higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

(First paper)

NQF LEVEL 4

(12050644)

18 November 2024 (X-paper)
09:00–13:00

REQUIREMENTS: A3 drawing paper

Calculators and drawing instruments may be used.

This question paper consists of 5 pages and 7 diagram sheets.

243Q1N2418

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
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NATIONAL CERTIFICATE (VOCATIONAL)
ARCHITECTURAL GRAPHICS AND TECHNOLOGY
(First paper)
NQF LEVEL 4
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. Read all the questions carefully.
3. Number the answers according to the numbering system used in this question paper.
4. All drawing work, including candidate information, must be done using an approved CAD software package, printed, and titled correctly.
5. All drawing work must comply with the relevant SANS (SABS) recommended codes.
6. Brick sizes should be taken as 220 × 110 × 75 mm.
7. All abbreviations and symbols must comply with the latest National Building Regulations and all relevant SANS (SABS) codes.
8. A balanced layout is very important and candidates will be penalised for poor planning.
9. Carefully check DIAGRAMS 1 to 7 (attached) and cross check written information in the questions – some of the information is intentionally repeated for ease of reference.
10. Work neatly.

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QUESTION 1: STAIRCASE

As an architectural draughtsperson you will be required to draw sections, elevations, and working drawings from rough sketches provided by an architectural professional. Carefully view the sketch of the rough plan layout on DIAGRAM SHEET 1 (attached). To a scale of 1:20, draw the internal elevation view of the timber staircase detail of section A-A on an A3 sheet of paper. Show the full flight of stairs as shown in the plan view.

The drawing must clearly show the following annotations and dimensions:

1.1 Riser @ the correct height

1.2 Tread @ 300 mm

1.3 Number all stairs

1.4 1 000 mm high handrail balustrade with horizontal balustrading at min 95 mm apart

1.5 At least 2 × 100 mm newel posts

1.6 Include an appropriate title and scale below the sectional view

[10]

QUESTION 2: FLOOR PLAN LAYOUT

As an architectural draughtsperson you will be given rough conceptual sketches that are not always to scale. However, the dimensions and annotations will be correct. You will be required to draw the layout as a working drawing for council submission or site construction from these very rough sketches.

DIAGRAM SHEETS 2, 3, 4, 5 and 6 (attached) show rough architectural site plan conceptual sketches of 2 levels of a double storey dwelling. DIAGRAM SHEET 2 (attached) shows a site plan with possible additional key site dimensions.

BRIEF SPECIFICATIONS
Roof pitch: Single pitch roof = 3 degrees
Roof cover IBR treated sheeting – colour grey
Level 1 floor to underside of the 220 mm rafters is 2 400 mm
Level 2 floor to top of wall plate height on the lower wall side is 2 400 mm

Level 1 is 900 mm above NGL

Roof rafter	220 × 70 @ 800 mm c/c
Concrete foundations	700 mm × 230 mm
External walls	200 mm cavity wall
Internal walls	200 mm brick wall
Timber T & G floor for level 1	
Timber T & G floor for level 2	
Fascia boards	220 mm × 32 mm SA pine

Windows and doors according to DIAGRAM SHEET 6 (attached).

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As an architectural draughtsperson the architectural professional you work for will require you to compile a finished set of working drawings of the 2 levels provided. By using the information above and the rough sketches provided, complete a set of working drawings of the 2 levels for the architect to check. You cannot scale off the rough layout sketches as they are NTS, however, key dimensions must be the same as on DIAGRAM SHEETS 1 and 2 (attached).

