Both aspects are fleshed out further below.

Determination of volume of smallest unit

Two methods are available for determining whether the volume of the smallest unit meets the requirement of 50 cm^3.

For manufactured building elements with a fixed form and monoliths, the length, width and height can simply be measured in order to determine the volume. This will be possible with most moulded building materials. Account must, however, be taken of cavities and holes, which are not included in the volume of the building material.

Particularly if the calculated volume is close to the 50 cm^3 limit, the presence of cavities and holes may lead to differences of interpretation. For results of less than or equal to 100 cm^3, a more precise method of determination is needed in which the content is determined by immersion in water. This method will only be needed in special cases.

A standard sieving method is available for coarse-grained material with a spread in the volume per grain that is not negligible. This sieving method is chiefly intended for loose-grained materials, such as slag and quarry stone. Annex F sets out the conditions to be met by the building material in the sieve test to be classed as moulded.

Determination of permanent non-deformability with diffusion test

A building material may only be tested as moulded if the material loss during the service life of the building material remains limited. After all, if a building material falls apart prematurely, this leads to greater contamination than can be determined by the diffusion test.

Product documents geared to the permanent usability of building materials within the type of structure envisaged have been drawn up for most building materials. This means that material loss associated with these building materials normally remains limited and does not have to be further determined. If doubt nevertheless remains in certain cases as to the level of material loss, a general method of determination has been given that can easily be used alongside the diffusion test. This test only provides information on the leaching test and requirements to be adopted, and does not address the usability and durability of the material from the civil engineering point of view.

The test is based purely on the fine material caught in a filter. The material that passes into solution has not been catered for in the distinguishing criterion, although this can also be classed as material loss. In part, the material dissolved in the eluate already forms part of the determination of leaching characteristics and of the scale of emissions in the diffusion test. Further research will, where appropriate, be able to show whether it is also relevant to include this part of the material loss in the assessment in question.

In relation to the assessment of lightly bound stone mixtures for road foundations, a different review value has been completed for material loss. This proved necessary because these materials undergo a (slower) hardening process than other building materials and because certain properties of these materials are specific to these building materials in these applications.

(Lightly) bound stone mixtures are granular materials to which a latent hydraulic binder can be added. A certain bond gradually forms between the grains of this mixture. The potential binding properties of the material can be demonstrated at the start of use via the CBR test (test and review requirements in accordance with the Standard RAW provisions 2005).

In the case of a number of lightly bound materials, test pieces with a hardening time of 28 days at a laboratory temperature of 20°C can be assumed. For several lightly bound materials, this is too short a timescale to produce usable test pieces. To prevent all lightly bound materials being linked to a hardening time of 91 days, two review values have been included. A lightly bound stone mixture must therefore conform to one of these two values, depending on the hardening time adopted. The requirement has been linked to the specified periods of test pieces produced in the laboratory and hardened under specified conditions, i.e. directly after 28 days or directly after 91 days.

If a later check is conducted other than directly after 28 (to 91 days) or 91 days (for example, in the case of extra production checking or in the case of enforcement), the requirement of 1500 or 500 grams material loss per m^2 uncovered surface area of the test piece must be met. If later checks involve test pieces drilled from a road foundation structure, account must also be taken of the conditions during hardening for an (indicative) assessment. These are different from the required conditions in the laboratory.

Determination of non-permanent non-deformability with standard list

Annex F provides a list of building materials which, by definition, are regarded as non-permanently non-deformable based on historic knowledge of these building materials in their use. Wear and tear and damage occur in practice, including under the influence of moisture, frost and dynamic contamination.

Road building – Foundation layer
Certain types of stabilised layers have been included among foundation layers in the list. These are foundation layers consisting of a layer of granular material mixed with a binder. Stabilised clay and loam are not permanently non-deformable because they can soften under the influence of moisture. Stabilised E-fly ash is sensitive to frost and can therefore not be classed as permanently non-deformable.

Road building – Hardening layer
Hardening layers in road building are the top layers that are directly trafficked. These layers are subjected to wear and disintegration. In certain materials, this wear can be considerable over a usage period of ten to twenty years.

Hydraulic engineering – Top layer
A top layer (slope revetment) in hydraulic engineering is a layer that protects a dike or bank against damage by water and wind. Materials for top layers must be resistant to water and frost and meet a requirement concerning dynamic crushing. The frost requirement lapses if the building material is continuously under water and is thus not subject to freezing and thawing cycles.

Sand cement blocks are used as a bank protection material in hydraulic engineering. These blocks of sand stabilised with cement are designed in such a way that, in time, they largely disintegrate, chiefly as a result of exposure to freezing and thawing cycles. This material therefore not to be regarded as permanently non-deformable.

Steel slag that is not frost-resistant (determined in accordance with the Standard RAW provisions 2005) have been assessed in the list as non-permanently non-deformable.

Hydraulic engineering – Dynamically stable structures
In dynamically stabile structures, pieces of stone in a top layer of a hydraulic engineering structure can, under the influence of wave action, exhibit considerable displacement and move a great deal relative to one another. As a result of erosion, building materials used in such structures lose a substantial proportion of their material and cannot be regarded as permanently non-deformable.

Hydraulic engineering – Core
The core is the innermost part of a water-retaining dike which is chiefly deigned to absorb the transverse forces caused by the height difference in the water on the inside and outside of the dike. Material for this application should be water-resistant and meet a requirement concerning dynamic crushing. Non-moisture-resistant steel slag should be regarded as non-permanently non-deformable, as in the top layer.

Section 3.3 Determination of other materials in building materials

Determination of percentage of earth

Only around twenty per cent earth (or dredging sludge) may be present in building materials as an additional constituent. This is earth that has been mixed loose in the batch of building materials, not earth used as raw material to make a moulded building material. The object of this requirement is twofold.

Firstly, it is intended to improve the product. Earth streams with excessive stony (or other physical) contaminants are not hidden away in temporary structures for no reason, but must be treated before they can be used. By sieving or other treatments, earth that can be used in higher-grade applications can be recovered. The set percentage may also prompt product improvement for certain building materials, usually originating from the reuse circuit.

Secondly, a clear distinction thus arises between earth and building materials. Both material streams have a regime of their own in the Soil Quality Decree, with their own requirements, and must not be mixed. That could, after all, lead to undesirable situations in which, for example, decontaminated earth with excessive stones could be used in structures. Such situations are prevented by setting a limited percentage.

From the point of view of compliance with composition and emissions, the percentage of earth in building materials is not very important. In the case of a slight breach of the percentage, slightly too much earth would usually end up in a temporary structure, which will not lead to environmental problems. The requirement has mainly been included in order to counter extremes. It has therefore been chosen not to stipulate a precise method of measurement, with all the associated extra costs. Instead, an estimate is regarded by the sampler as adequate.

For the same reason, it is indicated in the article that an error margin of 10% (absolute) is adopted in the estimate. This means that an estimate of 21% does not lead to rejection, only values above 30%. Such an error margin is inherent in the system of estimation and is not in this case a problem.

Apart from that, the authorisation of a percentage of earth in building materials does not mean that this may be deliberately mixed in. That could lead to the undesirable removal of contaminated earth by mixing or, conversely, the dilution of contaminants in the building material.

Determination of presence of wood and other materials

Loose additional constituents not belonging in a batch of building material may end up being mixed in such a batch. These are non-stony materials such as wood, building plastic, household refuse, sweeping dirt, roof leather and the like, or even stony materials such as pieces of asbestos and tarry asphalt.

For a number of more environmentally relevant materials, these must be virtually absent from the batch as loose mixed-in components. This is elaborated by stating that if they are found in a thorough visual inspection of the product, the batch must be rejected. The list of materials and the method used fits in with the inspection of rubble granules.

For the other products, a requirement of max. 10% applies to additional wood constituents and 5% to other additional constituents. As with earth, account is taken of the relative inaccuracy of an estimate in this context.

This article expressly concerns loose additional constituents, not constituents of an integrally moulded product intended for its use, such as a roof covering, or a product with stony and plastic or wooden parts.

Section 3.4 Review against the requirements of the Soil Quality Decree

Determination of compositional and emission values

To be able to determine the emission of parameters from building materials, four tests are available: the column test, the simplified column test, the diffusion test and the availability test. Each test has a function of its own.

The use of these tests is considered compulsory for batch inspections, recognised quality declarations and for the licensing inspection of manufacturer's own declarations. The tests are described at greater length in the accreditation programme AP 04, in which the correct version numbers of the specified NEN standards are also given. These standards are only mentioned in this article to provide clarity about which type of test with a column test, diffusion test, etc. is meant.

The emission of parameters from un-moulded building materials is normally determined with the aid of the simplified column test (NEN 7383). This test is also used with building materials that are not permanently non-deformable and with moulded building materials whose leaching is not determined by diffusion. The simplified test is shorter than the usual column test (three weeks) and has been specifically developed for users who are only interested in the cumulative leaching at the end of the column test, in other words for users who must usually determine whether their product meets the requirements laid down.

The usual column test (NEN 7373) is chiefly used for characterising a building material, for example in the licensing investigation. This test lasts six weeks and provides more understanding of the course of leaching under practical conditions.

The diffusion test (NEN 7375) is used for determining the emission of parameters from moulded building materials. This is a test under mild conditions which provides a good idea of leaching under practical conditions. It is thus also a lengthy test (64 days plus analysis time), and this is not always needed or wanted. Building materials which are expected to remain far enough below the standard may also use the (simplified) column test, with the moulded building material being ground and tested as un-moulded product. Leaching will consequently increase so that the outcome of the column test actually provides an overestimate of actual leaching from the moulded product.

It is in some cases also authorised to use an availability test (NEN 7371) instead of a diffusion test. This applies if the leaching is expected to be limited or will be exhausted rapidly. The availability test lasts only one day and is intended to provide an indication of (and thus not a definite answer about) the parameters for which leaching behaviour is critical. The test yields an emission result as may happen under extreme conditions (pH 12), i.e. an overestimate of the actual leaching.

As the results of the column test and the availability test are expressed in mg/kg dry matter, they must also be compared with the requirements for un-moulded building materials. The requirements and results for moulded building materials are normally expressed in mg/m^2.

A method of determination is available for determining compositional values for each parameter or set of parameters. This has been further elaborated in AP 04.

Annex F lists certain building materials which, by their nature, cannot be reviewed as moulded building materials. These are building materials which, though permanently non-deformable, cannot be assessed with the diffusion test owing to their high level of water porosity and form of contact with water. This specifically concerns very open asphalt concrete (VOAC) and very open cement concrete, which are specifically designed as a dewatering covering layer on roads. Open colloidal concrete also has a high percentage of hollow spaces, endowing it with draining properties.

Determination of emission values from non-conforming materials

In a number of cases, it is not directly possible automatically to use the column test or diffusion test. Owing to the anomalous results from the test, conversion is needed to be able to carry out a comparison against the emission requirements in Annex A to the Regulation.

Certain building materials are not very permeable, such as bentonite and fine powdery building materials, which means that little or no liquid passes through the column in the column test. To be able to perform a comparison with the set emission requirements, a certain quantity of liquid must pass through the column. This is because the emission requirements have been geared to this. The ratio of liquid passing though the column to solids present in the column must be at least ten (L/S=10).

If at least twice as much liquid has passed through the column as the amount of solid material present in the column (L/S=2), the emission can nevertheless be extrapolated to L/S=10. The formula for this has been given in Annex L. If less liquid passes through the column, emission cannot be determined. In that case, no emission requirements apply to the product in question.

Special situations may also arise during the diffusion test. In the diffusion test, what is known as a profile analysis is performed for all parameters to determine whether emission is actually diffusion-controlled. This has been elaborated in NEN 7375. If it emerges that a diffusion-controlled profile cannot be laid down, NEN 7375 distinguishes five possible special situations. It is indicated for each situation how an overestimate of emission must be determined. The results of this estimate are extrapolated to T=35600 days and reported. To be able to compare with the emission requirements in the Decree, these results must still be divided by 24. This factor is a result of the fact that, unlike in the past, it is no longer immission but emission that is standardised in the Building Materials Decree. The overestimate is geared to determining immission and must therefore still be calculated, which is readily possible in this case.

Ratio between measurement values

Determination of whether the requirements are met is always performed in duplicate (on two samples). The results of these two determinations must not differ too much from one another for each parameter; otherwise, this is an indication that errors can be made during sampling, sample preparation or analysis. With a ratio between the highest and lowest values of more than 2.1 (for twelve random selections), the procedure followed must therefore be checked for errors. Where errors exist (or are suspected), the steps in question must be performed again up to the analysis stage.

If the check does not show there to be (suspected) errors, it may for the time being be assumed that a heterogeneous batch of building material is involved. This may, among other things, be caused by the batch being composed of several subbatches that vary in composition. The repetition of steps is then inappropriate because this would lead to the same kind of differences in measurement values or the measurement results already obtained are then (nevertheless) representative of the batch. If, based on the origin of the batch, it is unlikely that such great heterogeneity may occur, it is recommended nevertheless to investigate the batch again. It is recommended in this context to take more random samples per sample to eliminate any heterogeneity. Guidance on the number of random samples to be taken can be found in NEN 7300 - 7303.

At concentrations around the determination limit, the error margins of analyses are relatively broad and for this reason, too, relatively sharp differences in results can occur. In that event, too, repetition of the test is not appropriate.

The above rule is intended to prevent errors in sampling and analysis as far as possible. It cannot serve as a method of establishing with any certainty whether or not a building material is heterogeneous. At the very most, it can serve as an indication that splitting of the batch may not be prudent, at least if the values found are again close to the compositional or emission requirements.

This check on the ratio between measurement values does not apply to determination of the dry matter content.

Compliance with the requirements

Under the Soil Quality Decree, building materials must meet the requirements laid down in Annex A to this Regulation. Separate emission requirements have in this context been laid down for moulded and un-moulded building materials. Un-moulded building materials that cannot meet the emission requirements, but which can meet the emission requirements for IBC building materials, may only be used as IBC building material under insulating facilities. The compositional requirements in Annex A are the same for all types of building materials.

As a result of specific matrix disturbances in a material, the determination limit may prove higher for a specific sample, higher even than the compositional requirement given in Annex A. If this happens, the determination limit reported by the laboratory is adopted as the compositional requirement. The laboratory should substantiate the higher determination limit in the report.

If, in the case of measurement values below the determination limit, an arithmetic value is nevertheless needed for determining a total parameter, the determination limit multiplied by a factor of 0.7 is used. This estimate assumes that measurement values have normally been divided in a logarithmically normal way.

Review rule for building materials

Different frameworks and different policy have applied to building materials that have already been used on or in the soil or in surface water. If such building materials are released from a structure and are used again without first being treated, no change arises for the environment. On the other hand, undesirable additional costs could arise if a previously approved building material were still to be rejected. With an increase of a factor of two in a maximum of two compositional or emission requirements, this will as a rule not lead to problems.

