



OFFICE OF TASMANIAN
ASSESSMENT, STANDARDS
& CERTIFICATION

PLACE YOUR CANDIDATE
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HOUSING and DESIGN

(HDS315118)

Time allowed for this paper

- Working time: 2 hours
- Plus 15 minutes recommended reading time

Pages:	12
Questions:	4
Attachment:	Information Sheet Answer Sheet Section A – Q1 or Q2 Answer Sheet Section B – Q3 or Q4

Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criteria being assessed.
2. There are **TWO** sections to this paper.
3. You must answer:
 - **ONE** question from **Section A** – on the relevant A3 answer sheet for that section.
 - **ONE** question from **Section B** – on the relevant A3 answer sheet for that section.
4. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on each of the following criteria taken from the course document:

Criterion 3 Analyse and apply features and principles which contribute to environmental sustainability within design decisions.

Criterion 4 Apply architectural design principles relating to functional use of space.

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ADDITIONAL INSTRUCTIONS

There are **TWO** sections to this paper.

You have been provided with an answer sheet for each of the questions. The answer sheet is labelled with the question number.

You may use both sides of the answer sheet.

You must answer:

- **ONE** question from **Section A**
- **ONE** question from **Section B**

SECTION A

Answer **ONE** question from this section.

Your answer should be on the A3 answer sheet labelled **Section A**.

This section assesses **Criterion 3**.

Question 1

Use answer sheet labelled Question Number 1.

Arthur has purchased a large plot of land just outside of Darwin, (see Figure 1). The climate is hot humid/tropical. It is densely vegetated with small ferns and many tall trees, and also has some ponds. He is keen to build a luxurious form of camping that is more permanent and without disturbing the land and native animals. He may remove one or two trees, but the intent is to work with the natural environment.

Arthur has acquired three existing timber structures (see Figure 2) that fit on the back of a flatbed truck that are easy to install between the trees. He is unsure how to best arrange these modules (one for sleeping, one for cooking and eating and the final one is a bathroom) on the land near to each other and to achieve a comfortable living environment. The structures can be placed next to each other or joined together with external decks. The site does not have access to power and water, so considerations will need to be made to reduce these needs but also produce and collect on site.

Aims

To provide design advice on how to inhabit the site according to the requirements of Arthur's needs.

Response

Use the A3 answer sheet provided for Section A, Question 1 to answer this question. You may use both sides of the answer sheet.

Draw the proposed design on the site plan at a scale of 1:100 and justify, with concise annotations, how the design makes:

- Effective use of the winds and external spaces,
- Collects solar energy with the placement of solar panels,
- Collects and uses water, and
- Provides cover from the sun and rain.

Draw a sketch of a proposed section of the design to show and justify, with concise annotations, with regard to the following:

- how the buildings would sit on the ground (on, above or below),
- the type of windows, and/or openings
- the type of roof, and
- the materials added to existing timber frame.

