

2306/304  
MEASUREMENT OF BUILDING AND  
CIVIL ENGINEERING WORKS  
Oct./Nov. 2018  
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;*

*Pocket calculator;*

*Dimension paper;*

*A copy of the standard measurement of Building and Associated Civil Works for Eastern Africa (SMM);*

*A copy of the Civil Engineering Standard Method of Measurement (CESMM).*

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

*Answer THREE questions in total as follows:*

*Question 1 (Compulsory) and any other ONE question from section A.*

*ONE question from section B.*

*All questions carry equal marks.*

*Maximum marks for each part of a question are indicated.*

*Candidates should answer the questions in English.*

This paper consists of 7 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 for Eastern Africa, (SMM).

1. Take off all quantities for the sub-structure works shown in drawing No. 01. (40 marks)
2. Take off all quantities for plumbing works shown on drawing No. 02. (30 marks)
3. Drawing No. 03 shows a roof plan and a typical section through the roof. Take off all the items of the roof including rain water goods. (30 marks)

## SECTION B

Answer ONE question from this section.

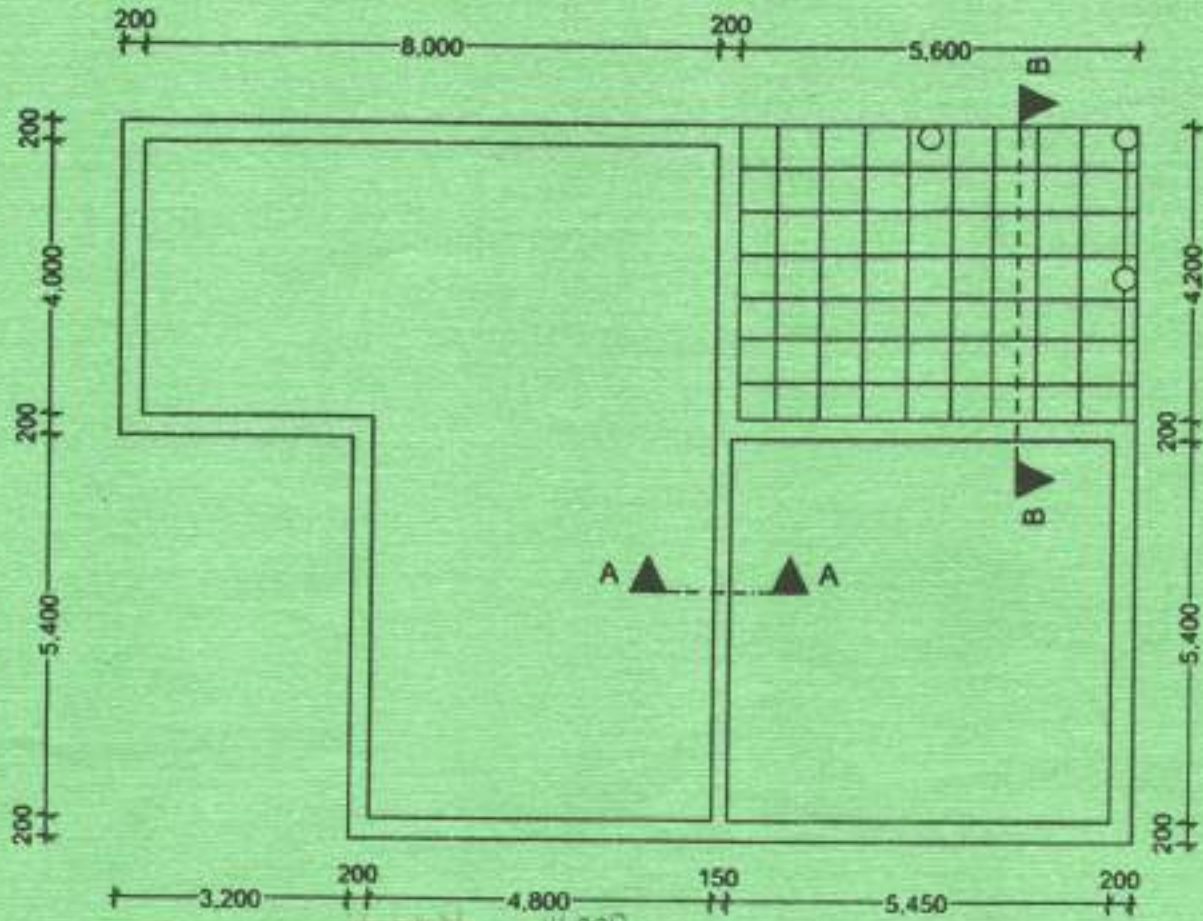
4. Take off all quantities for external works shown on drawing No. 04. (Use the Civil Engineering Standard Method of Measurement (CESMM)). (30 marks)
5. (a) Outline **four** roles of a quantity surveyor in the construction industry. (8 marks)
- (b) Briefly explain the following terms as used in bills of quantities:
  - (i) preamble;
  - (ii) prime cost items;
  - (iii) provisional sums;
  - (iv) protection clauses.
- (c) Explain the following:
  - (i) penultimate payment certificate;
  - (ii) the significance of final payment certificate; - helps officially terminate the contract  
- helps in payment for the work done to satisfactory
  - (iii) retention money. (6 marks)
- (d) (i) Outline **four** methods of valuing variations. - Daywork rate - Bill of quantity rate - On work rates
- (ii) Prepare the final account of a contract using the data in table 1. (8 marks)