The review rule does not apply in connection with the treatment of building materials. There are two reasons for this. Firstly, the composition and emissions from the building material may change as a result of treatment. It can thus no longer be stated that the impact on the environment remains the same. Secondly, treatment is a process in which, in principle, a new product is made. New products must usually meet the requirements of the Decree regardless of which raw materials they use and whether they consist of previously used building materials.

The review rule does not apply to the requirements for asbestos. Asbestos is a critical substance for which a requirement has been included in the Asbestos Product Decree, which has been adopted in the present Regulation. This cannot be departed from on the basis of this Regulation.

Nor does the review rule apply to IBC building materials. In this context, higher requirements already apply within this Decree. A further increase is not appropriate.

Section 3.5 Batch inspections

Performance of batch inspection

In principle, any batch may be inspected via a batch inspection. This is the fall-back option if certification or a manufacturer's own declaration is not possible or appropriate.

During sampling, twelve random selections are normally taken from the batch. These are normally combined to form two mixed samples. Three mixed samples applied to the enforcer under the terms of the Building Materials Decree. It has been decided to eliminate this difference between enforcer and user so that the method of inspection is fully comparable.

The sampling, sample pre-treatment and analysis are performed by a recognised person or institution. For recognition, see Chapter 2 of the Decree. See also section 3.4 for the analyses.

The inspection report is drawn up by the recognised laboratory that has also conducted the inspection (in accordance with what is set out in section 3.5). Based on this report, an environmental hygiene declaration is issued confirming that the building material is satisfactory. The batch inspection consists of the combination of the report and declaration. The declaration will in many cases be issued by a consultancy, or by the office that has also conducted the sampling.

The batch inspection and the number of random selections and mixed samples to be taken are based on the assumption that a batch is normally homogeneous, in accordance with the RIVM/TNO report 'Reviewing of building materials against standards and requirements', RIVM report no. 771402010 (October 1995). This means that the batch displayed no more spread in compositional values and emissions than a regularly produced building material. Batches whose heterogeneity is too great pose the risk of the results of an ordinary batch inspection not being representative of the entire batch.

Heterogeneity arises in batches in two ways. Firstly, a batch may contain hotspots, places that are extra contaminated. For example, marshalling yards within a rail line where extra environmental contamination of the underlying material normally occurs. If such places are known, they cannot be included in a single batch inspection, but must be inspected separately. If the quality is indeed poorer than the rest of the batch, they must be further processed and used as a separate batch.

Secondly, a batch is regarded as heterogeneous if it has in the past been mixed with building materials of different quality. In this regard, see also the explanatory notes on article 3.8.4. If this is the case, more random selections will be needed than is indicated in article 3.5.1 in order, despite the greater spread in measurement results, to be able to make a reliable judgement about the batch. Instructions on the number of random selections to be taken can be found in NEN 7300 - 7303.

Negligible parameters

In principle, during compositional and emission testing, all standardised parameters are always investigated by measuring them in order then to be able to make a judgement as to whether a building material also actually meets the compositional and emission requirements for all parameters. In practice, this is not, however, cost-effective and is also unnecessary because, in the case of a number of parameters, it is in many cases established with a high level of certainty prior to measurement that these will be satisfactory. An alternative method of determination therefore applies to this. In this context, earlier tests show that, based on historical knowledge or information about the process and the raw materials, the parameters in question are not present or present only in negligible quantities and/or leach out of the building material.

The other parameters known to be potentially present in significant concentrations relative to the requirement and that may sometimes also lead to breaching are of course nevertheless measured in the usual way. In practice, these parameters are, for each building material, often used as a standard parameter package in batch inspections.

Batch inspections are also used in the licensing check for a recognised quality declaration or a manufacturer's own declaration and negligible parameters may be ruled out beforehand. Such parameters are measured once every three years in connection with a recognised quality declaration. For the rest, the frequencies are laid down for all parameters.

If, based on the estimate of the competent authority, not all relevant parameters have been investigated, the competent authority need not accept this environmental hygiene declaration as adequate. Whoever is responsible for the batch in question should then again arrange for its quality to be established. With this in mind, it is advisable to agree as far as possible beforehand with the competent authority about the parameters to be investigated in a batch inspection.

The enforcer is free to choose his own parameters for enforcement checking.

Section 3.6 Manufacturer's own declarations

The manufacturer's own declaration is an environmental hygiene declaration concerning the environmental hygiene quality of the product that is issued by the producer himself without periodic checks by a recognised certifying institution and without separate recognition of the declaration by Our Ministers. The possibility of issuing a manufacturer's own declaration meets the desire, in cases where rigorous quality assurance is unnecessary, to be able to make do with a less environmental hygiene declaration. This concerns building materials, with the exception of IBC building materials, whose compositional and emission values are always well below the standard and in which continual checking adds nothing to the environmental hygiene quality of the product. With a manufacturer's own declaration, the producer is no longer under external supervision. He himself assumes responsibility for the environmental hygiene quality of his building material being maintained. He can also himself determine how he can best discharge this responsibility.

The manufacturer's own declaration anticipates the assurance system of the European Building Products Directive. The latter describes six levels of quality declarations, the highest two of which (1 and 1+) conform to a certificate, while the others (4, 3, 2 and 2+) conform to a manufacturer's own declaration. The difference between the six levels is determined by the level of external assurance of the licensing inspection, the quality of the end product and the quality monitoring.

If a manufacturer's own declaration is referred to pursuant to the Decree, a system applies that broadly corresponds to level 3 of the European Building Products Directive. At this level, external supervision is confined to the licensing inspection.

The European system has not yet been elaborated for the environmental impact relevant to this Decree (determination of emissions and composition). Nor has a choice yet been made at European level about the level in which building materials are classified for this aspect. In order nevertheless to be able to make a choice nationally about which building materials qualify for a manufacturer's own declaration, so that a saving can be achieved in advance of Europe, information is needed on the individual building materials. This information is obtained, per producer, from a licensing inspection, as also applies to certification. In view of the financial and environmental hygiene interest of this choice, external supervision of this licensing inspection must take place. This can only be achieved within a system that is similar to levels 1+, 1 and 3. The other levels (4, 2 and 2+) therefore do not in practice fit within the chosen system.

The use of a manufacturer's own declaration

To be allowed to make use of a manufacturer's own declaration, a building material must satisfy and continue satisfying a number of criteria. Firstly, the building material must not breach the compositional and emission requirements. Secondly, the k value (see Determination of k value), calculated via ten batch inspections, must be high enough. This says something about how far below the requirements the building material remains and how predictable the results are. Lastly, the producer must have a good system of internal quality monitoring (IKB). A review is conducted against these three criteria in a single licensing inspection.

If the producer passes the licensing inspection and is given authorisation to use a manufacturer's own declaration, he is himself further responsible for the inspection and quality of his product. He is not required to account every so many years to a certifying institution and he is not bound by assessment guidelines. It is assumed in this context that the producer makes a relatively environmentally safe building material and that his own quality monitoring and ambition are enough to keep this at an adequate level. External monitoring will further only be carried out by the competent authority.

The licensing check

Determination of whether a building material satisfies the criteria takes place on the basis of a licensing check. This is an extended investigation of the product which in large part matches the licensing check used as the basis for the certification of building materials. In this check, a recognised certifying institution checks whether the requirements of Annex A and the k value criterion have been fulfilled (product check). In addition, the certifying institution checks whether a quality manual setting out all the internal quality assurance procedures have been recorded, and a working quality system are in place. If all the requirements have been met, the certifying institution issues a single declaration showing that the producer may use a manufacturer's own declaration under the circumstances reviewed for that building material. Following successful completion of the licensing check, no further external supervision by a certifying institution is required.

The link with the certification system has two purposes. Firstly, it provides an objective criterion for being allowed to use manufacturer's own declarations, pending the European system developed on the basis of the Building Products Directive. Secondly, this means that (particularly new) building materials go through a single procedure, regardless of whether a manufacturer's own declaration or a recognised quality declaration is issued. If it emerges that a manufacturer's own declaration is possible and preferable, the producer can opt for this. If not, he does not have to do duplicated work. In the case of existing building materials, hardly any extra work is needed to secure a manufacturer's own declaration because use can be made of historical information acquired under the provisions of the Building Materials Decree.

During the product check, the mean emission and composition of all standardised parameters in the building material are determined and the k value is also determined. At least ten individual batches are investigated for this purpose via a batch inspection. Determining factors such as batch size, the production process used, raw materials and the production period in which the licensing check is performed should be representative of production and uniformly distributed over the period. This must be substantiated by the producer in a dossier. Based on this, the certifying institution issues his declaration.

A recognised sampler is in principle engaged for the sampling, but the sampling may also be performed by the producer himself. In that case, it should be checked during the external assessment whether the sampling has been performed in accordance with AP04. The laboratory test is performed by a recognised laboratory.

Parameters need not be measured if, on the basis of other information, it can be adequately substantiated that these cannot be present in the building material, or only in such low concentrations that the risk of breaching of the standard is negligibly small (see article 3.5.3 (2) on this). This must be substantiated in the report. Parameters that may end up as contaminants in the material in the production process or as a result of the form of storage and handling must also be taken into account. Conceivable examples are mineral oil, nickel, zinc, etc.

During the product check, it is permitted to use historic emission and compositional data, such as data obtained pursuant to the Building Materials Decree in the licensing check, the periodic inspections and the verification inspections for the purpose of the recognised quality declaration. This is conditional on these data being obtained in accordance with AP04. If not all parameters have been reviewed, these must be supplemented separately on the basis of a product check, or it must be substantiated why these parameters cannot be present or can be present only in negligible concentrations. It is the responsibility of the producer only to use historical data that provide a good idea of the quality of his building material. The k value should, however, be determined on the basis of the requirements in Annex A (which are different from those in the Building Materials Decree).

A lot of historical information comes from joint licensing and verification inspections. This information may be used here provided that it is made clear that the method of production and raw materials do not differ too much from the rest of the cluster (and the data are thus sufficiently representative) and at least one inspection has been performed on one's own building material at one's own location.

During the assessment of the quality system, the certifying institution checks the quality manual, which sets out all the internal quality assurance procedures. The certifying institution assesses the effectiveness and correct use of this quality system at the production location. This check is minimal if the producer already uses a recognised quality declaration for the building material in question. In connection with this certificate, a check on the quality system has already been conducted on the quality system. This means that virtually no extra costs will be connected with this.

The check by the certifying institution on the existence of a quality manual and a working quality system does not form part of European assurance level 3. Within the system of the Building Products Directive, standard documents will in future become available that describe the quality system for the environmental properties. The producer declares that he will subsequently operate in accordance with this in his manufacturer's own declaration. As these standard documents are not yet available and because the importance of an effective quality system is beyond dispute, it has been chosen to have the certifying institution perform this limited check, particularly for new products. In the case of existing products that are now produced under certification, a check on the quality system needed to have taken place in the past. This overcomes what will in future be capable of being overcome with standard documents.

In practice, the situation may exist or arise that no National BRL exists (any more) for a building material. This may happen in the event of (virtually) an entire sector switching to the use of a manufacturer's own declaration. A certifying institution can in such an event no longer cover the costs of the National BRL and could have them dropped. At that time, the certifying institution is itself no longer accredited for the assessment of the building material in question. The situation could then arise that new producers or producers who implement a change in production or raw materials can no longer be reviewed by a certifying institution. They could thus no longer be able to secure authorisation to issue a manufacturer's own declaration.

To overcome this potential problem, it has been regulated that other certifying institutions recognised for a similar building material (similar National BRL) may perform a licensing check for a manufacturer's own declaration. In any event, the comparability of building materials involves the following aspects: moulded/un-moulded, comparability of the sectors and comparability of the quality systems used.

If a producer meets the conditions laid down in the Regulation, he may legally use a manufacturer's own declaration. In addition, he should report to Bodem+, with the declaration of the certifying institution being submitted. Bodem+ will record him and his product in a separate list on the internet of products with a manufacturer's own declaration. This list is purely for information and offers customers and enforcers a quick way of checking whether a product is supplied correctly with the manufacturer's own declaration. No rights can be derived from the list.

Determination of k value

Only building materials of consistent high quality qualify for the use of a manufacturer's own declaration. This high quality means that the building material must, for all parameters, always amply continue meeting the requirements of Annex A. The so-called k value is adopted as a criterion in this connection, with a link being made with the certification system. The k value of the latest measurements determines the minimum inspection frequency in this connection. The k value is a practical measure of the probability of breaching of the compositional and emission requirements which takes account both of the mean distance from the standard and the spread of the measurement results. Annex H indicates how the k value must be determined.

The k value is determined for all standardised parameters in a building material, for both composition and emission. In determining whether a producer may use a manufacturer's own declaration for a building material, the k value of the parameter that scores lowest applies. The weakest link is thus crucial. As the k value pursuant to the manufacturer's own declaration is determined for the last ten inspections, building materials may, as a result of a structural improvement in quality, adapt to the use of a manufacturer's own declaration.

The k value criterion used to determine whether a producer may use a manufacturer's own declaration for a specific building material corresponds to a situation in which each parameter in the building material meets the requirements with 90% reliability in at least 90% of the batches. This is a choice which is intended to ensure that a manufacturer's own declaration can be used for adequate building materials while at the same time ensuring that no undesirable risks arise for the environment.

In relation to the analytical determination limit, the measurement error is relatively high, which has an adverse effect on the k value, while the parameter in fact is barely present or leaches. This also has an inhibiting effect on the use and development of better methods of analysis because the lower the analytical determination limit, the greater the effect on the k value. To overcome this effect, the following extra rules apply:

- If measurement values are below the determination limit when the k value is determined, the determination limit itself is used for calculating the determination limit.
- If all ten measurement values of the parameter in question are below the determination limit, it may be assumed that the product for that parameter satisfies the k value criterion without the k value having to be calculated.
- If all ten measurement values are below the compositional or emission requirement by a specific factor, it may also be assumed that the k value criterion is satisfied. This corresponds to the so-called gamma scheme drawn up in connection with certification.

Internal quality monitoring

A condition for being allowed to use a manufacturer's own declaration is that there must be a system of internal quality monitoring. This means that the quality of the building material Is not left to chance but is actively managed. This condition applies to the same extent to building materials with a recognised quality declaration and also follows the system of the European Building Products Directive.

In connection with the use of a manufacturer's own declaration, a producer is not bound by what has been stated in a National BRL. The producer is himself responsible for the environmental hygiene quality of his product and for properly guaranteeing it. This means that he himself must weigh up how he can best guarantee that his building material continues to conform to the quality as laid down during the licensing check and this also continues to meet the requirements of Annex A. The producer is in this connection free to adopt, or not adopt, the inspection intervals that apply for a recognised quality declaration. He may, for example, also use a more tailored inspection, or merely keep his production process and raw materials the same and check this.

