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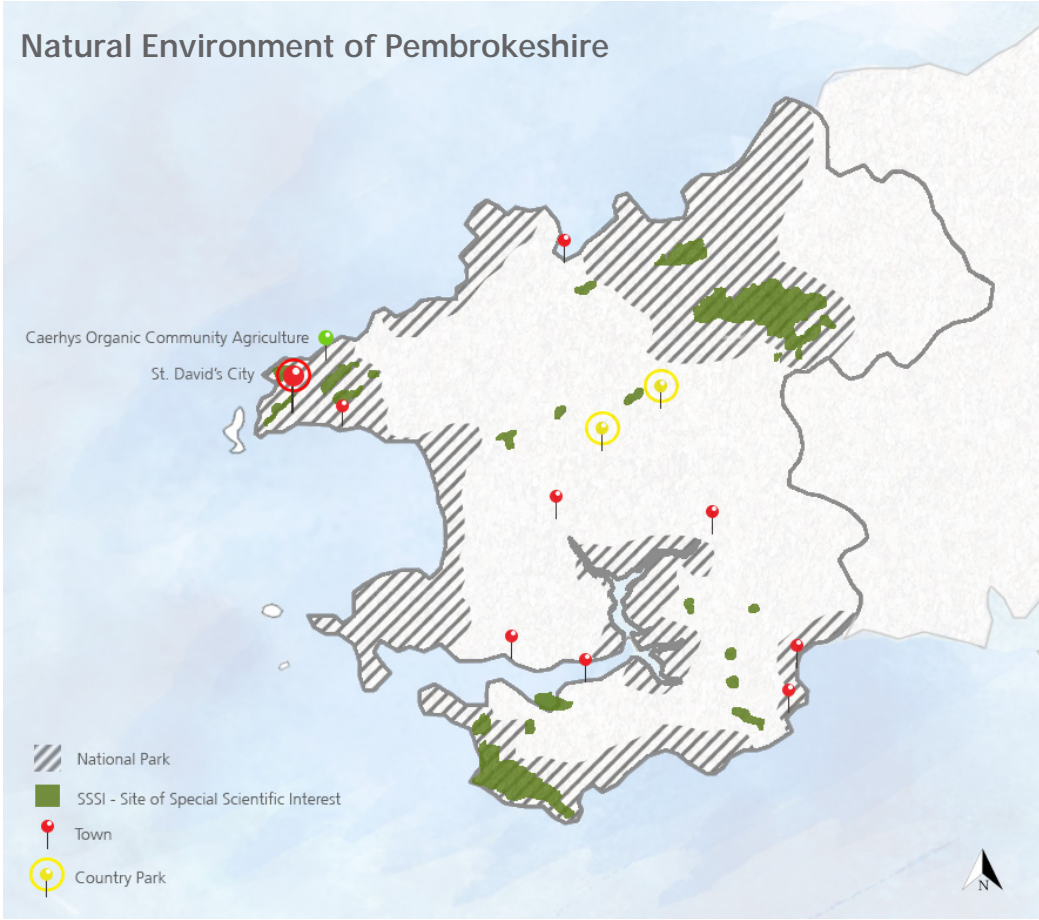
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Community Farmers Union

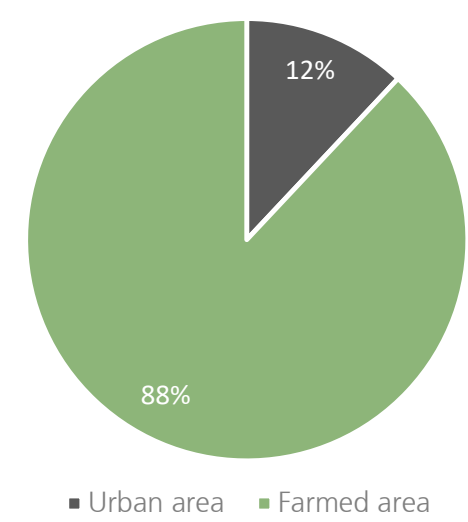
Thesis Project



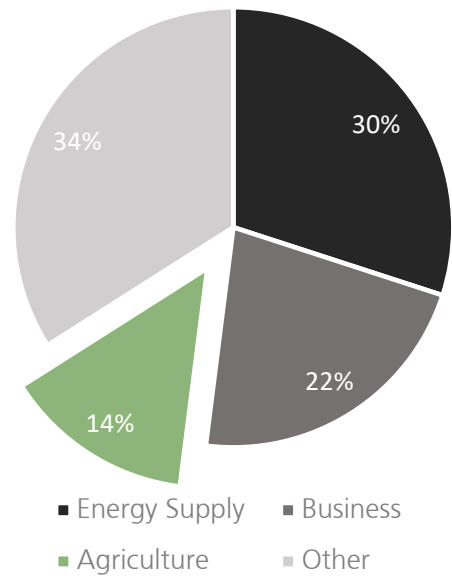
Site



Pembrokeshire Land-use



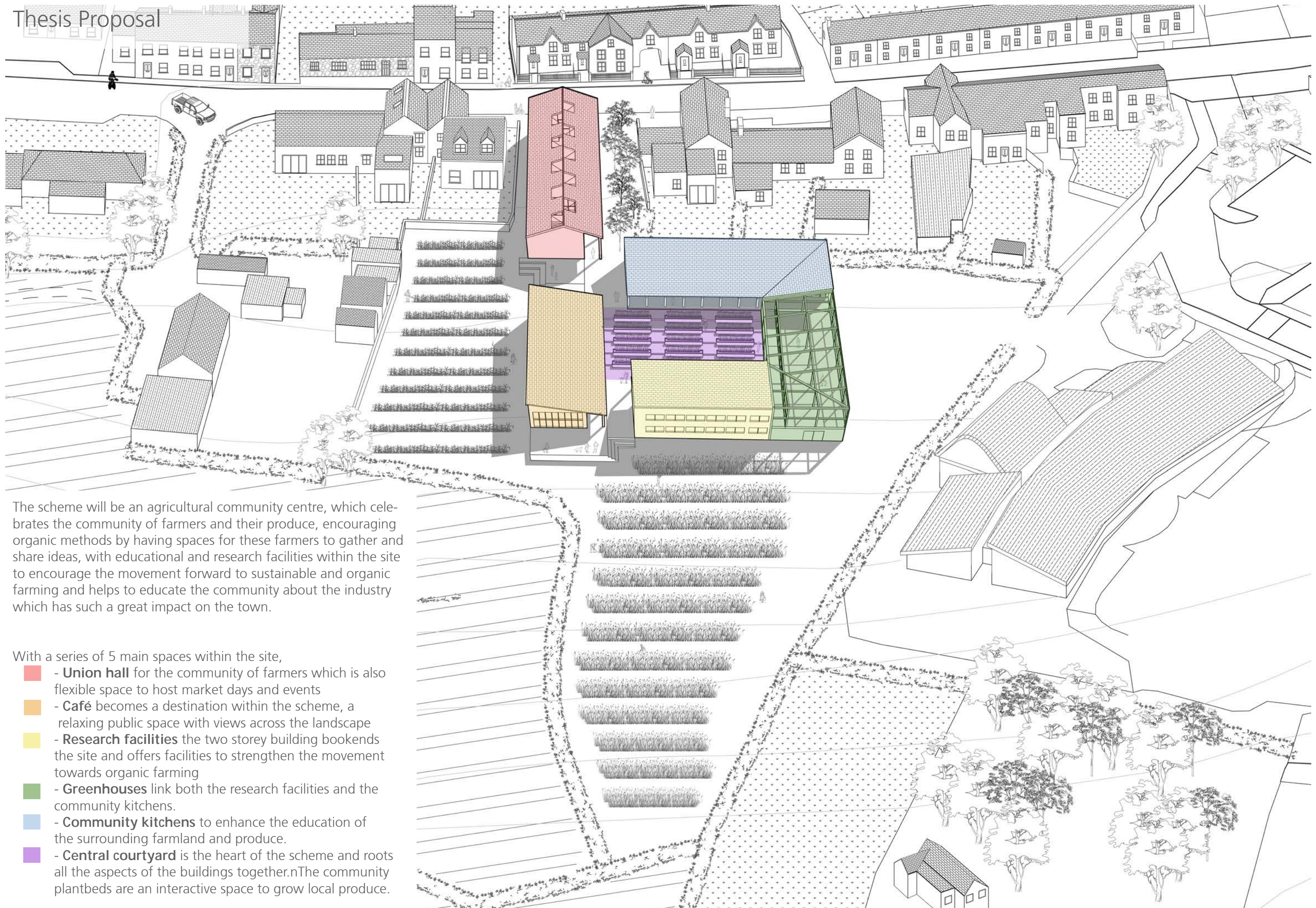
Greenhouse gas emissions in Wales (2020)



Agriculture has the 3rd largest emissions of greenhouse gasses, it is important to move forward to more sustainable and environmentally friendly ways of working within the industry and move towards organic farming methods to help battle the current climate emergency.



The agricultural industry is one of the largest contributors to the economy of St Davids, however it is also one of the most effected industries due to lack of funding and subsidies since Brexit, there is an increasing pressure on farmers to produce cheaper products which pushes the movement to chemicals and mass production via cheaper methods.



The scheme will be an agricultural community centre, which celebrates the community of farmers and their produce, encouraging organic methods by having spaces for these farmers to gather and share ideas, with educational and research facilities within the site to encourage the movement forward to sustainable and organic farming and helps to educate the community about the industry which has such a great impact on the town.

With a series of 5 main spaces within the site,

- - **Union hall** for the community of farmers which is also flexible space to host market days and events
- - **Café** becomes a destination within the scheme, a relaxing public space with views across the landscape
- - **Research facilities** the two storey building bookends the site and offers facilities to strengthen the movement towards organic farming
- - **Greenhouses** link both the research facilities and the community kitchens.
- - **Community kitchens** to enhance the education of the surrounding farmland and produce.
- - **Central courtyard** is the heart of the scheme and roots all the aspects of the buildings together. The community plantbeds are an interactive space to grow local produce.

Site Model

Modelling the immediate context of the site, working with levels and the surrounding buildings at 1:200.

