

2306/304

**MEASUREMENT OF BUILDING AND
CIVIL ENGINEERING WORKS**

June/July 2019

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN QUANTITY SURVEYING

MEASUREMENT OF BUILDING AND CIVIL ENGINEERING WORKS

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Dimension papers;

A copy of Standard Method of Measurement of Building and Associated Civil Works for Eastern Africa (SMM);

A copy of Civil Engineering Standard Method of Measurement (CESMM);

Scientific calculator.

This paper consists of FIVE questions in TWO sections; A and B.

Answer question ONE (compulsory) in section A and any other ONE question and ONE question from section B.

Question ONE carries 40 marks while the rest carry 30 marks each.

Maximum marks for each part of a question are as shown.

Candidates should answer the questions in English.

This paper consists of 6 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A

Answer question 1 (compulsory) and any other ONE question from this section.

Use the Standard Method of Measurement of Building and Associated Civil Works (SMM)

1. Drawing No. 01 shows an underground water tank. Take off all quantities using SMM.

(40 marks)

work arranged in standard method

Items follow each other according to the order given in SMM

it follows that it is difficult to use them for supervision purposes

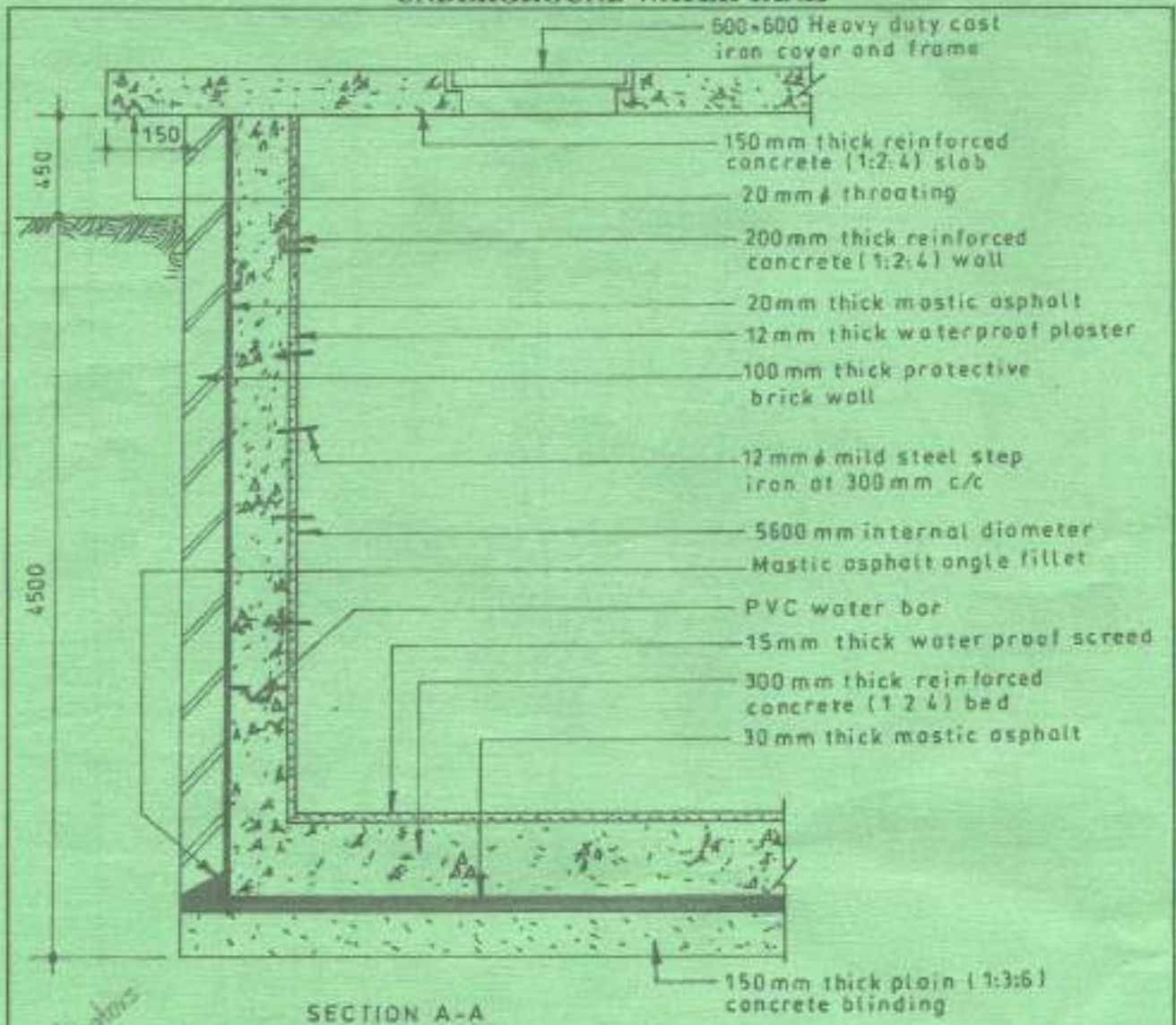
operational bill - it goes with the order of operation. Items are arranged

