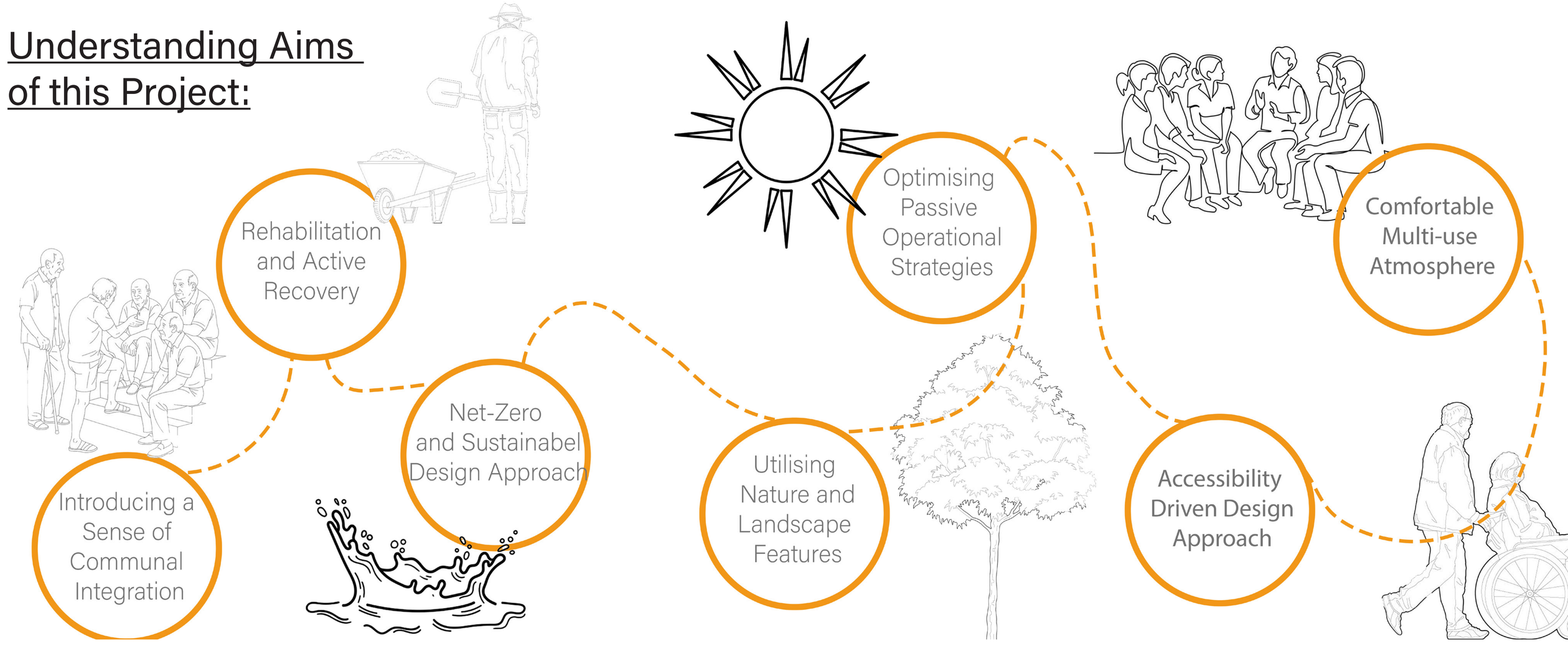
'Intergenerational Community Centre'

This project consists of designing an 'Intergenerational Community Centre' aimed towards elderly users, along with sporting groups or individuals from an active recovery and physiotherapy standpoint. The location of this project is situated within The Lawn, Lincoln which introduces a historical Grade II Listed presence within the design of this building.

Whilst there is a goal regarding the everyday use of the building to be accessible for all, inclusive and effective in a communal sense, the main aim of this project focuses on a sustainable and Net-zero Carbon outcome. Introducing strategies which reduce the embodied and operational carbon output will be implemented to improve the energy-efficiency of the building; this will be further enhanced through utilising mechanical and passive systems throughout the building to align with the projects Net-zero Carbon goals.

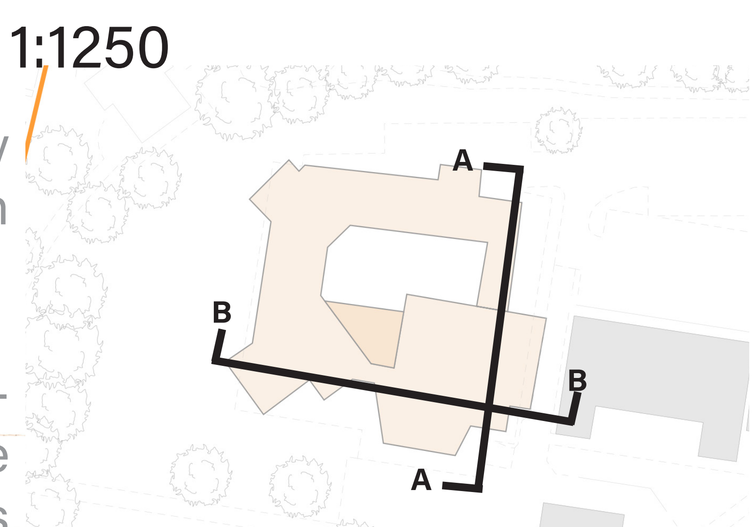
These implementations have been introduced in compliance with the appropriate building regulations, which will ensure an accessible, safe and successfully integrated building within its surrounding landscape.

Understanding Aims of this Project:



Site Location Plan

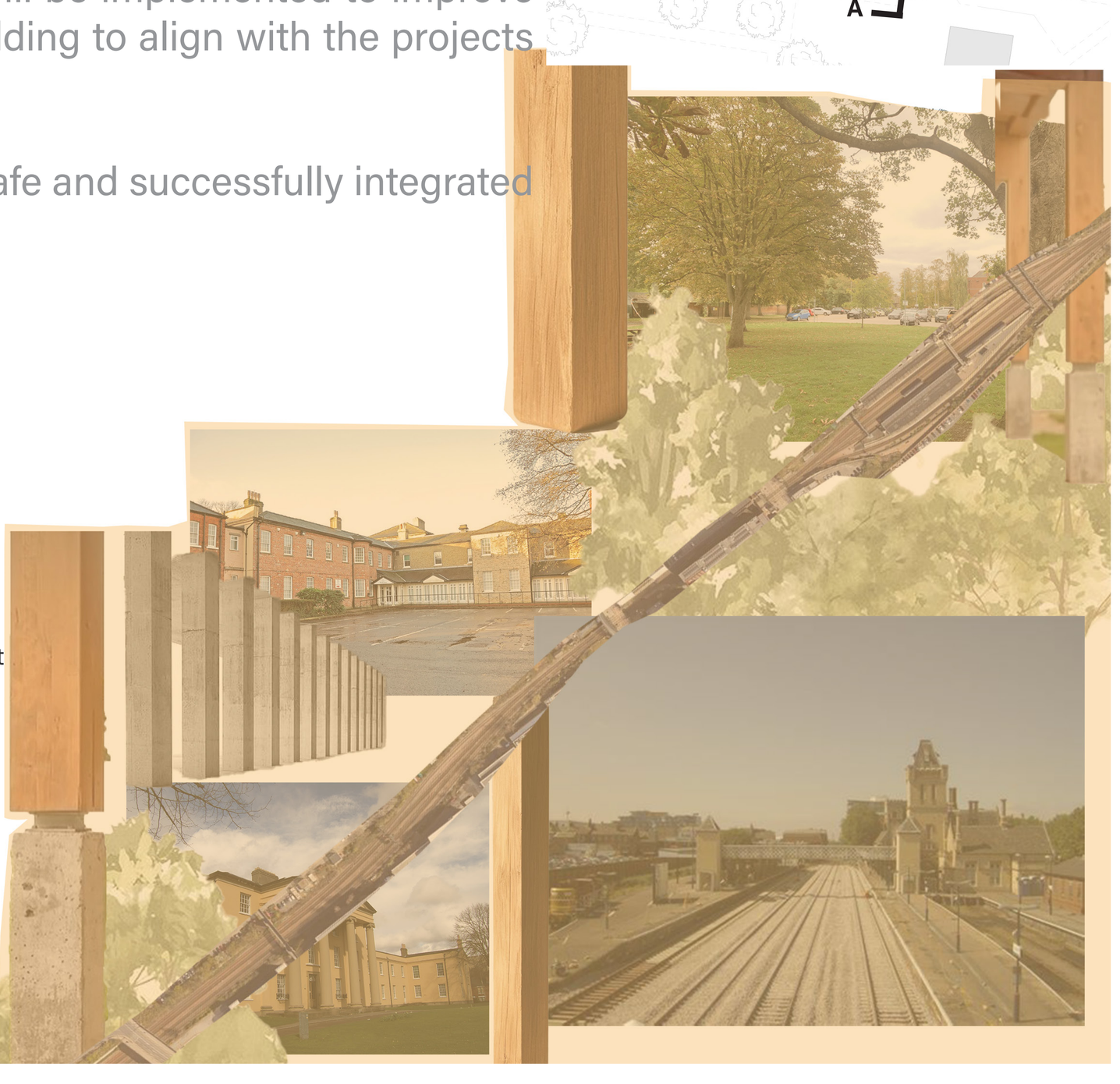
1:1250

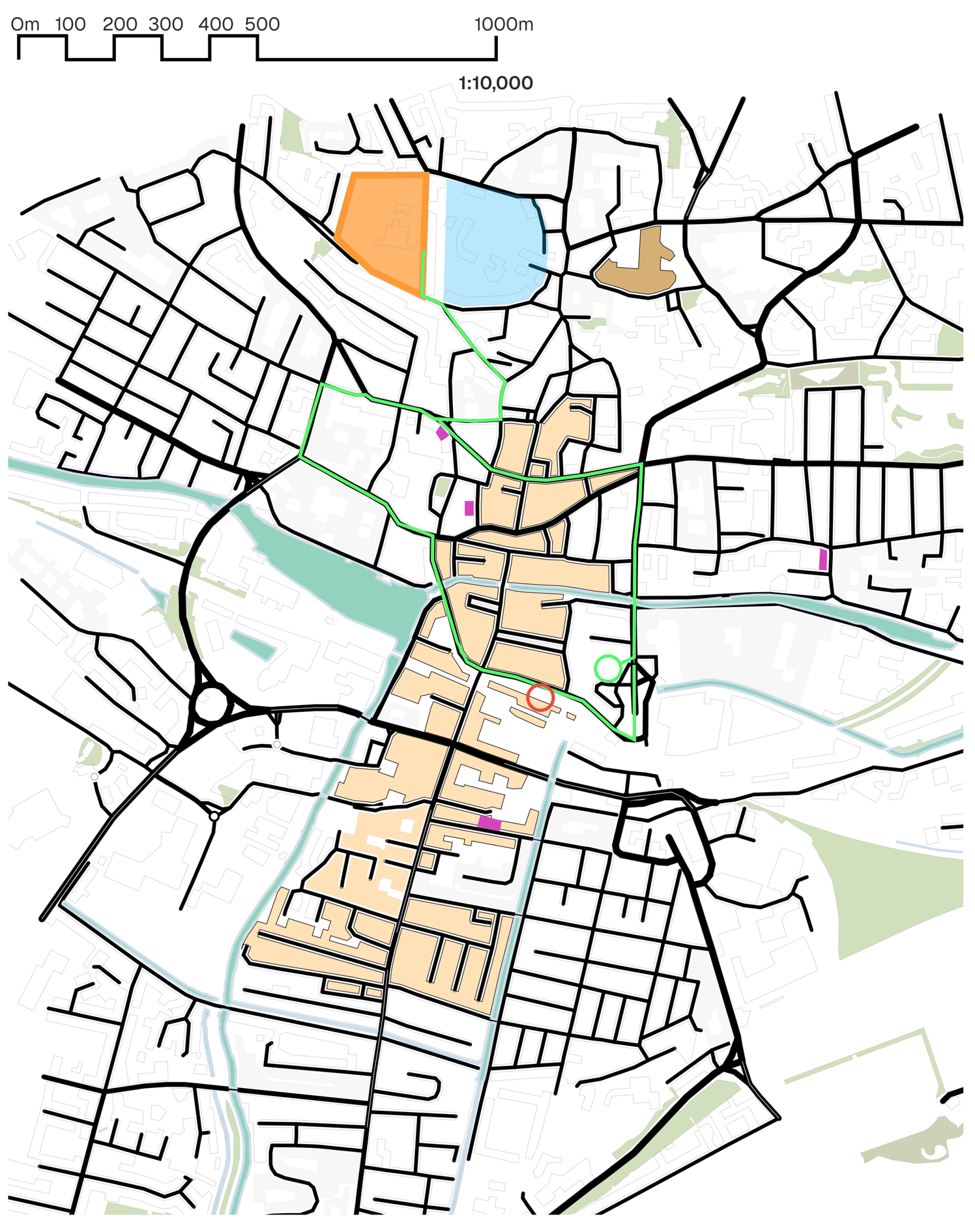


Large-Scale Site Analysis

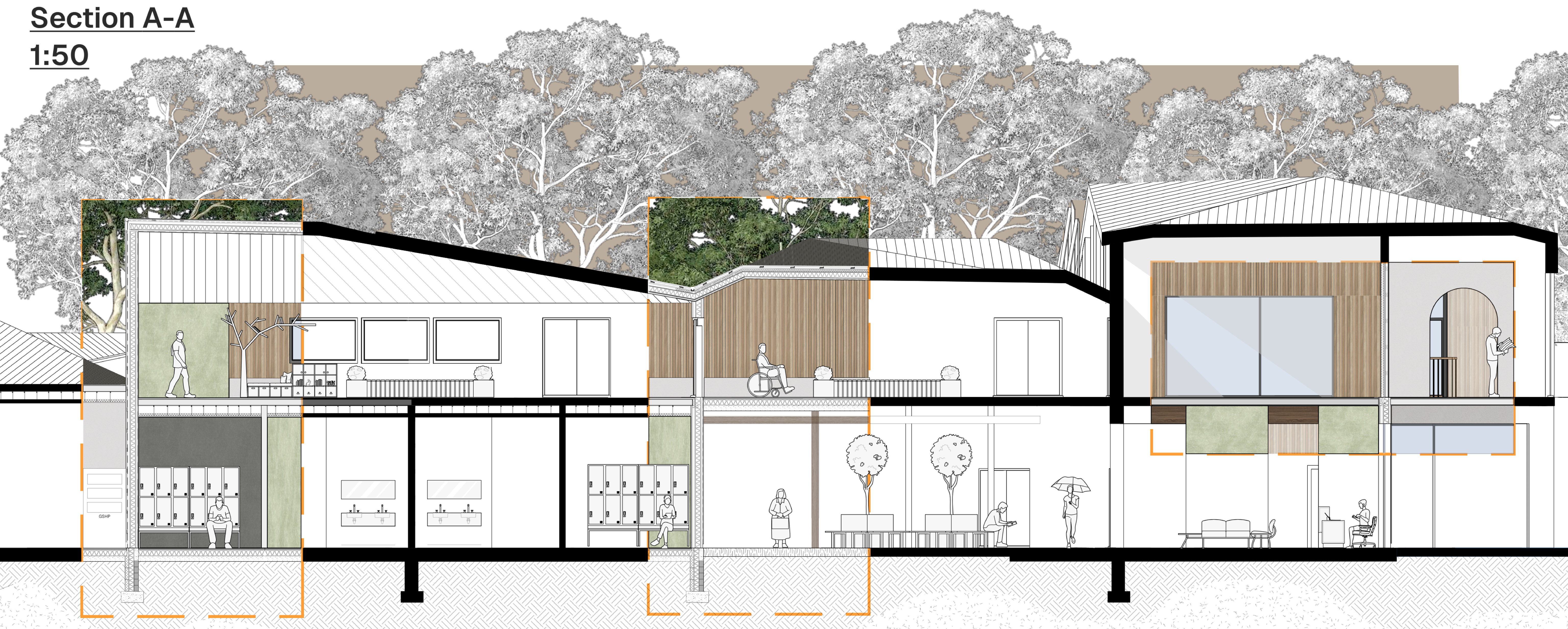
- The Lawn Site in Comparison with Lincoln City Centre
- Highlighting: Travel Routes, Community Centres, Surroundings and Main Highstreet

The Lawn Site
Lincoln Castle
Lincoln Cathedral
Green Space
Nearby Water
Main Highstreet
Train Station
Bus Station
Existing Community Centre
Bus Route





Section A-A 1:50

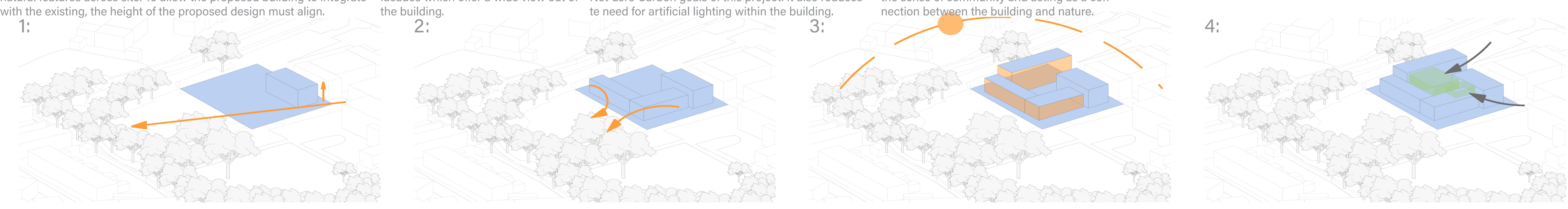


1: Being located within a site of historical impoprtance and thriving landscape, it is crucial not to interfere with any existing buildings and to limit the visual interuptions between these buildings and the existing natural features across site. To allow the proposed building to integrate with the existing, the height of the proposed design must align.