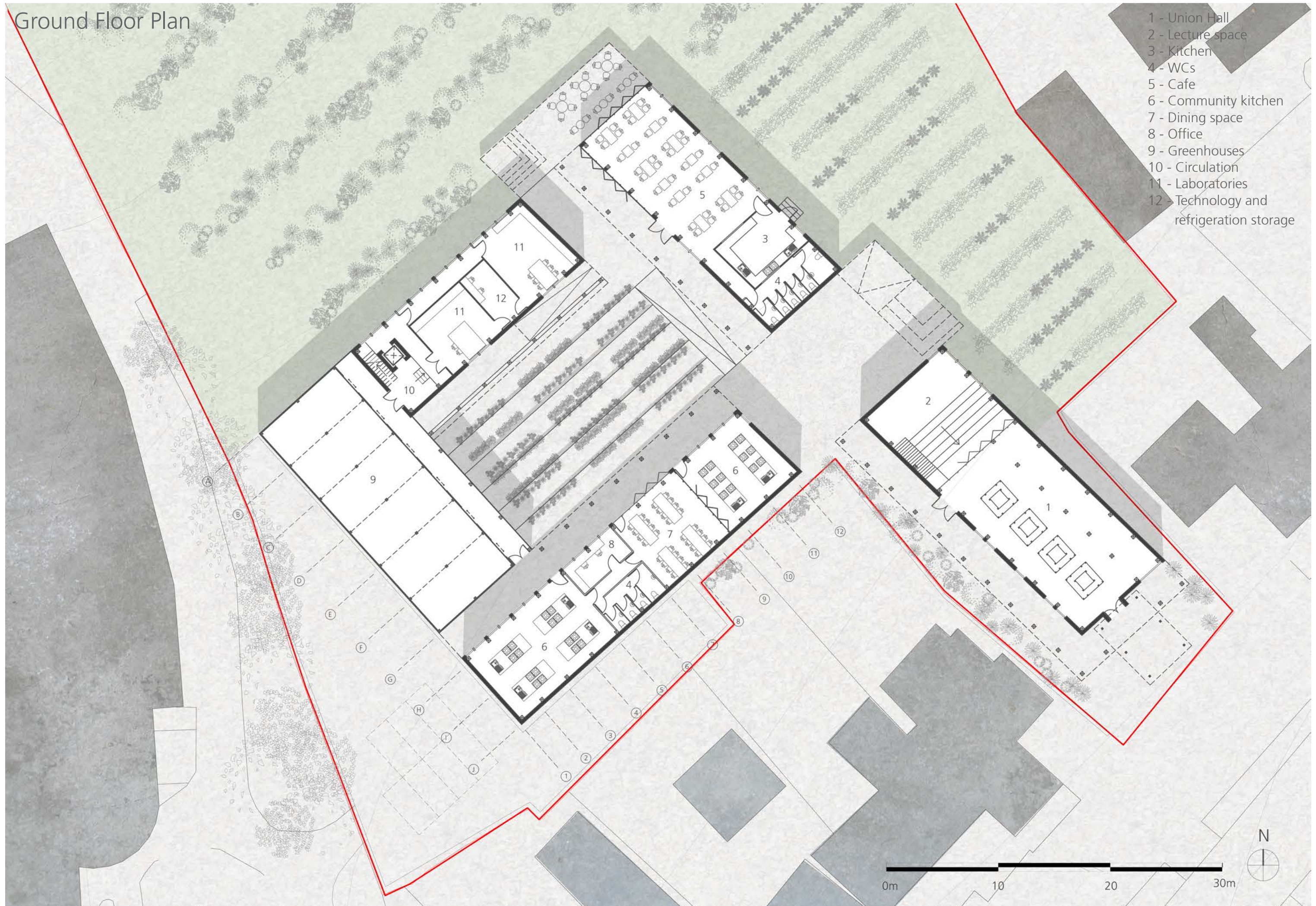


Plan view of the scheme in context, the model shows the contrast in the built environment to the South and the agricultural land to the North.

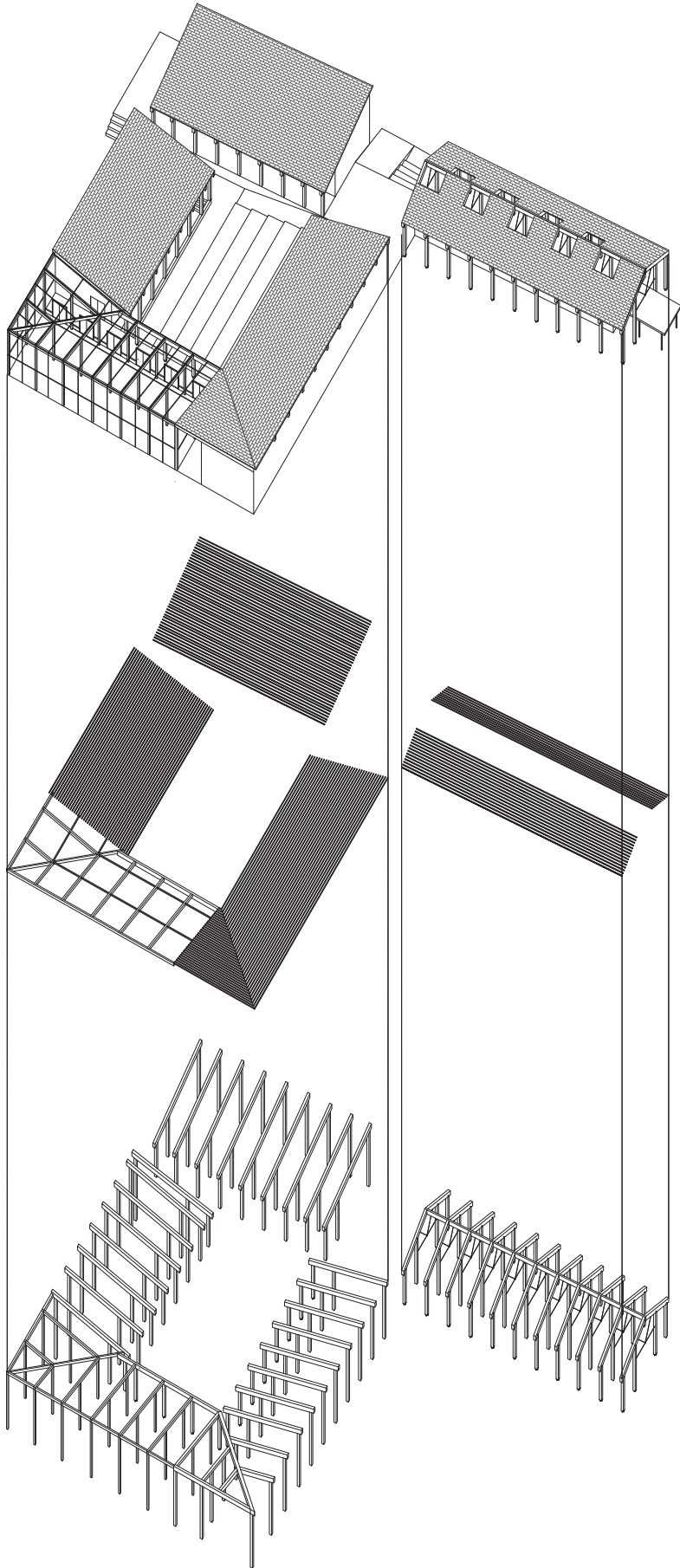


Ground Floor Plan

- 1 - Union Hall
- 2 - Lecture space
- 3 - Kitchen
- 4 - WCs
- 5 - Cafe
- 6 - Community kitchen
- 7 - Dining space
- 8 - Office
- 9 - Greenhouses
- 10 - Circulation
- 11 - Laboratories
- 12 - Technology and refrigeration storage



Lower Ground Floor Plan



Sections

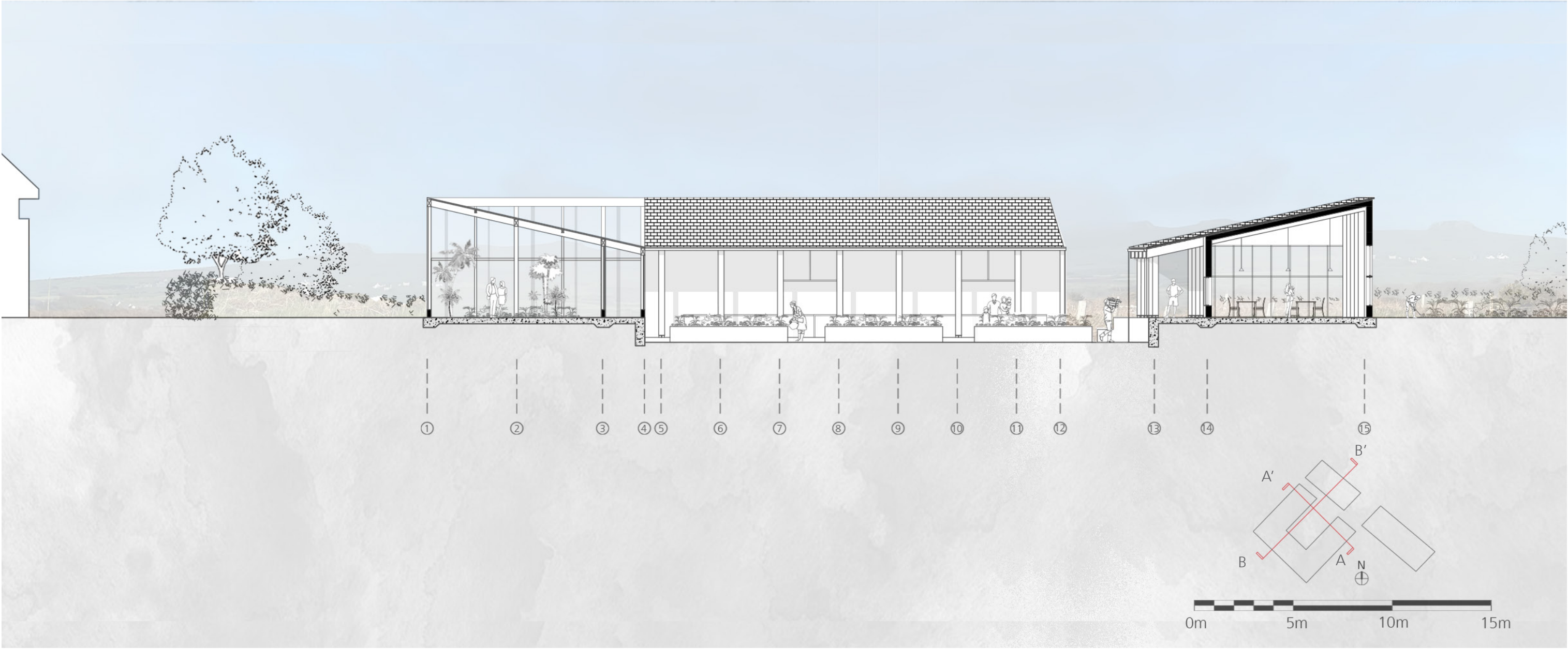
Section A-A'

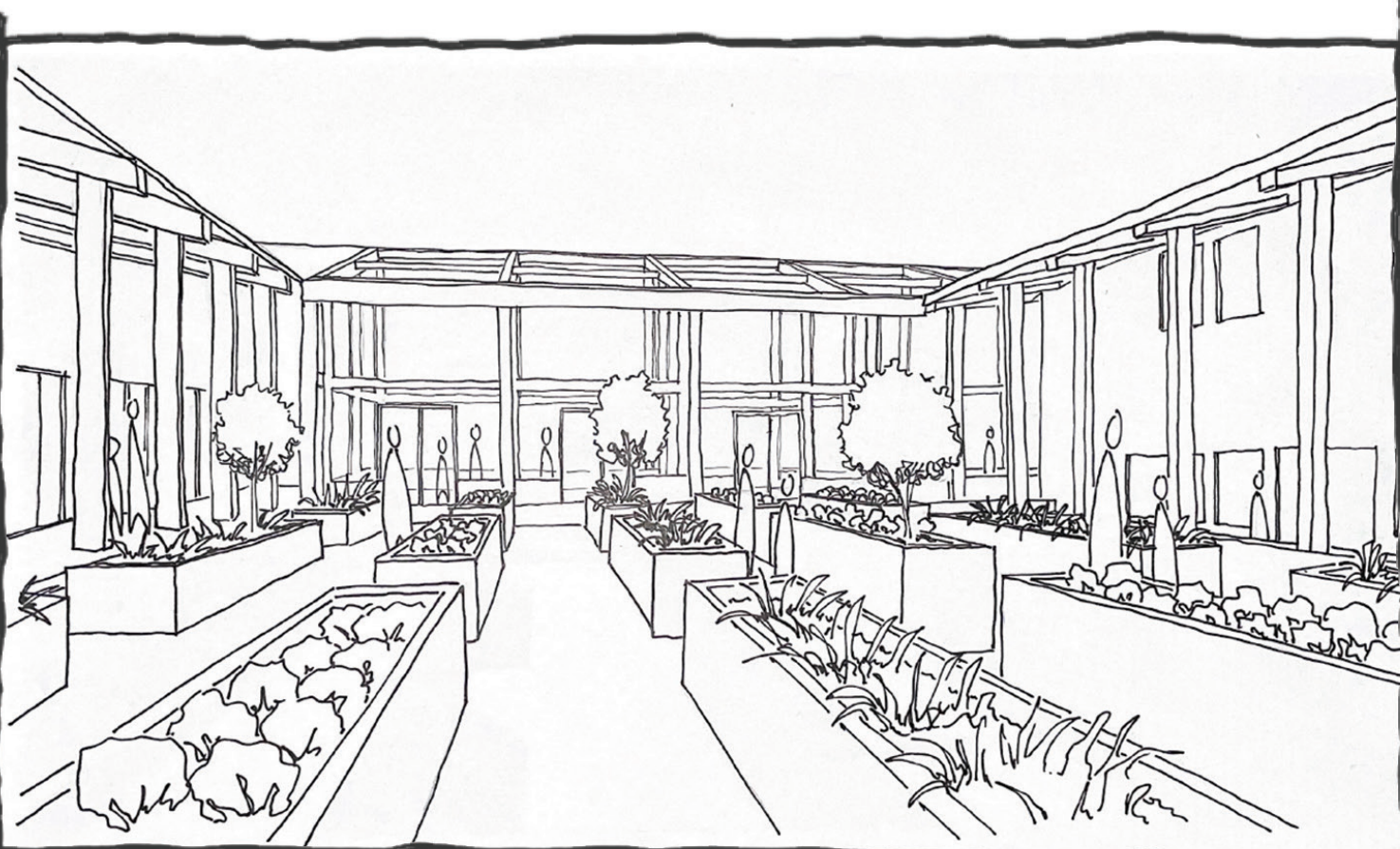


The individual buildings relate to each-other through the landscape and spaces between them, to create areas to enjoy and appreciate the surroundings. The central planted courtyard brings all the buildings together as it has shared functions with each of the spaces.

