



**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 12**



**ENGINEERING GRAPHICS AND DESIGN P1**

**SEPTEMBER 2025**

**PREPARATORY EXAMINATION**

**MARKS: 200**

**TIME: 3 hours**

**This question paper consists of 6 pages.**

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## INSTRUCTIONS AND INFORMATION

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

FOR OFFICIAL USE ONLY									
								MODERATED MARK	
1									
2									
3									
4									
TOTAL									
2 0 0								2 0 0	

FINAL CONVERTED MARK	CHECKED BY
100	

COMPLETE THE FOLLOWING:	
NAME	
NAME	
EXAMINATION CENTRE	
EXAMINATION CENTRE	

Please turn over

SYMBOL LEGEND		
1		2 000 mm LENGTH PER CATTLE PANEL
2		1 800 mm HIGH SECURITY FENCING
3		PIVOT- SINGLE TOWER
4		INDIGENOUS TREE
5		HEDGE SHRUB
6		SINGLE SILO WITH 32 TON FEEDING CAPACITY

LAND SURVEYOR'S CERTIFICATE OF THE BORDER LINE LENGTHS AND CORNER HEIGHTS OF STAND 2389 SURVEYED ON 2025-04-15	
BORDERLINE LENGTHS IN MILLIMETRES	CORNER HEIGHTS IN METRES
AB = 99 120	A = 613,5
BC = 116 760	B = 613
CD = 92 960	C = 615
DA = 82 810	D = 615,5

**NOTE:**  
Contractors must verify all dimensions and levels on the site before commencing work. Architects to be notified immediately of any discrepancies.

ARCHITECT'S SIGNATURE .....

CLIENT'S SIGNATURE .....

**ANSWER 17**  
In the space below, draw in neat freehand, the front view and top view of the SANS 10143 graphical symbol for a **WATER CLOSET**.

3		
2	2025-05-12	Add a steel security sliding gate
1	2025-04-22	Indicate the height of the security fence
REVISION	DATE	DESCRIPTION

**MARITZ AND POTGIETER ARCHITECTS**  
**211 COMBRETUM ROAD HUMEWOOD, GQEBERHA**  
**082 119 2678**  
**mp.architects@gmail.com**

PRINTED BY:	DATE OF PRINT:
<b>VIVID DESIGNS</b>	<b>2025-06-18</b>

DRAWING TITLE:  
**SITE PLAN**

PROJECT:  
NEW DELI PROPOSAL ON STAND 2389 FOR MRS. D. VAN JAARVELD  
Cnr. RETIEF STREET, PATENSIE

PROJECT NUMBER: <b>10-2025</b>		DRAWING NUMBER: <b>KD-18/04-25</b>	
DATE: <b>2025-03-15</b>	DRAWN: <b>GEOFFREY</b>	CHECKED: <b>CLARK</b>	SCALE: <b>1 : 700</b>
REFERENCE CODE: <b>SITE- 2389-25</b>		DRAWING NO.: <b>1 of 4</b>	

**QUESTION 1: ANALYTICAL (CIVIL)**

**Given:**

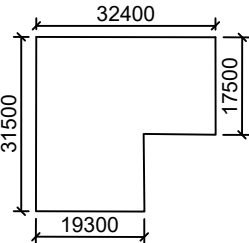
The site plan of an existing dairy stall with alterations of a new proposed deli on stand 2389, a title block and a table of questions. The drawing has not been prepared to the indicated scale.