Using a scale of 1:100 on an A3 sheet of paper, draw fully detailed drawings of the following:

2.1 Copy level 1 plan layout. (20)

2.2 Copy level 2 plan layout.

Include the following for both plan layouts:

- Room names and floor finishes for levels 1 and 2
- All dimensions for levels 1 and 2 according to the recommended code of drawing practice
- Symbols on all windows and doors as shown
- Section lines and direction of section arrows AA
- Suitable title and scale for both level 1 and level 2 plan layouts
- Suitable North Point
- Kitchen sink and stove
- Dog leg staircase with correct number of risers numbered for height (20)

[40]

QUESTION 3: SECTION A-A THROUGH DWELLING

Using a scale of 1:50 on an A3 sheet of paper, draw section A-A through the dwelling. As shown on DIAGRAM SHEET 7 (attached), indicate the following specifications:

3.1 The correct roof pitch, roof covering, rafters, and heights

3.2 Gutter and fascia

3.3 Pad foundations

3.4 Level 1 timber deck flooring &
Level 2 timber deck flooring

3.5 Show all relevant section hatching

[20]

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QUESTION 4: ELEVATIONS

Using a scale of 1:100, on an A3 sheet of paper, draw any TWO elevations. DIAGRAM SHEET 5 (attached) provides an overview of the style of home being drawn.

4.1 Draw elevation 1 (15)

4.2 Draw elevation 2

Indicate the following specifications for both elevations:

4.2.1 The correct pitch, roof covering, wall plate heights

4.2.2 Types of finishes

4.2.3 Correct windows according to the window and door schedule indicated

(15)
[30]