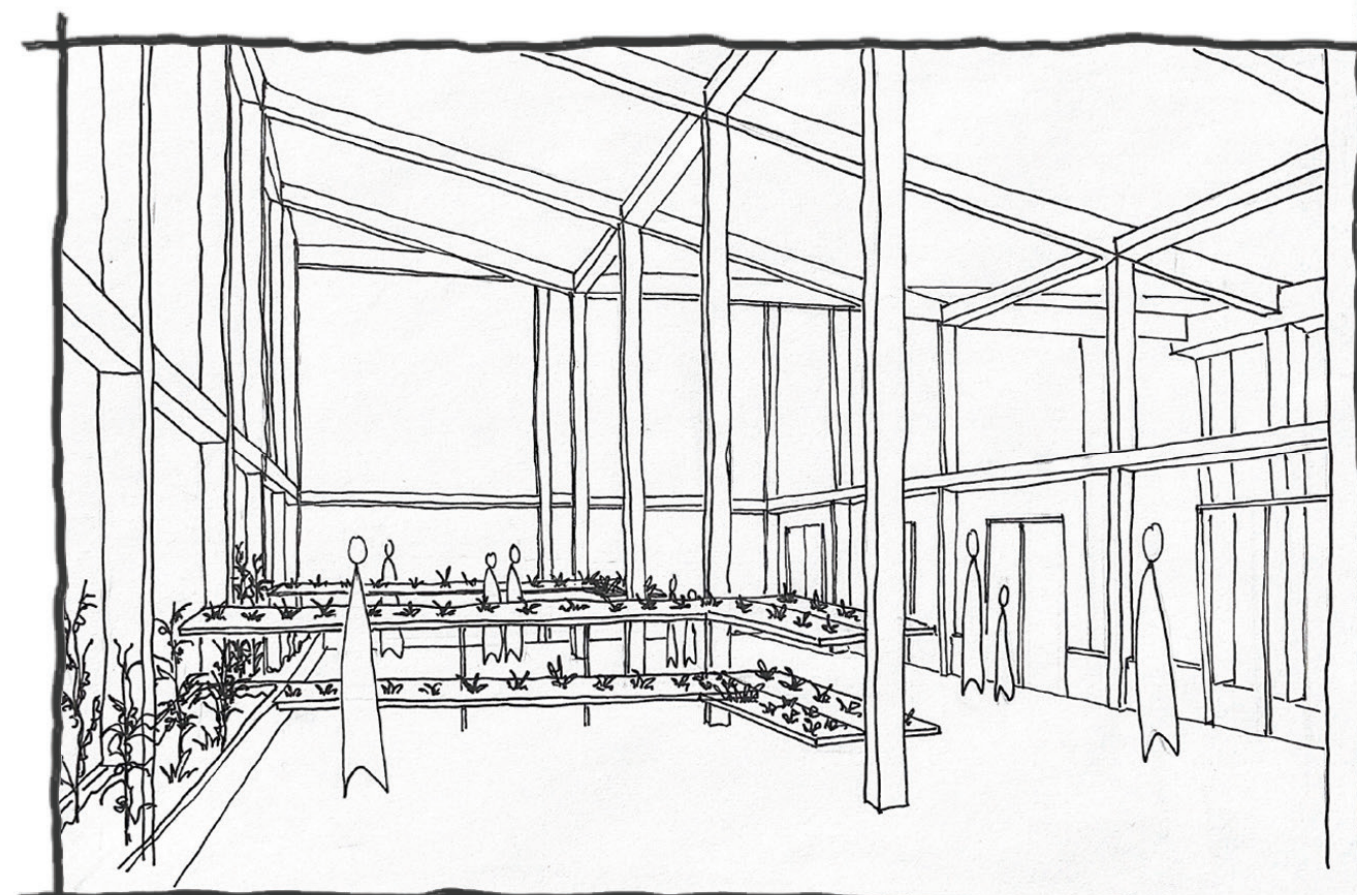
Sections

Section B-B'

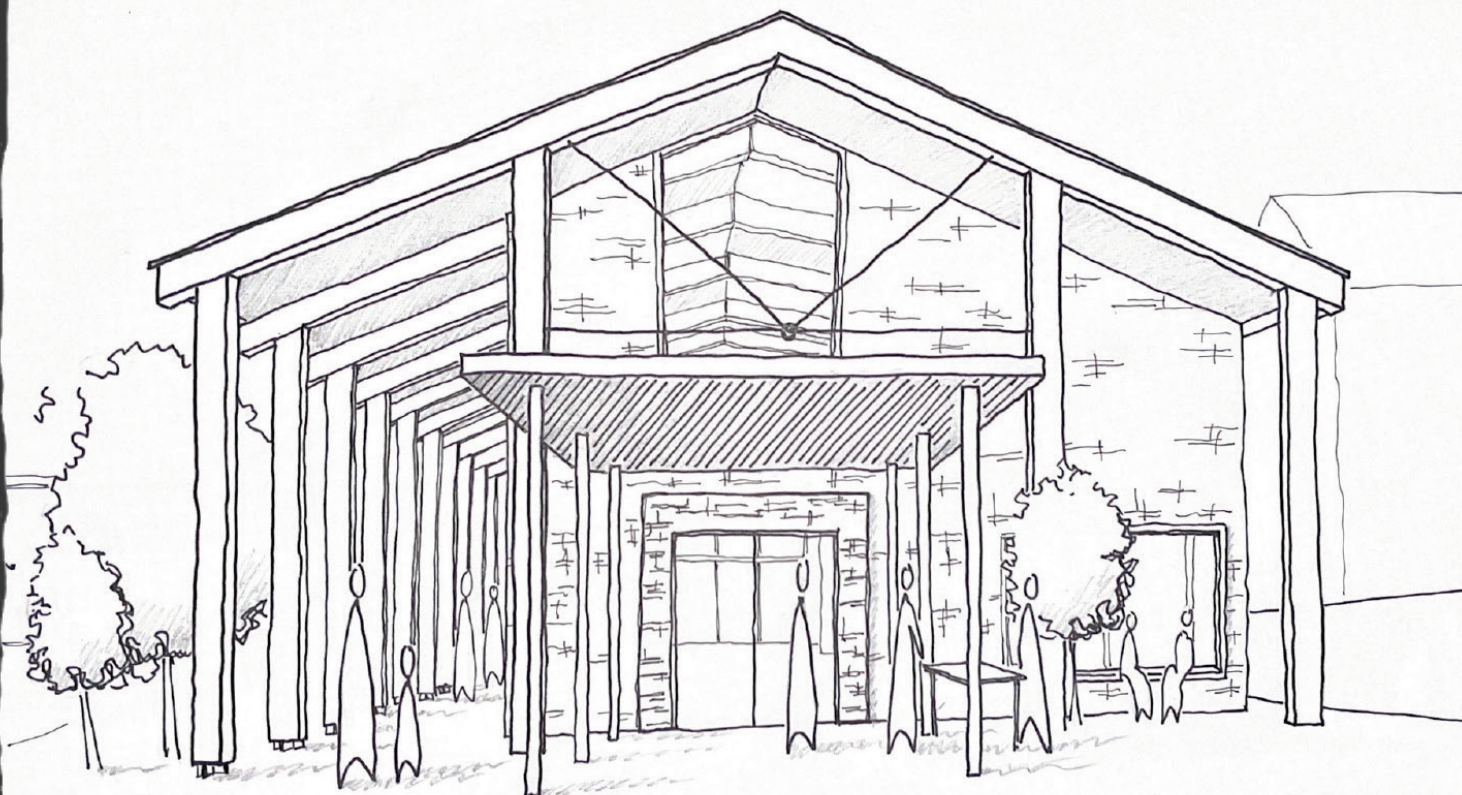




Through the courtyard



Inside the greenhouse



Entrance view through portico



View into the courtyard

Street Elevation



Materiality Elevation



Long Street Elevation

Materiality

Slate

The community farmers union design uses local, natural slate and stone along with durable natural timber cladding and planter bed details to create a welcoming and sustainable development that is sympathetic with its local and immediate context.



Cedar cladding

Timber cladding is traditionally used in agricultural buildings, the cladding here will be 50mm square sections, a more contemporary design decision to the traditional 150mm panels used in agricultural buildings, the facade material follows through from the layout of the design and the structure within.



Stone

Stone cladding will be used to demonstrate areas of more civic function such as the Union hall, it has a more linear structure to it than that of the traditional field stones traditionall used through the city. The stone cladding gives the elevation a greater sense of gravitas. There is a stone plinth on the other buildings to keep continuity through the scheme.



Welsh Douglas Fir structural frame

A timber structure is a sustainable option and follows through from the proposal of a buildign to encourage organic development. Combined with high performance SIP construction.



Waterloo City Farm

Timber cladding used to replicate the agricultural aspects of architecture and timber frame structure internally expressed.



Thesis Project



Hackney School of food

Different ground materials for the different functions of outside space, determining the activity wihtin each area.



Landscaping materials



Gravel

Gravel meets the edges of the buildings and allows small beds of plants to break up the paved areas.



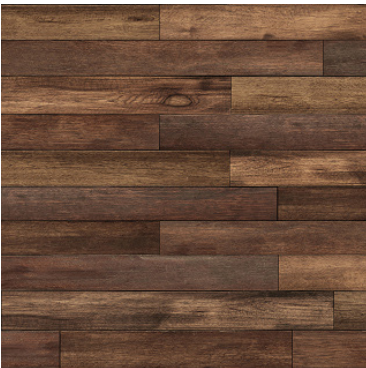
Linear grey stone

The linear stone slabs create directional movement through the site to guide people through the spaces.