2: The design of the proposed building will highlight the natural features on-site through implementing large glazed facades which offer a wide view out of the building.

3: Having a large amount of south-facing facades will help to utlilise solar opportunities, reducing the need for mechanical heating systems and aligning with the Net-zero Carbon goals of this project. It also reduces te need for artificial lighting within the building.

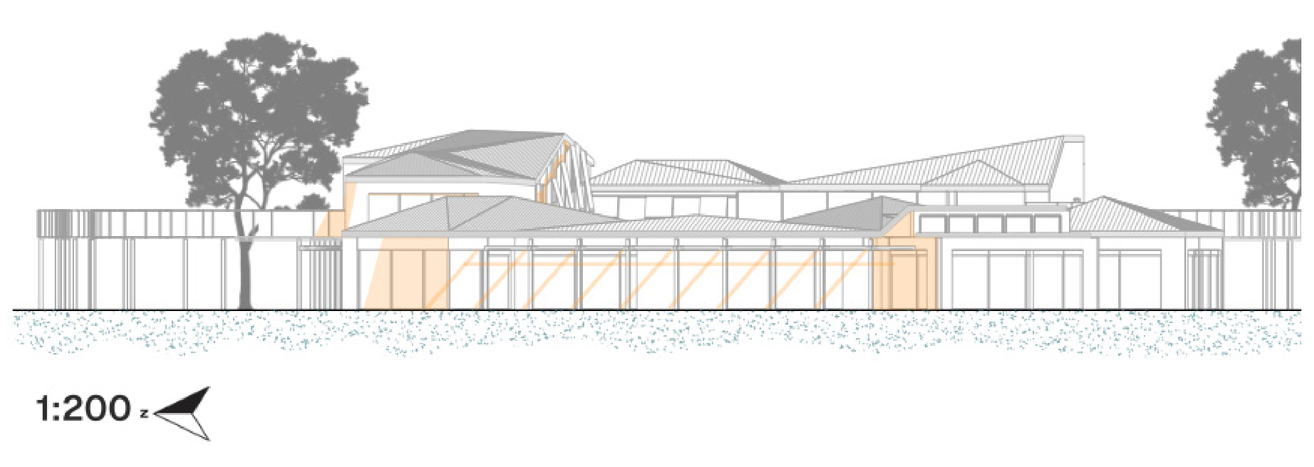
4: Implementing an enclosed space of the centre of the buildings design allows for a courtyard space to be introduced, improving the sense of community and acting as a connection between the building and nature.