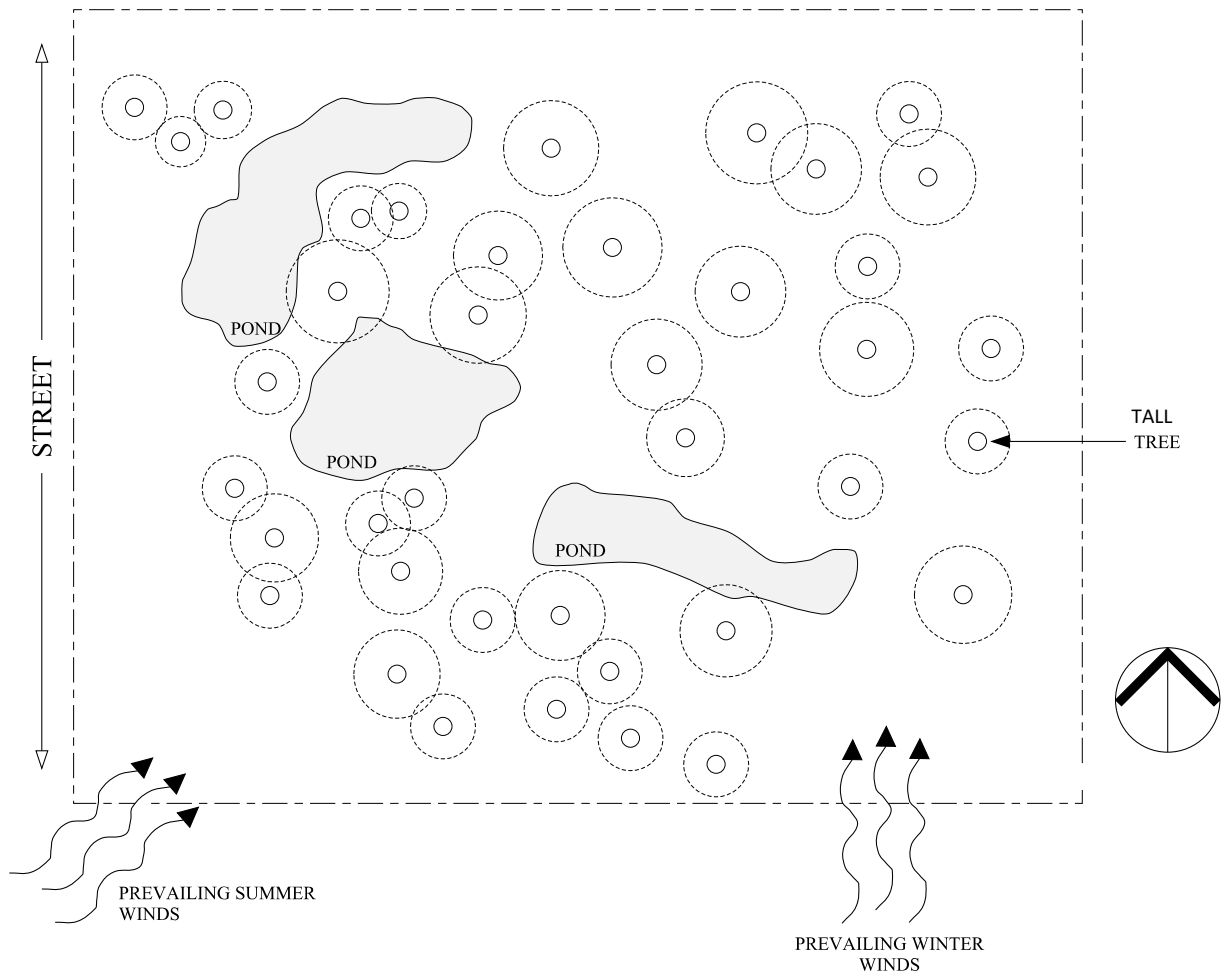


Figure 1: Site plan (not to scale)

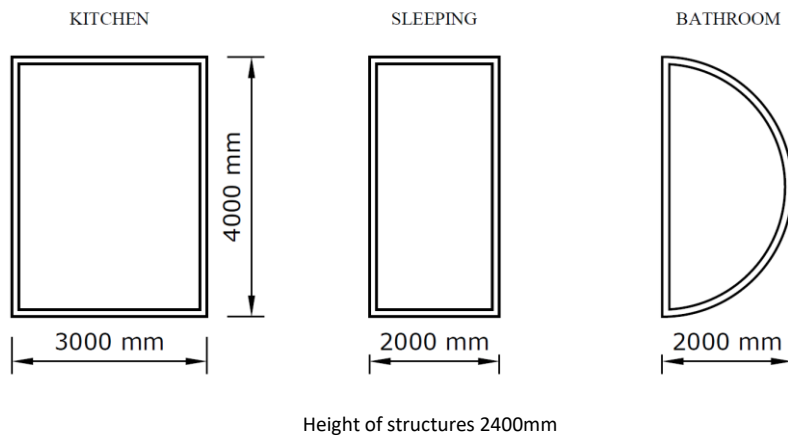


Figure 2: Plan of existing timber structures (not to scale)

Question 2

Use answer sheet labelled Question Number 2.

Geoffrey owns a sheep farm at Ross, Central Tasmania. Geoffrey would like to support homeless youth in providing some land for shipping container accommodation. He has come to ask your advice on what can be done to improve the conditions of living in a shipping container.

