

SAMPLING METHOD MA2

SAMPLING FROM A SAMPLING PIT IN NATURAL GRAVEL, SOIL AND SAND

1. SCOPE

This method describes the taking of samples from a test pit with vertical sides, at least one metre square and which has been excavated in a natural deposit of gravel, soil or sand by means of a pick and shovel or any mechanical excavator or large auger. The samples may be needed for the centre line survey of the natural information or for any of the following proposed uses:

Gravel for subgrade, selected layer, subbase, basecourse, asphalt and coarse aggregate for concrete.

Soil for subgrade, selected layer, subbase and binder.

Sand for subgrade, selected layer, as a stabilizing agent for clayey materials and as fine aggregate for concrete and bituminous mixes.

2. APPARATUS

- 2.1 A prospecting pick.
- 2.2 A suitable tape measure.
- 2.3 A spade.
- 2.4 A pick.
- 2.5 Suitable sample containers such as strong canvas or plastic bags.
- 2.6 Suitable canvas sheets approximately 2 x 2m
- 2.7 A riffler with openings approximately 25mm wide, with six matching pans.
- 2.8 A 19 mm sieve with a recommended diameter of 450 mm.
- 2.9 A basin approximately 500 mm in diameter.

3. SAMPLE SIZE

The size of each sample will depend on what tests are to be done on it. A 70 kg sample will usually be sufficient but if the material is to be tested for more than one possible use, the size of each sample will have to be increased. (See paragraphs 2.1 and 2.2 of Chapter 6.) A sample may, and usually will, consist of more than one bag of material.

4. METHOD

Inspect the sides of the test pit to their full upper edge of the test pit. Now sample every distinguishable gravel, soil or sand layer by holding a spade or canvas sheet at the lower level of the layer against the side of the pit and by cutting a sheer groove to the full depth of the layer with a pick or spade. Place the material obtained in this way in ample bags. The canvas sheet may also be spread out on the floor of the test pit. At least twice the amount of material needed for the final sample must be loosened from the layers. Once all the layers have been sampled the material from each layer must be combined on either a clean, hard, even surface or on a canvas sheet and properly mixed with a spade.

Now quarter out a representative sample of the layer as explained in methods MD1 and MD2. (See note 6.1 below and paragraph 3.2 of Test Methods A1 in TMH1.)

It is customary to fill one small sample bag which can hold about 10kg, and two or three larger bags each holding about 30 to 40 kg. When numerous test pits are made in a deposit and the materials differ very little, it is only necessary to fill large bags of each material type at every second or third test pit. Here the sampler must be guided by his discretion and experience. The sample bags (or other containers) must all be clearly and indelibly marked so that the samples can be identified in the laboratory. The identifying reference must agree with that given in the covering report or form. (See paragraph 4 of Chapter 7.)

5. REPORTING

The samples must be sent to the laboratory under cover of a properly composed report and data sheet(s) (see soil survey form TMH5-2 and borrow pit data form TMH5-1). Full particulars about every sample must be given, for example stake value, sample number of mark, depths between which the samples were taken, description of the material, type of containers used to send the samples to the laboratory, and how many containers there are of each sample.

In the case of a proposed borrow pit, a direction-orientated sketch of the environment in which the deposit occurs must accompany the report and borrow pit data sheets.

All noteworthy landmarks must be indicated on the sketch. Every test pit must be clearly shown and the distance of the proposed source from the centre line of the road must be given in kilometers, to the nearest 0,1km. The landform in which the proposed source occurs must be determined according to the definitions in TRH2 and must be indicated on the sketch with the necessary symbols.

6 NOTES

6.1 Since one is often working with rather large quantities of material in this type of sampling, the capacity of the riffing pans may often be

too small to contain even half of the material obtained after the first quartering. If insufficient pans are available, another heap must be made on a clean, hard, even surface or canvas sheet. This heap must then be mixed and divided with a spade as before. (See paragraph 1 of Chapter 7 and Methods MD1 and MD2.)

6.2

Safety precautions

In accordance with Regulation D16 of the Factories, Machinery and Building Work Act, no excavation deeper than 1.5m may be made unless:

- (a) it is properly popped and braced;
- (b) the gradient of the sides is at least equal to the angle of repose;
- (c) it is in firm rock.