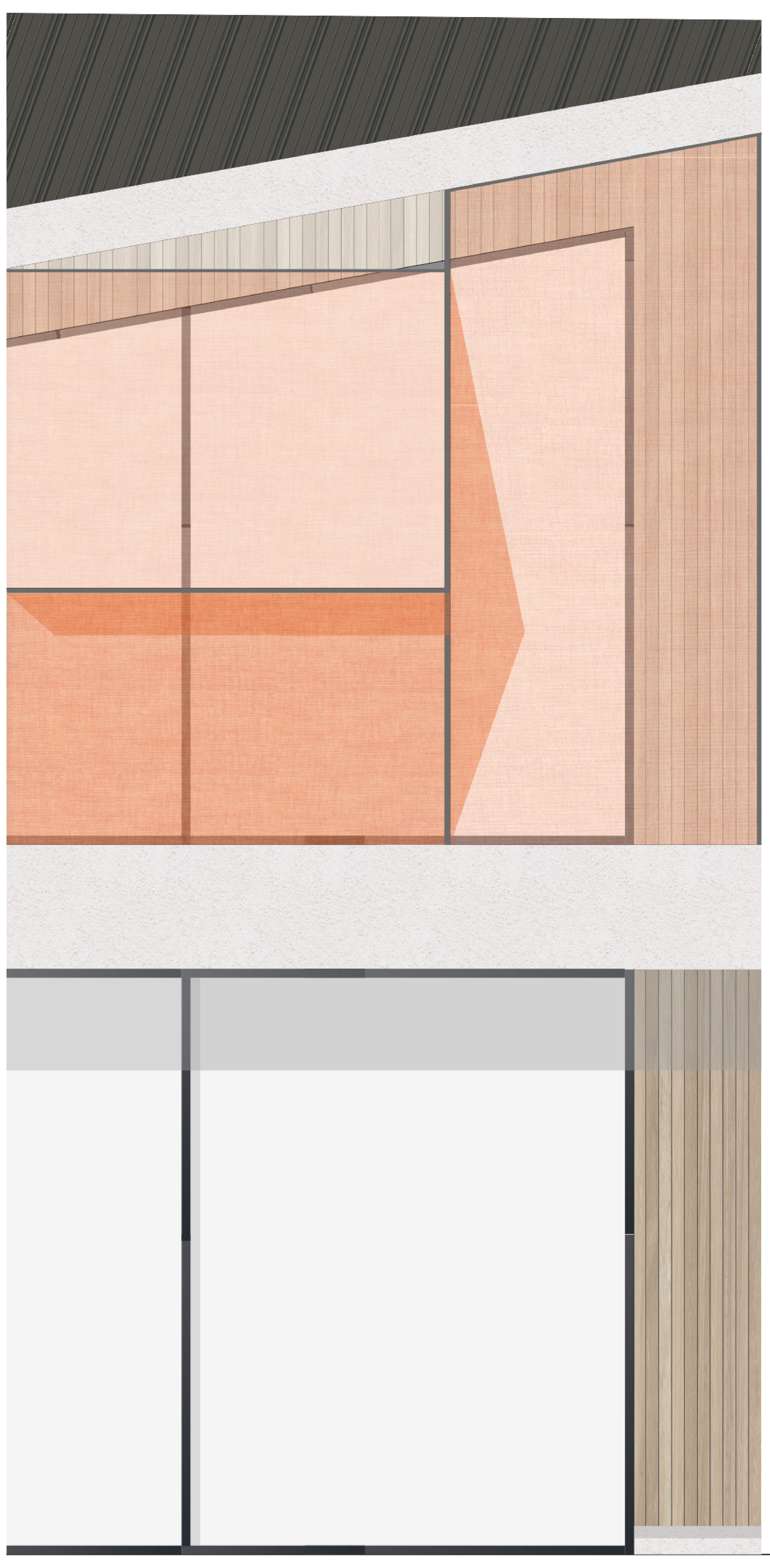
North Elevation

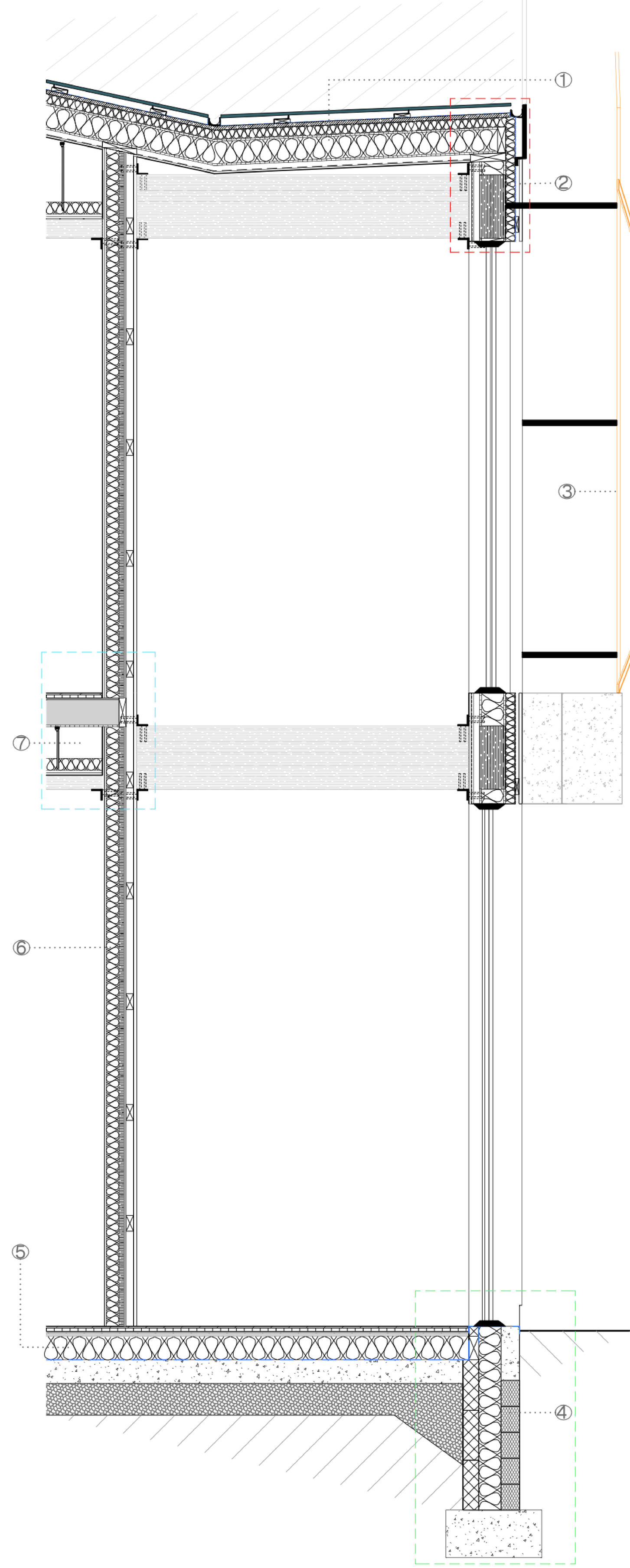
South Elevation

West Elevation



This project has been designed in accordance with the appropriate building regulations, particularly Approved Document B and M, which highlight the accessible features of the building's design as well as the fire safety measures taken within the building's layout as well as the construction details of this design.