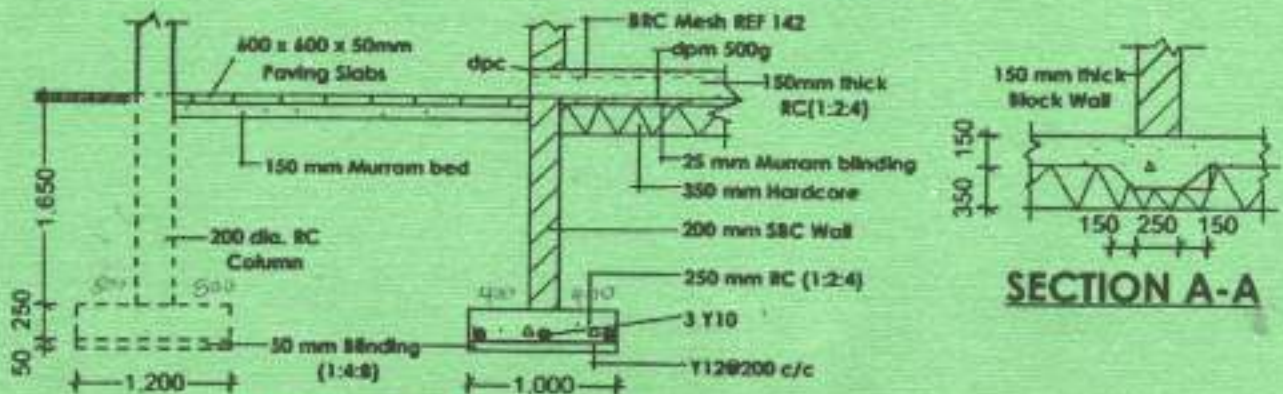
**Table 1**

Item	Amount (Ksh)
Contract sum	43,000,000.00
Variations	6,450,000.00
Prime cost sums	800,000.00
Provisional sums	1,200,000.00
Re-measured and other items	650,000.00
Contingency	1,000,000.00