The producer can, however, be approached by an enforcer concerning the possession of an adequate quality system. This system must be designed in such a way that he can guarantee quality and must be documented in an understandable and accessible way. An enforcer must be able to peruse the details and results of the quality system and be able to form an idea of the quality of the building material.

It is the producer's responsibility to keep the environmental hygiene quality of his product within the range of the licensing inspection, or, where possible, improve it. If, as a result of changes in the production process, in raw materials or as a result of other circumstances such as production stops, the product changes too much, the producer himself must check whether the quality of the product is still within the range of the licensing inspection. If not, corrective action or otherwise a fresh licensing inspection is needed. It may then happen that the product can no longer use a manufacturer's own declaration and that the producer must fall back on a recognised quality declaration or batch inspections.

Fleshing-out of manufacturer's own declaration

To prevent fraud, the manufacturer's own declaration must comprise a number of elements, including the date, a unique declaration number and a description of the building material. To increase the recognisability of the manufacturer's own declaration and prevent the proliferation of various documents, the producer should use a standard format. This standard format is available from Bodem+ and can also be downloaded from the following website: http://www.senternovem.nl/Bodemplus.

Section 3.7 Recognised quality declarations

What a recognised quality declaration is

A recognised quality declaration is an environmental hygiene declaration based on a certified building material that is issued by a recognised producer. The declaration consists of two parts. The first part is the quality declaration itself. In the case of building materials, a quality declaration consists of a product certificate and an attestation. The latter is issued by a recognised certifying institution. The product certificate relates to the properties of the building material in terms of composition and leaching. The attestation part indicates that (and how) the building material is usable.

The second part is the recognition by the Ministers. The recognition is issued per producer, with the various products (on the basis of National BRLs) and are specified separately. A producer can only be recognised for a product on the basis of a valid quality declaration. See also Chapter 2 for this.

The certification of producers of building materials has been privately regulated on the basis of a National BRL. The latter consists of a set of Assessment guidelines laid down by the Building Quality Foundation's Construction Harmonisation Commission (HCB). This commission assesses the BRL on the basis of the prescribed development process and the social basis. Review of whether the BRL also meets the requirements of the Soil Quality Decree is also conducted prior to the HCB by the Building Materials Review Commission of the Building Quality Foundation (www.bouwkwaliteit.nl).

The system for arriving at a National BRL and, based on this, arriving at quality declarations corresponds to the system adopted pursuant to the Building Decree. The only difference between the two systems is that, under the Soil Quality Decree, separate recognition per producer takes place (instead of 'system recognition'). This recognition is needed because the environmental quality of building materials is less market-driven than the civil engineering quality on which the Building Decree imposes requirements. The producer's integrity, among other things, is reviewed at the recognition stage. This fits in with the assurance of implementing quality laid down in Chapter 2 for all manner of activities.

A format for a quality declaration is available from the Building Quality Foundation. A summary of recognised quality declarations is published on the website of Bodem+.

The licensing check

To be allowed to use a recognised quality declaration, a producer must first undergo a licensing check. This check takes place under the supervision of a certifying institution and consists of three elements: the attestation check, the product check and the assessment of internal quality monitoring.

The attestation check is a check on whether the building material in the intended application meets the emission requirements laid down. In the Soil Quality Decree, the emission requirements are only in a limited number of cases linked to the application. In most cases, the requirements instead apply generically to all building materials in all applications. Specific applications on which, where necessary, checking can nevertheless take place are, in particular, application under IBC facilities, though also for example application with the aid of a specific declaration of equivalence.

The product check concerns a review against the other product requirements of the Decree, including the compositional requirements, the stoniness of the material, whether the building material is moulded, how much earth or other materials the building material contains, etc.

To be able to perform the product check and the attestation check, five or ten representative batches are investigated in duplicate with the aid of batch inspections. Five batch inspections are regarded as the minimum effort for this. If the producer chooses to conduct ten batch inspections, a judgement can be made with greater accuracy. This has consequences for determining the inspection frequency.

When batch inspections are performed, it is authorised for the producer himself to take samples. The certifying institution checks whether the sampling has taken place correctly, as indicated in AP04-M.

During the licensing check, the attestation check and the product check can also be performed by a cluster of enterprises. This is possible if the enterprises concerned make the same product. The only essential difference with an individual assessment is that, during this so-called joint licensing check, the batch inspections are performed at various production locations. This is not in contravention of this Regulation. The joint licensing check (and the associated joint verification) has been further elaborated in the Building Quality Foundation's Certification Guidelines.

The assessment of the quality system is an important part of the licensing check. The certifying party checks that the quality system at the production location is equipped in such a way that the quality of the product is adequately ensured.

If the licensing check has been performed with a positive result, the certifying institution can certify the producer. The producer is then also recognised if he conforms to the rules of Chapter 2.

Inspection frequency

An important aspect of the licensing check is the determination of the frequency of verification inspections that a producer must (carry on) performing. These verification inspections form a continuous, random check on product quality. The further the product remains under the compositional and emission requirements and the smaller the spread, the lower the inspection frequency needs to be. This has been made quantifiable in the k value (see also section 3.6). Annex H indicates how the k value must be determined.

During the licensing check, the k value is determined via five or ten batches. The k value is then determined again after each verification inspection via the latest five or ten measurements. An advancing mean is thus involved. The difference between five or ten measurements is that, with ten measurements, a judgement can be made with greater reliability, which means that a lower k value is possible (see Annex H).

The advancing mean is temporarily suspended in the event of a structural product improvement. Otherwise, the greater spread between the old and new results could instead lead to an increase in the inspection frequency, whereas the product has become more environmentally safe. The original spread is therefore adopted until the latest five verification inspections have been performed on the improved product. Consent for the certifying institution is, however, needed for this.

In relation to the analytical determination limit, the measurement error is relatively great, which has an adverse effect on the k value, while the parameter in fact barely occurs or leaches. This also has an inhibiting effect on the use and development of better methods of analysis because the lower the analytical determination limit, the greater the effect on the k value. To overcome that effect, the following extra rules apply here:

- If measurement values for the calculation of the k value are below the determination limit, the determination limit itself is adopted for the calculation.
- If all the measurement values of the parameter in question are below the determination limit, the lowest inspection frequency of once every three years applies automatically.
- If all ten measurement values are below the compositional or emission requirement by a specific factor, the inspection frequency as indicated in Annex H applies. This is in accordance with the so-called gamma scheme drawn up in connection with certification.

If the k value becomes too low, the inspection frequency switches from a sampling regime to a batch inspection regime. Each batch is inspected and can therefore be rejected. In this way, the quality of building materials that more or less meet the requirements of the Decree or have a wide spread continues to be guaranteed.

If a building material is in the batch inspection regime, it can only switch to a lower inspection frequency if the k value for the last ten inspections allows this. Of those ten inspections, at least five must be performed in the batch inspection regime.

Fleshing-out of quality declarations

At least the specified elements should be included in a recognised quality declaration.

Section 3.8 Further aspects of environmental hygiene declarations

Use of environmental hygiene declarations

A producer should use environmental hygiene declarations for a building material of only one type. It is therefore not authorised, for example, to sell part of a certified product under a batch inspection or a manufacturer's own declaration. This could lead to confusion about the type of environmental hygiene declaration issued, or to an undesirable effect on the inspection regime.

This article does not deal with the possible changeover in the use of a recognised quality declaration from the sampling regime to the batch inspection regime and back. After all, both cases involve a single type of environmental hygiene declarations, namely the recognised quality declaration.

Delivery notes

The delivery note links the environmental hygiene declaration and the product supplied. The recognised quality declaration or manufacturer's own declaration states in this connection that the producer generally makes a good product and the delivery note adds the batch-specific details.

A delivery note or another accompanying document providing the necessary information on the batch should in principle accompany a batch of building material. This is in keeping with existing practice for delivery notes for certified building materials, waybills for transport and accompanying notes for waste transport. It is thus not the intention for an extra document to be introduced with this again, but for the existing accompanying documents to be used and, where necessary, amplified with the information sought.

If a batch inspection is already available for a batch, a delivery note is superfluous. The batch inspection is deemed to contain all the necessary information on the batch.

The delivery note is intended to give the user the correct information and to make the batch traceable for the enforcer so that chain enforcement is possible. Each batch of building material must in this way be traceable to its origin. For this reason, producers, intermediaries and users must also make it clear in their records for enforcers how each batch has moved through the chain.

The following aspects are in any event specified on the delivery note:

- the certificate number or the unique number that the producer has assigned to his manufacturer's own declaration;
- the date on which the batch of building material was placed on the market;
- the name and address details of the producer or the supplier who has issued the delivery note and of the production location if this is different;
- the name of the building material on the basis of which the recognition has been issued;
- whether the building material is a moulded, an un-moulded or an IBC building material, as also indicated on the certificate;
- the size of the batch in tonnes.

In many cases, only a delivery note will be present in the chain for a batch. In connection with enforcement, the enforcer can also ask for the associated environmental hygiene declaration, which must for this purpose be requested from the producer. It is up to the enforcer to determine within what timescale the environmental hygiene declaration should be supplied.

If a batch inspection is available for the batch, the use of a delivery note is not mandatory because all the required information is already listed on this. This would result in unnecessary duplication of information.

The reuse of a building material by the same owner has been exempted from the information requirement in the Decree. This merely entails notification which provides information that would otherwise be supplied on the delivery note. It is unnecessary also to adopt a note on top of this, particularly because the batch does not change owner.

A delivery note is no longer needed for batches in the hands of private individuals. Such small-scale end users are not, or are only in very specific cases, the subject of enforcement by virtue of this Decree. They are thus also exempt from an information requirement in the Decree.

Splitting of batches

It is in principle permitted to split a batch. If a batch has already been inspected, this inspection does not, however, by definition provide a definite answer about the quality of the individual subbatches. In the case of heterogeneous batches, the contamination may, after all, be distributed differently throughout the batch. If such batches are split, this may lead to subbatches of better and poorer quality than the mean measured quality. That could also lead to subbatches that do not meet the requirements of the Decree, while the entire batch does (just) meet them.

The estimation of how heterogeneous a batch is and how closely it meets the requirements, and thus the estimation of whether splitting can be performed without any problems, is the responsibility of whoever performs the splitting. The latter is responsible for the quality of the subbatches formed. In the event of doubt, it can be chosen not to split, or to inspect the subbatches formed separately. Of course, the producer remains responsible for the quality of the batch originally supplied.

In the same way as the inspection does not by definition cover the subbatches, this also applies to the environmental hygiene declaration relating to the original batch. In addition, this declaration or the delivery note also specifies the original batch size, which does not correspond to the size of the subbatches. In this case, it is authorised nevertheless to refer to the original declaration because otherwise each subbatch would still have to be inspected and the inspection costs could end up being disproportionate. However, a delivery note associated with the subbatch must then specify that a split subbatch is involved.

The delivery note must indicate who has performed the splitting and when. Whoever performs the splitting must also clearly indicate in his records which batch has been split, when this took place and where the subbatches have gone. This is important because the party who has performed the splitting is responsible for the quality of the subbatch.

Combining of batches

In practice, it is a regular occurrence for batches of building material to be combined into a single new batch, which is then inspected and used, or split again. It is then possible to inspect the combined batch as such. If the quality of all individual batches is, however, already known, this is unnecessary. It is then authorised to use the separate environmental hygiene declarations. It must then be specified on a delivery note what the relationship is between the declarations and the new batch. It must also be indicated who has performed the combining and when, so that the building materials remain traceable in the chain.

Of course, the newly formed batch must meet all the (environmental hygiene) requirements of the Decree.

If batches of different building materials are combined, chemical interactions may arise between the building materials, for example as a result of differences in acidity. This may alter the emission characteristics of the new batch relative to the original batches. In such situations, a new batch inspection must therefore be conducted on the entire newly formed batch.

The definition of a batch also shows that the combining process must also involve building materials of similar quality. Otherwise, the resulting batch is not of similar quality. This means that it is possible to combine batches that meet the requirements or uninspected batches of a similar nature and origin. On the other hand, it is possible to mix building materials with IBC building materials, building materials that do meet the requirements with building materials that do not meet them, or uninspected building materials of differing, non-comparable origin. This would mean eliminating contaminants by mixing, and that is undesirable for the environment.

It is not a problem if building materials of different quality are used alongside one another in the structure. The batches in the structure are then separately inspected and used, and the formation of a new batch or elimination by mixing is therefore no longer involved.

Building materials must not be actively mixed with non-building materials such as earth, plastics, wood and other materials. This would lead to the elimination of waste in a building material by mixing, or to the dilution of a contaminated building material with, for example, clean sand in order nevertheless to be able to meet the requirements. Both things are unwanted.

The above does not of course apply to production processes, with separate raw materials being mixed to produce a new building material, with different physical and structural engineering properties, such as the production of concrete. The reason for this is that raw materials are not covered by the definition of a building material because they are not yet in the state in which they are intended to be used.

The National Waste Management Plan (NWMP) indicates that the mixing of building materials that do not meet the environmental hygiene requirements in order to make an end product that meets the requirements is not authorised. This therefore also applies within a production process. Nevertheless, the NWMP states that it is possible to add to a building material that does not meet the requirements another building material (waste material) that does not meet them if that is necessary for the physical or civil engineering properties. The condition then applies that only a functional quantity of waste is added. Collectors, processors or treaters of waste may apply this exception if this has been laid down explicitly and in a specified manner in their licensing.

Section 3.9 Enforcement of building materials

Notifications

Under the Soil Quality Decree, notification must be provided for the use of earth, dredging sludge and IBC building materials. Other building materials need not be notified unless the exemption from the information requirement for the reuse of (certain) building materials is used. The associated notification form is available from Bodem+ and can also be completed on-line and sent via http://www.senternovem.nl/Bodemplus.

The signed notification form with the requested Annexes must be notified to the central notification soil point no later than five days before use. A period of one month applies to this for IBC building materials.

On-line completion of the notification form is a new element and serves two purposes. Firstly, this increases ease of use and speed of completion for the party performing (and processing) the notification through the use of clear instructions and what are known as pull-down menus for completion. Historical (registration and administrative) data are preserved. These can only be called up again by logging-in with a personal code, so that confidentiality is preserved.

Secondly, competent authorities can gain a better understanding of all notifications and thus of the use of earth, dredging sludge and building materials. Via the underlying (historic) data, supervisors can collect information and, with the aid of this, organise their supervision more effectively and efficiently.

Enforcement inspection

The competent authority may, in case of doubt, always itself perform an enforcement inspection on a batch of building material in order to determine environmental hygiene quality. It uses a standard batch inspection for this purpose, as also applies to users of building materials. In the past, a separate inspection protocol applied under the provisions of the Building Materials Decree for enforcers with three mixed samples of each four random selections. To ensure that there is no ambiguity, it has been chosen to equalise this with the user.

Normally, the competent authority will perform the batch inspection on the entire inspection, as is present and as specified on the environmental hygiene declaration or the delivery note. Batch inspection of a single lorry that carries a small part of a larger batch is not the intention. One subbatch may, after all, be of different quality as a result of a normal spread in quality. The total batch cannot be rejected on the basis of such an inspection.