according to the order of actual construction process

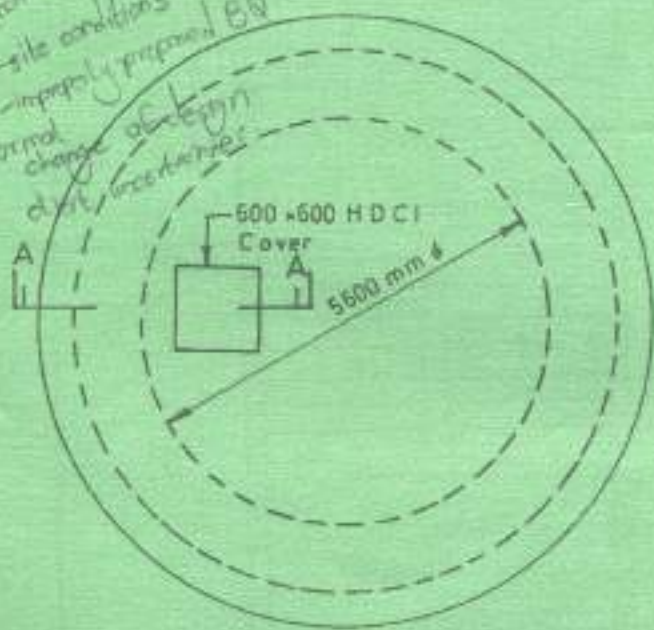
different material & labour indicated separately & described according to work