Warm rounded stone

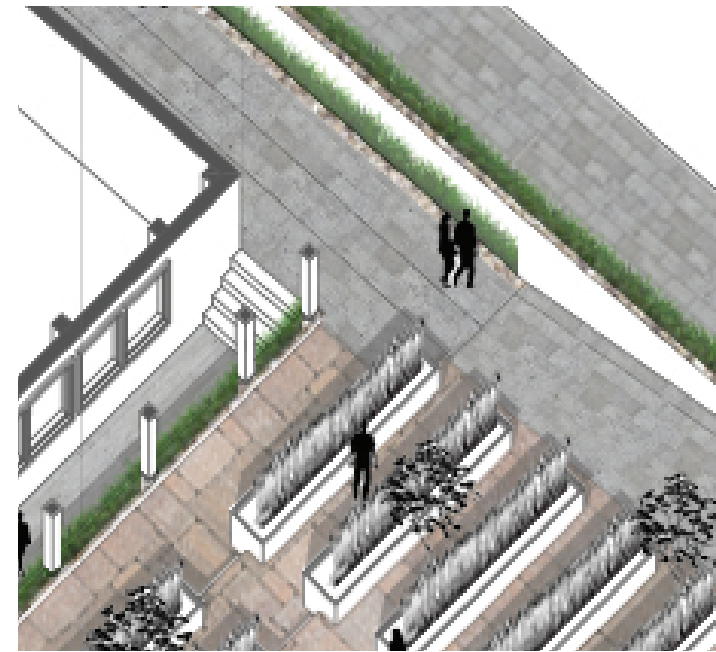
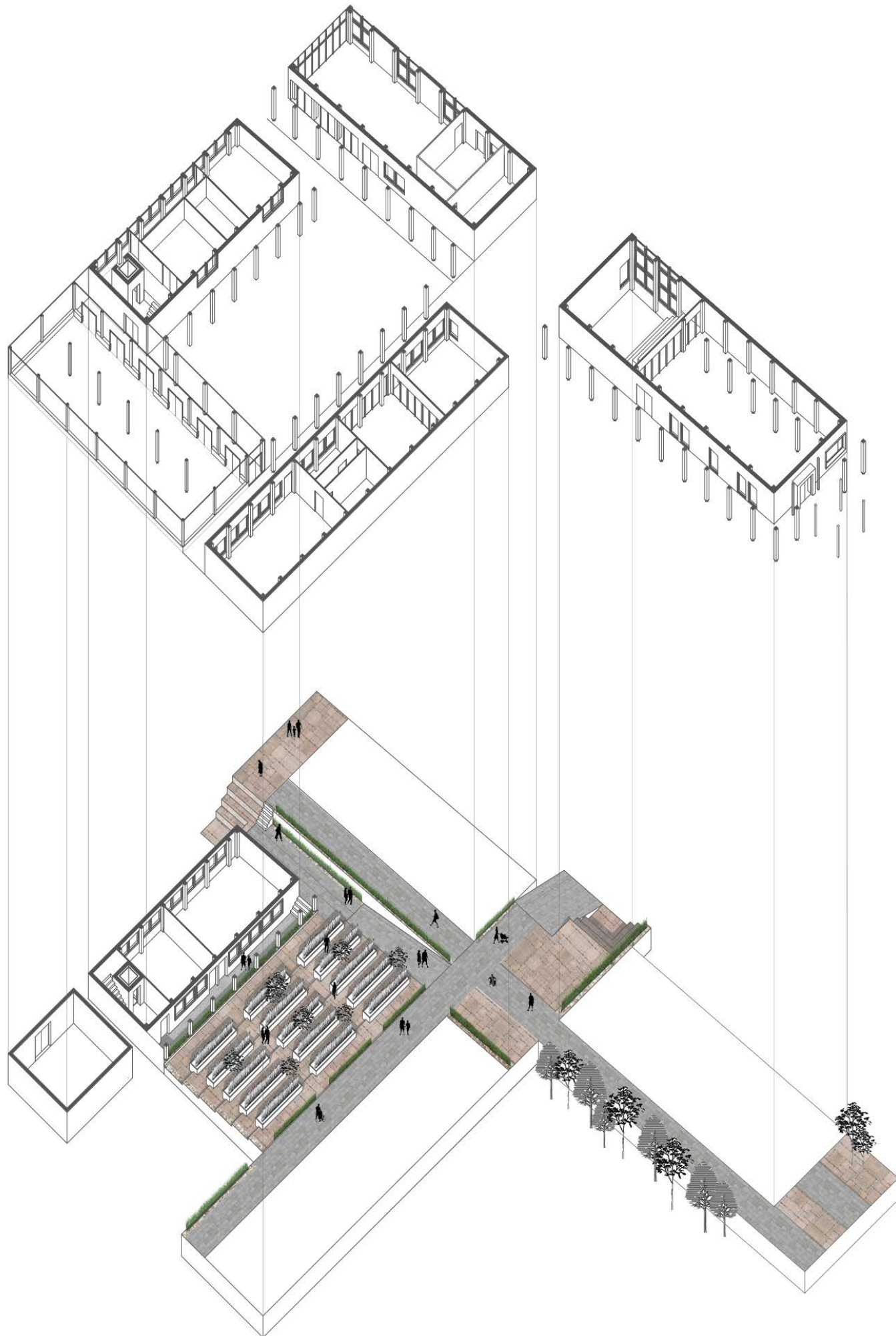
The rounded stone slabs indicate breathing spaces within the site, whether this is seating or plant bed spaces, it is a space to enjoy the surroundings.



Timber decking

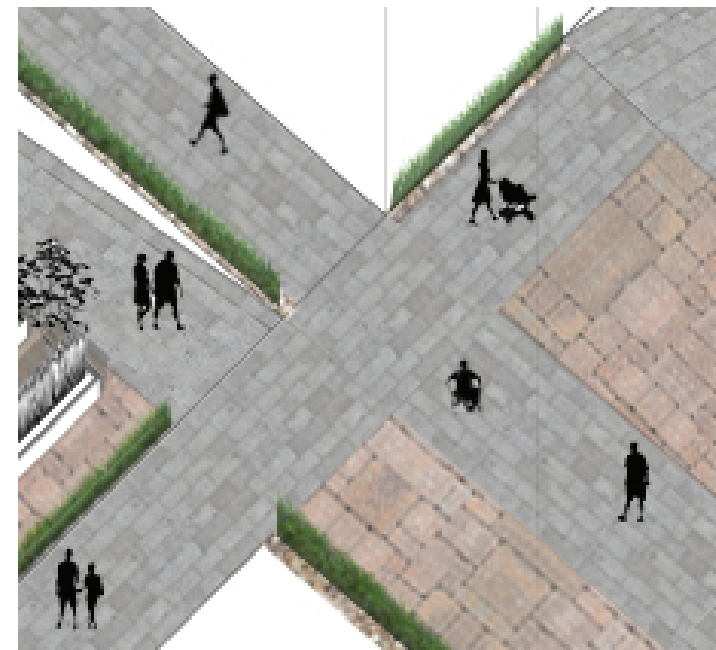
A treated timber decking will be used within the greenhouse to create a raised deck around the plants.

Exploded floorplan axonometric



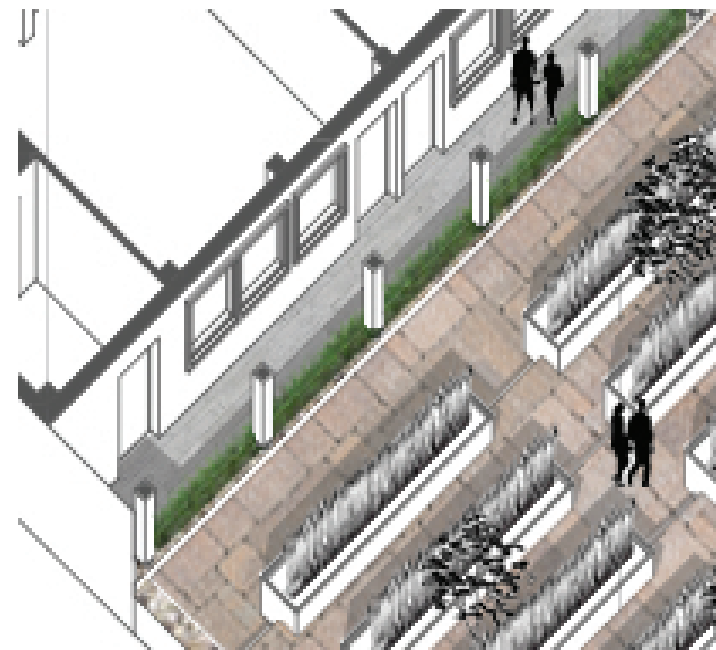
Level changes

The slope of the site is followed by the stepped courtyard and slopes around the side to ensure it is accessible.



Cross roads

Where paths meet, the floor textures overlap and create crossroads in the landscaping.



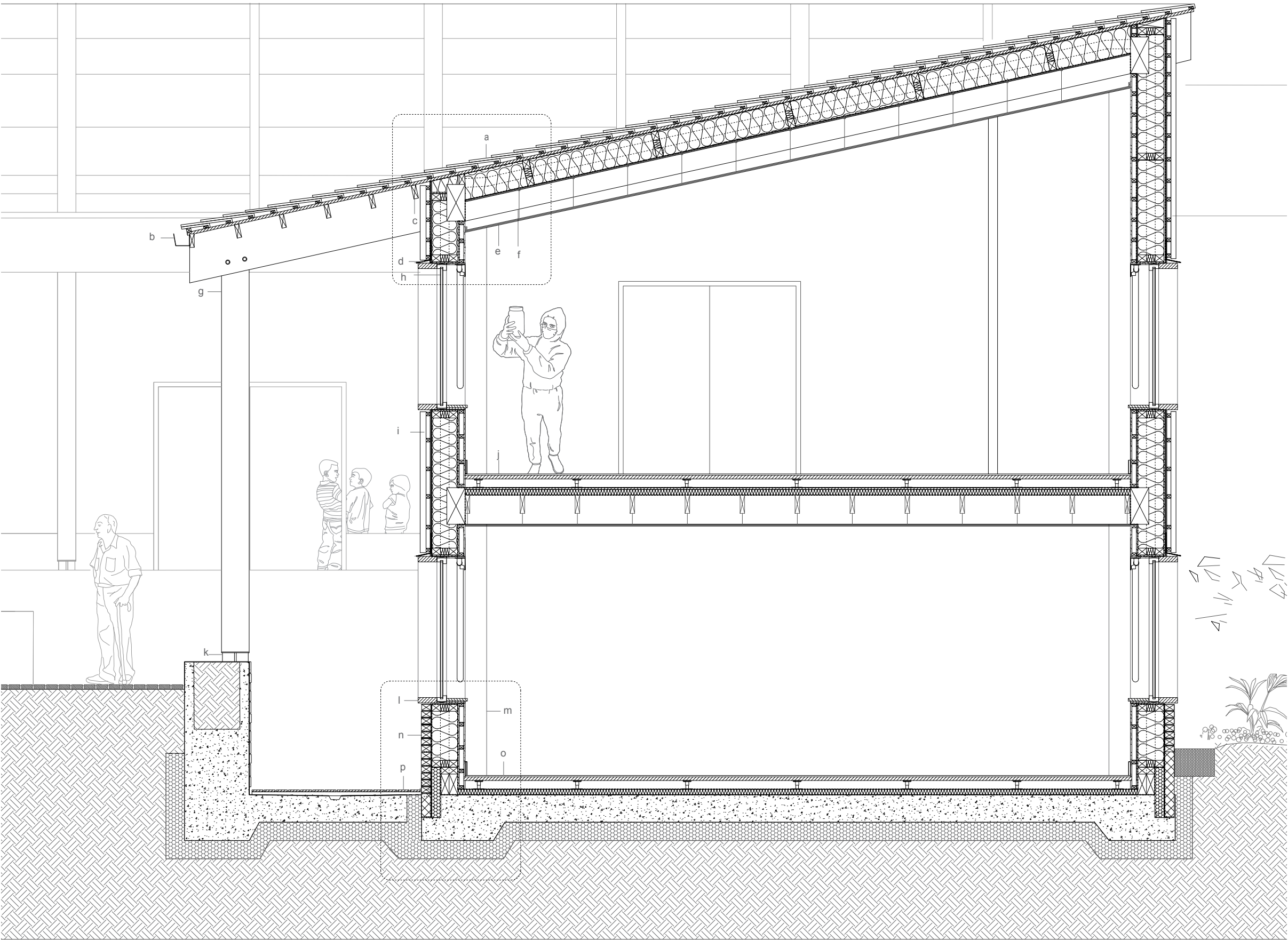
Communication between spaces

The buildings overlook the central courtyard and into the planted beds, the buildings are set back behind the collanade which creates circulation space around the courtyard.

In developing the massing for the scheme, the creation of connecting spaces and sheltered external areas has been carefully considered.

Contrasting natural external landscaping materials are used to help delineate circulation spaces and those spaces where visitors are encouraged to slow down and interact with planted areas, take part in community activities or just enjoy the views.