TOTAL: 100

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ARCHITECTURAL GRAPHICS AND TECHNOLOGY L4P1

DIAGRAM SHEET 1

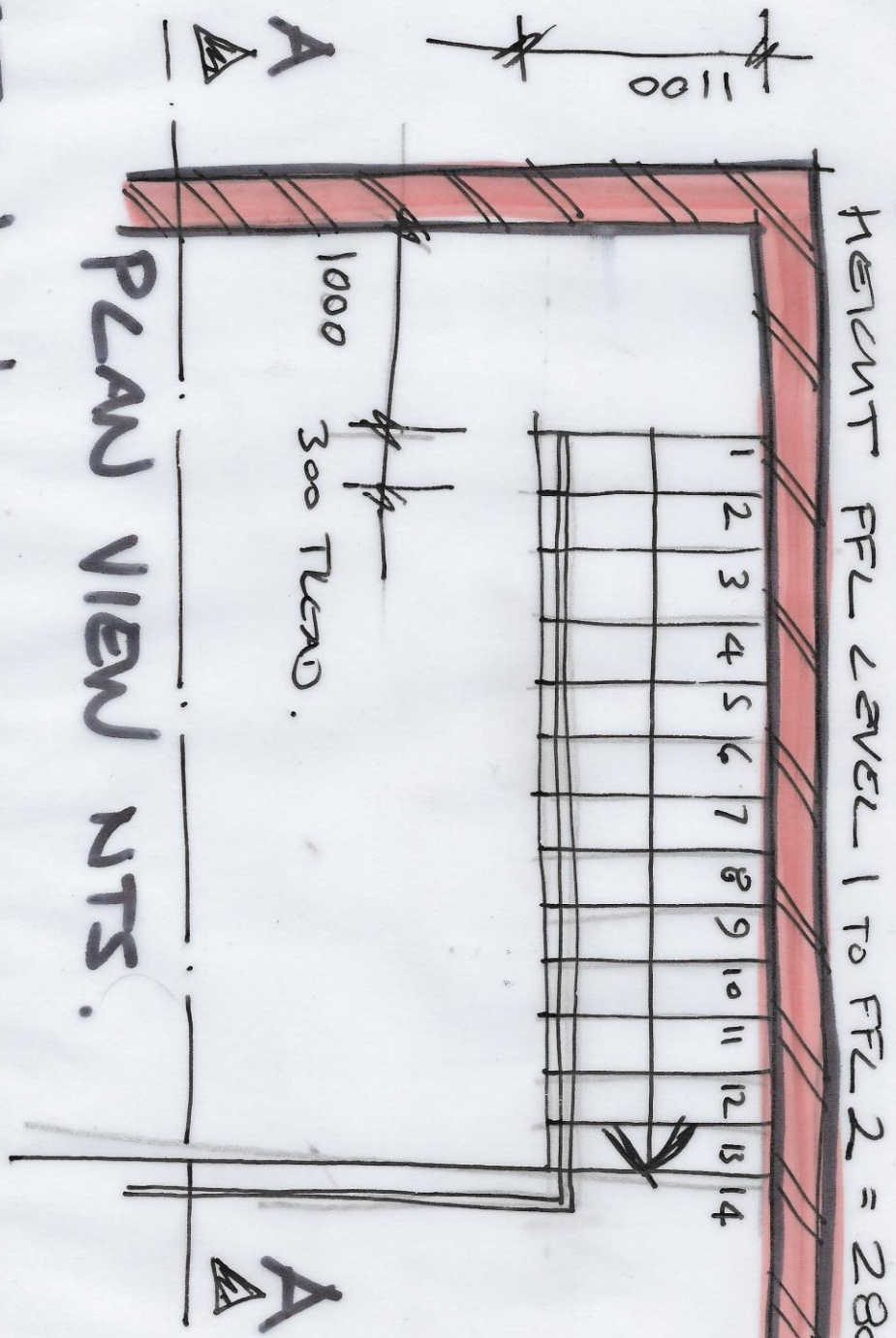
E1 2023/24

E1

QUESTION 1

PLAN VIEW NTS.

10 MARKS



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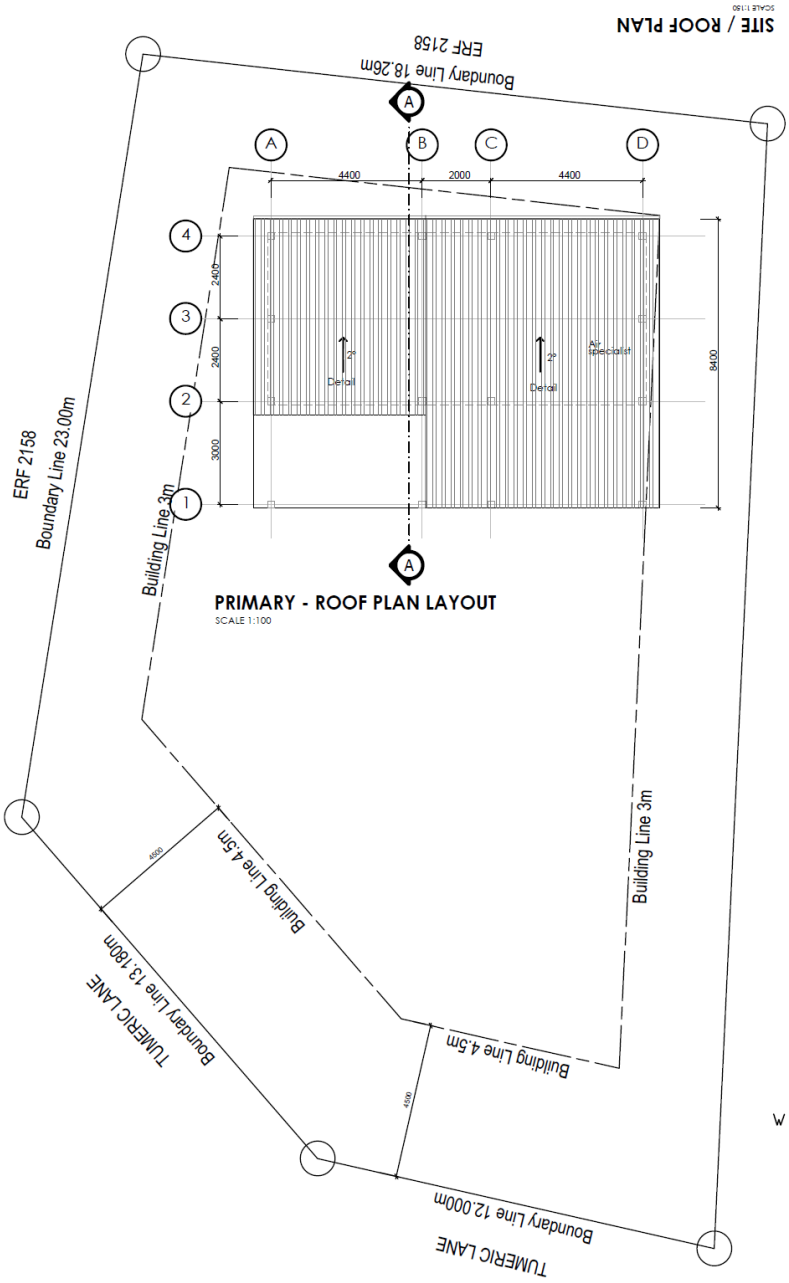
ARCHITECTURAL GRAPHICS AND TECHNOLOGY L4P1

