



basic education

Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA

NATIONAL  
SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P1

NOVEMBER 2013

MARKS: 100

TIME: 3 hours

This question paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

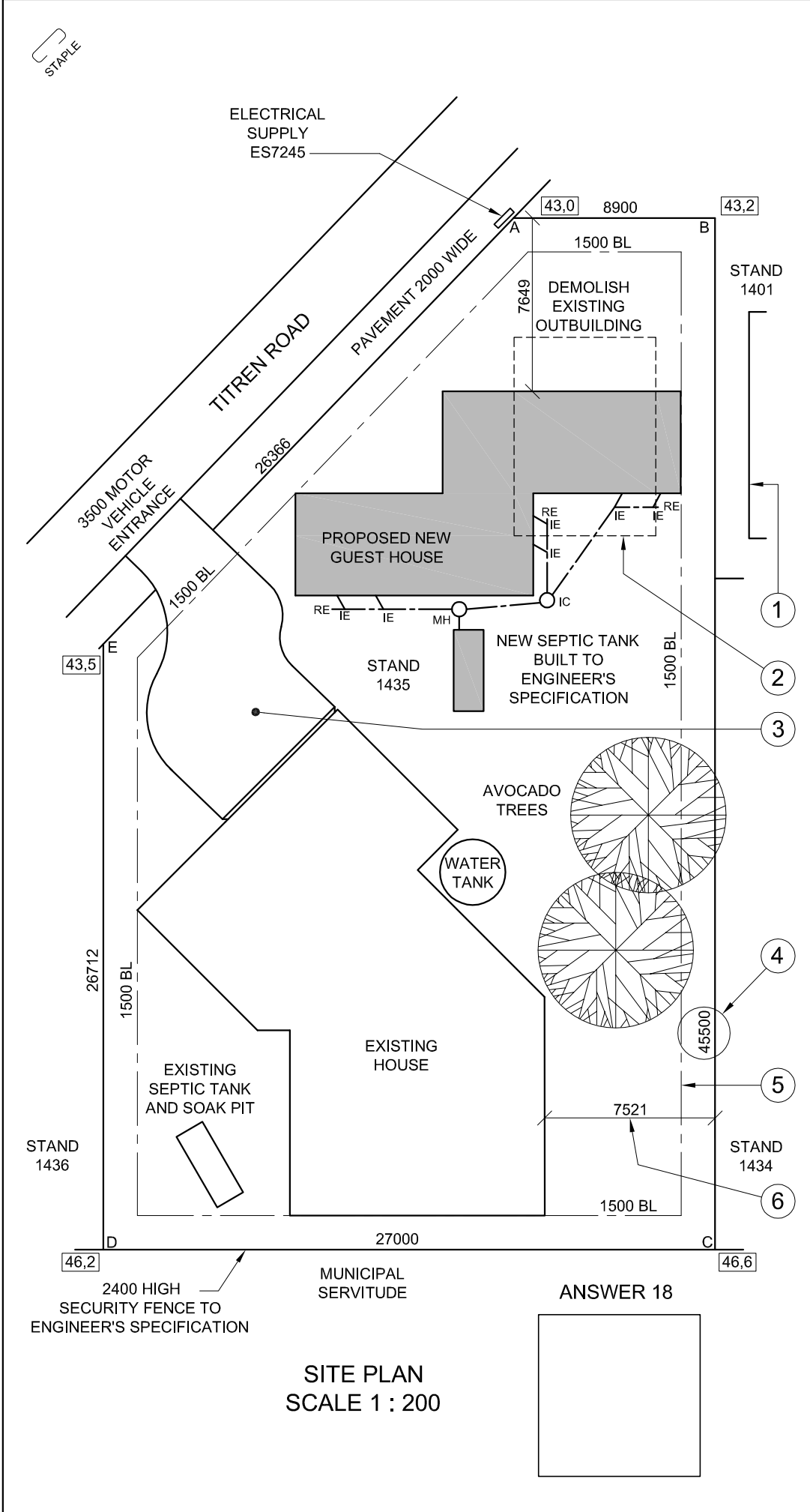
- 1. This question paper consists of FOUR questions.
- 2. Answer ALL the questions.
- 3. ALL drawings are in first-angle orthographic projection, unless otherwise stated.
- 4. ALL drawings must be completed using instruments, unless otherwise stated.
- 5. ALL answers must be drawn accurately and neatly.
- 6. ALL the questions must be answered on the QUESTION PAPER as instructed.
- 7. ALL the pages must be re-stapled in numerical sequence, irrespective of whether the question was attempted.
- 8. Time management is essential in order to complete all the questions.
- 9. Print your examination number in the block provided on every page.
- 10. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY									
QUESTION	MARKS OBTAINED			½	SIGN	MODERATED			½
1									
2									
3									
4									
TOTAL									
	2	0	0			2	0	0	