The shipping container is 6060mm in length, 2440mm in width and 2600mm in height. His plan is to put an internal wall in the centre of the shipping container to make two small rooms for sleeping and storing their belongings. Each container has two doors at one end which may be useful if part or both opened. These containers do not need to house a kitchen or bathroom as these will be shared from the shearer's quarters.

Geoffrey would like to incorporate a new door and/ or window for each room and also wants to attach a new roof over the container to provide shelter and to harvest water and power.

To begin with he would like to see what may be the best solution to improve the thermal performance of the shipping container. At this stage, the cost of the design is not important.

Aims

Through understanding passive design principles and features, advise Geoffrey how best to improve the conditions of a shipping container to sleep and live in temporarily, by:

- orientating four shipping containers on the site (Figure 3)
- nominating the size, position and type of new door and/ or window for each room (Figure 4b)
- the extent, form and features associated with the roof, and the collection of water and power.

Response

Use the A3 answer sheet provided for Section A, Question 2 to answer this question. You may use both sides of the answer sheet.

Draw on the site plan the position of the four shipping containers at a scale of 1:100 and show:

- the positions of the new door and/ or window for each room,
- a dotted line to show the extent of the roof over each container, and
- any other features.

Justify the passive design strategies through annotating drawings.

Draw a sketch, approximately to a scale of 1:50 of one of the shipping containers in section to show:

- the size and position of the door/window,
- the roof and the level of access to sunlight across the year, and
- the interior construction of the shipping container to make it thermally comfortable.