EXAM NQF LEVEL4

DIAGRAM SHEET 2



STRUCTURAL ENGINEER TO BE APPOINTED BY OWNER TO CHECK AND APPROVE STRUCTURAL INTEGRITY OF THIS DESIGN , ADVISE ON ADVERSE SITE AND / OR SOIL CONDITIONS AND INSPECT WORKS PERIODICALLY AND ISSUE OF STRUCTURAL COMPLETION CERTIFICATE

ALL WORK TO BE IN ACCORDANCE WITH RELEVANT NATIONAL BUILDING REGULATIONS AND PERFORMED BY QUALIFIED AND REGISTERED CONTRACTOR TO MEET WITH ALL LOCAL MUNICIPAL REQIREMENTS. ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO COMMENCING SITE WORKS

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALING DRAWINGS.

ALL RELEVANT DETAILS,LEVELS,DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCEMENT OF WORK.

SITE PLAN SCALE 1:200

E1

N1 2023/24

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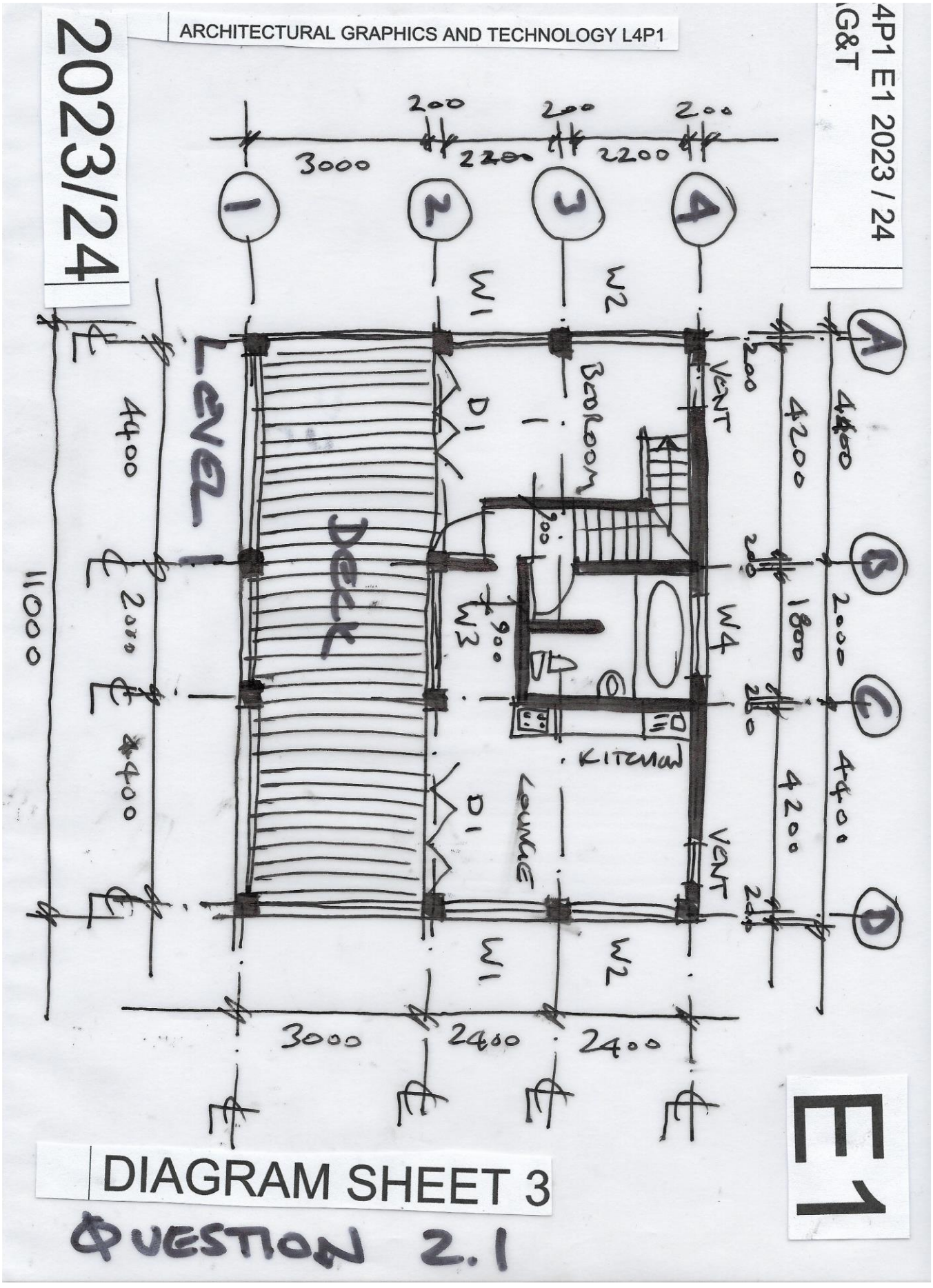