Technical Section

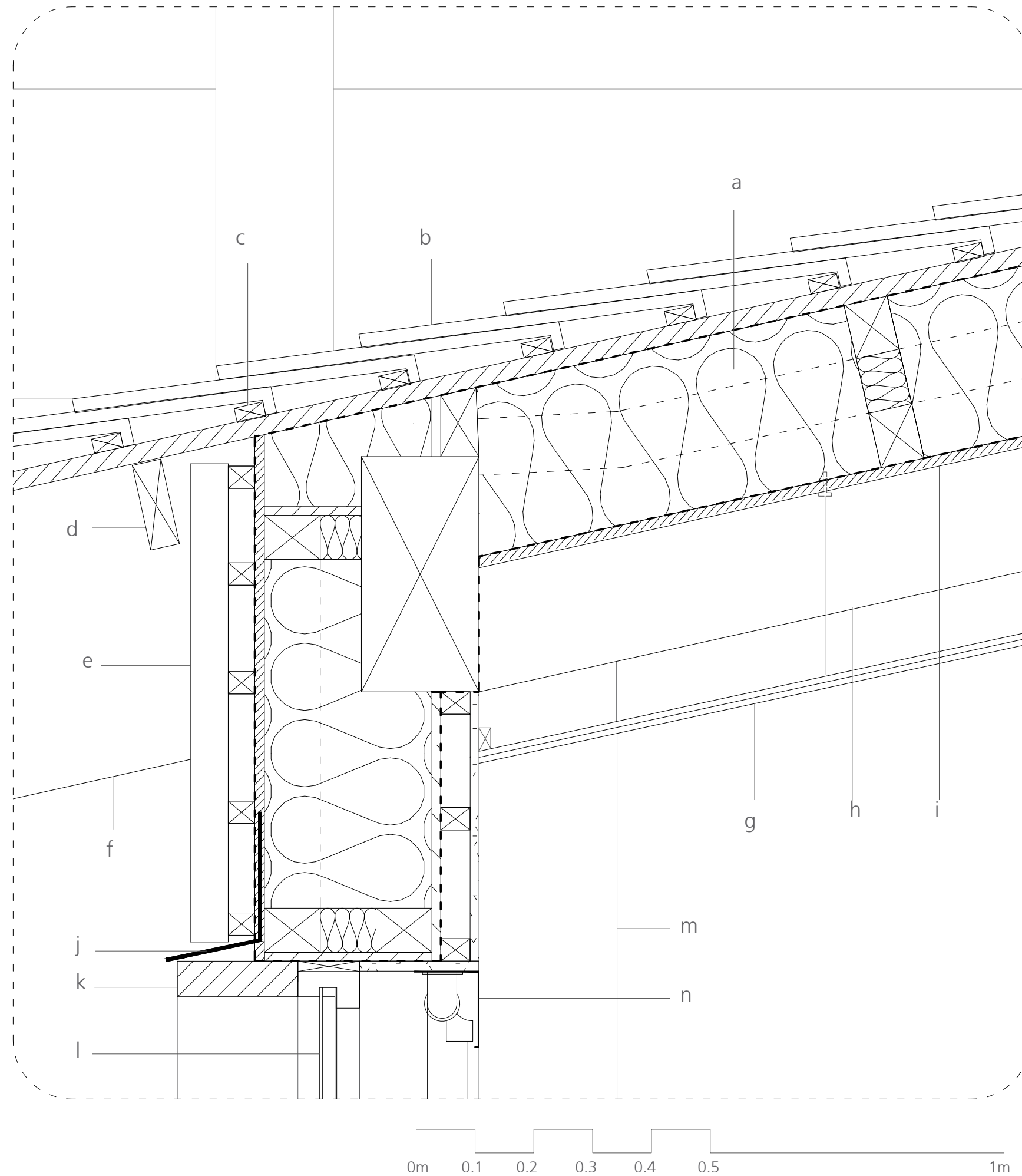


- a 12mm slate tile build up
40mm timber slats, support system of tiles
30mm timber
5mm vapour barrier
20mm timber panel
300mm rock-wool thermal insulation
20mm timber panel
40mm protective timber strips
300mm suspended service area
plaster and internal facade
- b 4mm pressed aluminium guttering detail
- c exposed 150mm secondary support timbers
- d Aluminium flashing detail, facade a minimum of 150mm above ground
- e plasterboard
- f 200mm service area
- g 450mm douglas fir beam
Window element, timber casement with rigid foam core aluminium details
Low-E double glazed laminated safety glass
- h 300mm douglas fir support column with timber bolt connections
- i cedar rainscreen cladding onto protective strips
5mm vapour barrier
20mm timber panel
300mm rock-wool thermal insulation
20mm timber panel
internal plaster and facade onto protective strips
- j suspended laminated timber floor
structural timber supports cellulose insulation between with synthetic resin coating
30mm thermal and acoustic rock-wool insulation
5mm vapour barrier
300mm suspended service area
- k steel column support pin, timber a minimum of 150mm above the ground
- l exposed timber window frame
- m exposed timber column
- n protective stone brick build up
- o suspended laminated timber floor
structural timber supports
60mm thermal rock-wool insulation
5mm vapour barrier
300mm concrete slab foundations
- p timber decking over drainage in concrete base

0m 1 2 3 4 5m

Work also included in AT3.

1:5 Construction Detail - Roof



- a SIPs - 30mm timber panel
5mm vapour barrier
20mm timber panel
300mm rock-wool thermal insulation
20mm timber panel
40mm protective timber strips
- b locally sourced 12mm Welsh slate tiles supported by
40mm timber slats
- c 40mm timber cross slats
- d exposed 150mm secondary support timbers
- e 50mm cedar cladding onto 40mm protective timber strips
5mm vapour barrier
- f 450mm locally sourced welsh douglas fir beam
- g 300mm suspended service area off metal rods screwed
into SIP with acoustic plaster and internal facade
- h 400mm beam and secondary structure supporting SIP
150mm timber joists
- j Aluminium flashing detail for drainage
- k expressed timber window frame
- l Window element, timber casement with rigid foam
core aluminium details
Low-E double glazed laminated safety glass
- m internally expressed douglas fir column
- n internal plaster blind detail



1:20 Model of structure build up



Scheme Axonometric Drawing

Two storey research facilities include laboratories and classrooms

Central courtyard stepped with planted beds for educational and research purposes

Cafe

Union building with flexible open spaces for meetings, lectures and markets

Greenhouses

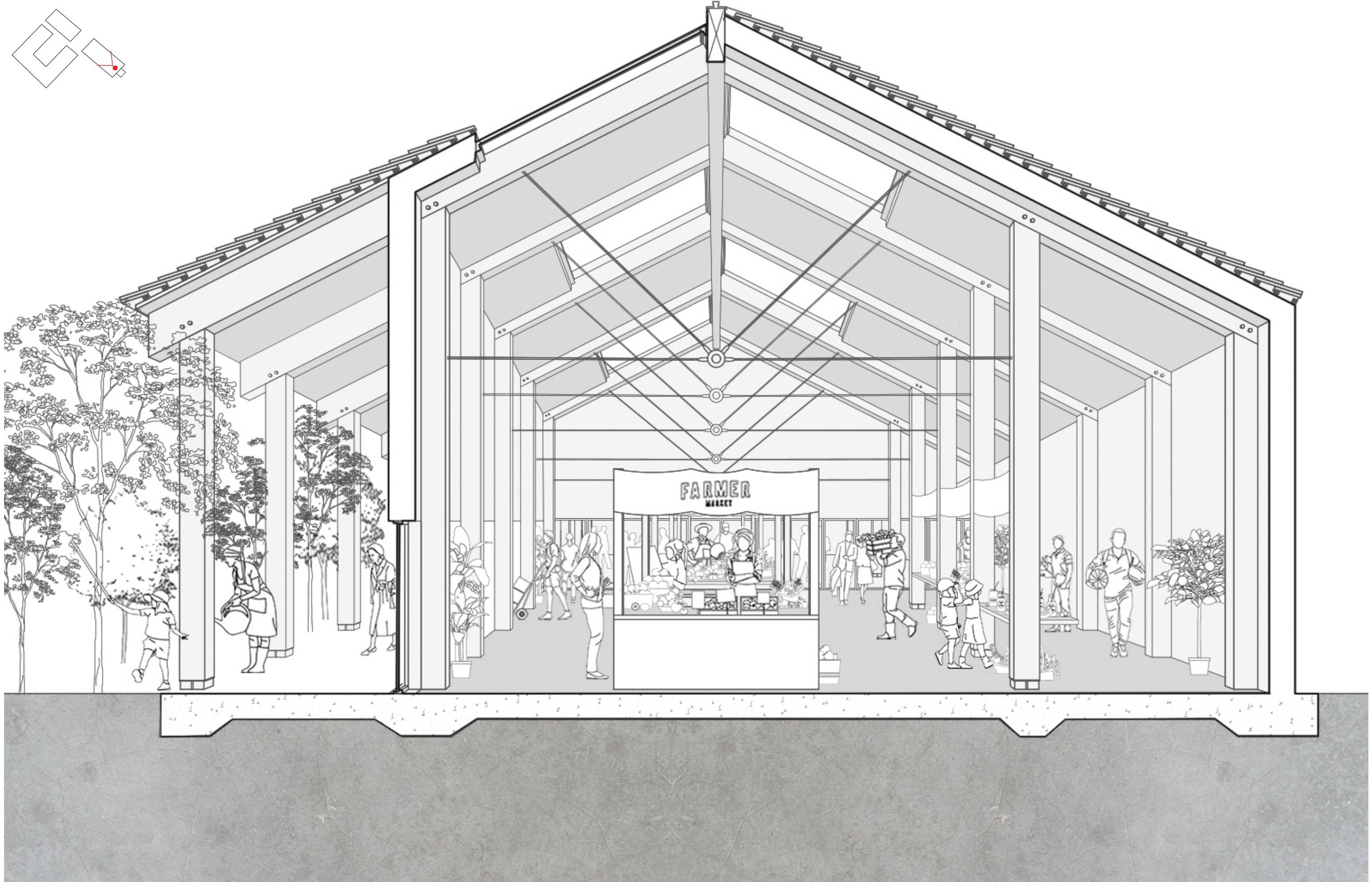
All monopitch roofs angle into the courtyard, for the best lighting and drainage of water for the plants

Communal kitchen facilities

The approach from the town centre shows the set back facade of the building and the projected portico to attract people into the building, it completes the streetscape of the surrounding residential buildings but has a sense of gravitas with the portico and timber columns.



Perspective section through the Union Hall - The columns of the flexible union hall internally replicate the structure of the external colonnade, this sets out a central avenue for larger events and market stalls and a side avenue for smaller stalls or gathering. The skylights of the space are influenced by those of agricultural buildings.



View through the colonnade - The colonnade guides visitors through the spaces, they are directed towards the views beyond the cafe, and into the central courtyard. The collanades follow around the courtyard and offer shelter from weather as you move between buildings.



Through the courtyard which grows local produce and is the central element to the scheme, a communal space to bring the community together and get people rooted into the agriculture surrounding them.



The Greenhouses - are another agricultural element to the design, they offer a different climate to the courtyard to give the opportunity to grow exotic agricultural plants such as palm oil, banana and peanut trees, to widen the educational and research elements of the scheme.



View from fields - The rear elevation from the fields below the site, shows the communication of the materials and structure in amongst the agricultural land and the relationship between the glazed greenhouses and timber clad buildings.



Open-air Performance Space

Year 3 - Primer Project



Site Plan



St. David's is the smallest city in the UK with a very tight-knit community. At the furthest westerly point of Wales in Pembrokeshire, with a lot of character and astounding natural beauty.