**GROUND FLOOR PLAN**



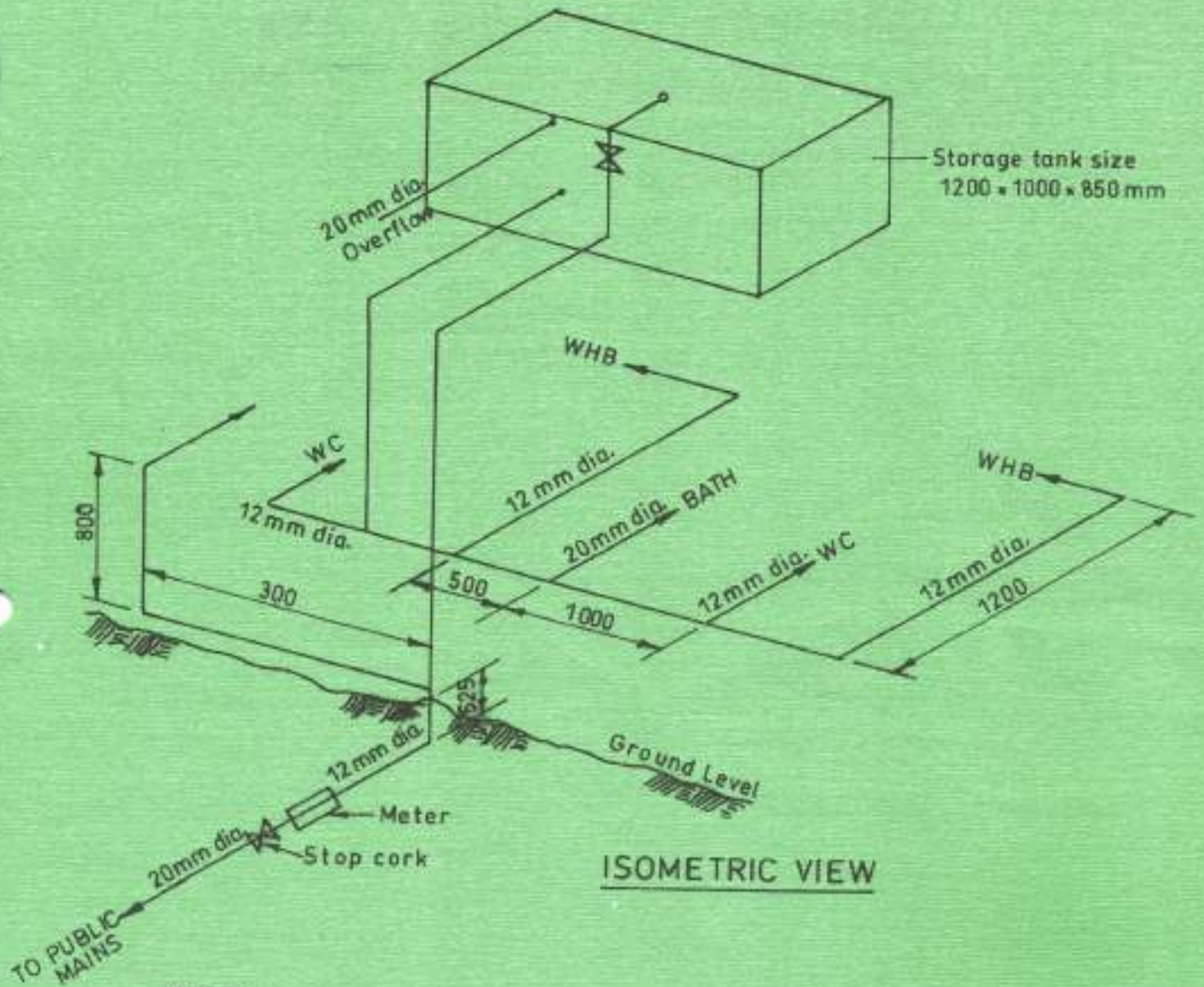
**SECTION B-B**

**SECTION A-A**

**NOTES**

- Site is bushy and vegetable soil 200mm deep to be preserved on site
- Bases for RC Columns Size 1200x1200mm with 6Y12 both ways
- RC column diameter 200mm with 6Y12 main bars with 6mm dia. ms stirrups @ 300 c/c.
- Rock exists 1000mm below ground level
- Site has 10 No. Podo trees of the following girths:  
450mm-3no., 675mm-2no., 1190mm-1no., 1050mm-2no. and 915mm-2no.