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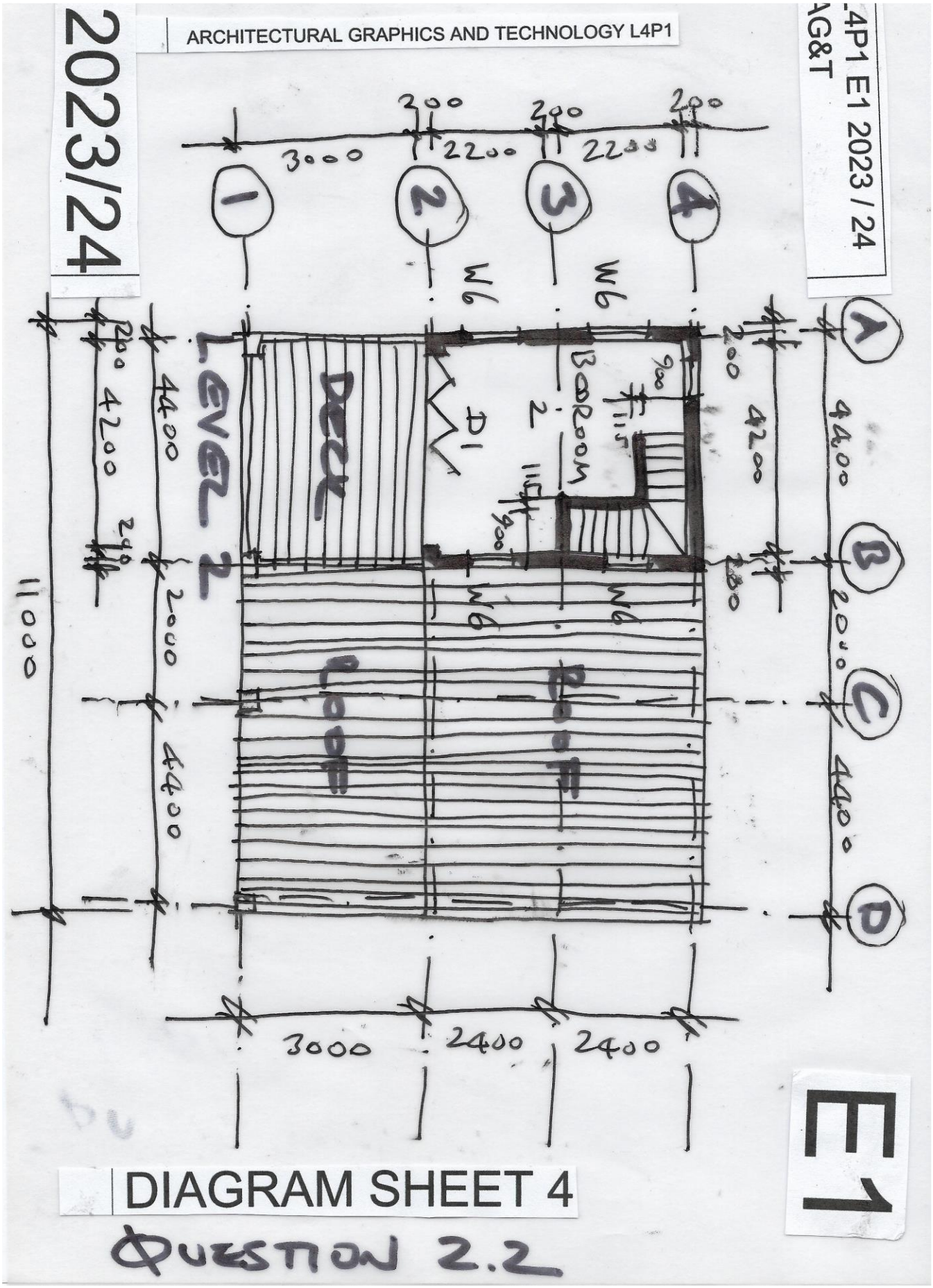

