

## **CHAPTER 3**

### **SPECIFIC METHODS FOR SAMPLING ROAD CONSTRUCTION MATERIALS**

# NATURAL MATERIALS

## SAMPLING METHOD MA 1

### SAMPLING OF A NATURAL ROCK MASS

#### 1. SCOPE

This method describes the taking of samples from a test pit in a natural rock mass when the rock is to be crushed for use in concrete, surfacings, bases, subbases, etc.

#### 2. APPARATUS

##### 2.1 For taking samples from test pits blasted with explosives

- 2.1.1. A prospecting pick.
- 2.1.2. A suitable tape measure.
- 2.1.3. A spade.
- 2.1.4. A pick.
- 2.1.5. A sledge-hammer with a mass of approximately 5 kg.
- 2.1.6. A suitable crowbar.
- 2.1.7. Suitable canvas sheets approximately 2 x 2 m.
- 2.1.8. Suitable containers for rock samples such as strong canvas bags.

##### 2.2 For taking cores obtained with the aid of a core drill

- 2.2.1 A suitable tape measure.
- 2.2.2 Suitable containers for the packing of cores such as a wooden box with partitions in which the cores can be firmly packed so that they cannot slide together or become mixed up during transport and handling of the box.

#### 3. SAMPLE SIZE

##### 3.1 Samples from test pits blasted with explosives

At least 70kg of each rock type that is separately identified and sampled, should be obtained.

##### 3.2 Cores obtained with the aid of a core drill

Where possible at least 70 kg of each rock type that is separately identified and sampled, should be obtained. If the quantity of material that can be obtained from one borehole is insufficient, more pits must be drilled adjacent to the first hole. Alternatively, the cores can

be used simply as indicators and larger test pits can be blasted with explosives and sampled at a later stage.

#### 4. METHOD

##### 4.1 Test pits blasted with explosives which have then been opened manually

Inspect the sides of the test pit to their full depth and record any observable changes in the rock as well as the depths between which such changes occur. Characteristics which should be taken into account are rock type, colour, hardness, texture, etc.

Use a crowbar or pick to loosen pieces of each type of rock from each wall of the test pit and place each type in a separate container. If the pieces are too large for the containers, they may be broken up with the aid of the sledgehammer. If there is not a large variety of rock types, some of the loose material taken from the test pit can be selected outside of the pit and each type can be placed in a separate container.

Any loose earth or gravel layers on top of the rock mass or which occur in seams between the layers of rock must be sampled separately in accordance with sampling method MA2 if it is to be used for some or other purpose.

The sample containers must all be clearly and indelibly marked so that the samples can be identified when they arrive in the laboratory. (See paragraph 4 of Chapter 7.)

##### 4.2 Cores taken with the aid of a core drill

Place the cores in a suitable box with partitions so that they are in order from the shallowest to the deepest part of the borehole and can be identified and measured as such when they arrive in the laboratory.

The partitions in the box must be narrow enough to ensure that the cores remain in position and do not become mixed up in the box.

#### 5. REPORTING

The samples must be sent to the laboratory under cover of a properly composed report or

a suitable borrow pit data form (see form TMH5-1). The report or form must contain the full particulars of every sample, for example test pit number, sample number, depths between which the samples were taken, description of the material type, what sort of containers were used to send the samples to the laboratory and how many containers there are of each sample.

A sketch of the rock mass and its environment and also of the position of each test pit must accompany the report or borrow pit data sheet. The landform of the rock mass must be

determined according to the definitions in TRH2 and must be indicated on the sketch with the necessary symbols.



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FORM TMH 5 - 1  
VORM

**DATA FORM FOR BORROW PITS : SAMPLES OF GRAVEL/SOIL/ROCK/SAND \***  
**DATAVORM VIR GROEWES : MONSTERS VAN GRUIS/GROND/KLIP/SAND \***

ROUTE/ROETE ..... SECTION/SKESIE ..... km  
 PIT No / GROEFNR ..... ROAD/PAAD .....

EXISTING / NEW PIT \*  
 BESTAANDE / NUWE GROEF \* .....

LOCATED ON FARM  
 PLAAS WAAROP GELEË ..... OWNER  
 EIENAAR .....

PARTICULARS ABOUT PRECISE LOCATION OF PIT / BESONDERHEDE OOR PRESIESE LIGGING VAN GROEF

NATURE OF TOPSOIL ..... AND DEPTH .....  
 AARD VAN BOGROND ..... EN DIEPTE .....

ESTIMATED QUANTITIES (m<sup>3</sup>)  
 BERAAMDE HOEVEELHEDE .....

a) TOPSOIL ..... b) OTHER MATERIAL .....  
 BOGROND ..... ANDER MATERIAAL .....

Particulars of proposed use .....  
 Besonderhede oor voorgestelde gebruik .....

REQUIRED BY  
 OPGESAGSEWER .....  
 Date on which laboratory report will be required ..... Sampled by  
 Datum waarop laboratoriumverslag ..... Monstername  
 nodig sal wees ..... gemaak deur .....

Designation  
 Aмплиет .....  
 Ampeliet .....

SAMPLE No. MONSTERNR.	LAB No. LAB-NR.	Sampled between depths Monster geneem tussen dieptes (mm)	DESCRIPTION BESKRYWING	BAGS DISPATCHED SAKKE VERSENG	
				LARGE GROOT (a)	SMALL KLEIN (b)

REMARKS : .....  
 LABORATORY .....  
 LABORATORIUM .....

REFERENCE No.  
 VERWYSINGSNR .....  
 DATE : .....  
 DATUM .....

\* DELETE WHAT IS NOT APPLICABLE  
 \*SKRAP WAT NIE VAN TOEPASSING IS NIE