DRG. No. 1



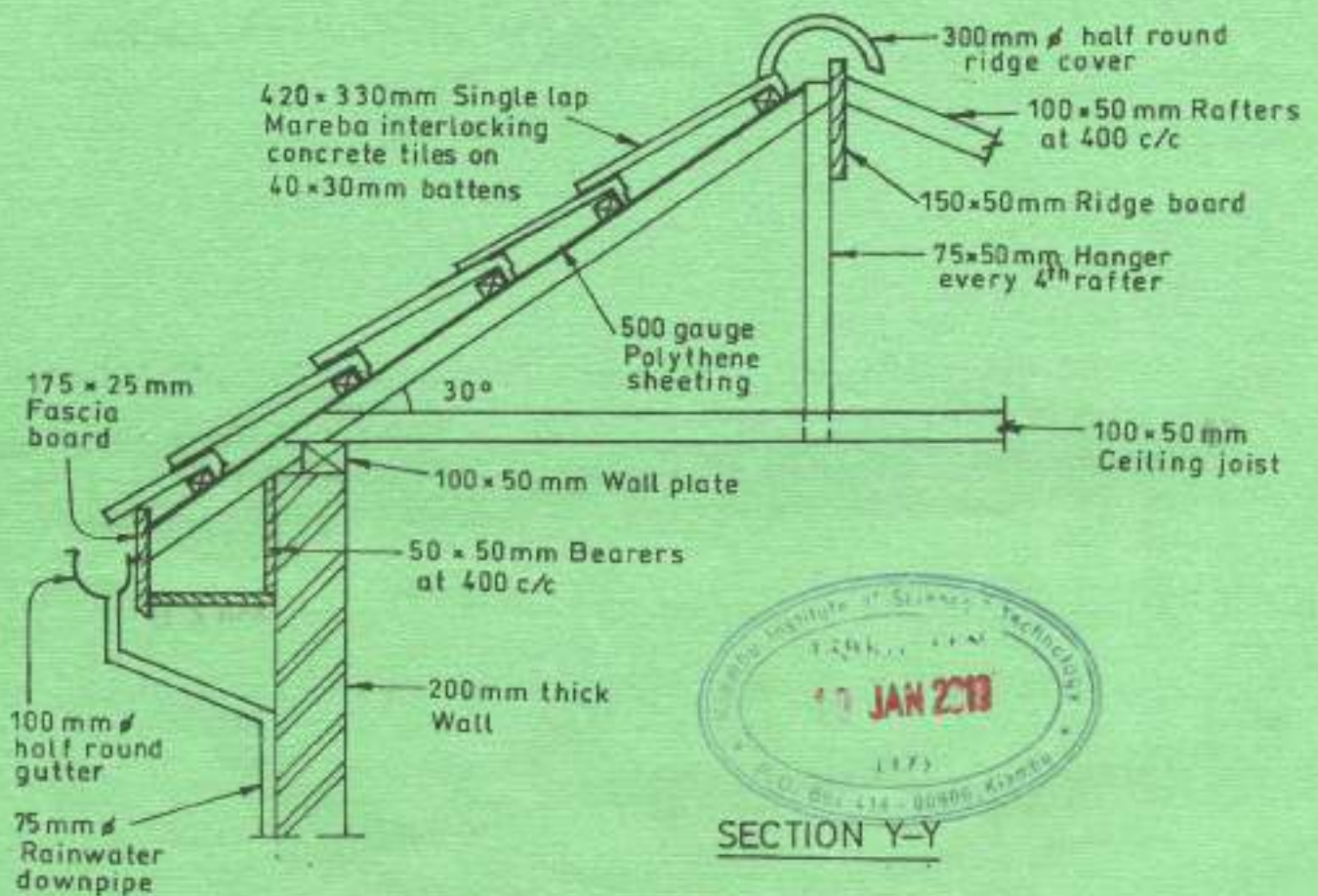