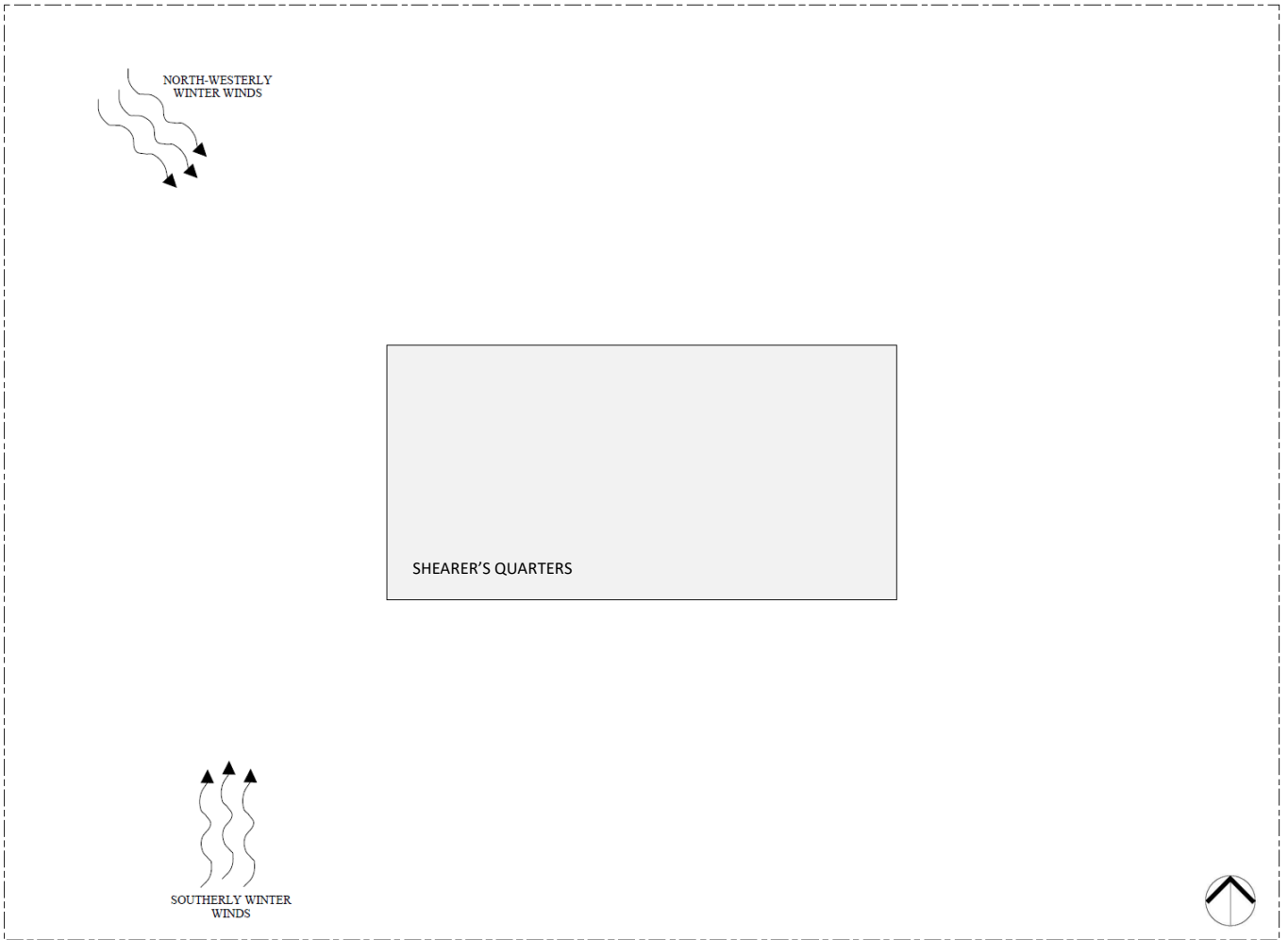


Figure 3: Site plan of the area for the shipping containers (not to scale)

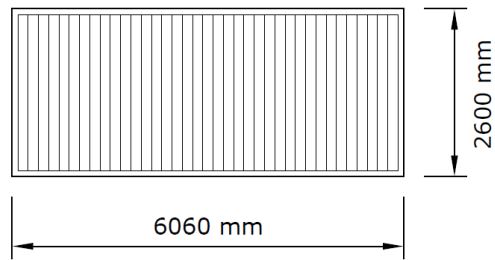


Figure 4a: Shipping Container Elevation (not to scale)

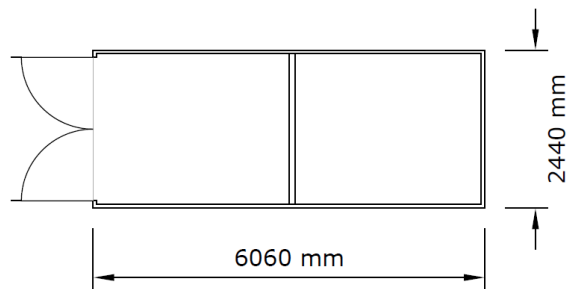


Figure 4b: Shipping Container Plan (not to scale)

SECTION B

Answer **ONE** question from this section.

Your answer should be on the A3 answer sheet labelled **Section B**.

This section assesses **Criterion 4**.

Question 3

Use answer sheet labelled Question Number 3.

Tracy has recently inherited an existing building in town (see Figure 5) which she would like to renovate into a community space that allows small groups to use its facilities for workshops, art and craft making and music practice. The building is totally empty. However, it does have a change in floor level (250mm) that partly divides the space.

To make this building into a community space requires a kitchenette (2000mm bench length), a unisex toilet and an art sink area (600mm x 300mm) for cleaning equipment. The design needs to allow space for workshops and practice to occur that it is not interrupted if someone needs to use the kitchenette or bathroom. The local authorities are happy to support these renovations and approve them but requires Tracy to accommodate universal access and needs, to ensure inclusiveness.