The inspection (rejection) of a subbatch is nevertheless possible if it is at least 10,000 tonnes, or 5,000 m^3. This facility has been included to give the competent authority the opportunity of partly inspecting a large batch in the meantime if this has not yet fully arrived or been incorporated in a structure. If the competent authority would have to wait until the entire batch has arrived, any removal of the material that has already been used would entail disproportionately high costs and enforcement could thus become practically impossible.

The rejection of a subbatch need not influence the rest of the batch, but may prompt a critical examination of the rest and provide a reason for further enforcement.

The choice between 10,000 tonnes or 5,000 m^3 is up to the enforcer, depending on which dimension is easier to handle in the given situation. In practice, 5,000 m^3 heavy building materials (building materials with a high specific weight) is taken to weigh around 10,000 tonnes. In the case of lighter building materials, this would result in fewer tonnes. For the sake of simplicity, however, it has been chosen to adopt a single dimension for all building materials.

Determination of breaching of requirements

During enforcement checking, account is taken of the known measurement uncertainty that arises in the sampling and in the laboratory, and of the natural, normal spread in a building material. A batch is therefore only rejected if the enforcement check shows that the requirements are breached by a factor of 1.4. This factor corresponds (in rounded fashion) to the rejection factor that already applied under the terms of the Building Materials Decree.

Determination of the percentage of earth, wood and other materials in building materials is performed with the aid of an estimate. As indicated in section 3.3.1, limited breaching of the requirement for earth does not lead to environmental problems. It is a question of tackling the extremes so that a clear distinction arises between earth and building materials and so that product improvement is promoted. Since estimation is an imprecise method of determination, a batch is only rejected if the batch in the enforcement check breaches the requirement by a factor of two (in the case of 40% earth in the building material).

Wood and other materials may be present in a number of building materials, such as rubble granules, waste incinerator bottom ash and recycled materials. The intention is for the level of these materials to remain as low as possible. For a number of materials, these must not be visibly present at all and are directly rejected if they are. However, a percentage applies to other materials. As these percentages are lower than for earth in building materials and because estimation is, as pointed out, an imprecise instrument, a factor of three times the breach applies to rejection (30% for wood and 15% for other materials) to keep it workable.

Enforcement of manufacturer’s own declaration

If a batch is rejected for which a manufacturer’s own declaration has been issued, the batch is rejected. This may provide a reason for the performance of further research at a producer, at least if this happens more frequently. Such a check may show that the building material does not (any longer) structurally fulfil the criteria, or that the production process or raw materials, in the opinion of the competent authority, have been significantly revised without it having been adequately substantiated what the consequences of this are for compliance with the criteria. In these cases, the competent authority may oblige the producer to demonstrate again that his product is indeed adequate by means of (part of a) licensing check. This is of course not relevant if the producer decides no longer to use a manufacturer’s own declaration.

Historic information cannot be used in the new licensing check because the enforcement action has instead shown that the product no longer conforms to it. The producer will have to perform ten new batch inspections to demonstrate again the quality of his building material.

If the entire licensing check has to be repeated, all the provisions of section 3.6 apply and supervision by a certifying institution applies. If the competent authority is willing to repeat only a part of the licensing check, it is up to the competent authority whether or not to engage a certifying institution.

Section 3.10 Insulating facilities

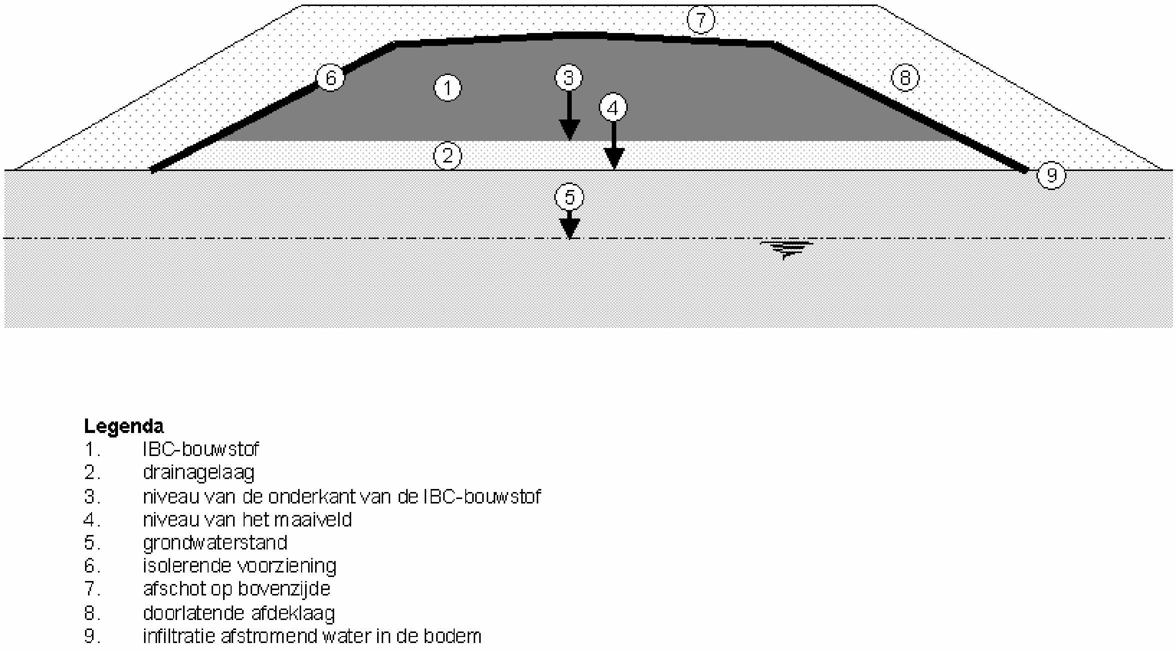
Design

Before the structure comprising an IBC building material can be performed, the design must have been fully established and approved by a duly designated body. CROW publication 144 is used for this. This edition was originally intended for non-standard solutions, as set out in the Building Materials Decree, to be assessed for equivalence. In this context, this edition is intended to assess the design in a structured way using the method set out in it.

An element of the design is the calculation of settlement. In this connection, a distinction is made between calculated settlement at the time that the structure is completed according to schedule and the final settlement calculated by assuming a calculation period of 50 years. Settlement at the time of completion of the structure is important because the calculated final settlement can, where necessary, be adjusted with the aid of the field measurements then performed.

The calculated final settlement must take account of an inaccuracy margin. This margin is 30%. This is a margin relative to the calculation results. An inaccuracy margin can also be adopted by the executive office in reports of settlement calculations. If this is the case, the prescribed margin relates exclusively to the reported results excluding the margin adopted by the office to prevent a double margin being adopted.

The design must take account of differential settlements that may arise from differences in the subsoil as a result of, for example, old channels.



Translation of captions:
Legend

1. IBC building material
2. drainage layer
3. level of the underside of the IBC building material
4. ground level
5. groundwater level
6. insulating facility
7. pitch on top
8. permeable covering layer
9. infiltration of run-off water in the soil

Figure 1, *Schematic diagram of the facilities needed for the use of an IBC building material*

Insulating facilities

An insulating facility is required for all uses of IBC building materials. This may consist of a bentonite-containing seal, in the form of a bentonite mat or a layer of sand bentonite polymer gel, or a plastic HDPE film. According to the Building Materials Decree, a sand bentonite seal was also authorised. This type of seal is no longer included in this regulation because the quality of this type of seal is too sensitive for correct performance and is also no longer used.

It has become clear in past years that bentonite is sensitive to substances present in certain building materials. For example, the presence of salts and a high pH value adversely affects service lives. For this reason, measures must be taken under all circumstances in the case of waste incinerator bottom ash and E fly ash to prevent damage. This measure may consist of a layer of bitumen emulsion or a plastic film, as described in paragraph 3. It is not permitted to assume a loss of quality considered acceptable for such damage mechanisms and to dispense with the protective facility. Alternative protective facilities via the assessment of equivalence are nevertheless authorised.

Seals containing bentonite in road engineering structures must be protected against road salt.

Where IBC building material is used as a foundation, the road paving may function as an insulating facility. The foundation is as a rule broader than the paving so that the paving is not completely adequate to seal the foundation. In theory, it is possible to apply a seal that connects to the road paving. As this connection is a fragile structure and the seal is also vulnerable to damage from insufficient earth coverage, this solution is not permitted. Instead, a clean shoulder structure is prescribed. This means that a building material that is not an IBC building material is used as a foundation on both sides of the road. The IBC building material is consequently adequately covered by the road paving so that ingress of rainwater from the side into the IBC building material is prevented.

A building material that is not an IBC building material must have civil engineering properties that conform to those of the IBC building material such that cracking in the road paving is prevented.

Where an IBC building material is used as foundation below buildings, the buildings themselves function as an insulating facility provided that these buildings (roof and/or floor) are demonstrably liquid-tight. The foundation must not be larger than the buildings, and should be insulated horizontally by the perimeter beams of the buildings.

The embankment and the insulating facilities must be designed so that rainwater is prevented from building up in the structure above the seal. An adverse effect of this would be that the effects of minor leaks are strengthened by accumulated rainwater having all the time to infiltrate through the seal. The design must show how this is elaborated.

To ensure satisfactory dewatering, the following points of particular interest are important:

1. a permeable covering later is applied to the seal. Sand is adequate for this. Where earth types that are less permeable than sand, e.g. clay, are used, it will be necessary to apply draining facilities to the seal;
2. an adequate gradient after final settlement (minimum 2%). Account must in this connection be taken of the deformation of the structure as a result of settlement. An extra gradient must be applied at the construction stage to compensate for the deformation calculated;
3. the soil must be capable of having the water that flows from the seal infiltrate; where necessary, drainage must be applied for this purpose and/or the soil smeared during construction of the structure.

To ensure the stability of the structure, the gradient of the slope is important. No requirement has been laid down for this in this Regulation, with the assumption that adequate attention is paid to this in the design.

To make things absolutely clear, it has been stipulated that the materials used must fulfil their function during the useful life of the structure. As the replacement of insulating facilities will be an option only in very exceptional situations, stringent requirements must therefore be imposed on the quality and durability of the structure and materials used in it.

Drainage

An insulating facility must be applied on the top and at the sides of the IBC building material. This does not apply to the underside. The assumption is that the soil is adequately protected if the underside of the IBC building material is high enough relative to the groundwater. In the Building Materials Decree, this requirement has been elaborated with a minimum distance of 0.5 m relative to the Mean Highest Groundwater Level (MHGL). This is the mean of 8 hydrological years, calculated for the 3 highest groundwater levels per year. In practice, errors have often been made with the determination of the MHGL, but it has also emerged that too much importance was attached to the accuracy of settlement calculations. This meant several times that the requirements were not met, so that parts of embankments had to be excavated and constructed again.

To prevent such problems, the drainage requirement is significantly simplified by working no longer on the basis of the MHGL but on the basis of the design level of the groundwater. The design level of the groundwater can simply be set on a level with the original ground level. No further data on groundwater levels are required for this.

If so desired, the design level of the groundwater can nevertheless be derived from groundwater levels. This is authorised in areas with a groundwater level of VII or above. This means that, based on a national measurement network, the mean highest groundwater level in those areas is laid down as being at least 0.80 m below ground level. To be able to make a link between the groundwater levels at the location in question and the data from the national measurement network, a method has been described in which the groundwater levels between the location and the closest dip sticks from the national measurement network are compared during a relatively short measurement period. The groundwater level that is not achieved in 99% of the observations over a long measurement period for the closest dip sticks is, in this context, increased where necessary with the aid of a comparison of the mean groundwater level over the short measurement period. By assuming the 99% value, a safety margin is built in, as the term 'mean highest groundwater level', which was used in the Building Materials Decree, roughly corresponds to a 95% value.

When laying down the design level of the groundwater, account is taken of flooding. The starting point for determining the design level of groundwater at ground level is based on the assumption that the groundwater does not rise above the ground level. For example as a result of heavy rainfall, it can, however, happen that dewatering ditches flood and the water rises above ground level. Where the design level of the groundwater is also determined, the question of whether the design level laid down on this basis is important. Whether this happens depends on the location. Empirical data and an understanding of the future situation for re-establishment of the area in question must provide a definite answer on this. Attention will need to be paid to this in the design. The flooding taken into account is linked to a probability of one in a maximum of one hundred years. This rules out disasters such as dike fractures since much lower probabilities are assumed for such dams. This nevertheless covers the facilities for the removal of rain as these are usually dimensioned for storms with a probability of once every two years.

A single individual groundwater level in the period in question is assumed in the monitoring. The highest groundwater level may, depending on the location, occur in the spring or autumn.

To prevent contact with groundwater, account must also be taken of capillary rise as the groundwater could, via this natural physical mechanism, penetrate much higher in the soil and even the building material. For the material in the zone between the design level of the groundwater and the underside of the IBC building material, requirements apply concerning maximum capillary rise. The thinking behind this is that an IBC building material can be influenced by the capillary rise from the groundwater. This is an undesirable situation. The design must show that the texture of the material between the design level of the groundwater and the underside of the IBC building material is such that no contact is possible between the groundwater and the IBC building material as a result of capillary rise.

To prevent the capillary effect increasing over time, no materials may be used below the IBC building material that possess hydraulic characteristics or that are sensitive to bonding.

Minimum quantities

In the Building Materials Decree, the minimum quantities were 1,000 tonnes for road foundations and 10,000 tonnes for embankments. For the sake of manageability, it has been chosen no longer to allow small quantities. A minimum usage quantity of 5,000 m^3 applies in this Decree. The distinction between road foundations and embankments has thus lapsed.

The term 'continuous' should be understood to mean that the IBC building material must be used in a recognisable whole. It is nevertheless authorised for an embankment to be interrupted by, for example, a viaduct.

With reference to the requirements that are laid down for earth and dredging sludge in large-scale applications, the minimum quantity is expressed in m^3 instead of in tonnes. This has the advantage that the volume is directly apparent from the design and compliance with this requirement is no longer dependent on the density of the building material to be assumed.

It has additionally been laid down that the IBC building material must be used in a minimum layer thickness of 0.5 m, with it being noted that, for a trapezoidal body, the layer thickness on the underside of the trapezium may be locally less than 0.5 metre thick.

Management and inspection facilities

Dip sticks must be fitted for monitoring the level and quality of groundwater. The dip sticks for determining the quality of groundwater are fitted in the first water-bearing package as close as possible to the structure with the IBC building material. The dip sticks for determining the groundwater level are incorporated in the phreatic package.

Settlement must be monitored during the construction of the structure. Pocket beacons are for this purpose positioned below and above the embankment. The pocket beacons below the embankment indicate the settlement of the subsoil. The difference between the pocket beacons below and above the embankment indicates how great the settling (compression) of the embankment itself is.

