

ANNEXURE-I
EXTRACTS FROM IS: 1200-1992 (PART-I)
EARTHWORK

1. SCOPE

This section covers the method of measurement of earthwork in building and civil engineering works.

2. MEASUREMENTS

Unless otherwise stated, hereinafter all work shall be measured net in decimal system as fixed in position as given below

- (a) Each dimension shall be measured to the nearest 0.01 m, where any dimension is more than 25 m it should be measured to the nearest 0.1 m.
- (b) Area shall be worked out to the nearest 0.01 sqm.
- (c) Cubical contents shall be worked to the nearest 0.01 cum.

3. WORKS NOT TO BE MEASURED

The following works shall not be measured separately and allowance for the same shall be deemed to have been made in the description of main item

- (a) Setting out works, profiles, etc.
- (b) Site clearance, such as clearing grass and vegetation.
- (c) Unauthorised bettering or benching of excavation.
- (d) Forming (or leaving) 'dead men' or 'tell-tales' in borrow pits and their removal after measurements.
- (e) Forming (or leaving) steps in sides of deep excavation and their removal after measurements.
- (f) Excavation for insertion of planking and strutting.
- (g) Unless otherwise specified removing slips or falls in excavation.
- (h) Bailing out or pumping of water in excavation from rains.
- (i) Bailing out or pumping of water in excavation from sub-soil water.
- (j) Slinging or supporting pipes, electric cables etc. met during excavation.

4. CLASSIFICATION

The materials to be excavated shall be classified as follows unless otherwise specified

- (a) Soft/ loose soil - Generally any soil which yields to the ordinary application of pick and shovel or to phawra, rake or other ordinary digging implement; such as vegetable or organic soil, turf, sand, silt, loam clay, peat etc.

- (b) Hard/Dense soil- Generally any soil which requires to the close application of picks or jumpers or scarifiers to loosen; such as stiff clay gravel and cobblestone.
- (c) Mud - A mixture of soil and water in fluid or weak solid state.
- (d) Soft/Disintegrated Rock (not requiring blasting) - Rock or boulders which may be quarried or split with Crowbars. This will also include laterite and hard conglomerate.
- (e) Hard rock (Requiring blasting) - Any rock or boulders for excavation of which blasting is required.
- (f) Hard rock (blasting prohibited) - Hard rock requiring blasting as described under € but where blasting is prohibited for any reason and excavation has to be carried out by chiselling, wedging or any other agreed method.

Note: A broad classification of soil and rock for earth work suitable for condition generally occurring in practice has been provided where necessary, further sub-classification may be done to suit individual cases depending on the properties of the sub-strata.

5. METHOD OF MEASUREMENT OF VARIOUS TYPES OF EXCAVATION

The measurement of earthwork shall be in cubic meters, unless otherwise mentioned. The measurement to be taken shall be those of the authorised dimension from which soil has been taken out and shall be measured without allowance for increase in bulk.

- (a) Excavation in Earthwork including rock cutting: The measurement of excavation in earthwork including rock cutting shall be made as follows
 - i. Where the excavation is in trenches or from borrow pits in fairly uniform ground. The measurement of cutting in trenches or borrow pits shall be made. 'Dead men' or tell-tales may be left at suitable intervals to determine the average depth of excavation.
 - ii. Where the ground is not uniform levels shall be taken before the start, after site clearance & after the completion of the work and the quantity of excavation in cutting computed from these levels.
 - iii. All excavation shall be measured in successive stages of 1.50 m stating the commencing level. This shall not apply to cases where no lift is involved as in hill side cutting.
- (b) Filling: The actual measurement of the fill shall be calculated by taking levels of the original ground before start of the work after site clearance after compaction of the fill at suitable intervals and the quantity of fill computed from these levels.

6. TERMS

- (a) Surface dressing:- Trimming of natural ground, excavated surface and filled up area to remove vegetation and/ or small inequalities not exceeding 15 cm deep shall be described as surface dressing and measured in square meters.
- (b) Rough Excavation:- Excavation not requiring dressing of sides and bottom reduction to exact levels such as winning earth from borrow pits, hill side cutting etc. shall be described as rough excavation and measured in cubic metres.
- (c) Surface Excavation:- Excavation exceeding 1.50 m in width as well as 10 m² in plan but not exceeding 30 cm in depth shall be described as 'Surface Excavation' and measured in square metres.
- (d) Excavation over area:- Excavation exceeding 1.50 m width as well as 10 m² in plan, but 30 cm in depth shall be described as excavation over areas and measured in cubic metres.
- (e) Excavation in trenches for foundation and for Pipes Cables etc. :- Excavation trenches for foundation and for pipes, cables etc. not exceeding 1.50 m in width and for shafts, wells, cesspits and the like not exceeding 10 m² on plan - and shall be so described and measured in cubic metres.
- (f) Embankments:- Forming embankments and filling to make up levels shall be measured in cubic metres and shall include the formation of slopes. If the material is to be deposited in layers these shall be described stating the thickness of such layer's the method of consolidation shall be described the measurement shall be taken in successive stages of 1.50 m starting commencing level.