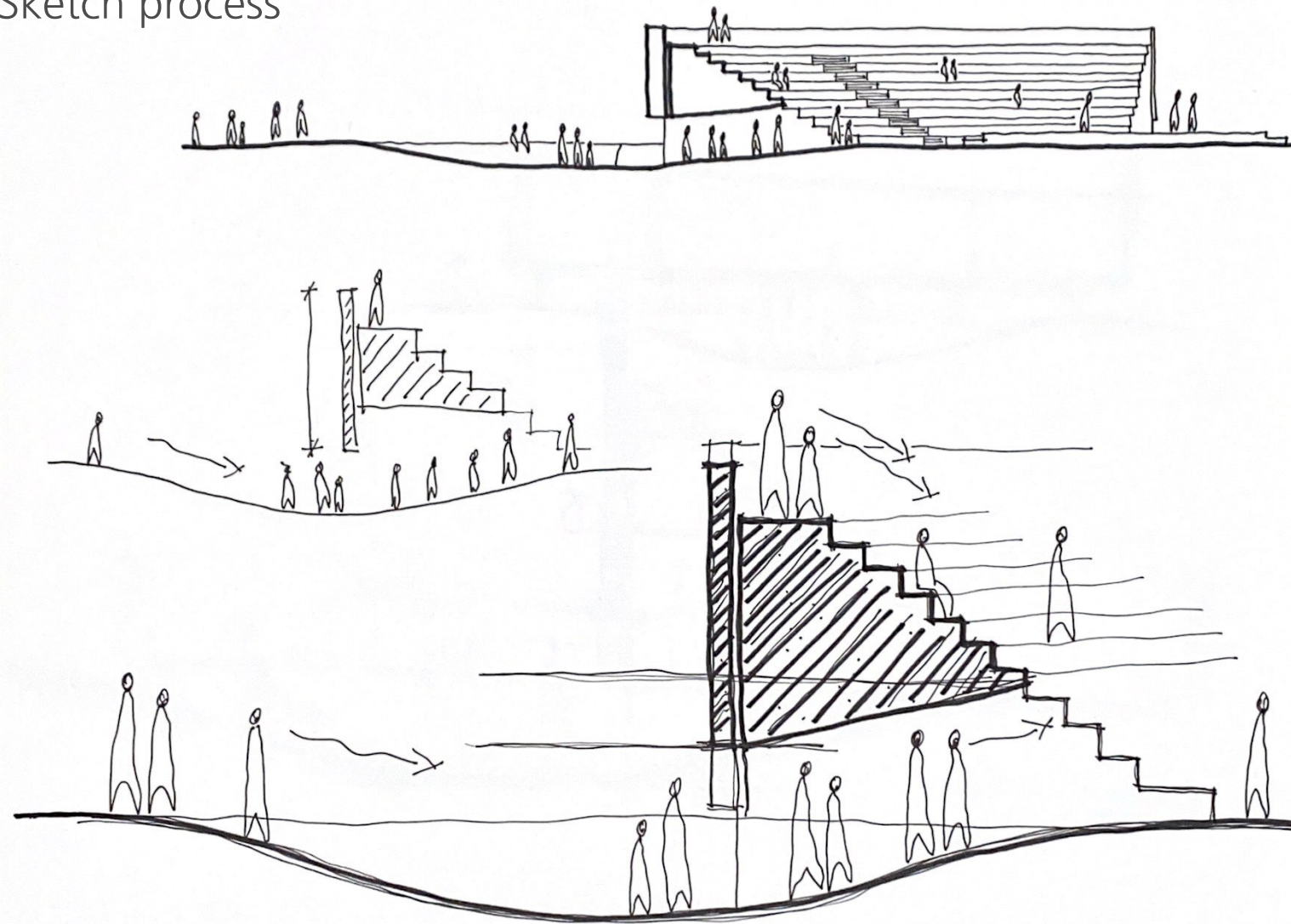
Tourism plays a huge role in the economy and atmosphere of the city, with the population doubling daily in the summer season, there is a need to design something which is adaptable to suit the changing crowd.

The wall is a permanent feature, creating two spaces in front of and behind it, acting as a landmark at the entrance to the city, welcoming visitors at the main entrance route into the city from south Wales. The seating is a temporary structure which can be dismantled and stored through winter months and altered to suit the size of the crowd.

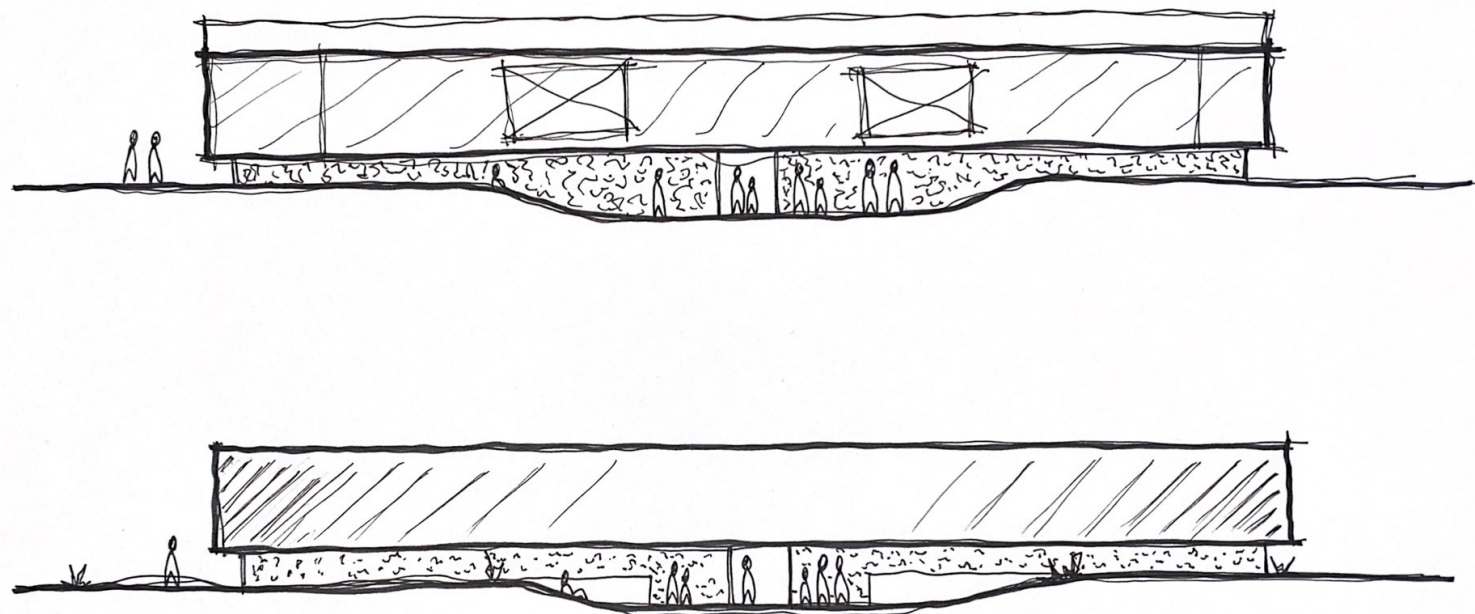
There is a need for performance space, the town hall and visitor centre host events but don't have the connection to the city and the benefits of being outside. The seating area directly relates to the visitor centre through form and function, with both entrances facing each other to draw the crowds in, positioned on the boundary between the city and the agricultural extents.

The seating area is an atmospheric experience for the visitors as they are drawn into the space through the dipped tunnel, delving below the wall as it opens up to the performance space the other side.

Sketch process

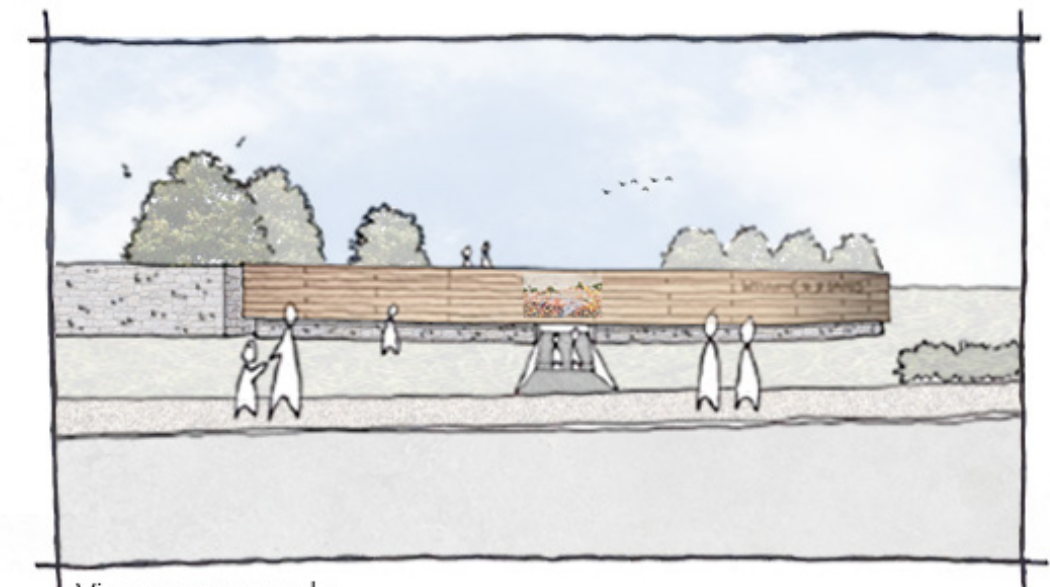


The visitors are guided into the entrance through the downward slope which gathers people at the entrance to the performance space and they are moved through the tunnel space and into the open amphitheatre performance space.

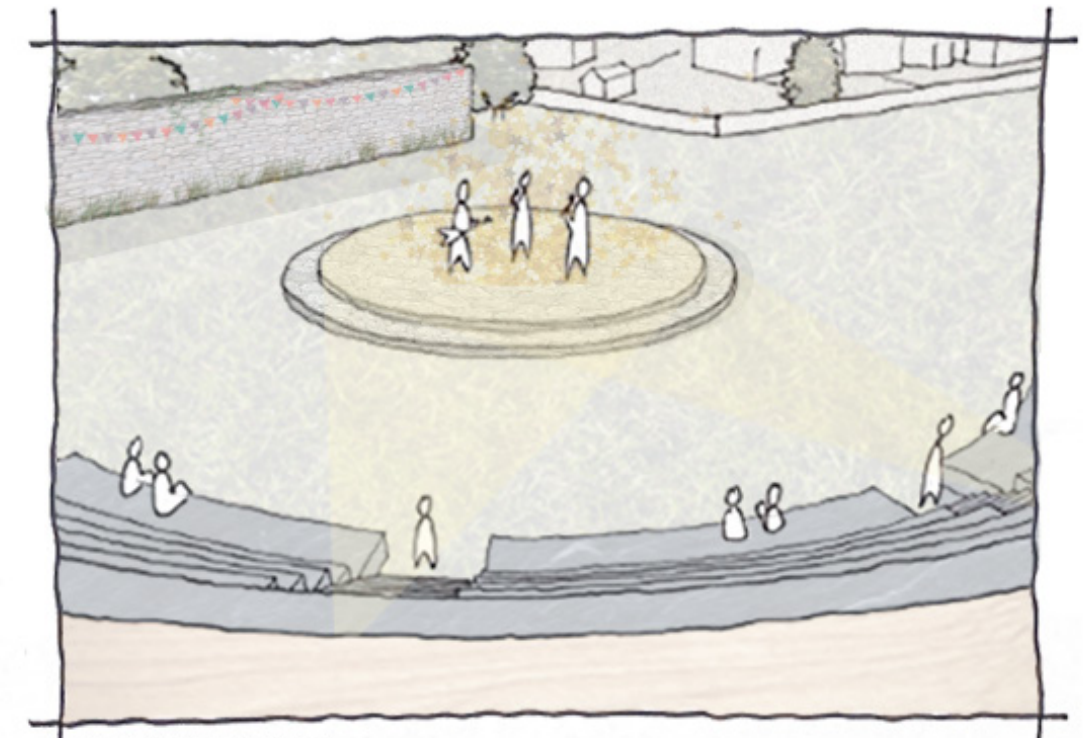


Iterations of the design working with simple forms and the statement of 'the wall' as the leading element of the design.