Foundation-Ceiling Section and Elevation @1:20

1-
20mm Zinc Roof Panels
47mm Steel Supports with 25mm Timber Battens (with drainage holes)
1mm Breather Membrane
60mm Continuous Mineral Wool Insulation
12mm OSB Sheathing
140mm Rigid Insulation with Structural Timber Studs (140 x 38mm)
12mm OSB Sheathing
38mm Service Layer with Vertical Timber Battens
1mm Vapour Control Layer
12.5mm Plasterboard

2-
20mm External Timber Cladding
25mm Ventilated Air Cavity with Horizontal Timber Battens
1mm Breather Membrane
60mm Continuous Mineral Wool Insulation
12mm OSB Sheathing
140mm Rigid Insulation with Structural Timber Studs (140 x 38mm)
12mm OSB Sheathing
38mm Service Layer with Vertical Timber Battens
1mm Vapour Control Layer
12.5mm Plasterboard
Steel Bracket Joint
100mm Steel Screws

3-
35mm Recycled Steel Framework
2mm PTFE Coated Fibre Glass Façade
600mm Offset From Exterior Cladding

4-
117 x 340mm GGBS Concrete Block
117 x 160mm Thermo-efficient Blockwork Strip Foundation
140mm Rigid Insulation with Structural Timber Studs (140 x 38mm)
100 x 300mm Lightweight Blockwork Strip Foundation
600 x 300mm GGBS Concrete Foundation

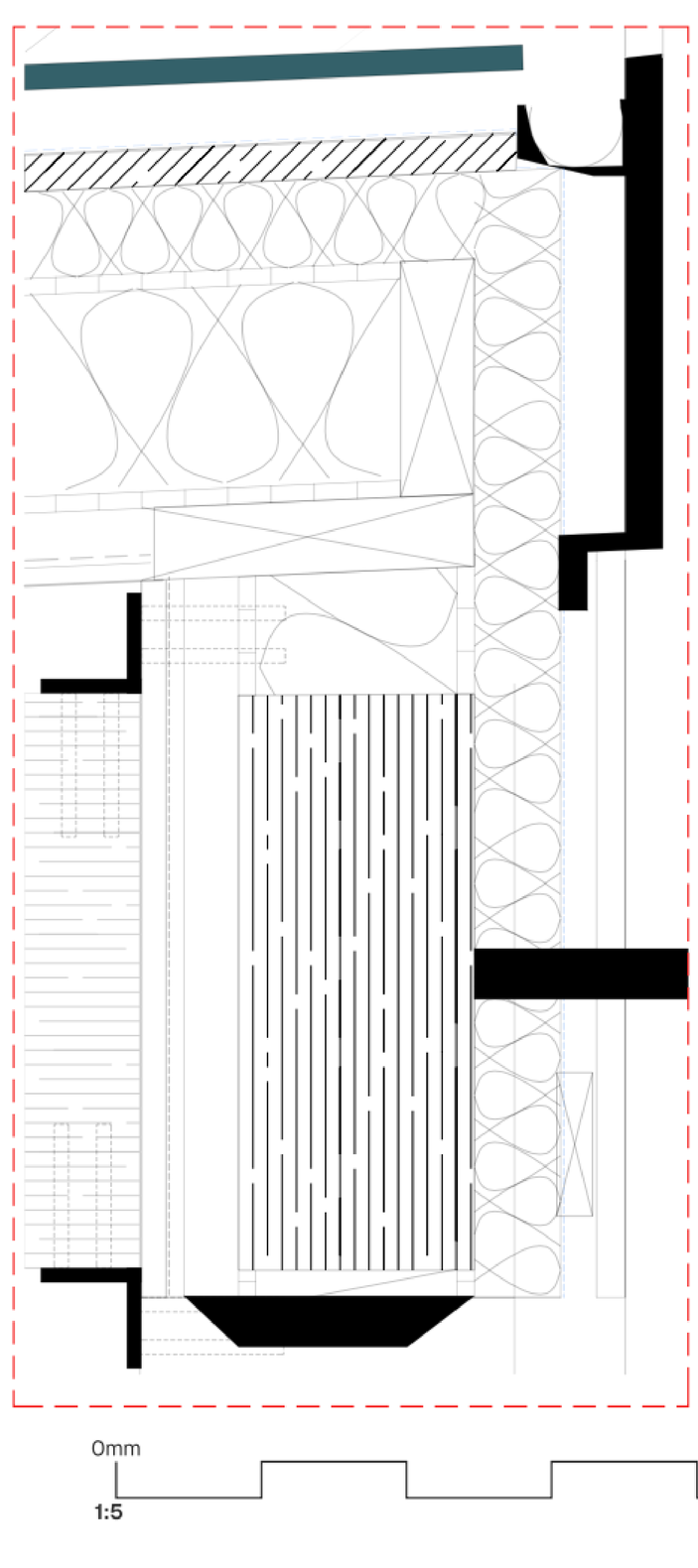
5-
12mm Oak/ Rubber Floor Finish
20mm Dry UFH Panels
10mm Acoustic Underlayer
60mm Timber Foundation Board
150mm Rigid Mineral Wool Insulation
150mm Reinforced Concrete Slab
200mm Compact Hardcore

6-
20mm Interior Cladding
47mm Cavity Space with Horizontal Timber Battens (47 x 100mm)
15mm Acoustic Soundboard
110mm Timber Frame
80mm Rigid Mineral Wool Insulation with Timber Studs
12.5mm Plasterboard
12.5mm Plasterboard

7-
12mm Oak/ Rubber Floor Finish
20mm Dry UFH Panels
10mm Acoustic Underlayer
160mm CLT Floor Slabs
12mm OSB Sheathing
120mm Service Void with 75mm Mineral Wool Insulation
15mm Acoustic Plasterboard
15mm Acoustic Plasterboard
160 x 400mm CLT Structural Beam