Management and inspection plan

The management and inspection plan must already be drawn up in the design phase and describes the management and inspection measures needed for the satisfactory operation of the structure. The plan in fact forms <u>the</u> dossier for the structure as it contains all the relevant data.

The management and inspection plan also contains an approach plan for the baseline check.

Baseline check

The baseline check serves as a reference for being able to determine any increase in the concentrations of substances in the soil during the use of the IBC building material and after the removal of the structure. In that connection, it is important not to limit the package of substances and to analyse all the substances listed in NEN 5740, supplemented by all the substances critical to the IBC building material. So far as the latter point is concerned, this entails substances which, in terms of emissions, do not meet the emission requirement for uninsulated use.

All pre-existing soil contaminants should be detected in the soil test. This means that if, based on the preliminary check pursuant to NVN 5725 (mandatory part of NEN 5740), there proves to be sublocations suspected of soil contamination, the chosen test strategy is extended by the strategy for checking those sublocations.

Construction in accordance with design

The point of departure is that the work is constructed in accordance with the design. Departures from this are possible, but under strict conditions. The departure must be reported to the competent authority and be approved by a duly designated body. This must concern departures that are so significant that the approval of the original design is inadequate. This therefore does not entail details such as a slightly different location of a dip stick because a tree turns out to be present in the field in the original location. This entails, for example, a steeper slope gradient, different materials, different hydraulic engineering facilities and the like. All departures will, where necessary, ultimately end up in a drawing indicating the as-built situation.

A new feature as compared with the Building Materials Decree is that a duly designated body supervises the proper construction of the structure and reports on this to the competent authority. This is prompted by the finding that the construction of structures with IBC building materials is complex, which means that errors are in practice made too frequently. This form of supervision also covers assessment of the final situation of the parts of the structure that are relevant in this context. This includes, for example, the covering layer on the seal, but not the paving in so far as this does not play a role in the insulating facilities. The design must show which parts of the structure are concerned.

Inspection of the structure, settlement

The inspections that must be performed during the use of the structure start from the time that the first layer of IBC building material has been applied.

The inspections of settlement are only performed during the construction phase and are completed with an assessment of whether the calculated final settlement on the basis of the observations must be adjusted.

Period within which the seal must be applied

Within three months after the first layer of an IBC building material has been fitted, an insulating facility must be applied to that part of the structure. The quantity of rainwater entering must in this way be limited as far as possible during construction, while the timescale must also be practicable. A period of three months is usually adequate for bringing an embankment up to the required height. If more time is needed, for example as a result of stagnation in supply, a temporary insulating facility must be fitted. The quality of this may be less than the final insulating facility. The only requirement laid down is that the facility must function until the final insulating facility is fitted or, where appropriate, a subsequent layer of IBC building material.

Spraying with bitumen emulsion or the application of a thin plastic film are conceivable examples of possible insulating facilities.

A period of six weeks had been laid down in the Building Materials Decree. In practice, it was not sufficiently clear whether this period commenced from the first time that an IBC building material was applied or after the relevant part of the structure was ready. If the first interpretation were to be adopted, a period of six months proved to be too short. This is why, in this Regulation, the period has been extended to three months, but linked to the time that the first layer of IBC building material is applied.

A temporary insulating facility is also prescribed if the structure is inoperative for at least seven days.

Inspection of the structure and signalling of non-conformities and required action

The checks on the distance between the groundwater and the underside of the IBC building material, the quality of the groundwater and the state of the structure are intended to detect any shortcomings at an early stage. Based on the findings, action must be taken to eliminate any shortcomings. In practice, it will have to be checked whether an observation must be seen as a one-off incident or an indication of a shortcoming. No clear criteria can be given for this. A distance of 0.50 m has been specified as a guideline value for the distance between groundwater and the IBC building material. If a different combination has been chosen between, on the one hand, the distance between the design level of the groundwater and the underside of the IBC building material and, on the other hand, the material below the IBC building material, the ensuing distance applies as the guideline value.

Non-observance of the required distance may be caused by an occasionally high groundwater level, for example as a result of extreme rainfall or flooding. If such a groundwater level will occur several times, a shortcoming is involved. This shortcoming will not be easy to rectify, so that the regulations provide for a plan of attack for repair. It is also conceivable that the shortcoming is nevertheless easy to rectify, for example as a result of a drain in a poorly permeable soil no longer functioning, which means that the groundwater level is locally raised.

The identification of increases in concentrations in groundwater also cannot be clearly described. A baseline check provides a snapshot of groundwater quality and it is known that natural fluctuations occur. Monitoring of the quality of groundwater particularly entails the identification of a trend. If there is anything wrong with the functioning of the insulating facility, a trend-related increase in the concentrations in groundwater will occur. This then promotes an investigation of the operation of the insulating facility, possibly via fieldwork in which the insulating facility is locally exposed.

Removal of IBC building material following removal of insulating facility

When the structure is disposed of, the seal is removed and the IBC building material will not be protected against the ingress of rainwater. For this reason, the same timescale as applies during construction is retained, and the IBC building material must be removed within six weeks after the seal has been removed in the respective part of the structure.

Assessment soil investigation

Following removal of the structure, a soil investigation is performed to check whether the soil has been contaminated by the IBC building material. If this proves to be the case, the contamination formed will have to be eliminated. The method of elimination of the contamination is chosen in consultation with the competent authority.

Designated bodies for IBC structures

To improve quality assurance of the design, construction and also management and inspection activities relating to IBC building materials, it is mandatory for a number of activities to use duly recognised bodies. To be able to designate bodies, assessment guidelines are required by virtue of which bodies can be certified or accredited. These assessment guidelines are not yet available at the time that the Decree comes into force. It is therefore necessary to establish a transitional period until 1 January 2009 within which the obligation does not apply.

Section 3.11 Equivalence

Application for declaration of equivalence

The Decree caters for the facility of applying for a declaration of equivalence. This gives enterprises and citizens the option of performing operations or building structures as referred to in the Decree which, in the case of stringent compliance with previously prescribed measurement methods and methods of determination for compositional and emission values, or insulating, management and inspection action, could not be performed or undertaken. Using the same standards to protect the quality of the soil, this provides scope for still using materials and unnecessary dumping is prevented. In addition, better, swifter or cheaper tests may also be developed and introduced in this way, promoting technical progress.

When a declaration of equivalence is applied for, the applicant substantiates his request with a thorough technical report describing the technique and indicating why this should be equivalent. This report is supplied to Bodem+, which then arranges for it to be reviewed. The application form is available from Bodem+ and can also be downloaded from http://www.senternovem.nl/Bodemplus.

Assessment of equivalence

The assessment of equivalence is performed by an independent advisory committee of at least three technical experts. In this connection, it will in principle be the case that various expertise (and thus various committees) is needed for the assessment of measurement methods and methods of determination and insulating facilities.

The committee reviews the quality of the proposed technique, making use of at least a number of specific criteria. In this context, Bodem+ takes care of secretarial support and monitors the procedure. Based on the committee's opinion, Bodem+ decides on behalf of the Minister for Housing, Planning and the Environment whether the method is equivalent and may or may not be used pursuant to the Decree.

The substantive criteria on the basis of which the advisory committee reviews the equivalence of measurement methods or methods of determination against a number of substantive criteria are as follows:

- Firstly, the test must in principle be usable throughout the Netherlands. This means that the method must be independent of the underlying soil and not, for example, apply only to clay earth or areas with a low groundwater level. Such soil aspects have already been generically catered for in the formulation of the compositional and emission requirements.

- Secondly, the test must be representative of the actual environmental impact of the building material in the structure. The test must therefore provide adequate certainty that the levels measured also actually say something about the composition or leaching of a parameter in a building material in a specific practical situation. This can in some cases be substantiated by comparing the results of the test with a comparable standard test.

- Thirdly, a test should preferably apply for all applications of a specific building material. This makes the use and handling of the building material considerably easier. It is also authorised for a test only to simulate certain anomalous situations, but the prevention of these situations must be easy for a user or handler to determine (such as use under water or with a specific minimum layer thickness). The application must therefore be clearly and specifically described. In addition, no complex procedures or expensive additional measurements must be needed for this to determine the occurrence of this situation.

- Fourthly, the results of the test for repeated measurements under the prescribed conditions must adequately match. This means that repeatability must be good, that the spread between the measurement values has been obtained with the same method on identical material and under the same conditions. Reproducibility must also be good, i.e. the spread between the measurement values obtained with the same method on identical material, but under differing circumstances. The term 'circumstances' should be understood to mean the performer, the laboratory (equipment, chemicals, standards), environmental factors (temperature, moisture) and timing.
The instructions set out in AP 04-U may be used for determining precision. This will in principle involve repeatability and reproducibility within the laboratory. Precision that may be regarded as 'good' must meet similar requirements to the test thereby replaced in accordance with AP 04-U.

- Fifthly, the results of the test must be capable of being geared to the requirements set out in Annex A. After all, it is thus made clear whether or not the building material may be used.

This means first of all that the test must be based on the modelling underlying the requirements in Annex A to this Regulation. It is expressly not the intention that a new test be based on completely different or new soil models and assumptions set out therein. This would make the results of such a test impossible to compare with the requirements laid down and with other tests. Only the test itself may therefore be renewed.

In addition, the test must provide a similar result, which can be converted to L/S=10. Furthermore, the test must have a low enough determination limit and detectability limit to be able to measure the requirements.

If an equivalent measurement method is applicable in all cases and thus does not relate to a possible specific situation in the application, this method could be used as an alternative for the standard tests in AP 04. It is, however, not the intention to make the standardised methods unusable. As a result, such tests are incorporated in the AP 04 circuit. In relation to the measurement methods for the compositional values, a further method has been incorporated in AP 04SB for reviewing equivalence and inclusion in AP 04.

In relation to emission determination, the parameters within AP 04 apply as ‘method-determined’. This means that the requirements in the Decree have been directly linked to the chosen measurement method. A significantly different measurement method will (in most cases) thus have to lead to different requirements. No method has therefore been incorporated in AP 04 for demonstrating equivalence for emission measurement methods. If such a method were nevertheless to be introduced, this could still be included by adapting the relevant NEN standard and including it in AP 04.

The method developed and laid down in CROW publication 144 is used for assessing the equivalence of insulating facilities. Three main elements are as far as possible objectively reviewed in this. Firstly, whether the insulating capacity of the material is adequate (comparable). Secondly, whether the insulating capacity is maintained. Thirdly, whether there are circumstances that may adversely affect the insulating capacity of the material (damage mechanisms). These three points are elaborated with the aid of a step plan.

A declaration of equivalence that has been issued is released for use and is in principle available to everyone at no expense. The declaration and the associated report are to this end placed on the website of Bodem+. The intention behind this is to promote generally usable technology and to ensure that the wheel does not have to continually be reinvented.

Use of declaration of equivalence

Equivalent measurement methods and methods of determination may simulate an anomalous practical situation that does not occur in all cases. If the quality of a batch of building material is measured with such a test, the building material must also be used under those circumstances. Otherwise, the standard test must still be performed.

During the licensing check to obtain a certificate or a manufacturer’s own declaration, the standard test is performed in principle, as set out in AP 04. An equivalent test may only be used in the licensing check if the building material may, based on this, be used in all cases. Otherwise, this would lead to an inadequate inspection frequency and assurance.

There are no recognised laboratories for the use of an equivalent measurement method. After all, the new method does not form part of the accreditation programme AP 04. In order nevertheless to guarantee the quality of the determination as far as possible, the equivalent measurement should, however, be performed by a laboratory recognised for the standard test. Of course, it is nevertheless possible for a new test ultimately to form part of AP 04, if it emerges that this is used a great deal.

If an equivalent measurement method or method of determination is used, it cannot be assumed that the usual parameters will be critical. In a test conducted under different conditions, for example, certain parameters will leach less, whereas others may leach more. All parameters must therefore be incorporated in the review.

If an equivalent test describes an anomalous situation, the enforcer should also use this test when inspecting the structure. Otherwise, a building material which, based on a test, takes account of the specific practical situation could still be rejected on the basis of the standard test.

Chapter 4 Earth and dredging sludge

General explanatory notes on backgrounds to standardisation

General explanatory notes on backgrounds to standards
The nucleus of the standards for the use of earth and dredgings on terrestrial soils is provided by the References. The description Maximum Values is otherwise adopted in the Decree. This designation is used in the rest of this section. The characteristic of the Maximum Values is that they account for a permanently suitable soil quality, given the nature of its function. As is the case with the Intervention Values, the Maximum Values are also generally determined by requirements that are laid down on the basis of ecological function. Humans are, as a physical system, generally less sensitive to soil contamination than the ecosystem.

A number of general principles are important in developing the Maximum Values; these determine the choice of the figures per substance, which are represented in the Table below. These concern:

- In assessing risks for a particular use, a review is conducted against human risks, agricultural risks and ecological risks. The latter have been subdivided into generic ecological risks, which entail the protection of species (plants and animals) and processes in the soil (nitrogen cycle, etc.) and the risks of secondary poisoning, which entail the risks for birds and mammals that feed on products and animals from/in the soil (via a food chain). Secondary poisoning is important for larger areas with a lot of greenery.
- No testing is (yet) conducted on the risks of spread into, for example, groundwater. For national standards, based on a standard soil, an adequate scientific basis is currently still lacking. The specific characteristics of the soil cause sharp differences in the effects of substances on groundwater. The impact of the standards for earth and dredgings owing to risks of spread to (ground)water is linked to the impact of the groundwater guidelines which in 2008 are set to lead to decision-making on threshold values to be adopted (groundwater standards). This may lead to changes in the standards as now presented.
- In relation to the human risks, assumptions are adopted for a representative scenario for exposure to pollution. An important scenario is, as part of this, living with a garden which supplies 10% of a household's plant consumption. This means that account is taken of effects of soil contamination, directly via hand-mouth behaviour and indirectly, via evaporation of contaminants into the indoor air and via food plants. It goes without saying that various scenarios are associated with various functions. After all, a kitchen garden/allotment yields a different exposure for humans from an industrial site.
- In relation to the ecological risks, protection levels distinguished per class (as described in the Explanatory Memorandum) are adopted. Secondary poisoning does not play a role for the "residential" class. The choice that 20% of the species may potentially experience a contaminated soil effect applies to this as a generic criterion[3]. In the case of the

[3] The "risk" of soil contamination for the ecosystem in a soil is designated by a measure of the potential quantity of the species that may experience adverse effects. In the jargon, this refers to the HC value. The designation of HC=20 then stands for a Hazardous Concentration at which

'industrial' class, the equivalent value is 50%. To be able to understand the results in the Table, it is important that secondary poisoning plays a role in this class. This class also includes sports parks, slopes, road verges, etc.
Soil not covered by the Residential or Industrial class conforms to the Background values. This soil, including the agricultural/nature functions, is protected with, in theory, the requirements laid down owing to product quality, plant health and animal health for soils with an agricultural function. Nationally, what is classed as clean soil in the Netherlands has been chosen as the protection level. This is determined by the substance levels that are found in relatively uncontaminated areas, so-called national background values.