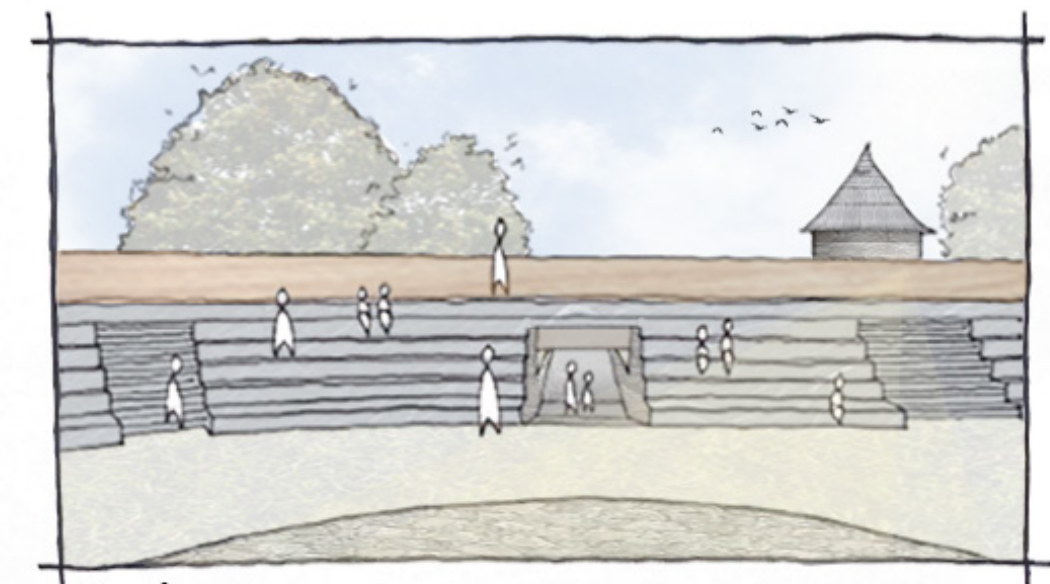
Year 3 - Primer Project



View on approach



View from seating



View from stage

Elevation and section



South Elevation



Section A-A'

1:200 at A1
0m 5m 10m 20m 30m 40m

Sketch Section



The primer project explored the extended summer season and the impact of the tourist industry within St. Davids both through the economy and the character of the town. By having the primer situated at the entrance to the city, it acts as a milestone bridging the agricultural land into the city centre. The city has an area of 0.6sqkm and is surrounded by agricultural land which makes it such a picturesque tourist destination.

The other main contributor to the economy of St. Davids, and more widely, Pembrokeshire is the agricultural industry, which also shapes the atmosphere and character of the town throughout the year. This lead to the interest in enhancing the agricultural community within the city and helping create a space to bring the agriculture to the city.

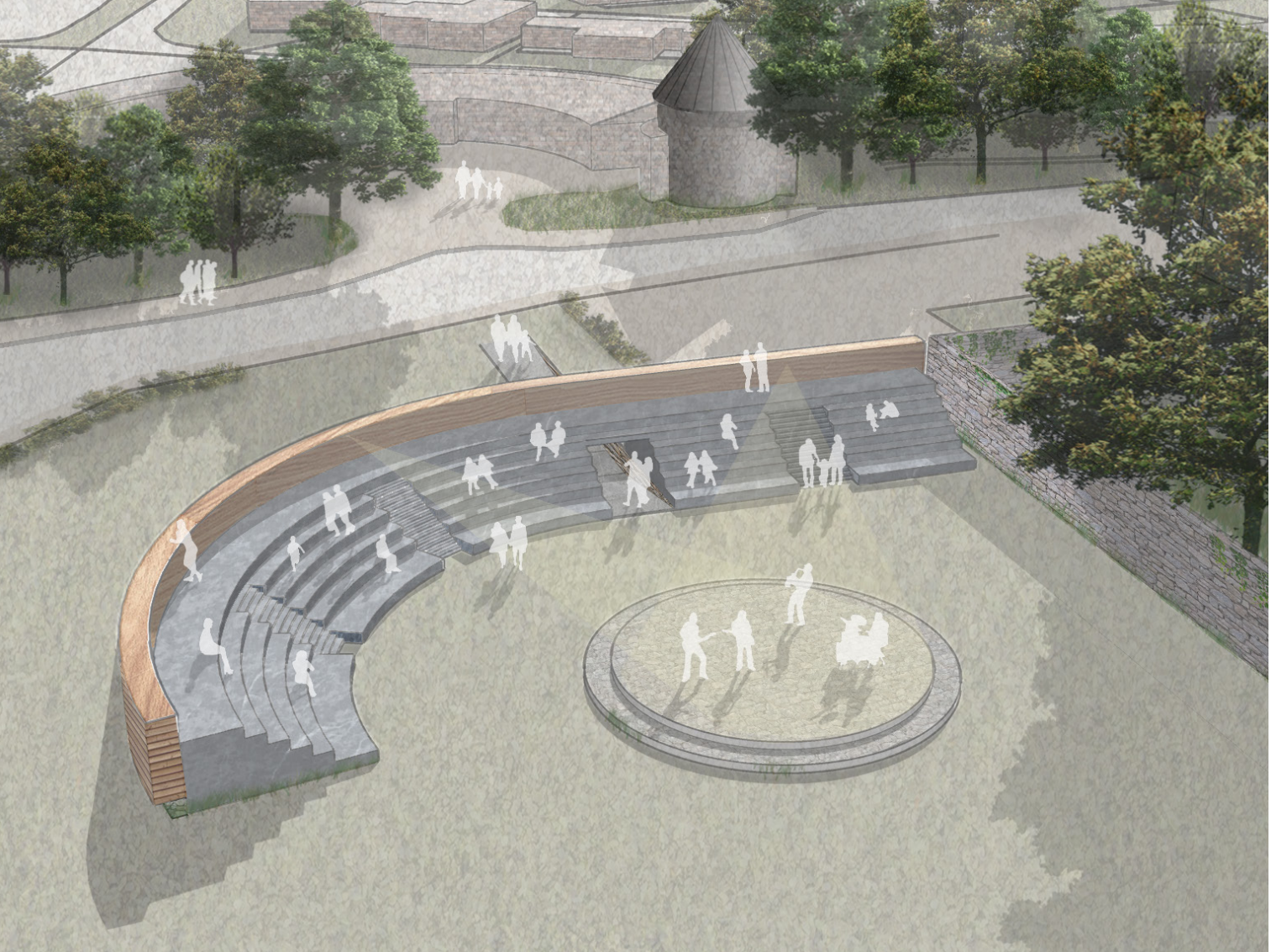
The materiality of the primer is carried through the Thesis project with organic forms and natural structures to enhance the sustainability of the building.

Visuals

Entrance view



View from North-East



Microhome

Summer Project



Microhome

The microhome competition was a chance to push spatial dynamics and experiment with the living areas of a home, the maximum footprint was to be 25m² with living space inside for two people and room to host guests.

Situated on Lake Braies in the Dolomites Mountain Range in Italy, the microhome has outside space with amazing views over the lake and mountains. Creating an inside-outside living space opens the living area up to the lake and creates a larger area to host and relax.





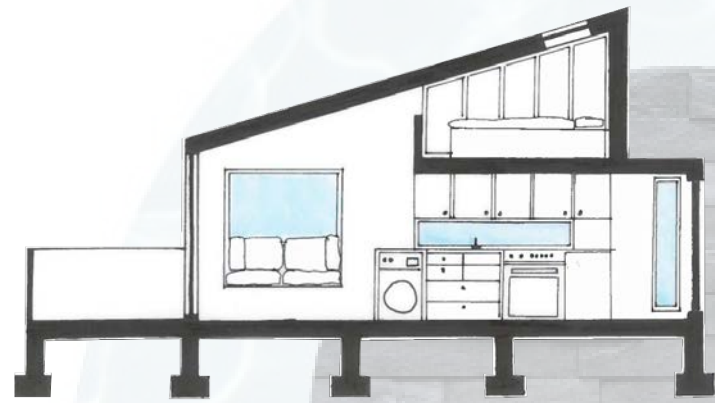
Floorplan

The floorplan shows the tight layout of the space and how every aspect of the living area is fitted comfortably within the microhome.

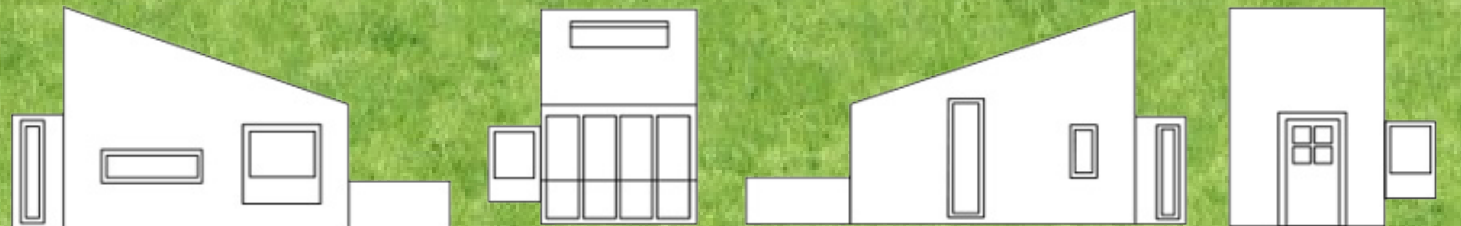
There is living space for two and enough room to socialise, every aspect of the microhome is usable space, with storage and seating arranged to be subtle within the home. The mezzanine level of the bedroom area creates a private realm within the microhome.



Mood Board



Developing ideas through materiality and sectional studies to show the habitability of the space and its connection to the surroundings. the materials set the microhome in amongst the natural surroundings of the forests and mountains. Each window is positioned to direct light towards a certain point inside or to frame a view outside.