**Instructions:**

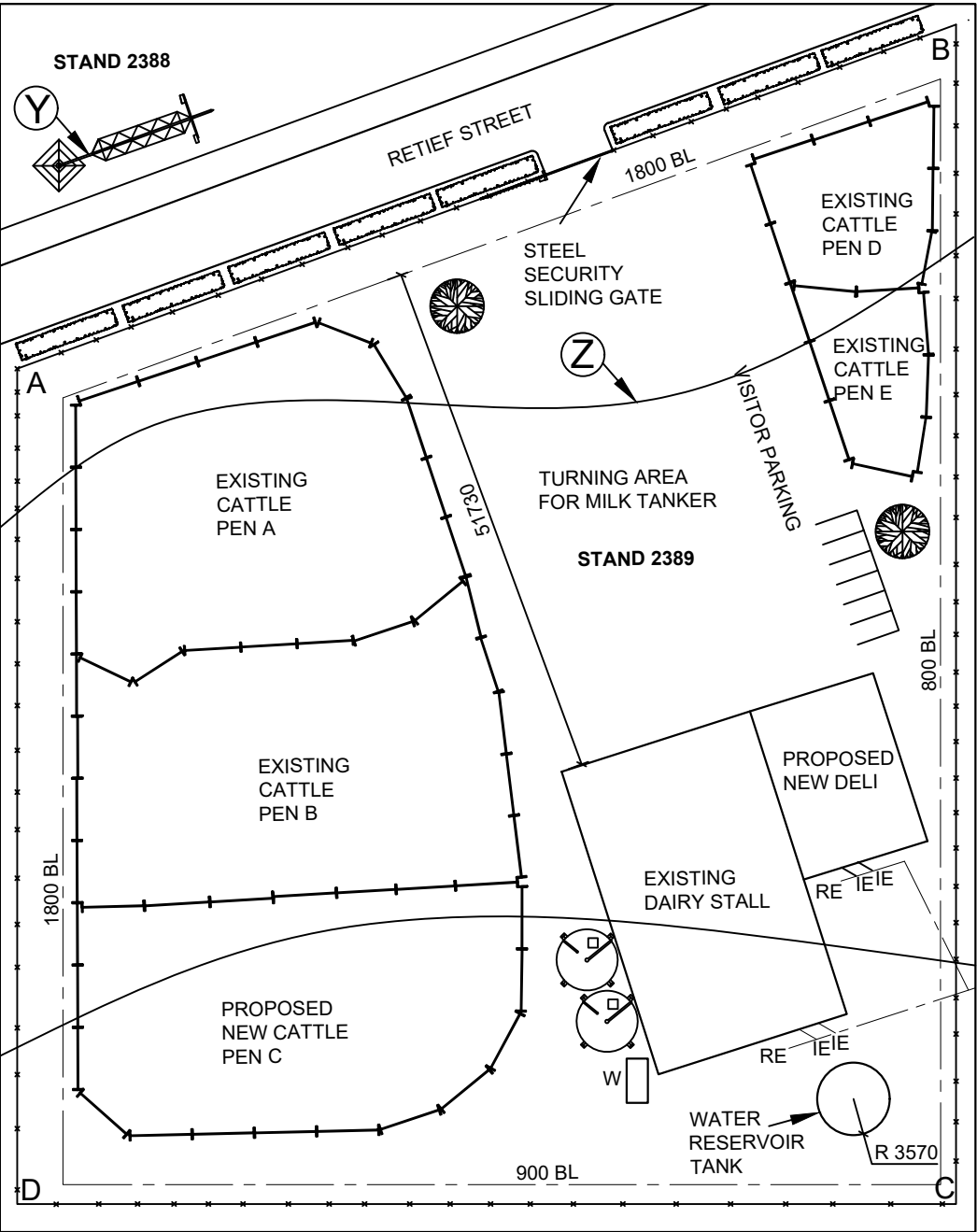
Complete the table below by neatly answering the questions which refer to the accompanying drawing and title block. **[28]**

QUESTIONS		ANSWERS	
1	What is the name of the architect firm?		1
2	On what date was the site plan printed?		1
3	What was the reason for the second revision of the site plan?		1
4	How many existing cattle pens are there on stand 2389?		1
5	In what colour should the existing dairy stall be presented on the siteplan?		1
6	How many cattle panels are used for cattle pen D and E?		1
7	Name the feature at <b>Y</b> .		1
8	Name the feature at <b>Z</b> .		1
9	What is the purpose of the open space, in front of the dairy stall, on the site plan?		1
10	What does the abbreviation <b>RE</b> stand for?		1
11	What is the total feed storage capacity of the silos on stand 2389?		1
12	Determine the diameter of the water reservoir, in meters.		2
13	In relation to the north point, which elevation of the existing dairy stall faces Retief street?		2
14	Determine the shortest distance from the dairy stall to the borderline, AB, next to Retief street, in meters.		3
15	Determine, in the space provided below (ANSWER 15) the total length of the cattle panels around cattle pen A, in meters. Show all calculations.		3
16	Determine, in the space provided below (ANSWER 16), the total area of the existing dairy stall and proposed new deli, on stand 2389, in square meters. Show all calculations and formula.		3
17	In the space at the title panel (ANSWER 17), draw in neat freehand, the top view and front view of the SANS 10143 graphical symbol for a <b>water closet</b> .		4