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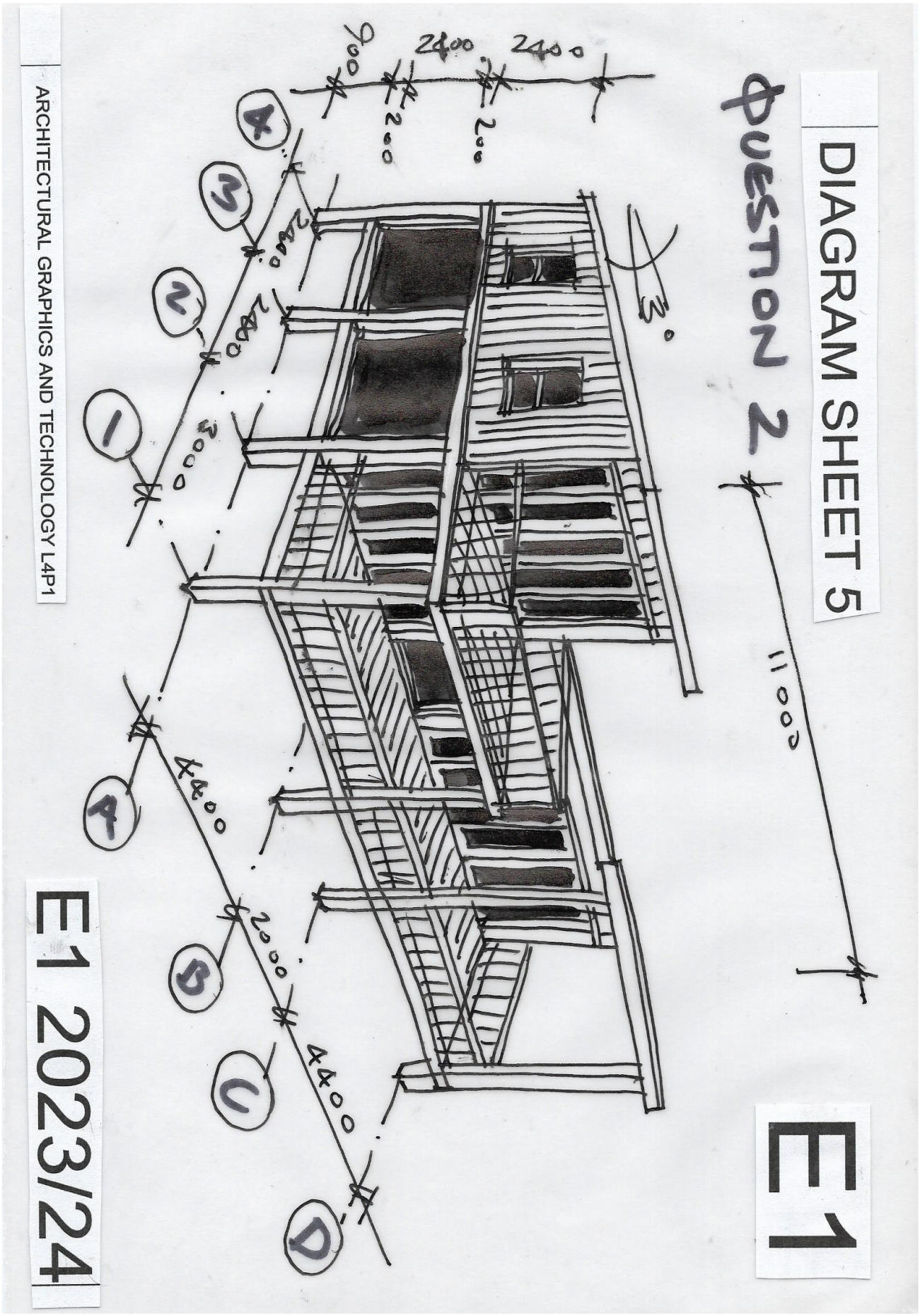