0mm 500mm 1000mm
1:20

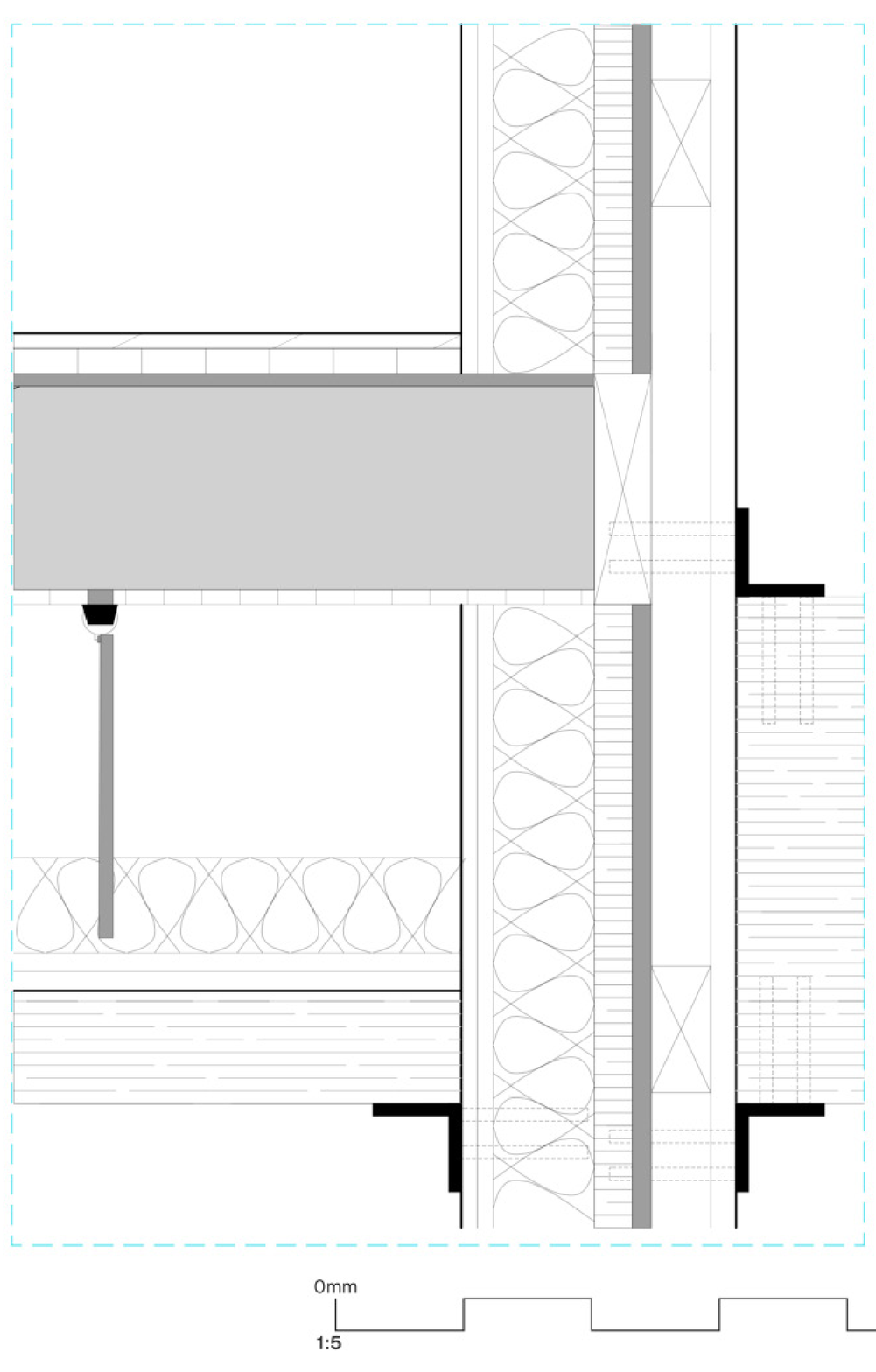
Roof-Exterior Wall Connection @1:5



1-
20mm Zinc Roof Panels
47mm Steel Supports with 25mm Timber Battens (with drainage holes)
1mm Breather Membrane
60mm Continuous Mineral Wool Insulation
12mm OSB Sheathing
140mm Rigid Insulation with Structural Timber Studs (140 x 38mm)
12mm OSB Sheathing
38mm Service Layer with Vertical Timber Battens
1mm Vapour Control Layer
12.5mm Plasterboard

2-
20mm External Timber Cladding
25mm Ventilated Air Cavity with Horizontal Timber Battens
1mm Breather Membrane
60mm Continuous Mineral Wool Insulation
12mm OSB Sheathing
140mm Rigid Insulation with Structural Timber Studs (140 x 38mm)
12mm OSB Sheathing
38mm Service Layer with Vertical Timber Battens
1mm Vapour Control Layer
12.5mm Plasterboard
Steel Bracket Joint
100mm Steel Screws

Separation Floor- Interior Wall Connection @1:5



6-
20mm Interior Cladding
47mm Cavity Space with Horizontal Timber Battens (47 x 100mm)
15mm Acoustic Soundboard
110mm Timber Frame
80mm Rigid Mineral Wool Insulation with Timber Studs
12.5mm Plasterboard
12.5mm Plasterboard

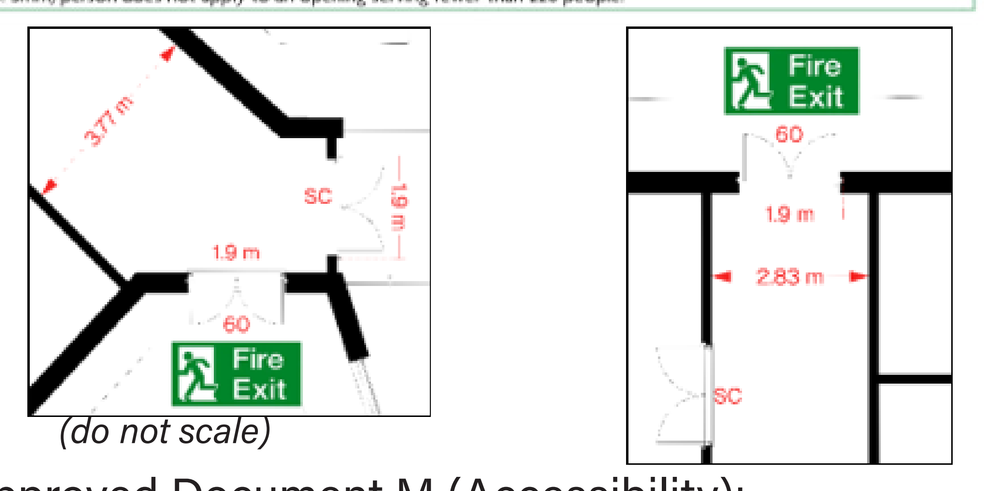
7-
12mm Oak/ Rubber Floor Finish
20mm Dry UFH Panels
10mm Acoustic Underlayer
160mm CLT Floor Slabs
12mm OSB Sheathing
120mm Service Void with 75mm Mineral Wool Insulation
15mm Acoustic Plasterboard
15mm Acoustic Plasterboard
160 x 400mm CLT Structural Beam

