UNIVERSITY OF JOHANNESBURG

PROGRAM	:	NATIONAL DIPLOMA *ENGINEERING : CIVIL*
SUBJECT	:	**DOCUMENTATION 3**
CODE	:	**DIS3111**
DATE	:	9 JANUARY 2020
DURATION	:	3 hours
WEIGHT	:	40 : 60
TOTAL MARKS	:	100

ASSESSOR	:	Ms N. REYNECKE
MODERATOR	:	Mrs S MANYUMWA
NUMBER OF PAGES	:	4 PAGES, 8 MEASURING SHEETS, 1 ANNEXURE, 13 ESTIMATION PAGES

INSTRUCTIONS	:	ONLY ONE POCKET CALCULATOR PER CANDIDATE MAY BE USED. STUDENT MAY TAKE IN GCC2 015 ONLY. TO BE CHECKED BY LECTURER DURING EXAM.
REQUIREMENTS	:	NONE.

QUESTION 1 **[35]**

1.1 The attached drawing (Annexure A) shows a plan and section of a stilling chamber for water purification works. Use the dimension paper provided to take off quantities for the following excavation, formwork and concrete. (30)

1.2 Once you have concluded your measure of quantities, draw up a suitable Schedule of Quantities as per the acceptable standard format, on the SOQ sheet provided. (5)

Note:

- The soil is cohesive
- Make no allowance for rock and working place
- Where information is not clear make reasonable assumptions.

WORK SHOULD BE DONE ACCORDING TO THE LATEST EDITION OF THE CIVIL ENGINEERING QUANTITIES 1990.

Question 2 **[35]**

Use table 1 and 2 to estimate the rate and the amount for the following items:
Overheads and profit should be taken as 20%.

Schedule of Quantities					
Item	Description	Qty	Unit	Rate	Amt
1.	**CONCRETE (18)**				
1.1	15 MPa, 19mm stone mass concrete in floor slab.	4	m^3		
2.	**EARTHWORKS (12)**				
2.1	Excavate in running soil for pipe trenches including backfilling and compaction				
2.1.1	300mm Ø pipe				
2.1.1.1	Depth 1 to 2m	15	m		

Table 1: **Schedule of Quantities**

Labour rate	:	R25 / hr
Operator	:	R35/ hr
Artisan	:	R35 / hr
Operator	:	R35/ hr

Earthworks	**Concrete** **(15)**
Pipe – 300mm diameter, 1.6 m long Cost of pipe - R150 each for 6m length Pipe trench – ave. depth 1.5m, width 0.9 Waste on pipe – 3 %	Weigh batching with 200 litre mixer Stone size – 19mm Hand compaction **Waste:** Sand - 10%

	stone – 10% Cement – 3% Material costs: Cement - R28 / bag Sand - R180 / m^3 Stone - R200 / m^3 Mixer hire rate - R160 / hr Fuel - R10 / litre

Table 2: **Data sheet**

NB: Where information is not clear, make reasonable assumptions.

QUESTION 3 **[30]**

3.1 Can a contractor claim for extra payment or an extension of time in each of the following situations, and if so, on what grounds? State whether there is a claim or not before explaining.

3.1.1 A high water table requires that the water has to be pumped from excavations (4)

3.1.2 After complaints from residents concerning dust caused by the contractor's trucks, the R.E instructs the contractor to water the roads on the site twice a day. (4)