- Crucial to the choice of a standard level in a class is the lowest class which, owing to a function in this class in combination with the said criteria, must be set in order to ensure that all the requirements owing to soil protection are met within this class. Given the fact that ecological function often determines the level of the requirement, it will be clear that for those functions for which the occurrence of secondary poisoning is also a criterion, this may influence the level of the requirement: this sometimes becomes stricter.
- Before definitively formulating a requirement by virtue of the foregoing considerations, considerations of practical feasibility and social and financial consequences will also have to be taken into account.

For a good understanding of the Table, it is also important that the determination of Intervention values is carried out differently from that for the Maximum Values. There are certain important differences:

1. The risks relevant to agricultural function do not play a role in determining the level of the Intervention value. After all, this does not involve requirements laid down pursuant to the Soil Protection Act but requirements laid down owing to food safety and animal health, to which other laws (Commodities Act) relate.
2. Nor do the risks owing to secondary poisoning play a role. Intervention Values entail determination of the limit for the occurrence of a serious instance of soil contamination, as a result of which rules relating to decontamination become applicable. This does not involve, as with the Maximum Values, defining a level of durability, given the use.
3. Intervention Values are determined independently of function.
4. Intervention Values are, by their nature, less stringent than Maximum Values for soils in the Residential function class or soils that have to conform to the national Background Values. The level of the Intervention Values is determined on the basis of the risks for humans and the ecosystem. For humans, a standard is adopted for carcinogenic substances that is a factor of 100 less stringent than that which applies to the Maximum Values. For the ecosystem, the limit that must not be breached is set at 50% of the species that may potentially experience an adverse effect.

Based on the foregoing discussion and the fact that, even for Intervention values, ecological requirements generally determine the level of the requirements, it will be clear that in the "industrial" class the Maximum Value for this class is closely connected with the level of the Intervention Value. Since secondary poisoning does not play a role in this last aspect, a difference in the level of the Maximum Values and the Intervention Values nevertheless arises for certain substances. For those substances for which no Maximum Value has been derived, this phenomenon also arises, but this is exclusively due to the fact that, when choosing the Maximum Value, use is, where possible, made of existing standards adopted for earthmoving which link up with the level of diffuse contamination. This also sometimes entails substances that are not present everywhere as diffuse contamination. Setting a class limit at the Intervention Value would thus mean a needless extension of the scope for diffuse contamination.

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potentially 20% of the species can experience an adverse effect (breaching of No Effect Concentration, the concentration at which no effect yet takes place).

It is furthermore important that, when determining Maximum Values, there is a connection with the decontamination profile on three fronts:

1. As explained above, a value which, in terms of value, coincides with the intervention value is entailed for the “industrial” class for most substances for which a Maximum Value has been derived.
2. The Maximum Values for the decontamination targets, given the use. They replace the existing Soil usage values.
3. The technical/scientific assumptions adopted for calculating the Maximum Values are the same as those for the Intervention Values. These assumptions are also adopted in a location-specific appraisal in the decontamination process.

The essential choices that further influence the standards are elaborated below. It is important in this context that the Intervention Values set out in the Table apply not only to earth and dredgings but also in connection with decontamination policy. They thus replace the Intervention Values as referred to in the Target and Intervention Values circular.

Package of substances

Assessment of the quality of earth and dredgings is based on a specific package of substances. These are substances which, owing to the fact that they are commonly occurring and pose a potential risk, must always be measured. For most of these substances, Maximum Values have been derived for the “industrial” and “residential” class. For soils not assigned to these two classes, the Background Values apply.

New understanding, new Intervention Values?

Using the latest understanding means new Intervention Values for terrestrial soils. Apart from for setting Maximum Values for the “industrial" class, these are chiefly important for decontamination policy because they determine the number of cases in which the decontamination chapter of the Soil Protection Act must be applied. In principle, these new Intervention Values are followed unless an appraisal of the consequences for the environment and other interests (financial, economic and social) prompts a different conclusion.

The existing Intervention Values have thus been maintained for zinc, copper and the existing group of PAHs (Polycyclic Aromatic Hydrocarbons). It has also been chosen to maintain the Maximum Value for the “industrial” class for these substances at this old Intervention Value. In the case of zinc and copper and also PAHs, the argument is that these have a major impact on scope for depositing earth and dredging sludge and on the number of cases of decontamination, which would otherwise rise sharply without this leading to action (decontamination and/or management). This applies, among other things, to existing reuse locations, such as noise barriers.

In the case of PAHs, it is also important that a change in methodology has been proposed by the National Institute of Public Health and the Environment which has also been regarded as a better choice by the TCB but which, where implemented, will mean that all existing soil quality maps will be immediate obsolete and for which adaptation to the new understanding will be a radical and time-consuming operation. For this important group of substances, an approach is preferred in which clarity first exists, including internationally, as to the final impact of the new methodology before a final decision is made on the method of implementation. This will take several years.

Difference between Intervention Values for terrestrial soils and sediments

To date, the Intervention Values for sediments have been placed on a par with those for terrestrial soils. This has happened while scientific/environmental contamination of sediments for humans and the ecosystem poses less significant risks than equal levels in terrestrial soil. In the decontamination process, breaching of the current Intervention Values for sediments has (much) fewer consequences than those for terrestrial soils. After all, a location-specific analysis quickly shows that there is in fact not so much of a problem. Now that the standards system and also decontamination policy are being radically adapted, there are grounds to return to the choices made previously concerning Intervention Values for sediments. Specific Intervention Values apply to sediments.

Target value becomes national Background value

Finally, so far as the Target Value is concerned, this applies to uncontaminated soils under existing policy. This standard has, in addition to SW1, been used for the review of clean soil. This role is adopted by the national Background Values. However, the target value retains a function in laying down decontamination targets in connection with the decontamination of fresh soil contamination.

Handling of calculated Maximum Values for soil function classes

For a number of substances, namely the commonest ones, Maximum Values have or will still be calculated for terrestrial soils. These do not apply to sediments because the function classification does not apply to them. A new classification into dredging classes that replaces the old classification as set out in the Fourth Water Management Memorandum is adopted for sediments. The Maximum Values for the use and application of earth and dredging sludge in surface water have been incorporated separately in this Regulation.

The Maximum Values calculated by the National Institute of Public Health and the Environment for the various soil function classes are always followed with the proviso that if this Maximum Value for the "industrial" class is virtually identical to the Intervention Values, the Maximum Value is set at the Intervention Values.

For the substances zinc, copper and the group of substances comprising the PAHs, the Maximum Value for the "industrial" class is set at the level of the old Intervention Values, for reasons as set out above.

For the substances cadmium, lead and mercury, the Maximum Values for the "industrial" class are not equal to the Intervention Values because the criterion of secondary poisoning previously dealt with is crucial in this regard.

Handling of substances for which no Maximum Values exist

No special derived Maximum Values exist for most substances by far, and nor are they set because these substances are uncommon. A choice has been made from the (existing) standards which are well known. For this group of substances, the level of these substances in relatively uncontaminated areas of the Netherlands is adopted as the Maximum Value for the "residential" class. These are what are known as the national Background Values. As they were measured in the year 2000, they are referred to as AW 2000 in the jargon. Otherwise, this investigation concerns only terrestrial soils. No similar investigation has been conducted on sediments.

These Background Values form the limit for being allowed to use earth and dredgings everywhere on the land at all times. As this quality is better than that of sediments, earth and dredgings with this quality can also be used in and on sediments.

The compositional requirement for building materials as set out in this Annex (column SW2 = Compositional value for category 2) is adopted for the "industrial" class or, if this does not exist, the Background Value for that substance. These better match the nature of a Maximum Value and the fact that these substances often fall (far) below the Intervention Value. In addition, the occurrence of odour nuisance, as in the case of volatile organic substances (toluene, etc.) also plays a role. This group of substances includes the mineral oils. Better methods for the standardisation of this important group are known which, however, have not yet been fully developed and considered in terms of consequences. Completion of this also requires international co-ordination. It may be expected that if the new method is followed, a distinction must be drawn between the light and heavy fractions of mineral oil. The Maximum Value now proposed is too high for the light fractions, owing to ecological criteria.

Handling of river forelands

Legally, river forelands form part of surface water, and concern sediments. A function test is not used for sediments. Nor does this happen with a river foreland whose primary function is water storage and water removal. In the case of earth and dredgings originating from a river foreland and used in the same river foreland, this is reviewed only in terms of existing soil quality.

Class limits for dredgings on adjoining plot

The Third Water Management Memorandum (V&W, 1989) proposes the review value to be adopted as maximum values for the application of dredging sludge on the bank. Replacement of the review value was announced in the Fourth Water Management Memorandum. Since 1989, the review values are provisional in nature and have been borrowed from areas that can be regarded as 'relatively' clean. Under the Soil Quality Decree, the opportunity has been taken to revise the application limit. The most important parameters in this context were that the limit must be based on risks more than applies at the present time, that at least as much application can take place nationally and that no quality measurement of the receiving soil need take place. In addition, it was wanted to take account of the processes (such as breakdown) that take place when dredgings from anaerobic conditions are used aerobically and vice versa for earth. The msPAF (potentially impaired fraction of lower organisms) plays an important role in the risk-based standards for application on the bank. 20% breakdown of PAHs is catered for in the calculation of the msPAF.

Section 4.1 Material extraneous to soil

Article 4.1 is based on article 34 (4) of the Soil Quality Decree.

Materials that are naturally present in the earth or dredging sludge to be used are not regarded as material extraneous to soil. Examples of materials that may naturally be locally present in the soil are plant residues, peat and gravel.

The maximum percentage by weight of material extraneous to soil for the general use of earth and dredging sludge has, at 5 per cent by weight, been set at a low level. This means that, in the generic schedule, a high level of protection applies with regard to the use of earth and dredgings with material extraneous to soil. If higher percentages of material extraneous to soil are present in an area, for example in urban landfill layers containing rubble, the Municipal Executive may, in the decision concerning local maximum values, lay down a higher maximum percentage by weight, up to a maximum of 20 per cent by weight. The Municipal Executive may also lay down a lower maximum percentage by weight in such a decision, for example for areas with a specific level of protection.

Materials of some scale that are extraneous to soil are encountered regularly during dredging work. If the dredging sludge is applied on the adjoining plot, it is authorised to remove these large materials following application in accordance with existing practice. The materials removed following the application of dredging sludge to the adjoining plot are not included in the determination of the percentage by weight of material extraneous to soil.

In the case of large-scale soil applications, a maximum percentage has been laid down for a type of material extraneous to soil, namely non-mineral and non-natural materials. This concerns, for example, glass, plastics or treated wood.

The method of determination on the basis of which the percentage of material extraneous to soil in a batch of earth or dredging sludge is determined will be laid down in the long term in a NEN. This NEN is expected to be available in the second half of 2007, and will then be enacted by Ministerial Regulation.

Section 4.2 Determination of breaching of the values

Articles 4.2.1, 4.2.2 and 4.2.3 are based on article 38 (2) of the Soil Quality Decree.

Soil type correction
The method of correcting for lutum and organic matter levels differs under current practice for soil and surface water. The rules as set out in the Regulation therefore differ for soil and surface water, and fit in with existing practice.

Review rule for background values
As the background values are based on the 95-percentile values from the above-mentioned investigation of the background values, there is a 5% probability of the background values being breached for uncontaminated soils. The probability of identifying a breach of the background value increases, however, as more substances are analysed. In order not to characterise uncontaminated soils wrongly as soil that does not conform to the background values, a review rule is used in reviewing levels against the background values.

The review rule is based on the policy principle that the probability of incorrect rejection of earth may be max. 5%; this applies regardless of the number of substances reviewed in the soil in question.

The review rule relates to individual parameters and to total parameters.

Support for review against the values
Within the BIELSS project (for more information, see http:///www.senternovem.nl/bodemplus), automated support of the use of earth and dredging sludge is prepared. The intention is, for all areas for which maximum values are laid down, to make the restriction of these areas and the applicable maximum values digitally available nationally. For areas for which soil quality maps are available, this automated system will also indicate whether and, if so, for which soil functions the soil quality map may be used as a declaration. The system will also generate the data (mean levels in the respective soil quality zone) for the declaration by virtue of the soil quality map, and also other relevant indices (percentile values). Lastly, the system will generate a print-out of the data that are relevant for notification. Via a link with the notification system, the latter can in the long term also be connected electronically to the completion of the notification form.

The classification into soil quality classes in surface water and the review against the maximum values for application of dredging sludge to the soil may be determined with effect from 2007 with the aid of an updated version of Towabo: Towabo 4.0. Towabo 4.0 will review an introduced soil quality against the maximum values for the application of dredging sludge to the soil and for the use and application of earth and dredging sludge in surface water. The program will in this context make use of the formulae for correction to standard soil as set out in article 4.6. To be able to calculate the msPAF, the program Omega 7.0 will be incorporated in Towabo 4.0.

Section 4.3 Environmental hygiene declarations

Section 4.3 is based on article 39 (1) and (2) of the Soil Quality Decree.

Environmental hygiene declarations
In relation to the use of earth and dredging sludge, it must be demonstrated that the usage requirement is met. Various environmental hygiene applications are for this purpose available for anyone planning to use earth or dredging sludge. These declarations are listed in article 1 of the Decree. The given situation, the parameters laid down and the intended application determine which type of declaration is most appropriate to be used.

In developing the policy framework, the target has been set of achieving simplification and harmonisation of existing research protocols. The intended result should also be that research results obtained can be used for several purposes. For example, the results of simple research must be capable of being included in more extensive and/or more complex research. A reduction in research costs is thus sought.

On the entry into force of the Decree and this Regulation, major harmonisation is implemented in the various protocols. In the past, the protocols contained various packages of substances to be investigated. The same package of substances to be investigated will be implemented for all protocols in the course of 2007. This concerns the package of substances derived on the basis of the criterion as laid down in article 4.10 of this Regulation.

Performance soil (sediment) testing still involves various test strategies, and in particular also various protocols for sediment. The target is to integrate these various strategies and protocols as far as possible and remove any overlap. Before the entry into force of the Decree and this Regulation, this operation could no longer be performed. The managers of the protocols, particularly SIKB and NEN, have started projects to implement this more extensive simplification and harmonisation of protocols. The results are expected to become avalable at the end of 2007 and then to be implemented in this Regulation.

Environmental hygiene declaration on the basis of batch inspections
The starting point for sampling is that it must be performed in such a way that the batch inspection demonstrates with at least 90% reliability that the mean quality of the batch to be investigated does not breach the maximum values of the intended use.