Approved Document B (Fire Safety):

Table 2.3 Widths of escape routes and exits

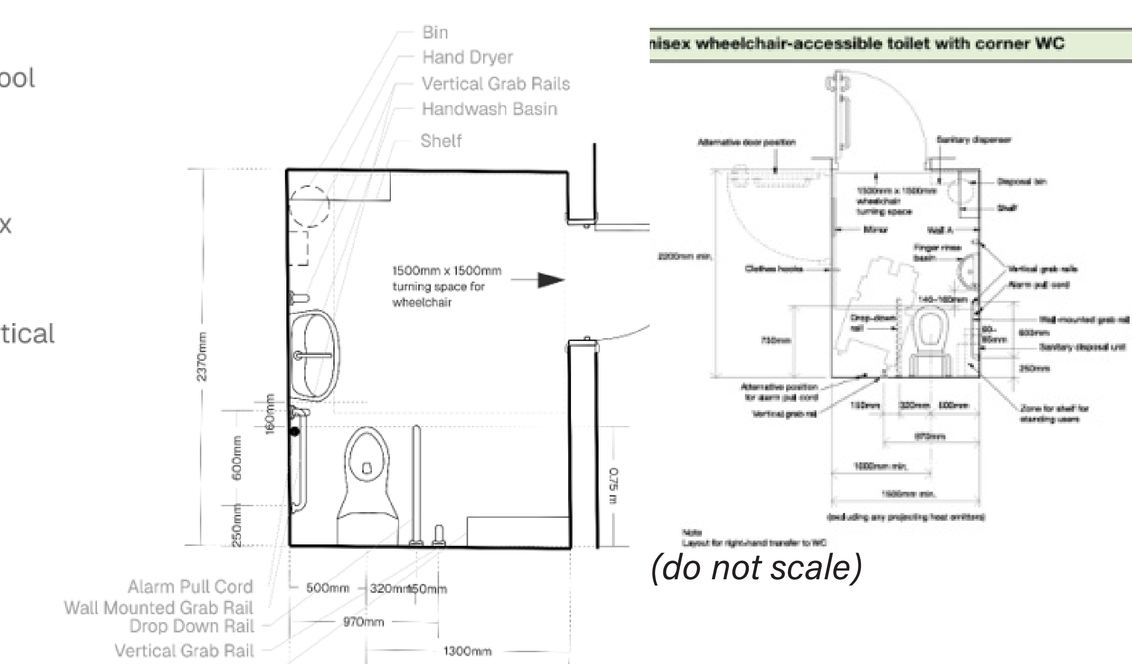
Maximum number of people	Minimum width (mm)[1][2][3]
60	750[4]
110	850
220	1050
More than 220	5 per person[5]

NOTES:
1. See Appendix D for methods of measurement.
2. Widths may need to be increased to meet guidance in Approved Document M.
3. Widths less than 1050mm should not be interpolated.
4. May be reduced to 530mm for gangways between fixed storage racking, other than in public areas of 'shop and commercial' (purpose group 4) buildings.
5. 5mm/person does not apply to an opening serving fewer than 220 people.



(do not scale)

Approved Document M (Accessibility):



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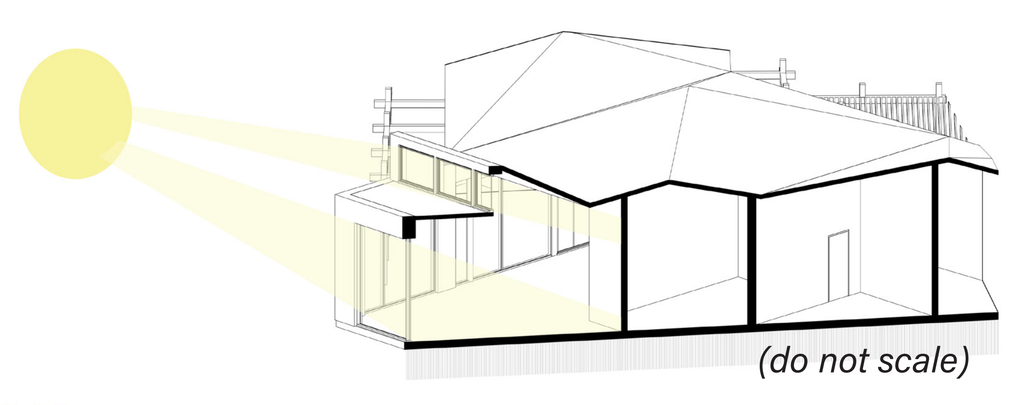
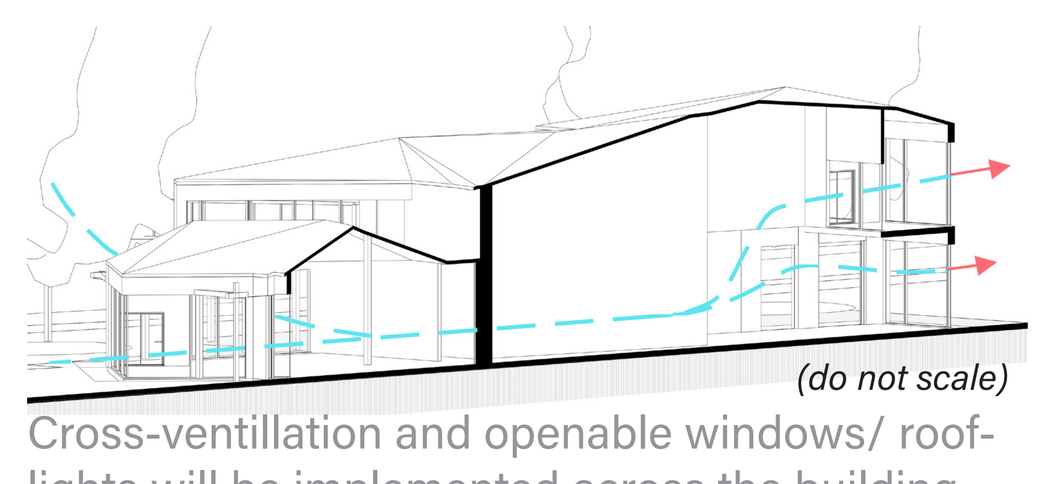


(do not scale)

Utilising solar opportunities will play a critical role in the drive to align with the projects Net-zero Carbon goals. A range of passive strategies will be implemented across the building, which include:

Large South-facing glazed facades which allow for sunlight to heat up the internal space and pass through to darker areas of the building.
Roof lights will be scattered across the roof of the building to heat up and spread light internally.