<b>ANSWER 15</b> Show ALL calculations.	<b>ANSWER 16</b> Show ALL calculations.	<b>TOTAL</b>	<b>28</b>
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NAME	
NAME	
	2



SITE PLAN  
SCALE 1 : 700



QUESTION 2: INTERPENETRATION AND DEVELOPMENT

Given:

- The complete top view and incomplete front view of a pentagonal pipe S with a square branch pipe T. The axes of both pipes lie in a common vertical plane.

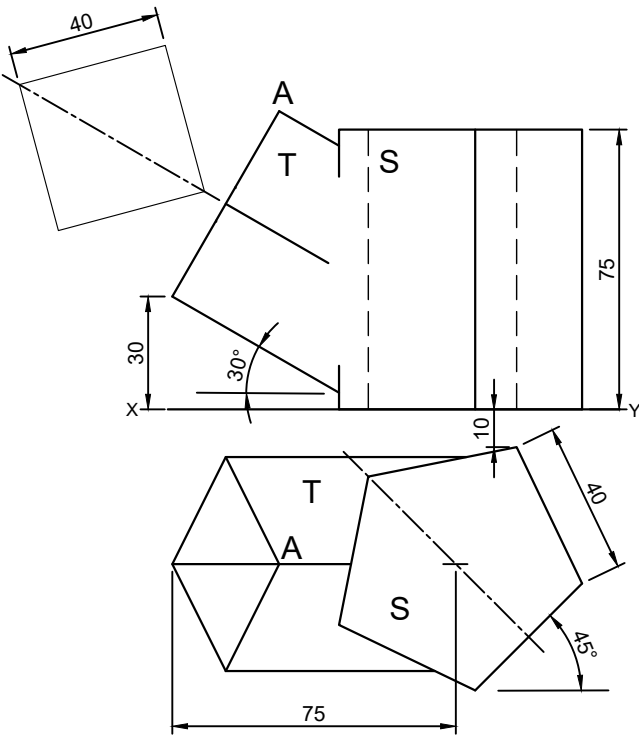
Instructions:

Draw to scale 1 : 1, the following views of the two pipes:

- 2.1 The given top view.
- 2.2 The complete front view clearly showing the curve of the interpenetration.
- 2.3 The left view, which ONLY shows the main pipe S, which clearly shows the line of interpenetration between the two pipes.
- 2.4 Develop the surface of branch pipe T.

- ALL hidden detail is required.
- Show ALL necessary constructions.

[35]