Aim

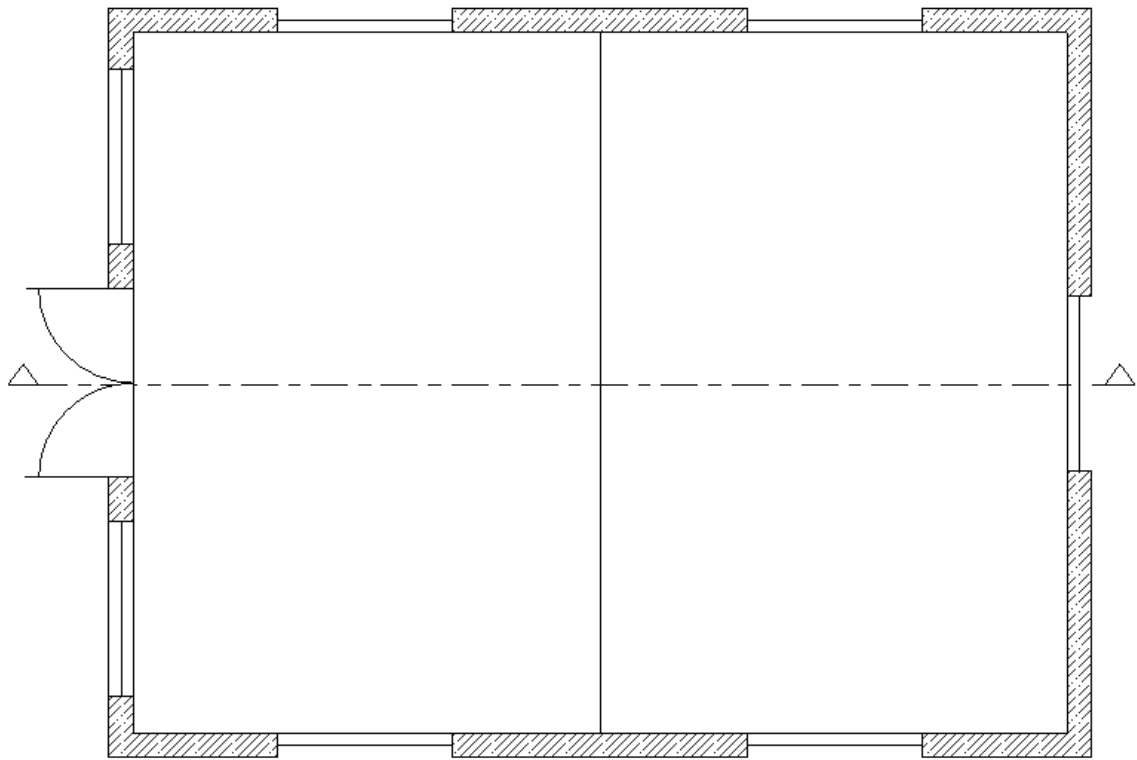
To assist Tracy in understanding the needs and requirements of universal access to satisfy the local authority, as well as to make the most of her project to renovate a community space.

Response

Use the A3 answer sheet provided for Section B, Question 3 to answer this question. You may use both sides of the answer sheet.

Draw a plan at a scale of 1:50 to best show the location of different activity areas and facilities in the community space. Identify and justify critical dimensions and features.

Draw a few additional sketches around the plan to illustrate in greater detail the critical heights or details to allow for universal access and needs. You may like to use the empty section drawing (on the answer sheet) to illustrate part of your response.



PLAN



SECTION

Figure 5: Plan (above) and section of Tracy's building (not to scale)

Question 4

Use answer sheet labelled Question Number 4.

Christine really wants to downsize, having lived in a house that she felt had too many rooms. She now wants a dwelling that is designed for small living, using principles of functionality and comfort. To this end, Christine has bought an inner-city laneway between two existing terrace houses. At its widest point, it is 4500mm and its maximum length is 10000mm long.

She intends to build two storeys and will live on the ground floor and rent out the small top apartment. Christine has come to you to design her new ground floor apartment. It needs to be efficient but still comfortable and homely. A builder has shown her how to create an entrance to the top apartment, but she is still unclear of how the spatial layout of the ground floor apartment may work (see Figure 6).

The requirements for her apartment are:

- a small kitchen
- a two-seater couch
- a two-seater table
- a bathroom
- a queen bed
- a built-in wardrobe, 3000mm in length
- internal height of the ceiling is to be 2700mm high

Daylight can only be accessed from the street and the back laneway at the rear of the terrace houses.

The extent of the building footprint or the position of the stairs cannot be changed.

Aims

To design a spatially efficient layout for a ground floor apartment that is functional, comfortable, has plenty of daylight and is private and homely.

Response

Use the A3 answer sheet provided for Section B, Question 4 to answer this question. You may use both sides of the answer sheet.

Draw to a scale of 1:50 the spatial design of the ground floor apartment with its furniture, fittings, entrance way and windows. Justify the design strategies used and explain how they fit or improve on Christine's wishes.