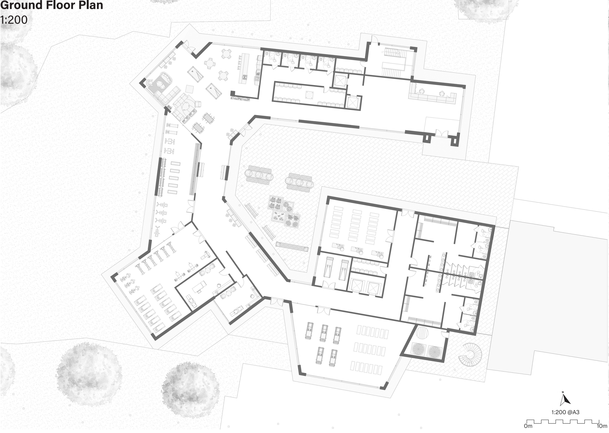
A PTFE-coated glass fibre solar shading system will be intoduced to actively utilise sunlight which hits larger facades.



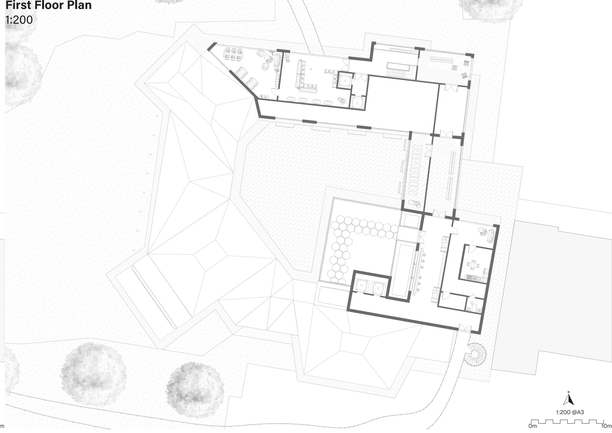
(do not scale)

Cross-ventillation and openable windows/ rooflights will be implemented across the building, acting as a passive strategy for ventillation. This reduces the buildings reliance of mechanical cooling systems and aligns with Net-zero goals.

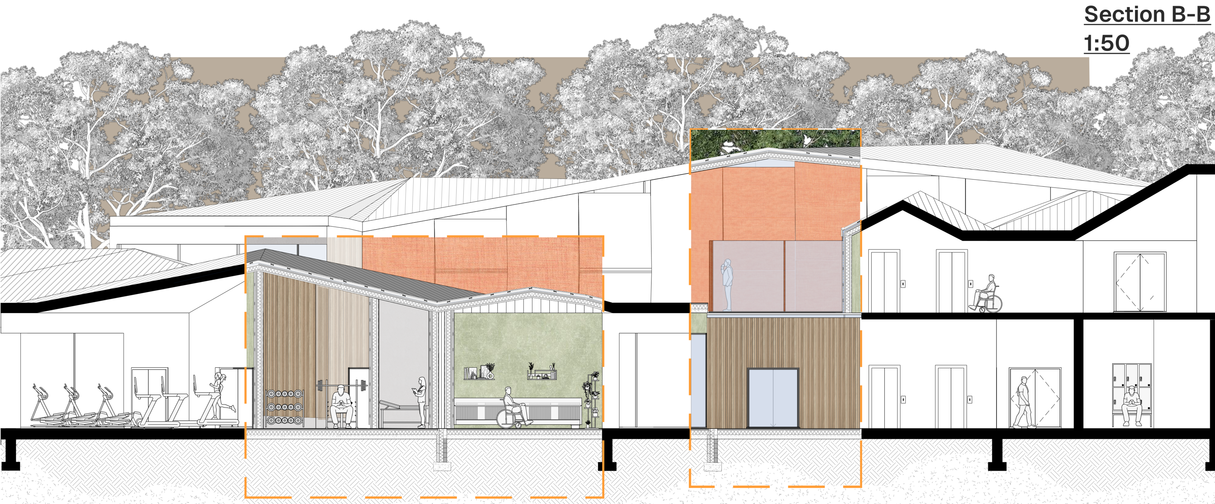
Ground Floor Plan
1:200



First Floor Plan
1:200



Section B-B
1:50



Ground Floor-Foundation Connection @1:5

4-
117 x 340mm GGBS Concrete Block
117 x 160mm Thermo-efficient Blockwork Strip Foundation
140mm Rigid Insulation with Structural Timber Studs (140 x 38mm)
100 x 300mm Lightweight Blockwork Strip Foundation
600 x 300mm GGBS Concrete Foundation

5-
12mm Oak/ Rubber Floor Finish
20mm Dry UFH Panels
10mm Acoustic Underlayer
60mm Timber Foundation Board
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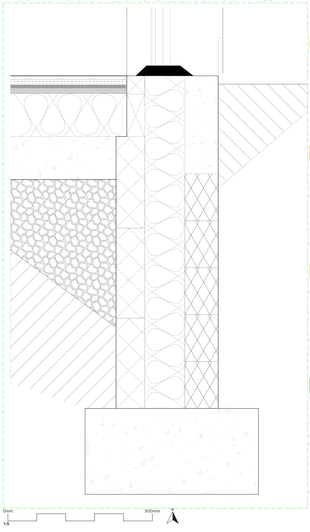
200mm Compact Hardcore



SDG 7: Affordable and Clean Energy

Passive strategies such as the solar shading system, cross-ventilation.

Energy-efficient mechanical systems such as solar-panels and a ground source heat pump will be used where necessary as a low-carbon solution.

SDG 9: Industry, Innovation and Infrastructure

Implementing a SMART Building Control System to allow for efficient use of enegry and reduce energy wastage.

Sustainable and durable material selection such as a CLT framework system will promote an environmentally friendly construction stage.

SDG 11: Sustainable Cities and Communities

Local ecology will be introduced across and throughout the building's internal and external spaces to create a stronger integrational between the building and its landscape.

Rain gardens and permeable paving slabs will utilise the natural collection of rainwater, reducing the reliance on the mains water supply.

SDG 13: Climate Action

The Rainwater Harvesting System (RHS) will play a key role in fullfilling this SDG as it will provide water for the rain gardens, landscape maintenance/ irrigation as well as for WC's, further enhancing this projects sustainable and Net-zero Carbon ambitions.

(do not scale)

A Rainwater Harvesting System will be the primary mechanical water management system for the building, utilising water collected from concealed guttering and downpipes. The water will be stored in an above-ground storage tank after it is filtered, which will reduce carbon produced during installation. This system will be linked to Rain Gardens within the courtyard space of the building, along with water collected via permeable paving. These gardens will also introduce local ecology to the project and promote water sustainable water re-use.