With the current state of technology, this principle is achieved with a procedure described in BRL1000 or AP04 M of the SIKB. A maximum batch size of 10,000 tonnes is assumed in this connection, from which a minimum of 100 random selections are taken that are combined to form a minimum of 2 analysis samples. The institutions recognised on the basis of that Decree are therefore certified/accredited on the basis of the aforementioned documents.

If the highest and lowest measurement value for composition and emission for one or more parameters differs by more than a factor of 2.5, it is checked whether errors have been made in the procedure performed for sampling, sample preparation and analysis.

Where errors exist (or are suspected), the respective step is normally repeated together with the following steps.

If the normal quality assurance and quality control and the additional inspection do not indicate errors in the procedure followed, a high level of heterogeneity may be assumed to exist in the batch. With this assumption, the sampling and the following steps do not have to be repeated.

Environmental hygiene declarations for earth on the basis of soil test
The specified test strategies of NEN 5740 are based on a sampling intensity of the same order of magnitude as the batch inspection and the recognised quality declarations.

Environmental hygiene declarations for dredging sludge and soil below surface water on the basis of soil test
Annex D includes several protocols for determining the quality of the soil below surface water. This does not mean that a free choice may be made between the various protocols. Each protocol has its own scope, which is limited either geographically or in terms of the objective of the test. The aim is to integrate these protocols together with NVN 5720 into a single protocol, NEN 5720. NEN 5720 is expected to be published at the end of 2007 or the beginning of 2008.

Environmental hygiene declarations for earth or dredging sludge on the basis of a soil quality map
The criterion for the use of the soil quality map as a declaration for soil quality has been laid down in such a way that the probability of a new urgent decontamination situation being created using the earth on the basis of such a declaration is less than 5%.

In relation to use of the map (*in the articles of the implementing Regulation*), prior to earthmoving the hypothesis must be tested that the excavation location forms part of the diffusely contaminated area. Suspect locations are excluded from the soil quality map.

The use of data from the soil quality map (i.e. no supplementary inspection) is not permitted if the excavated batch from several soil layers has been mixed by excavation. An exception to this may be the situation reviewed on the basis of data from the most contaminated layer from which the batch originates.

Section 4.4 Soil quality classes of earth and dredging sludge to be used

Article 4.4 is based on article 39 (3) of the Soil Quality Decree.

Section 4.5 Background values

Article 4.5 is based on article 40 of the Soil Quality Decree.

The background values are based on the study ‘Background values 2000’ (AW2000). This study has mapped the levels as currently present in the Netherlands in the soil of natural and agricultural land which is uncontaminated by local pollution sources.

In the policy follow-up of AW2000, recommendations have been formulated for laying down standard values at background level. These recommendations are described in the report ‘Policy follow-up of AW2000; Proposals for standard values at background level and the associated review rule’. Most recommendations have been adopted in the decision-making process and, where relevant, incorporated in this Regulation. Certain recommendations have not been adopted, which has led to certain differences between the proposed standard values and the background values laid down in this Regulation. The main differences relate to the choice of standardisation as a total parameter or per individual substance and the basis for the standard value for substances with a limited number of observations above the determination limit.

For most standardised substances, the background value has been derived from the 95-percentile value for the distribution of levels in the topsoil (0-10 cm below ground level), as encountered in the study ‘Background values 2000’. In laying down the standard values for the background values, the 95-percentile value has been rounded. Below 100 mg/kg dm, rounding up has been carried out to two significant figures, with the second figure by definition being a 0 or 5. Above 100 mg/kg dm, the same rounding process has been used, but with the second figure not by definition being a 0 or 5.

For substances for which no reliable 95-percentile value could be determined, the standard value has been derived from the determination limit, with the same rounding rule as described above.

The levels of virtually all standardised substances have been mapped in the specified study. Four substances have been excluded from this because these cannot be determined by chemical analysis, namely (o-dihydroxybenzene (catechol), m-dihydroxybenzene (resorcinol), p-dihydroxybenzene (hydroquinone) and maneb). 113 standardised substances thus remain for which the background values are laid down with this Regulation.

Section 4.6 Package of substances

Article 4.6 is based on article 41 of the Soil Quality Decree.

The specified criterion of 5% is an indicative criterion. Based on an investigation of the consequences of various criteria on the package of substances, the final criterion must still be chosen.

The package of substances is based on the extent to which substances are present to an increased extent in unpolluted soils in the Netherlands. Although the package of substances has been derived from the composition of the soil in unpolluted areas, the package of substances also applies to investigation of the soil below surface water.

Section 4.7 Notification

Data to be supplied
Article 4.7.1 is based on article 42 (2) of the Soil Quality Decree and indicates what data are supplied in a notification, in addition to the data specified in the Decree. Notification is crucial for (chain) enforcement.

The (digital) notification data will in future also be used for updating soil quality maps.

The notification form provides scope for notifying the planned application of dredging sludge to terrestrial soil. The notification of this intention is not mandatory. The opportunity is offered of using the notification form for the application of dredging sludge on the adjoining plot in order to have the proposed application notified to the competent authority, thus meeting the requirements of annual data provision.

Our Ministers will pass on to the local authority in question any notifications relating to the planned application of dredging sludge on the adjoining plot.

Notification form
Article 4.7.2 relating to the model notification form is based on article 40 (3) of the Soil Quality Decree. A form on which the details are completed is used for the notification. This form is available from Bodem, or downloadable via http://www.senternovem.nl/Bodemplus.

The form can then be sent by mail or electronically to Senternovem (postal address/ ……@senternovem.nl). Senternovem takes care of direct passing-on to the competent authority.

Notification takes place five working days before the earth and dredgings *are used* pursuant to article 42 (1) of the Soil Quality Decree.

For the purposes of passing-on by Our Ministers to the competent authorities, the notification form with associated information is preferably received by Our Ministers in digital form. In the case of declarations, receipt in PDF format is for this reason preferred by Our Ministers.

Section 4.8 Soil functions

Article 4.8 is based on article 45 (x) of the Soil Quality Decree.

The soil function ‘places where children often play’ covers children’s playgrounds outdoors, though also care-providing establishments, schools and the like.

Farms with associated yards are not covered by the soil function ‘agriculture’, but by the soil function ‘residential with a garden’.

The soil function ‘parks and gardens with natural values’ covers green areas for sport and recreation, municipal parks and the like.

Section 4.9 Consequences of local maximum values for soil quality

Soil management risk tool box

This section is based on article 45 (4) of the Soil Quality Decree and on article 47 (1) (f) of the Soil Quality Decree.

The Soil Management Risk Tool Box 1.0, to which this Regulation refers, has various modules. On the entry into force of the Soil Quality Decree, this risk tool box, in accordance with article 45 (4) of the Decree, contains a module for determining the consequences of the local maximum values for the current or future soil function in question. This "consequences of local maximum values" module assumes that the local maximum values have already been determined by the competent authority. Determination of the local maximum values can only take place after it has been demonstrated that no unacceptable risk to the use of the soil or surface water arises at these values.

In the course of 2007, the risk tool box will be extended to include modules that support the decentralised competent authorities in a targeted way in determining the local maximum values. These extensions of the risk tool box will be consistent with the methods used for the "consequences of local maximum values" risk module.

In anticipation of these extensions, the Risk Tool Box Soil Management 1.0 supports, in a separate module, the calculation of risks of current soil quality. The use of this module is voluntary. The module enables the competent authorities to chart any possible risks associated with sets of data introduced relating to current soil quality. This may entail, as desired, the introduction of means, P50 or P80 values. The competent authorities may also introduce test data relating to bioavailability. This module also provides scope for catering or not catering for ecological risks for largely paved areas. The results of such calculations are intended to provide initial support for the competent authorities in substantiating a choice of local maximum values.

Results of the "consequences of local maximum values" risk module

The results of the "consequences of local maximum values" risk module relate to possible local risks arising if, through the use of earth and/or dredgings, the mean levels of substances attain these local maximum values.

The risk module has the following possible results:
a. At the local maximum values, soil quality is fit for all current or planned soil functions or use of the surface water;
b. At the local maximum values, soil quality with the current or future soil functions or use of the surface water leads to unacceptable risks;
c. At the local maximum values, neither result a nor result b arises.

With result a), no impact on humans, the environment or the ecosystem may be expected width the current or planned soil functions or with the current or planned use of the surface water.

With result b), no unacceptable impact on humans, the environment or the ecosystem may be expected at the local maximum values. Determination of the local maximum values is in that case not permitted.

With result c), an impact on humans, the environment or the ecosystem may be expected with (some of) the current or planned soil functions or the current or proposed use of the surface water, without there being an unacceptable risk. Additional policy, for example in the form of usage restrictions, is needed to manage the possible risks identified by the risk module. This policy serves to ensure that the risks are also manageable in the long term and that the measures to be taken can be maintained.

Effect of the "consequences of local maximum values" risk module

Soil other than soil below surface water
The "consequences of local maximum values" risk module calculates the local risks for soil functions laid down nationally:

i. residential with a garden;
ii. places where children play;
iii. kitchen gardens and allotments:
    - large kitchen gardens; large town and village gardens and farmhouse gardens with a high level of crop growing;
    - smaller kitchen gardens; large town and village gardens with a reasonable level of crop growing;
iv. agriculture;
v. nature;
vi. parks and gardens with natural values;
vii. other parks and gardens, buildings, infrastructure and industry:
    - virtually completely paved;
    - not virtually completely paved.

The "consequences of local maximum values" risk module calculates human exposure with model CSOIL 2000_RTB_1.0. All control parameters for the human risk assessment within the "consequences of local maximum values" risk module are included in the choice of soil function.

In the case of the "agriculture" soil function, the agricultural risks are calculated – in addition to the review against the background values. A link has been made with the methods laid down by Alterra for revision of the LAC signal values.

The "consequences of local maximum values" risk module identifies if maximum values breach the LAC signal values according to the applicable method.

The "consequences of local maximum values" risk module calculates the local ecological risks on the basis of species sensitivity distributions. The risk module calculates the ecological risk per substance and optionally for the mixture of substances and relates the results to the method of classification into soil use functions.

In the risk module, the ecological risk assessment per substance (PAF) is performed with data used for deriving generic standards. The "consequences of local maximum values" risk module additionally makes it possible, on the basis of the same species sensitivity data, to calculate the potential risk of the mixture of substances (msPAF). The risk module provides this facility for the purposes of supplying information for the decision-making process by the competent authority. However, the underlying method does not form part of the methods as referred to in article 47 (1) (f) (3) of the Decree.

Surface water
The "consequences of local maximum values" risk module calculates the human risk for surface water with SEDISOIL (version 2.0).
The exposure routes are: direct intake of sediment (during recreation) and consumption of contaminated fish. Based on the actual (current or future) use of the surface water, the user selects one of the following 4 human exposure scenarios on the basis of current use:

1. Recreation water
2. Fishing water
3. Scope for recreation
4. Scope for fishing

Combinations are also possible (apart from combination of 1 and 3 or 2 and 4).

In the case of (periodically) dry sediments, the "consequences of local maximum values" risk module adopts the method for dry soil (CSOIL 2000_RTB_1.0).

Ecological risks are calculated with OMEGA (version 7.0). OMEGA 7.0 calculates the local ecological risks for both aquatic and terrestrial sediments on the basis of species sensitivity distributions.

OMEGA 7.0 calculates the ecological risk per substance (PAF) and relates the results to the type of use. The "consequences of local maximum values" risk module additionally makes it possible to calculate the risk of the mixture of substances on the basis of the same species sensitivity data (msPAF). The "consequences of local maximum values" risk module provides this facility for information purposes for the decision-making process by the competent authority. However, the underlying method does not yet form part of the methods as referred to in article 47 (1) (f) (3) of the Decree.

Agricultural risks are in principle not calculated for sediment. An exception is the situation in which agriculture is authorised in the river forelands. It is then established with the aid of the risk module for agriculture what the consequences are for the soil with the 'agriculture' soil function.

In relation to terrestrial soil, the "consequences of maximum values" risk module is based on reference values for all soil functions defined in the Regulation. The parameters have in this connection been set in such a way as to do justice to the soil function in question. Users do not have the facility of themselves setting parameters, for example exposure routes or protection levels.

In the Decree, surface water is not classified into soil functions. The risk module is based on the same standard values for all divergent ecological functions of the surface water. In the case of human risks, the "consequences of local maximum values" risk module makes it possible, for the various types of use of the surface water, to gear model parameters to the specific (dynamic) situation. The way in which this happens can be identified via the URL www.RisicotoolboxBodem.nl/methode.

The Risk Tool Box Soil Management 1.0 does not contain any modules for calculating groundwater risks. The competent authority may, if so desired, itself flesh out the way in which risks are calculated.

Use of the risk tool box

The risk tool box can be used free of charge on the URL www.RisicotoolboxBodem.nl . The "consequences of local maximum values" risk module can be approached via a button on the start screen of this URL. Use of the "consequences of local maximum values" risk module requires registration. The instrument stores the input data and results.
The methodology underlying this instrument is set out at www.RisicotoolboxBodem.nl/methode.

Part OMEGA 7.0 of the "consequences of local maximum values" risk module is to be used on www.pm rws portal.nl
Use of OMEGA 7.0 requires registration. The instrument does not store the input data and results – this has to be done by the user himself. The portal can be approached directly via the URL of the risk tool box www.RisicotoolboxBodem.nl.

Part SEDISOIL 2.0 of the "consequences of local maximum values" risk module is used as a standalone application by the user. The user should himself store the results. The application can be downloaded via the URL of the risk tool box www.RisicotoolboxBodem.nl. Downloading of the application requires registration.

With the exception of SEDISOIL 2.0, the "consequences of local maximum values" risk module is suitable for a wide range of experts at competent authorities and consultancies. SEDISOIL 2.0 has many applications and requires the user to have experience of assessing the risks of sediment contaminants.

Tributyltin
In the case of tributyltin, no local maximum can be laid down above the maximum value for application in salt surface water.

Tributyltin is a substance that is highly dangerous to health and the environment. The Framework Water Directive lists the substance as a high-priority dangerous substance, and stipulates that pollution of the aquatic system with such substances should be brought to an end. The required instruments for this (EU Order, IMO Treaty) have already been developed. Pollution of the aquatic system with tributyltin will thus not increase under any circumstances.

The generic maximum values for tribytyltin provide adequate scope for the application of salt dredging sludge, as shown by the research conducted as part of the Salt Dredgings project. A more extensive standard is thus not needed at all.

In the long run, the generic standards for tributyltin can be tightened up because the aforementioned instruments may be expected to bear fruit and the levels of tributyltin in dredging sludge may be expected to show a declining trend.

Section 4.10 Soil function classes

Article 4.10.1 is based on article 55 (2) of the Soil Quality Decree.
Article 4.10.2 is based on article 55 (3) of the Soil Quality Decree.

Section 4.11 Soil quality classes

Article 4.11.1 is based on article 56 (3) of the Soil Quality Decree.

Article 4.11.2 is based on article 57 (3) of the Soil Quality Decree.