UNDERGROUND WATER TANK



indications
site conditions
improperly prepared BQ
normal change of top
of soil



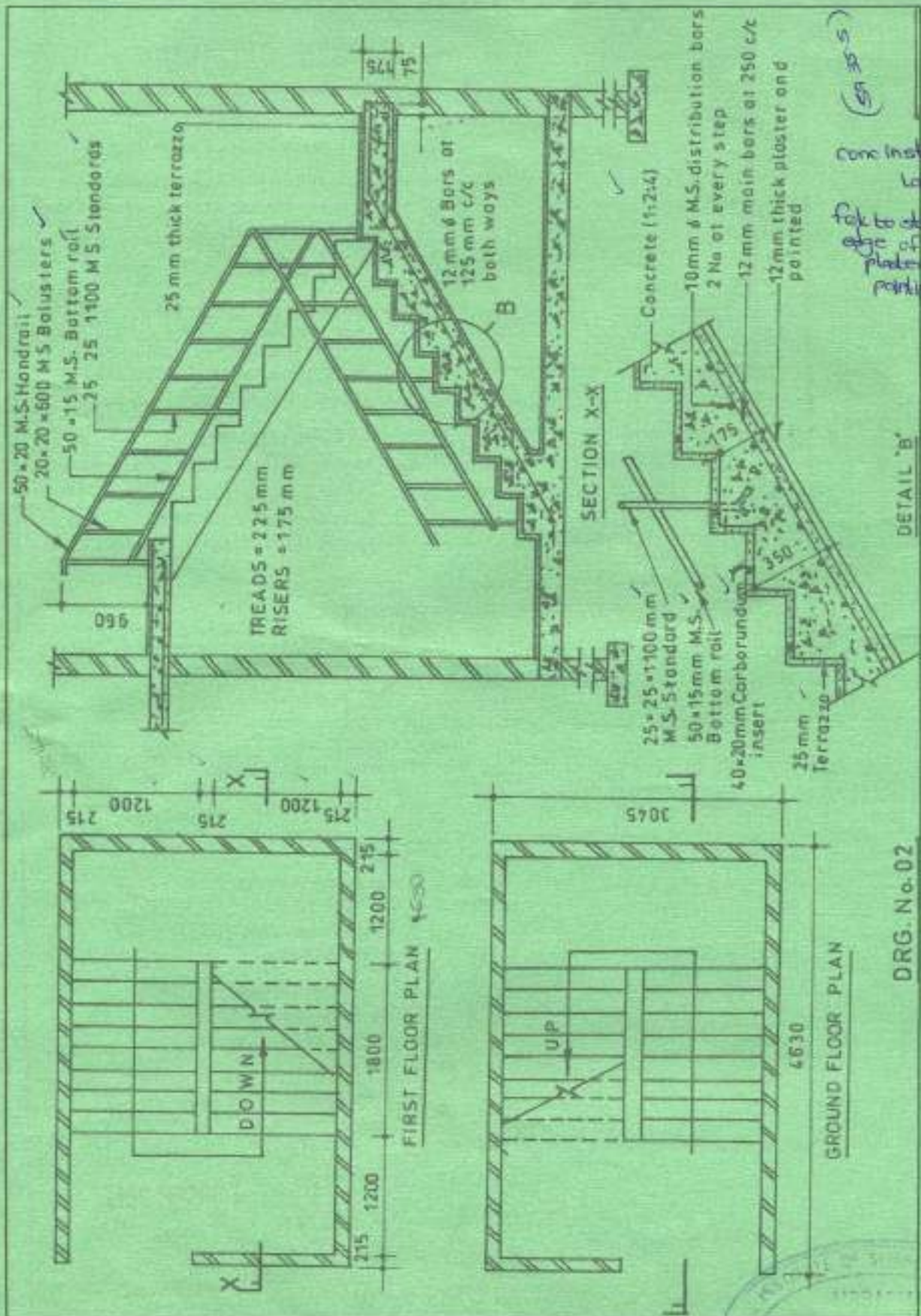
NOTE

1. Rock commences 3.2 m below ground level
2. Protective wall constructed after structural wall is cast
3. Ignore reinforcement
4. Top soil 150 mm average
5. A tree stump on site
6. The site is bushy
7. All dimensions in mm



DRG. No.01

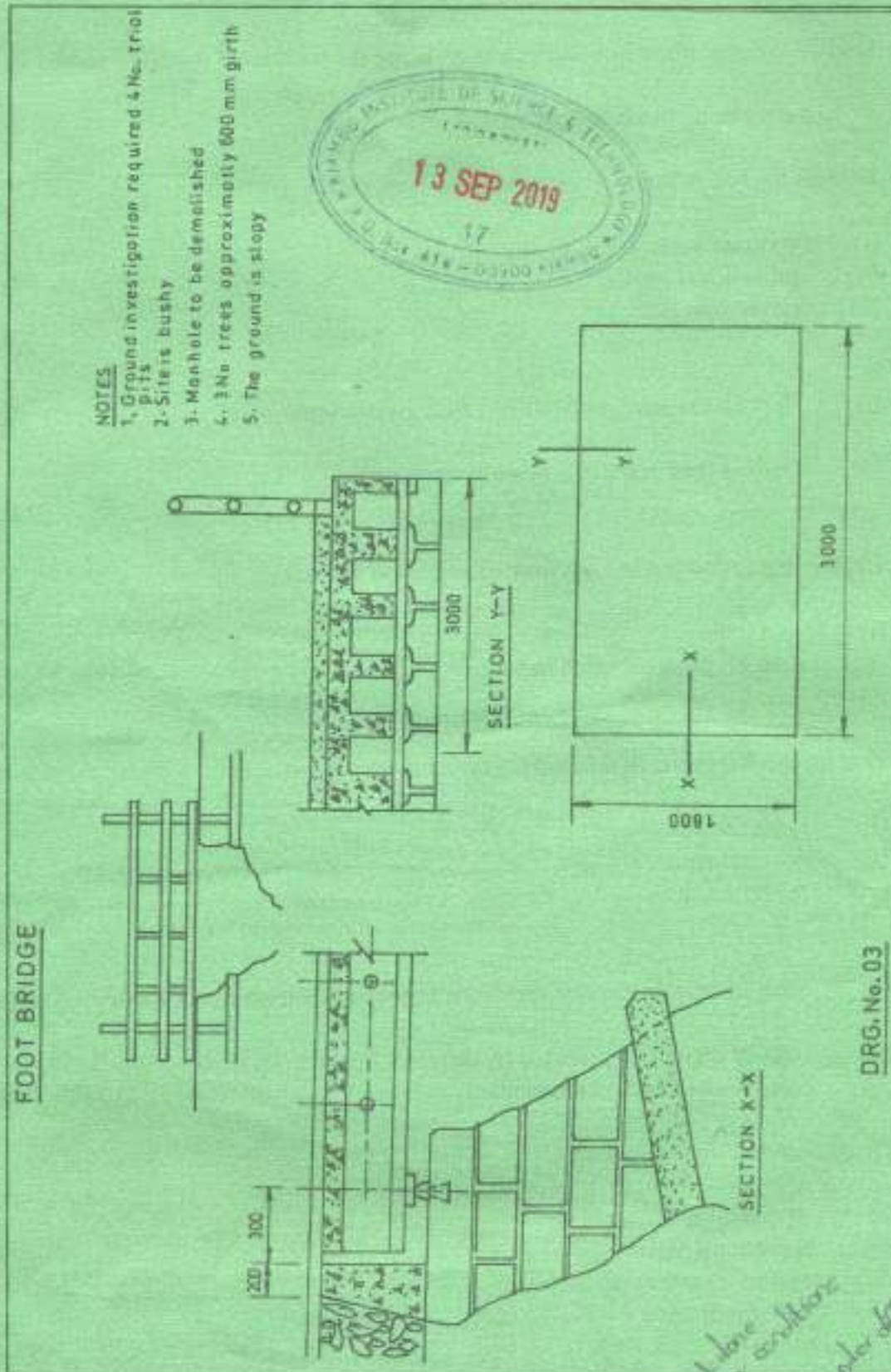
2. Drawing No. 02 shows the plan, section and details of a staircase. Take off all quantities for the staircase, using SMM. (30 marks)