FINAL CONVERTED MARK	CHECKED BY
100	

COMPLETE THE FOLLOWING:
CENTRE NUMBER
CENTRE NUMBER
EXAMINATION NUMBER
EXAMINATION NUMBER





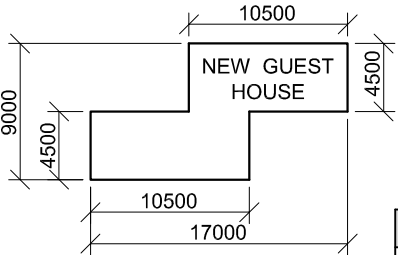
QUESTION 1: ANALYTICAL (CIVIL)

**Given:**  
The site plan for a proposed new guest house, a title panel and a table of questions. The drawing has not been prepared to the indicated scale.

**Instructions:**  
Complete the table below by neatly answering the questions, which all refer to the accompanying drawing and title panel. **[30]**

QUESTIONS		ANSWERS	
1	How many revisions have been made to the drawing?	1	
2	How many signatures are required on the site plan?	1	
3	What is the project number?	1	
4	How wide is the motor vehicle entrance in metres?	1	
5	What does the abbreviation <i>MH</i> stand for?	1	
6	How high is the security fence in metres?	1	
7	What does the feature at 1 indicate?	1	
8	What does the line at 2 indicate?	1	
9	Name the feature at 3.	1	
10	What does the number at 4 indicate?	1	
11	What does the line at 5 indicate?	1	
12	If scale 1 : 50 was used for the site plan, what would the dimension at 6 read?	1	
13	What is the reference number of the electrical supply?	1	
14	What type of tree is found on the stand?	1	
15	In what SI unit are the dimensions?	1	
16	Is corner C of stand 1435 higher or lower than Titren Road?	2	
17	What is the shortest distance in metres from the proposed new guest house to Titren Road?	2	
18	If the side of the existing house that faces Titren Road is the south-west elevation, draw, in the space provided below the site plan and in neat freehand, a correctly orientated <i>SANS 10143</i> north-point symbol.	4	
19	In the space provided in the title panel, draw, in neat freehand, the front view and top view of the <i>SANS 10143</i> graphical symbol (convention) for a single kitchen sink.	4	
20	In the space below, determine the perimeter of the new guest house in metres.	3	
TOTAL		30	

**ANSWER 20**  
Show ALL calculations.



EXAMINATION NUMBER	
EXAMINATION NUMBER	2

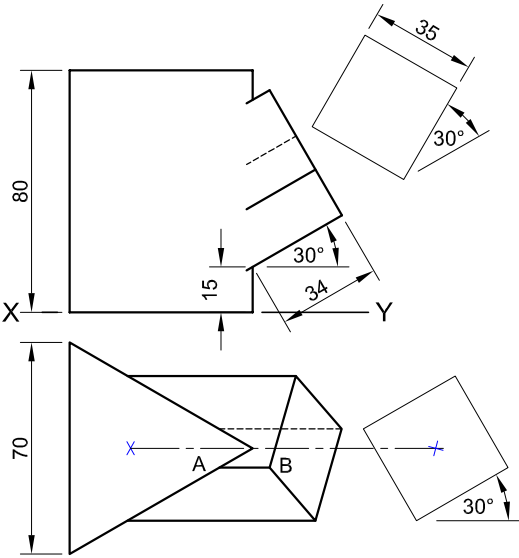


QUESTION 2: INTERPENETRATION AND DEVELOPMENT

- Given:**
- The incomplete front view and top view of a right square prism that has been shaped to fit around a right equilateral triangular prism. The axes of both prisms lie in a common vertical plane.
  - The auxiliary views of the square prism.