ASSESSMENT CRITERIA			
1	TOP VIEW	9	
2	FRONT VIEW	11½	
3	LEFT VIEW	7½	
4	DEVELOPMENT	7	
PENALTIES (-)			
TOTAL		35	

NAME	
NAME	3

QUESTION 3: PERSPECTIVE

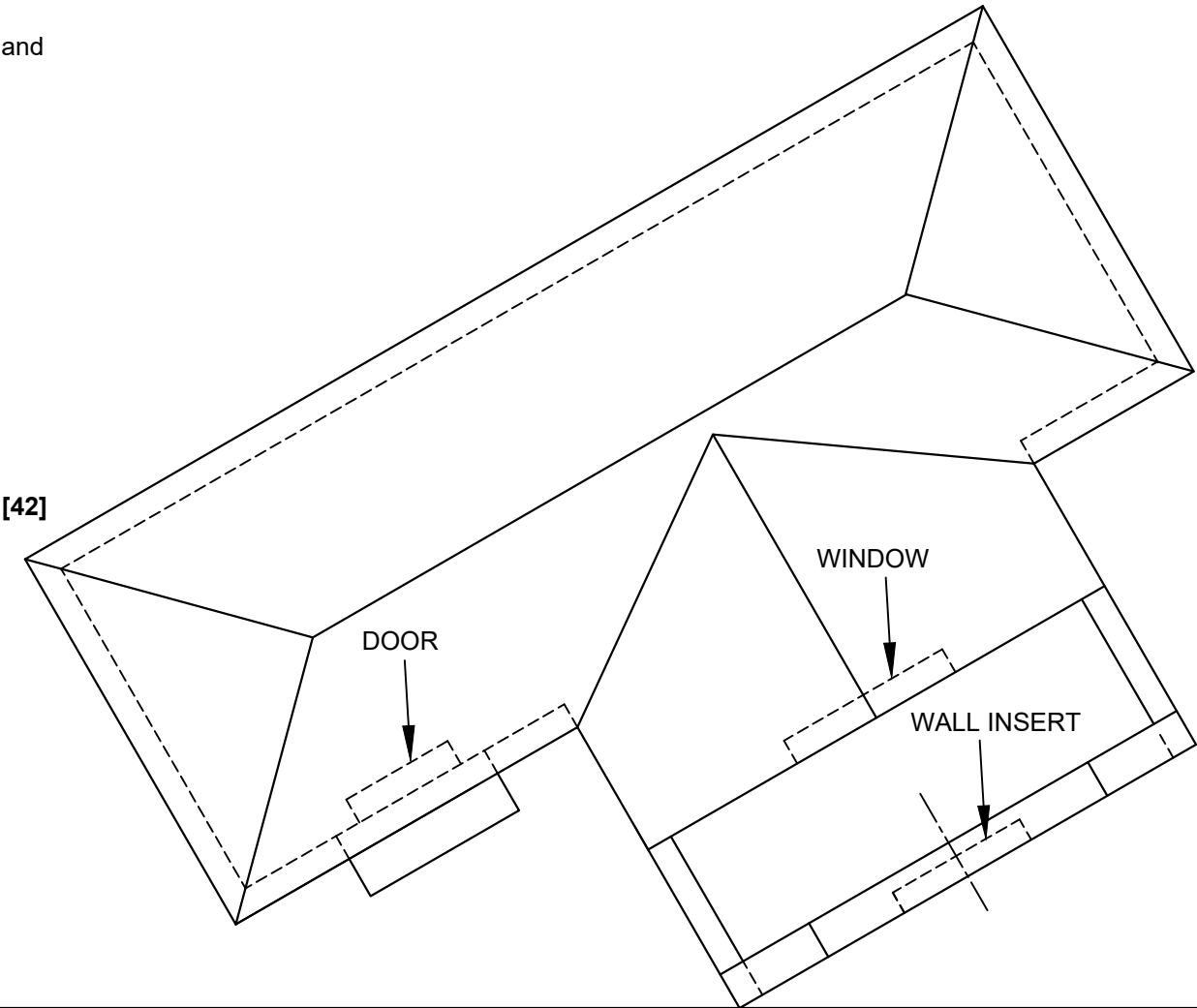
Given:

- Three views of a house with a hip and valley roof design and the information needed to draw a two-point perspective drawing.