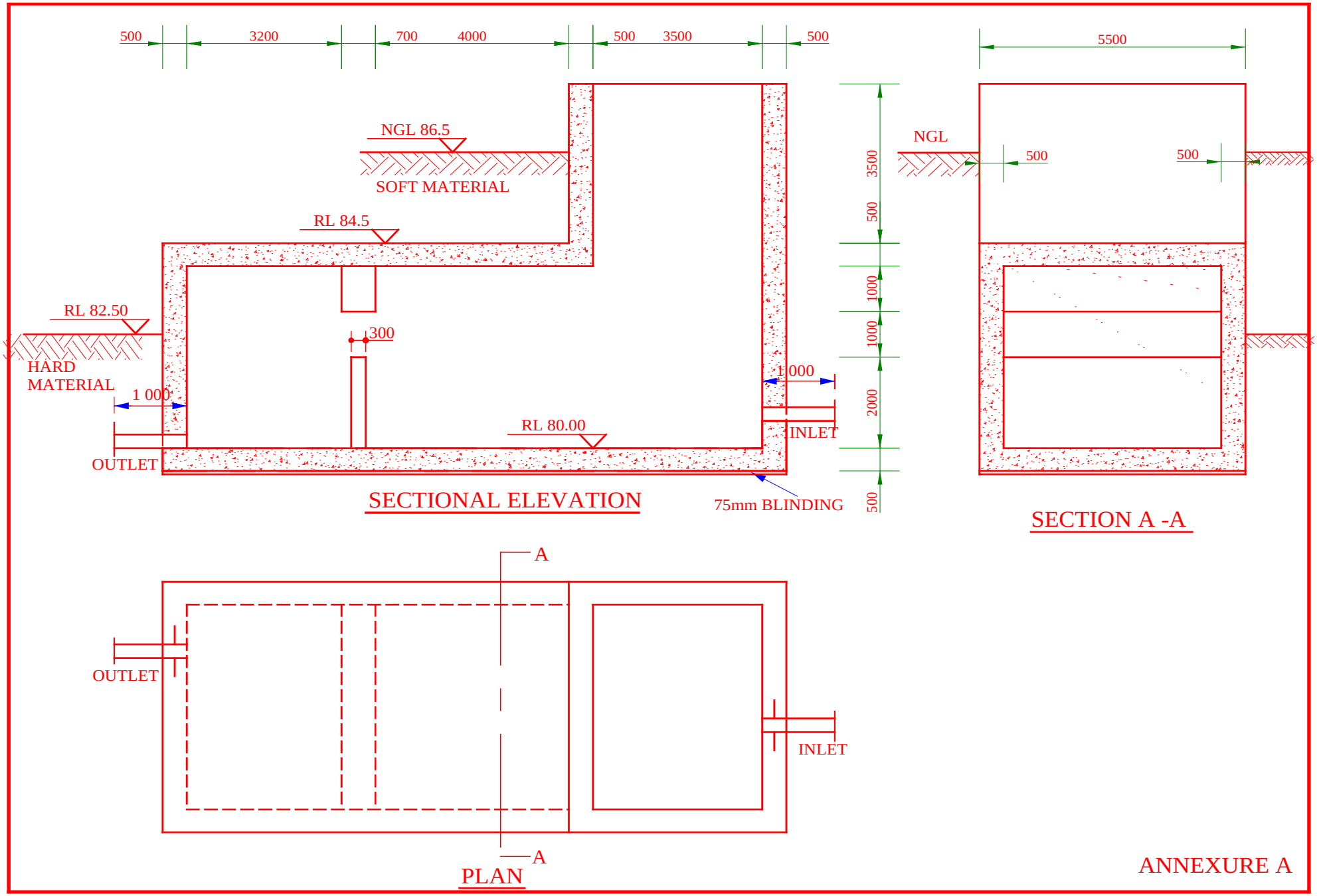
3.1.4 Besides the concrete tests specified, the Engineer instructs the contractor to send additional cubes to an independent laboratory. The test results are satisfactory. (4)

3.1.5 The client decides to terminate the contract because labour unrest and rioting in the area makes it dangerous to carry out the work. (5)

3.1.6 Heavy rain causes a trench to collapse. (4)

3.1.7 During the maintenance period for a building project, cracks appear in a wall and the engineer instructs the contractor to repair the wall. (4)

3.1.8 On site the electricity supply has been disconnected because it was not covered under the agreement with the supply authority
(5)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SOFT MATERIAL
RL 84.5
RL 82.50
HARD
MATERIAL
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RL 80.00
INLET
OUTLET
75mm BLINDING
SECTIONAL ELEVATION
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2000
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SECTION A -A
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