Draw a section (roughly to scale) showing the spatial arrangement of the apartment. Include the strategies used to incorporate space, light and privacy.

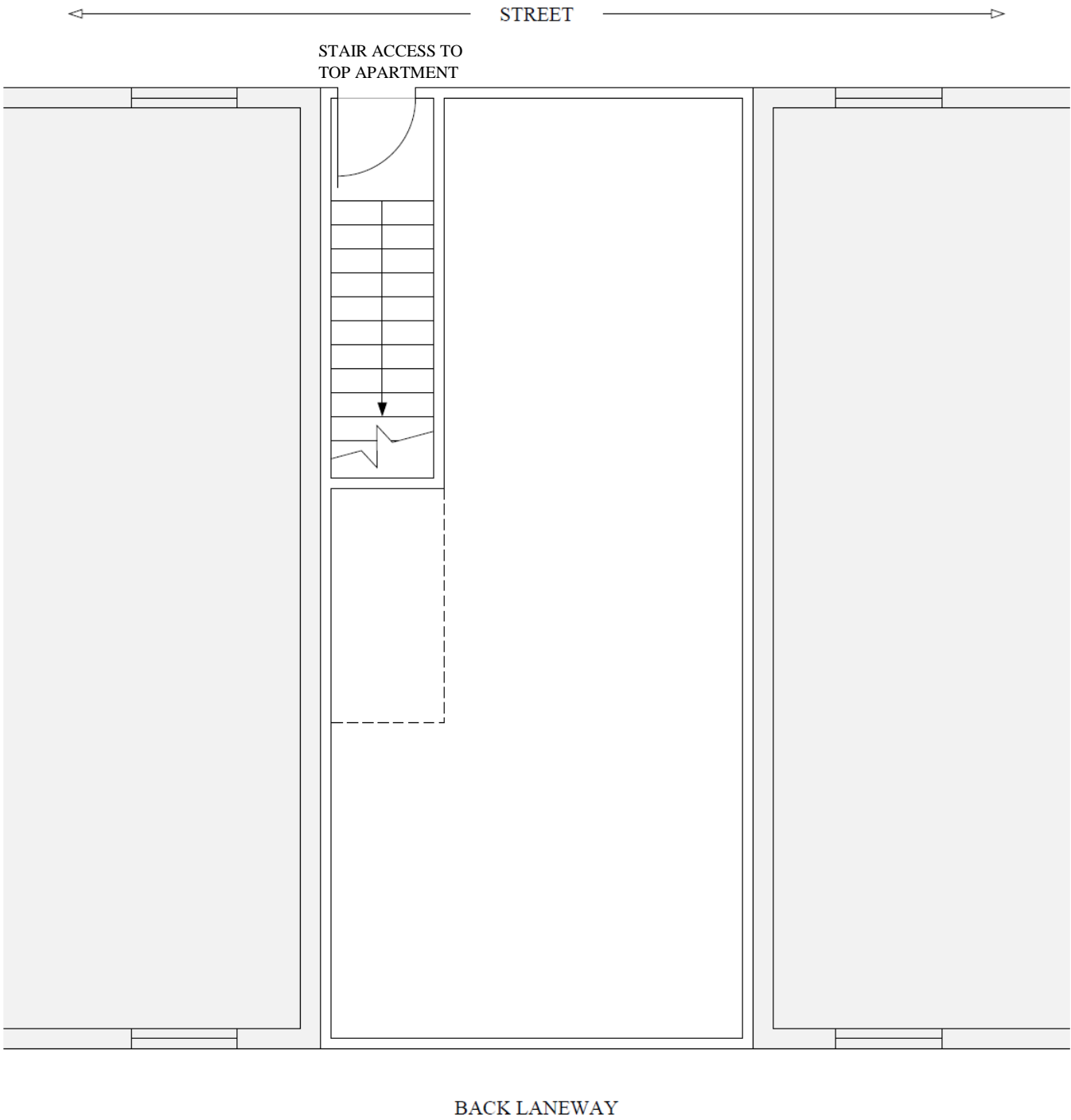


Figure 6: Site plan (not to scale)



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