PP – Picture plane  
HL – Horizon line  
GL – Ground line  
SP – Station point

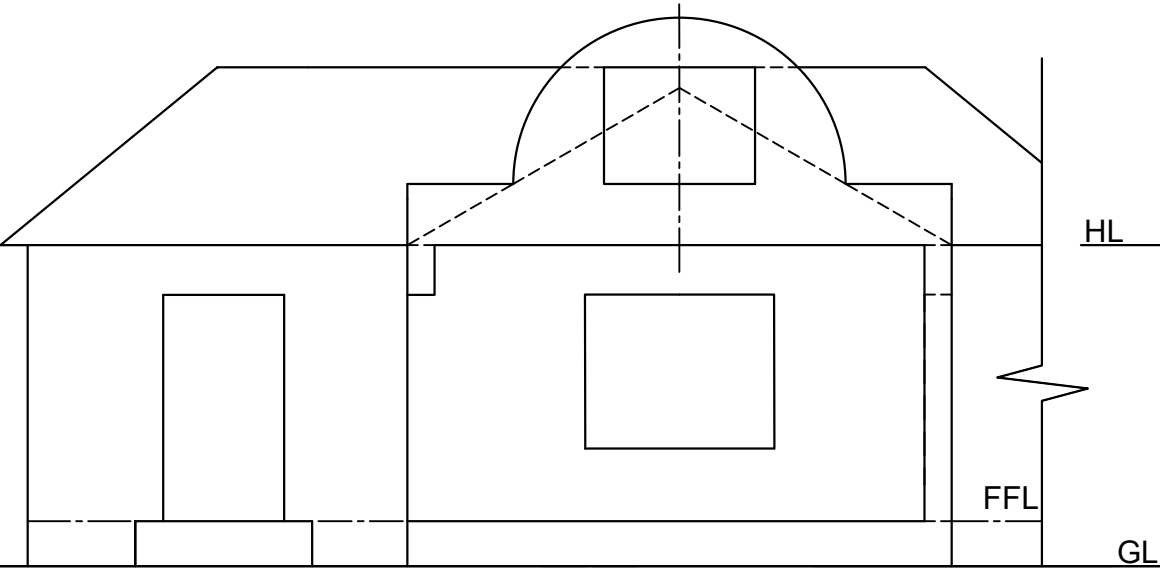
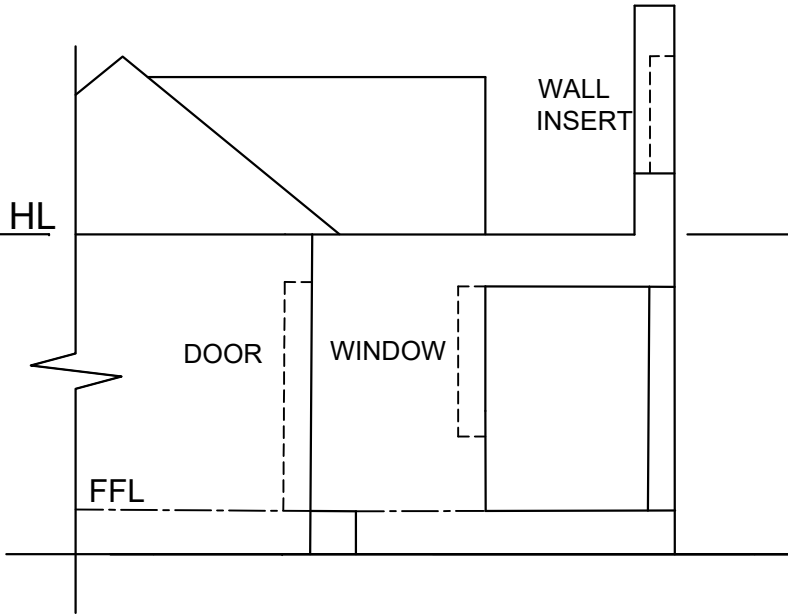
Instructions:  
Complete the perspective drawing.

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



ASSESSMENT CRITERIA					
1	CONSTRUCTION + VP's	6			
2	WALLS + PORCH + STEP	18			
3	ROOF	4			
4	WINDOWS + DOOR + WALL INSERT	9½			
5	ARCH + CONSTRUCTION	4½			
	PENALTIES (-)				
TOTAL		42			