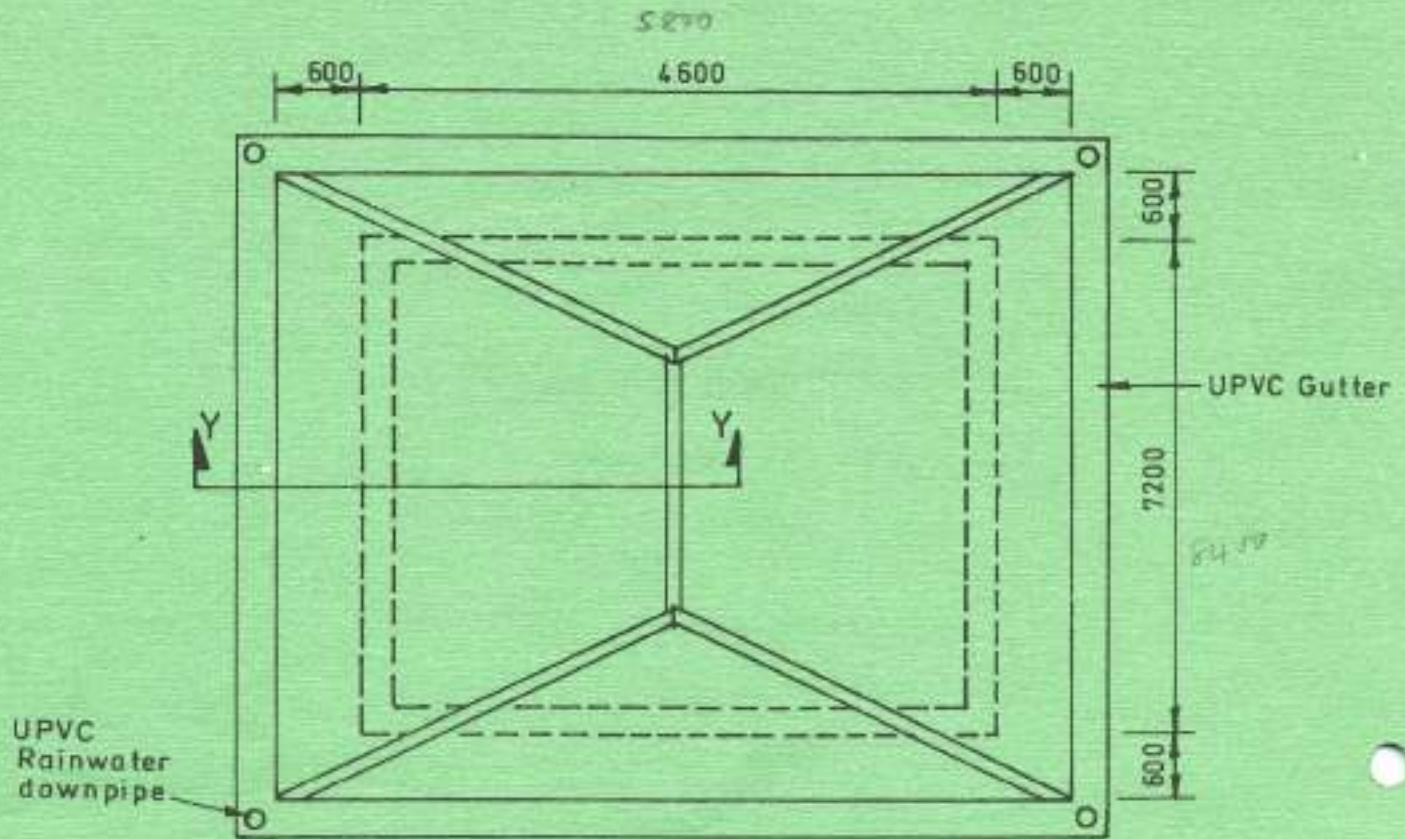
ISOMETRIC VIEW