Soil quality classes
The soil quality classes of the soil are directly related to standardisation of the various soil function classes of soil, and thus to the associated standardisation.

Two review rules apply to the classification of the receiving soil in a soil quality class:
- The general review rule for reviewing soils and batches of earth and dredging sludge against the background values. This review rule is based on the statistical manner of determining the background values. See the explanatory notes associated with article 4.2.
- A special review rule for classification of the soil quality zones and locations on which earth or dredging sludge is used into the residential soil quality class. This review rule does not have a statistical background, but a policy background. The review rule has been included in order to prevent a receiving soil quality zone or location being classified too quickly into the 'industrial' soil quality class. The review rule provides an extra safeguard to ensure a standstill in generic policy for the use of earth and dredging sludge in areas or in locations with the 'industrial' soil function class and a soil quality class that does not conform to the maximum values for the 'residential' soil quality class.

Soil quality classes for soil below surface water
On the entry into force of the Soil Quality Decree, the known classification with classes 0 – 4 is dropped. This numbering will subsequently no longer be used in the Soil Quality Decree and other legislation. The Soil Quality Decree introduces a new classification that is more in keeping

with the various operations and risks arising in this connection. The review programme ToWaBo 4.0 adopted by many is adapted by virtue of the new limits.

Maximum values for the application of dredging sludge to the adjoining plot
The review value adopted as maximum values for the application of dredging sludge on the bank is proposed in the Third Water Management Memorandum (V&W, 1989). Replacement of the review value was announced in the Fourth Water Management Memorandum. Since 1989, the review values have been provisional in nature and have been taken from areas that can be regarded as 'relatively' clean. Under the Soil Quality Decree, the opportunity has been taken of reviewing the application limit. The main parameters in this context were that the limit should be based more on risks than now, that at least as much application can take place nationally and that no quality measurement of the receiving soil need take place. In addition, there was a desire to take account of the processes (such as breakdown) that occur if dredgings from anaerobic conditions is used aerobically and vice versa for earth. The msPAF (potentially impaired fraction) therefore plays a major role in the risk-based standards for application on the bank.

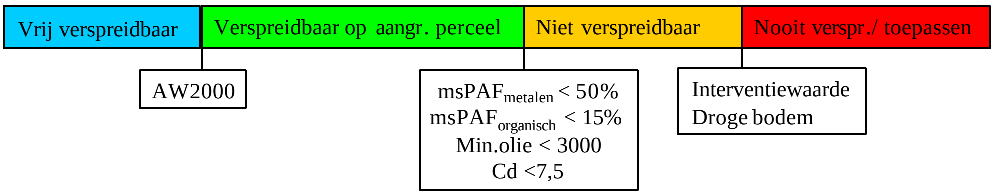


Figure ...: Summary of the new standards for application on the adjoining plot.

<u>Translation of captions:</u>
Vrij verspreidbaar = Freely spreadable
Verspreidbaar op aangr. perceel = Spreadable on adj. plot
Niet verspreidbaar = Not spreadable
Nooit verspr./toepassen = Never spreadable/usable
$msPAF_{metalen} < 50\% = msPAF_{metals} < 15\%$
$msPAF_{organisch} < 50\% = msPAF_{organic} < 15\%$
Min.olie < 3000 = Mineral oil < 3000
Cd < 7,5 = Cd < 7.5
Interventiewaarde = Intervention value
Droge bodem = Dry soil

In the case of maintenance sludge whose quality conforms to the maximum values for the application of dredging sludge on the adjoining plot, the duty of receipt applies.

The generic standard does not apply to the application of dredging sludge from the area surrounding sewer overflows. These are regarded as a point source, and the soil in surface water in the vicinity of sewer overflows should be investigated as contaminated by a point source.

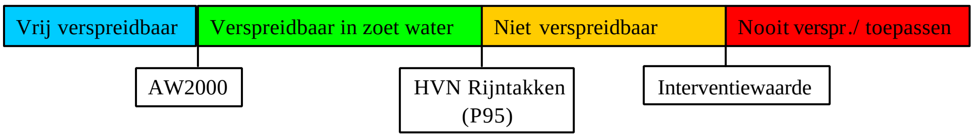
Section 4.12 Maximum values for the application of dredging sludge in surface water
Application in surface water entails bringing dredging sludge back into the body of water of the channel for maintenance reasons. In relation to spreading in surface water, two groups have been included, namely a limit for spreading in sweet water and a limit for spreading in salt water (in Surface Water Pollution Act area: Zeeland Delta, North Sea Coast and Waddenzee). Spreading in salt water takes place in very dynamic systems. Even where dredging sludge is spread in sweet surface water, the dredging sludge is for maintenance reasons brought back into a dynamic (flowing) surface water system.

Spreading in surface water takes place mainly in the large rivers.

In the case of these spreading limits, it is also the case that a review against the receiving soil is unnecessary.

In relation to the spreading risk for sweet water, it has been chosen to derive this from the recontamination level that arises in the areas where this from of spreading of dredging sludge is used most. The contamination level in the Rhine (HVN), measured at Lobith over the last 10 years (following performance of the Rhine Action Programme), and specifically its P95, has therefore been set as the maximum value for spreading in sweet surface water.

The maximum value for the spreading of dredging sludge in salt water is equal to the CTT (Chemical Toxicity Test), as already adopted before the entry into force of this Decree.



Figure….: Summary of the new standards for spreading in sweet water.

<u>Translation of captions:</u>
Vrij verspreidbaar = Freely spreadable
Verspreidbaar in zoet water = Spreadable in sweet water
Niet verspreidbaar = Not spreadable
Nooit verspr./toepassen = Never spreadable/usable
HVN Rijntakken = HVN Rhine branches
Interventiewaarde = Intervention value

Maximum values for use in surface water
The limit for freely usable earth and dredging sludge in surface water is identical to the limit for freely usable earth and dredging sludge on terrestrial soil (AW2000). A measure thus arises that expresses the limit for freely usable earth and dredging sludge.

The limit above which use may not take place (generically) is, for use in surface water, the intervention values for sediments. Under the Soil Quality Decree, the opportunity has also been taken of reviewing the intervention value for a number of substances. In the case of sediments, a link is in this context made with the limits that better express the difference between diffuse contaminants and point contaminants, without the effects being environmentally unacceptable in an aquatic environment. Between AW2000 and the intervention value, a single intermediate limit has been chosen to ensure standstill. The recontamination levels seems a logical value because a distinction is in this way made between the current lightly contaminated sediment and the older, heavier contaminated sediment.

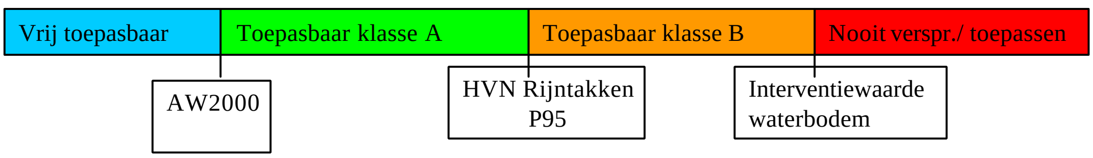


Figure ….: Summary of the new standards for use in surface water

<u>Translation of captions:</u>
Vrij toepasbaar = Freely usable
Toepasbaar klasse A = Class A usable

Toepasbaar klasse B = Class B usable
Nooit verspr./toepassen = Never spreadable/usable
HVN Rijntakken = HVN Rhine branches
Interventiewaarde waterbodem = Intervention value for sediment

Section 4.12 Maximum values for the application of dredging sludge

This article is based on article 59 (1) of the Soil Quality Decree.

For an explanation of the background to the maximum values for the application of dredging sludge, see the explanatory notes on section 4.11.

An extra standard applies to the use of earth in surface water: the maximum value for the industrial soil class. This standard has been incorporated in order to prevent the possibility of earth that cannot be used on or in the soil nevertheless being used in surface water.

Section 4.13 Large-scale applications

Article 4.13 is based on article 60 (5) of the Soil Quality Decree.

Based on emission data, a new assessment and review system for the emission of contaminants from earth and dredging sludge is currently being developed. This new method will in due course be enshrined in a new version of this Regulation.

If the quality conforms to the emission review values, it is assumed, on the basis of practical experience acquired with the Building Materials Decree, that the emission and immission requirements are met. Research on emissions and immissions and a review against the emission and immission requirements is then unnecessary.

The emission review values concern the t values from the Decree amending the Building Materials Decree of 24 November 2006 (Bulletin of Acts and Decrees 2005 610). Where no t values are mentioned in that Decree, the t values are calculated as the mean of the background value and the intervention value. If the t values in the Building Materials Decree are higher for a substance than the new Intervention Value, the emission review value for this substance is set at a ceiling at the new Intervention Value.

If large-scale soil applications are located below water, emission is negligible; based on this, it is assumed that these applications meet the emission and immission requirements. Research on emission and immission and a review against the emission and immission requirements is therefore unnecessary for such applications. When the new assessment and review system is developed, the requirements for large-scale applications under water will also be examined.

In cases where dredging sludge is used in a large-scale application in surface water within the water quality manager’s management area from which the dredging sludge comes, no review against the emission and immission requirements is required.

A great improvement in the quality of the water system is usually achieved (for example, in relation to dewatering, water depth, water quality) with a transfer of dredging sludge within the surface water system. With regard to soil quality, a standstill is involved on the management area scale. Demonstration of compliance with the emission and immission requirements is therefore unnecessary.

Paragraph 2 of article 4.13 applies to regular situations, which means that the scope is not limited to protected areas or certain surface waters.

Chapter 5. Transitional provisions

In the case of building materials used pursuant to the Implementing Regulation for the Building Materials Decree, a transitional period of five years applies. During this transitional period, the provisions of the Implementing Regulation for the Building Materials Decree are applied to these building materials. After that period, by virtue of article 5.2 of the Decree, solely article 31 of the Decree applies to category 1 building materials and solely article 30 (7) and article 31 of the Decree applies to category 2 building materials and the special category of waste incinerator bottom ash, as referred to in the Building Materials Decree.

IBC structures constructed under earlier regulations

To prevent different IBC management regimes applying each time to structures in connection with revision of the regulations, the provisions relating to management and inspection also apply to structures used under the IPO Interim Policy or the Building Materials Decree. Specifically, this concerns structures constructed as from 1993. For these structures, the requirements laid down at the time for the insulating facilities do not change.

Recognised persons or institutions and bodies

To improve quality assurance of the design, construction and management and inspection operations on IBC building materials, it is compulsory to use duly recognised bodies for a number of activities. To be able to recognise bodies, assessment guidelines are needed on the basis of which bodies can be certified or accredited. These assessment guidelines are not yet available at the time that this Regulation comes into force. It is expected that the assessment guidelines will be able to be developed over the next two years. It is therefore necessary to set a transitional period up to 1 January 2009 within which the obligation does not yet apply.

Transitional law governing Decree and Soil Quality Regulation

Adequate transitional law is essential for the implementation of new regulations. In addition to the transitional provisions already incorporated in the draft Decree, transitional law in accordance with the outline description below will therefore be incorporated in the Decree and Soil Quality Regulation.

Until 1 July 2007, applications of earth, dredgings and building materials may be carried out both under the current regulations and under the Soil Quality Decree.

For applications of earth, dredgings or building materials for which a legally binding agreement has been concluded before the date of entry into force, these applications may be carried out up to 2 years after the date of entry into force both under the Building Materials Decree and under the Soil Quality Decree.

In areas for which a soil management plan and soil quality map has been laid down pursuant to the Exemption Regulation for Earthmoving, earthmoving may be performed in accordance with the prevailing soil management plan and with the aid of the prevailing soil quality map up to no more than 5 years after the date of entry into force. Where the soil management plan or soil quality map is updated within this period, the new rules take effect within this period.

If a dredging plan has been drawn up before the date of entry into force, the spreading on the bank of dredgings to which the dredging plan applies may be performed up to 2 years after the date of entry into force both under the current regulations and under the Soil Quality Decree. In the other cases, the spreading of dredging sludge on the bank is possible until 1 July 2007 both under the current regulations and under the Soil Quality Decree.

If an application for a licence has been lodged for a use of earth, dredgings or building materials before the date of entry into force, the provisions arising from the licence remain in force. The date of the licensing application or the MER Decree applies as the reference date.

Quality declarations for earth, dredgings and building materials may be drawn up until 1 July 2007 on the basis of the Building Materials Decree. After this date, quality declarations may solely be drawn up on the basis of the Soil Quality Decree.

Earth, dredgings and building materials with quality declarations on the basis of the Building Materials Decree may, up to no more than 2 years after the date of entry into force, be used in applications performed in accordance with this transitional law under the terms of the Building Materials Decree. Earth, dredgings and building materials with quality declarations on the basis of the Building Materials Decree may also be used up to 2 years after the date of entry into force in applications performed in accordance with the Soil Quality Decree. Conversion Table 3 applies to this, with scope being limited for the use of, in particular, category 1 earth (solely in large-scale applications) and category 2 earth (not usable). The requirements of the Building Materials Decree continue to apply to the review of the quality of the batches in question.

Where a choice is possible, the user of earth, dredgings or building materials must make known his choice to the competent authority via a notification.

The designation of the qualities of earth, dredgings and building materials pursuant to the Building Materials Decree does not link in with the designation adopted in the Soil Quality Decree. It is indicated in Table 1 in which cases there is a form of translation. To allow for this form of translation, it is indicated in Tables 2 and 3 how the conversion must be carried out.

A transitional provision will be incorporated for the use of the new intervention values. So long as this is not in force, the Target and Intervention Values Circular applies.

Table 1: summary of connection between Building Materials Decree and Soil Quality Decree

		Batch supplied with quality declaration	
		Building Materials Decree old	**Soil Quality Decree new**
Construction of the structure	**Building Materials Decree old**	no conversion	quality requirements: Soil Quality Decree usage conditions: Building Materials Decree (using conversion table)
	Soil Quality Decree new	quality requirements: Building Materials Decree usage conditions: Soil Quality Decree (using conversion table)	no conversion

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Table 2: use of new Soil Quality Decree designations under the old Building Materials Decree

Soil Quality Decree designation and review	Usage conditions as Building Materials Decree category
building materials	
moulded	category 1, moulded
un-moulded	category 1, unmoulded
IBC building material	category 2, unless: - Waste incinerator bottom ash: then the specific category of Waste incinerator bottom ash - E fly ash: specific provisions for E fly ash.
earth and dredgings	
background value	clean earth
residential	category 1 earth
industrial	category 1 earth

Table 3: use of old Building Materials Decree under the new Soil Quality Decree

Building Materials Decree designation and review	Usable under the Soil Quality Decree as...
building materials	
category 1, moulded	moulded
category 1, unmoulded	unmoulded
category 2 spec. cat. Waste incinerator bottom ash E fly ash	IBC building material
earth and dredgings	
clean earth	background value
category 1 earth	large-scale applications
category 2 earth	unusable