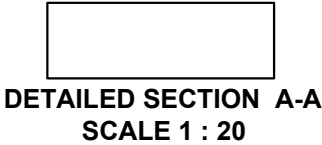
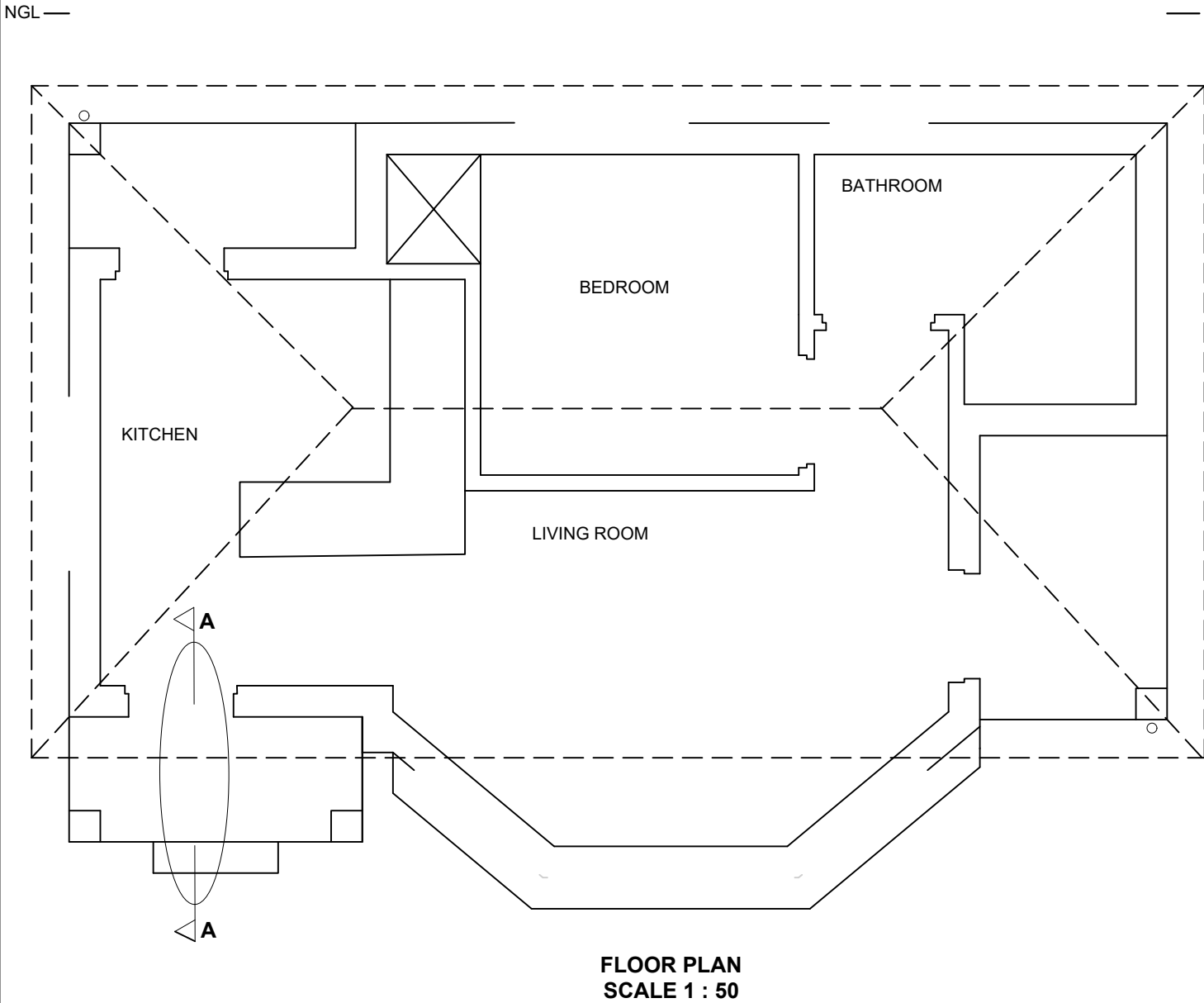
PP



SP

NAME	
NAME	
	4

[illegible]



ROOF DETAIL: MARK ALLOCATION			
A	ROOF ANGLE	$\frac{1}{2}$	
B	ROOF SHEET	1	
C	ROOF TRUSS OVERHANG	$2\frac{1}{2}$	
D	PURLIN + SPACING	$1\frac{1}{2}$	
E	BRANDERING + SPACING	$1\frac{1}{2}$	
F	CEILING BOARD	$\frac{1}{2}$	
G	WALL PLATE	1	
H	FACIA BOARD	$1\frac{1}{2}$	
I	GUTTER	1	
TOTAL		11	

PENALTIES		
1	INCORRECT SCALE	
2	NON-ALIGNMENT OF VIEWS	
3	INCORRECT LETTERING	
TOTAL PENALTIES (-)		

ASSESSMENT CRITERIA			
FLOOR PLAN			
1	DOORS + WINDOWS	15	
2	ELECTRICAL	8	
3	FIXTURES	7	
4	HATCHING	3	
5	LABELS	2	
SUBTOTAL		35	
EAST ELEVATION			
1	ROOF DETAIL	8	
2	WALLS + PATIOS + STEP	$10\frac{1}{2}$	
3	DOOR + WINDOW	8	
4	LABELS	1	
SUBTOTAL		$27\frac{1}{2}$	
DETAILED SECTION			
1	ROOF DETAIL	11	
2	FOUNDATIONS + WALLS + FLOOR + PILLAR	$7\frac{1}{2}$	
3	DOOR + STEPS + CONCRETE SLAB	5	
4	HATCHING	$8\frac{1}{2}$	
5	LABELS	$\frac{1}{2}$	
SUBTOTAL		$32\frac{1}{2}$	
TOTAL		95	
PENALTIES (-)			
GRAND TOTAL			

NAME	
NAME	
	6