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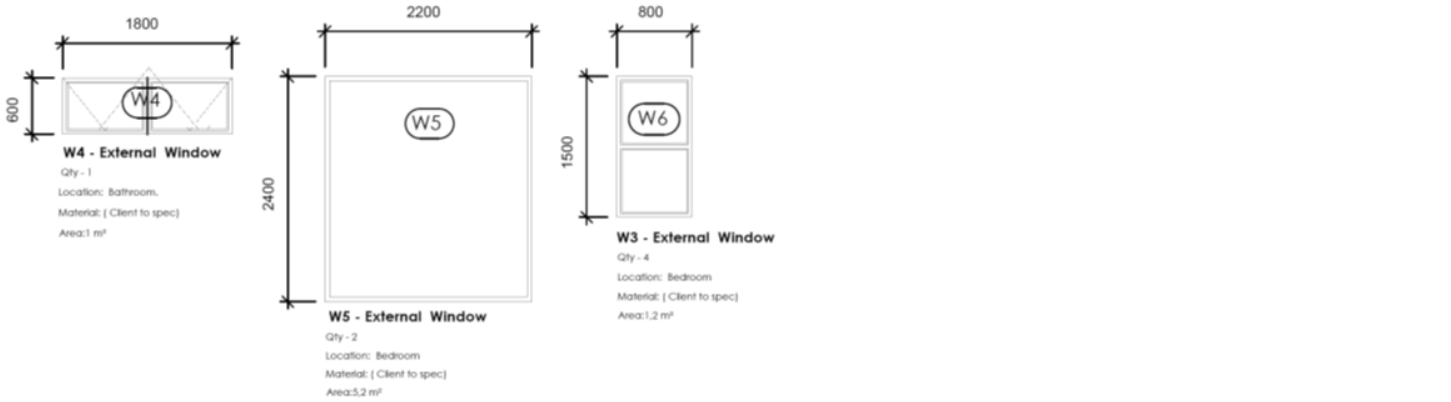
E1

ARCHITECTURAL GRAPHICS AND TECHNOLOGY PAPER 1

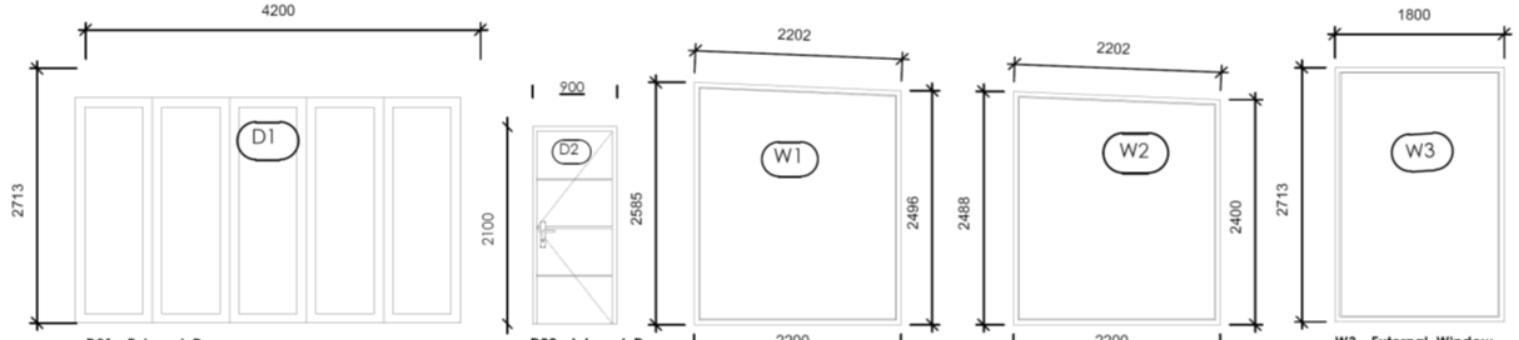
L4P1 E1 2023 / 24



W4 - External Window
Qty - 1
Location: Bathroom.
Material: (Client to spec)
Area:1 m²