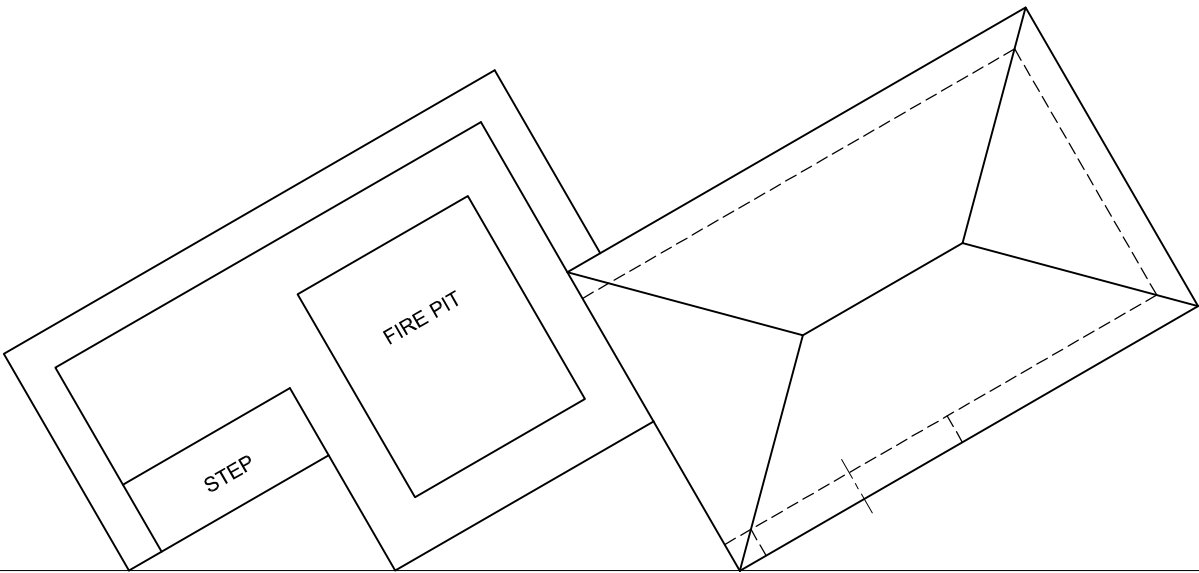
- Instructions:**
- Draw, to scale 1 : 1, the following:
- 2.1 The given top view
  - 2.2 The complete front view clearly showing the curve of interpenetration
  - 2.3 The development of the surface of the square prism.  
Make **AB** the seam.

- Show ALL hidden detail.
- Show ALL necessary construction and fold lines. [33]



AB IS THE SEAM.

ASSESSMENT CRITERIA					
1	TOP VIEW	7½			
2	FRONT VIEW	14			
3	DEVELOPMENT	11½			
TOTAL		33			
EXAMINATION NUMBER					
EXAMINATION NUMBER					3



QUESTION 3: PERSPECTIVE

**Given:**  
Two views of a recreational area and the information needed to draw a two-point perspective drawing.  
PP – Picture plane  
HL – Horizon line  
GL – Ground line  
SP – Station point

**Instructions:**  
Complete the perspective drawing.

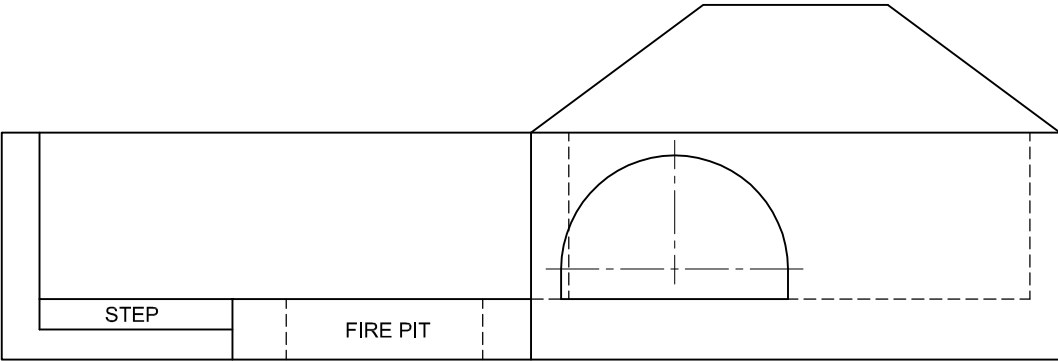
- Align the drawing sheet with the ground line (GL).
- Determine and label the vanishing points.
- Show ALL necessary construction.
- NO hidden detail is required.