DRG. No. 02



3. Drawing No. 03, shows the plan, elevation and section of a bridge. Using the Civil engineering Standard Method of Measurement (CESMM), take off all the works. (30 marks)



contract sum
provisional sum
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prime cost sum

traditional method

5

4 methods of valuing estimation -
rules of a RS ✓

RR - for similar work done under similar conditions
from similar works done under different conditions
day works - use of labor cost
material, labor

Turn over

SECTION B

Answer any ONE question from this section.

- 4 (a) Outline the procedure of bill preparation using the traditional method. (6 marks)
- (b) Describe **three** methods of approximate estimation. (6 marks)
- (c) Explain the following as used in building contracts:
- (i) contract sum;
 - (ii) provisional sum;
 - (iii) prime cost sum. (6 marks)

- (d) (i) Explain the **four** methods of valuing variations. (12 marks)
- (ii) Outline **four** roles of a quantity surveyor. (12 marks)
- He prepares Advice on feasibility*

5. (a) Explain the following and list **four** examples in each case:
- (i) spot items; *These are formally offered to as works on site they are items jobs usually involving alterations to existing buildings or sites. They are kept in a separate section of a bill and could normally be measured on site or from takes*
 - (ii) deemed to be included items. *These are items whose value is assumed to be covered for in the costing up of a main item of this nature eg building up of opening or cutting up openings*
- (b) Explain the following in relation to contract:
- (i) tender sum; *It is the sum of all money + Removal of excavation soil*
 - (ii) contract sum; *the work which is prepared from benches to carry out any work this includes estimate of overhead profit*
 - (iii) tender. *find price or offer which is submitted to a client by a contractor.*
- (8 marks)

- (c) (i) State **four** indicators of variations in the implementation of a building project.
- (ii) Bills of quantities prepared by different quantity surveyors have discrepancies. State **four** of such discrepancies. (8 marks)
- (d) Discuss each of the following:
- (i) elemental bill; *most common items are arranged in order for each item, work are arranged to their position in building*
 - (ii) operational bill; *it goes with*
 - (iii) cost reimbursement contract; *A contract which consists of materials which have been incorporated.*
 - (iv) bill of reduction. *This is the original bill after reconciliation has been done.*
- (8 marks)

THIS IS THE LAST PRINTED PAGE.