W5 - External Window
Qty - 2
Location: Bedroom
Material: (Client to spec)
Area:5,2 m²

W3 - External Window
Qty - 4
Location: Bedroom
Material: (Client to spec)
Area:1,2 m²



D01 - External Door
Qty - 2
Location: Lounge & Dining & Bedroom.
Material: (Client to spec)
Area:11,4 m²

D02 - Internal Door
Qty - 1
Location: Bathroom
Material: Timber
Area: 1,8 m²

W1 - External Window
Qty - 1
Location: Lounge & Dining.
Material: (Client to spec)
Area:5,5 m²

W2 - External Window
Qty - 1
Location: kitchen
Material: (Client to spec)
Area:5,3 m²

W3 - External Window
Qty - 1
Location: Lounge & Dining.
Material: (Client to spec)
Area:4,8 m²

WINDOW & DOOR SCHEDULE

SCALE 1:100

DIAGRAM SHEET 6

EXAM NQF LEVEL4

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DIAGRAM SHEET 7

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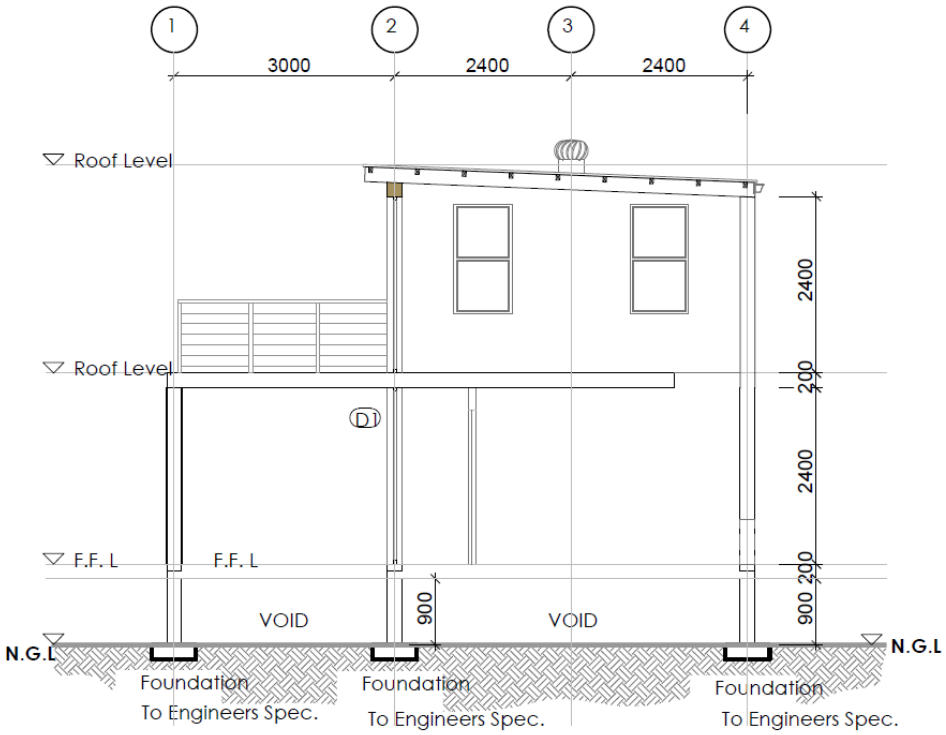
ARCHITECTURAL GRAPHICS AND TECHNOLOGY
PAPER 1

ROUGH SECTION DIAGRAM NTS



SECTION A-A
SCALE 1:100

E1

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PAPER 1
EXAM NQF LEVEL4

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