NOTES:

- All pipes are gms class 'B'.
- Storage tank on 25mm thick boarding on 100 x 50 Cypress.
- Ground to ceiling height 2900mm.
- Average depth of pipe trench 525mm.
- Mirror size 450 x 600mm 2No.
- Soap dish ceramic.
- Pipes along SCB walls are chased in.

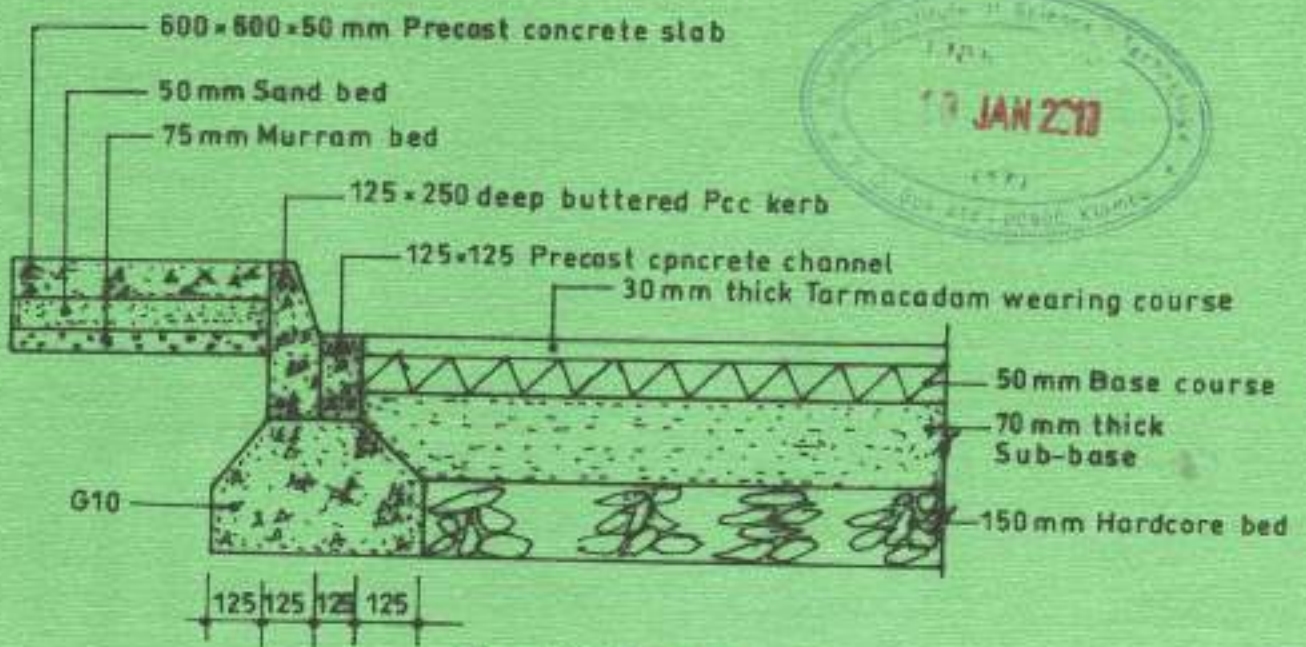
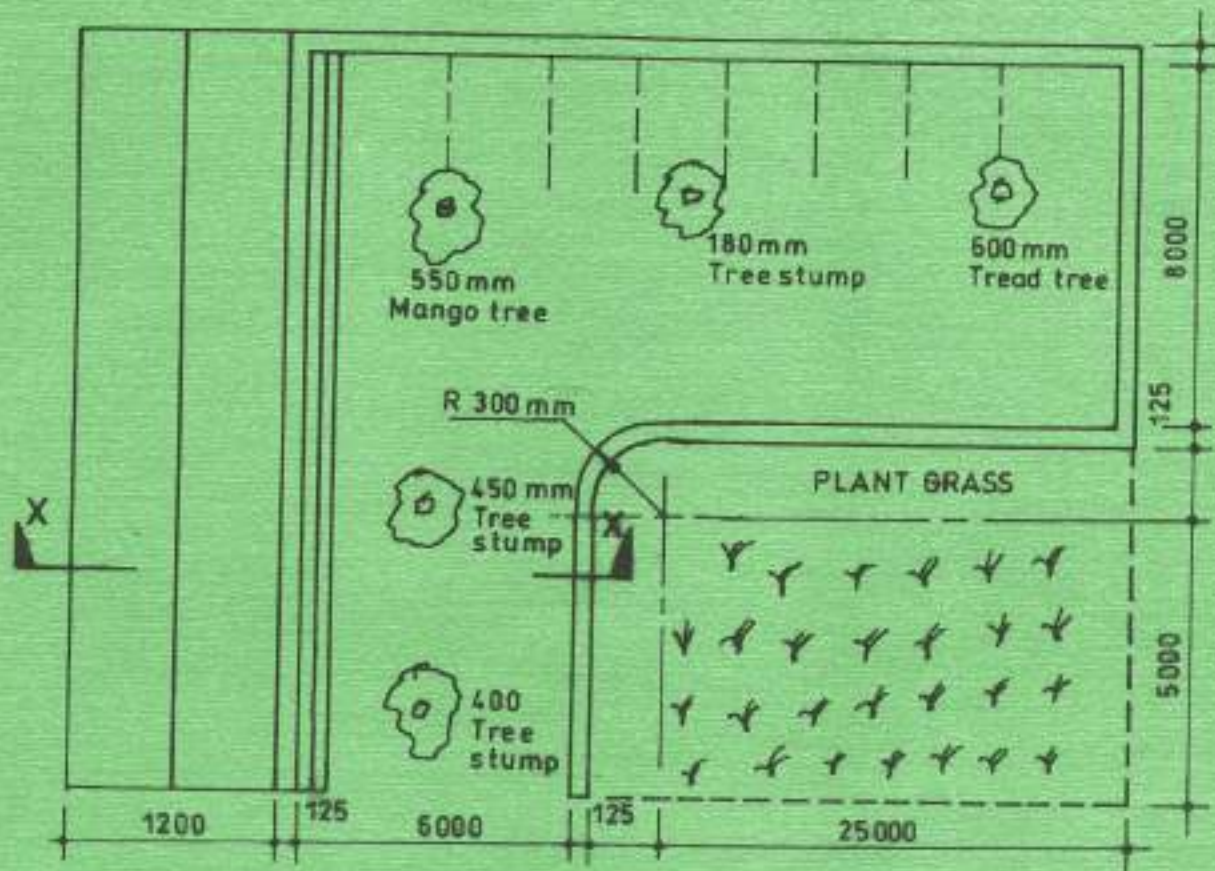
DRG. No. 2





SECTION Y-Y

DRG. No. 3



**NOTE:**

•The site is bushy

**DRG. No. 4 - EXTERNAL WORKS**

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