[41]

PP

HL

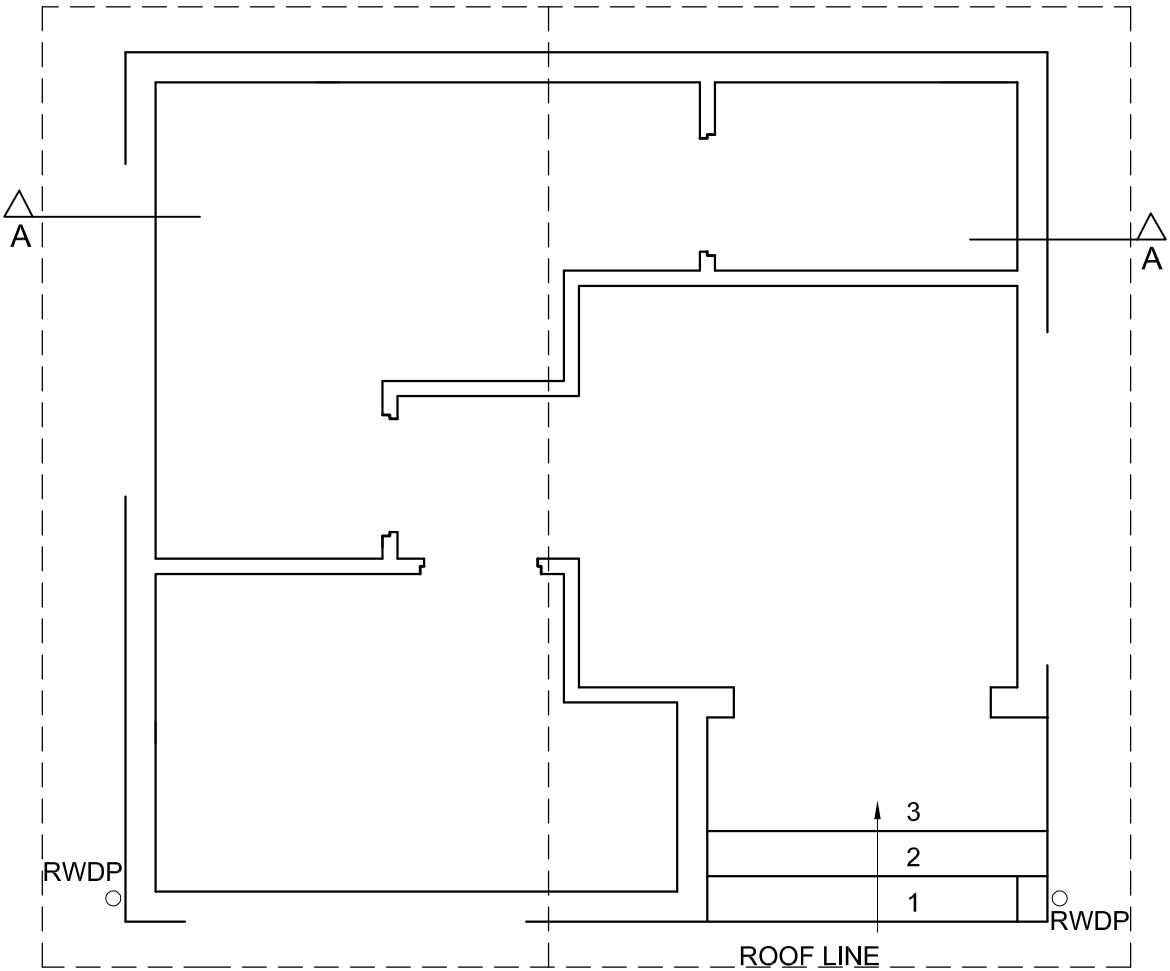
GL



SP

ASSESSMENT CRITERIA					
1	CONSTRUCTION + VPs	7			
2	WALLS	13½			
3	BUILDING + ROOF	9			
4	ARCH + CONSTR' + PIT	11½			
TOTAL		41			
EXAMINATION NUMBER					
EXAMINATION NUMBER					4





FLOOR PLAN  
SCALE 1 : 50



ASSESSMENT CRITERIA					
FLOOR PLAN					
		POSSIBLE	OBTAINED	SIGN	MODERATED
1	LABELS	4			
2	ELECTRICAL	11			
3	FITTINGS	6			
4	DOORS + WINDOWS	14			
5	HATCHING	3			
SUBTOTAL		38			
SECTIONAL ELEVATION					
1	ROOF	16			
2	WALLS + FLOOR + FOUNDATIONS	11			
3	WINDOW	2			
4	LABELS	3			
5	HATCHING	6			
6	FIXTURES	4			
SUBTOTAL		42			
NORTH-EAST ELEVATION					
1	WALLS + FFL	5			
2	ROOF + GUTTER + RWDP	5			
3	WINDOW	5			
4	LABELS	1			
SUBTOTAL		16			
TOTAL		96			
EXAMINATION NUMBER					
EXAMINATION NUMBER					6