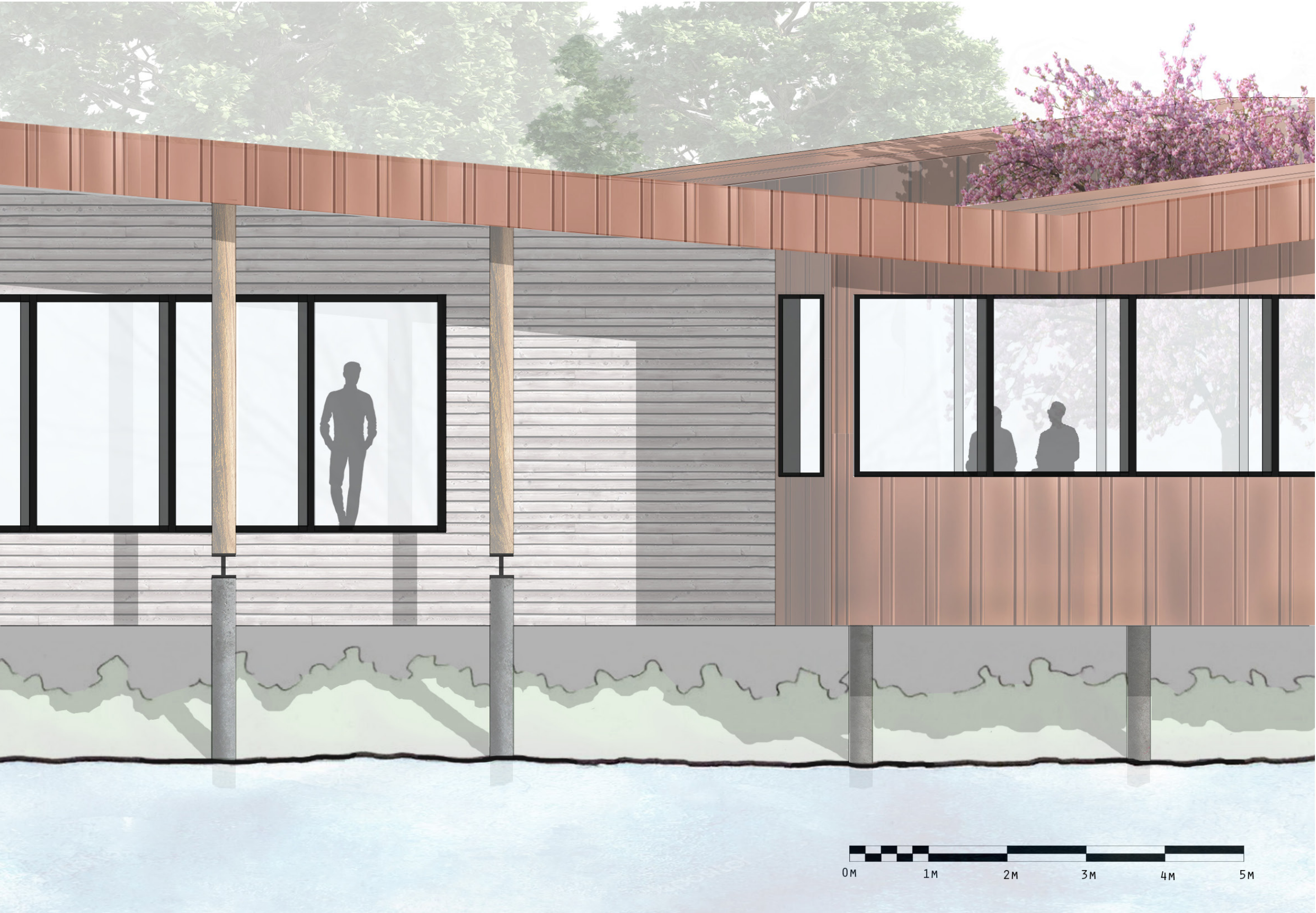


Fine Art Gallery

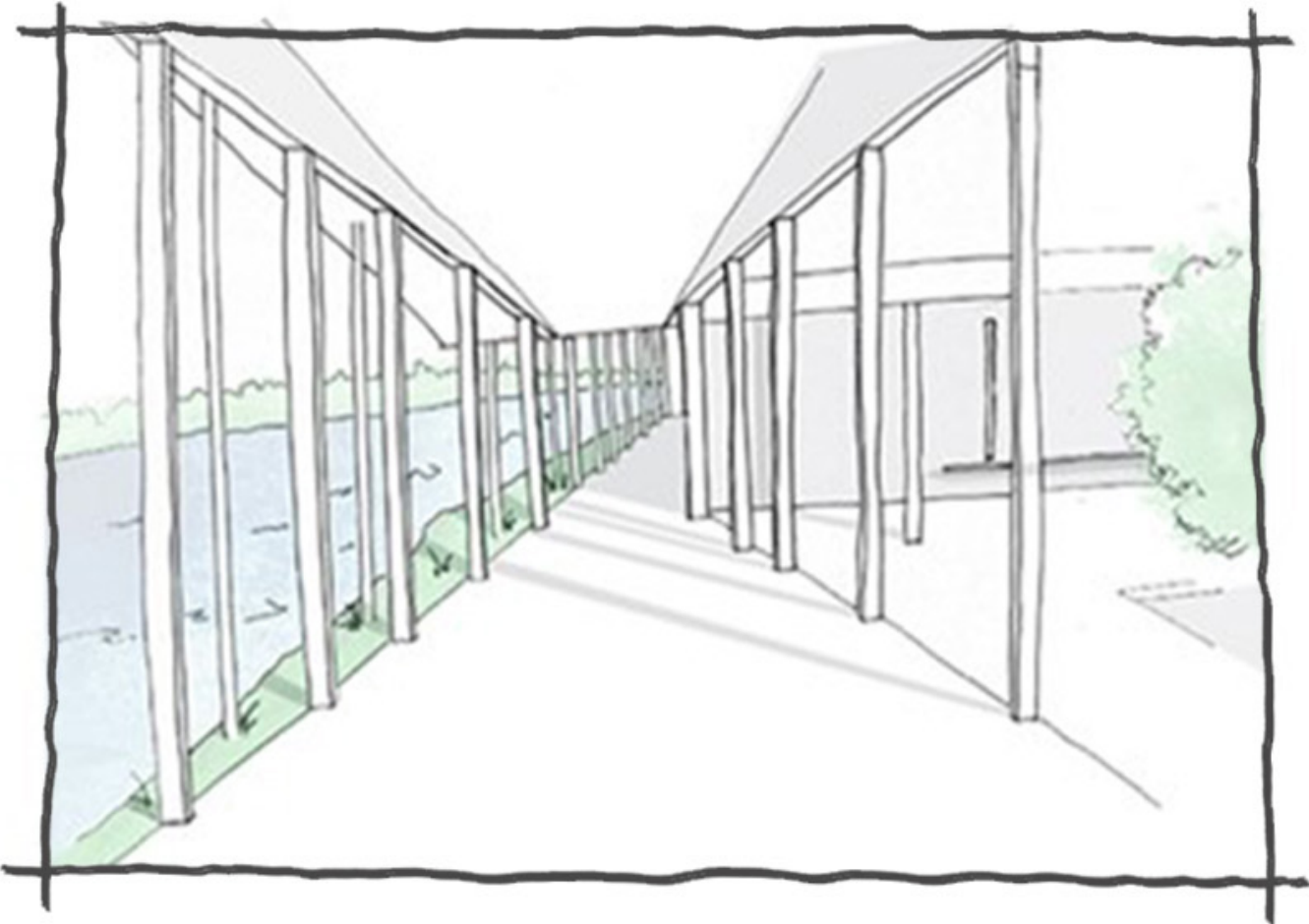
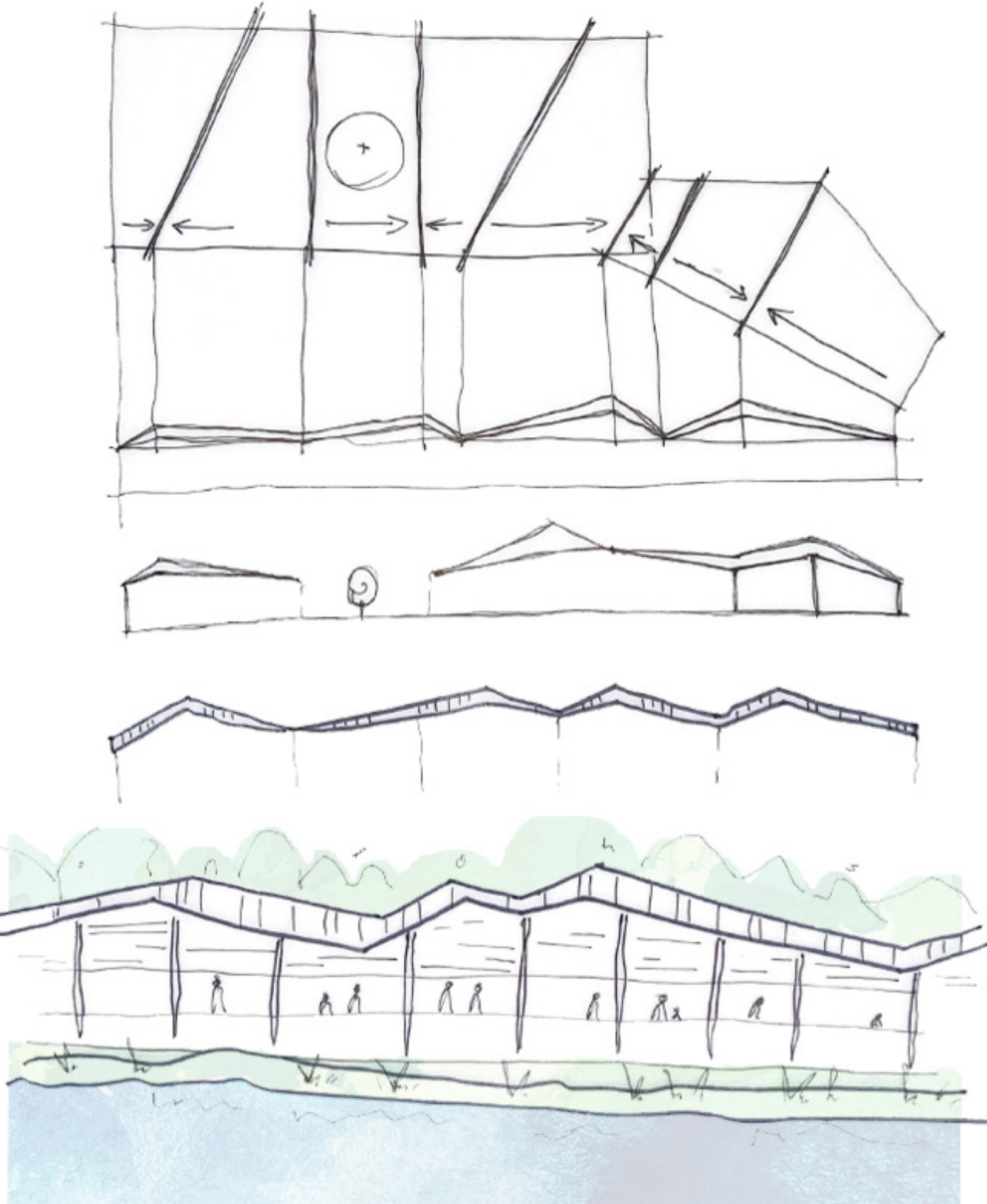
Year 2 - Public Building



Elevation



The fine art gallery on the edge of the River Taff in Llandaff is set in a site with a narrow entrance directed towards the water, the site opens up from a tree covered path to an open space with spectacular views. This fed into the concept of the design, the journey of moving through a space as it opens up to views and brightness, guided by the art and statues which draw visitors through the gallery. The aim was to create a tranquil gallery which invites people in and frames not only the artwork but also the views. The dark and light areas create this atmosphere of change within the journey through the space.



Roof Plan



The roof form reflects the rhythmic movement of the water and the Brecon Beacons around the site. The copper is chosen as a statement material which envelopes the building, in the bronze age, northern wales was Britain's largest sources of copper. It allows for change over time as it corrodes from a shiny pinkish colour to an uneven matte green, the change happens over time and reflects the growth and change which happens within nature around the site, the oxidised layer forms a protective coat over the material.

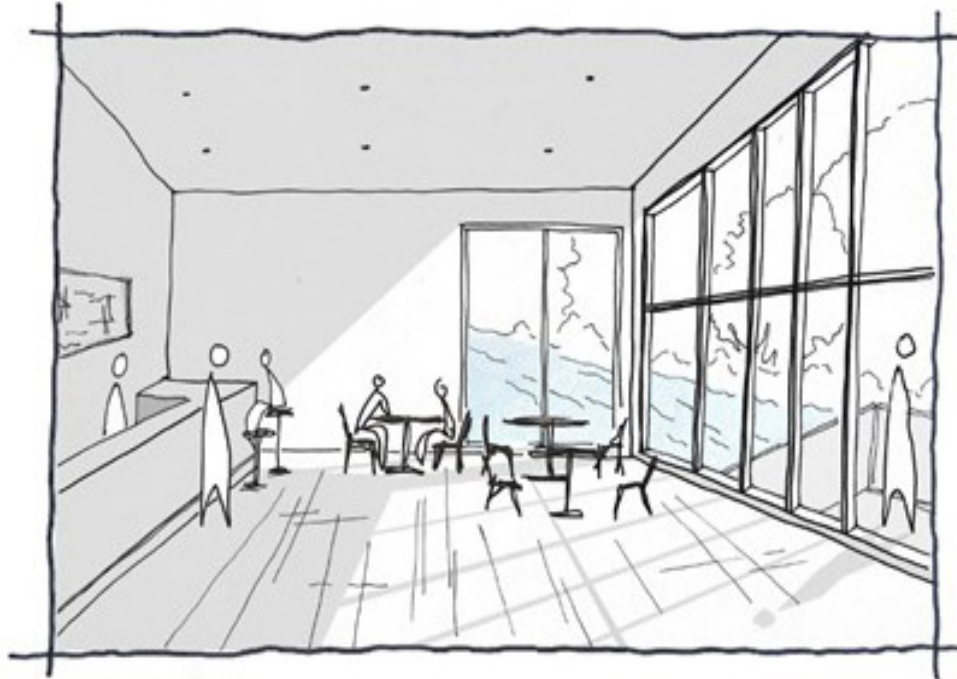
Using recyclable materials, copper is 100% recyclable and low-carbon as it maintains its integrity through continuous recycling it can be reused multiple times for different purposes. The cedar is carefully sourced from sustainable sites, cedar is a renewable and recyclable material which requires little maintenance.

Floorplan



The gallery is a series of spaces, laid out around the courtyard of the magnolia tree, this enhances the flow through the building and means rooms aren't separated off. The gallery will host visitors every day, so it is important to set out a circulation path which follows through the building, taking them from one artwork to the next smoothly, framing the artefacts.

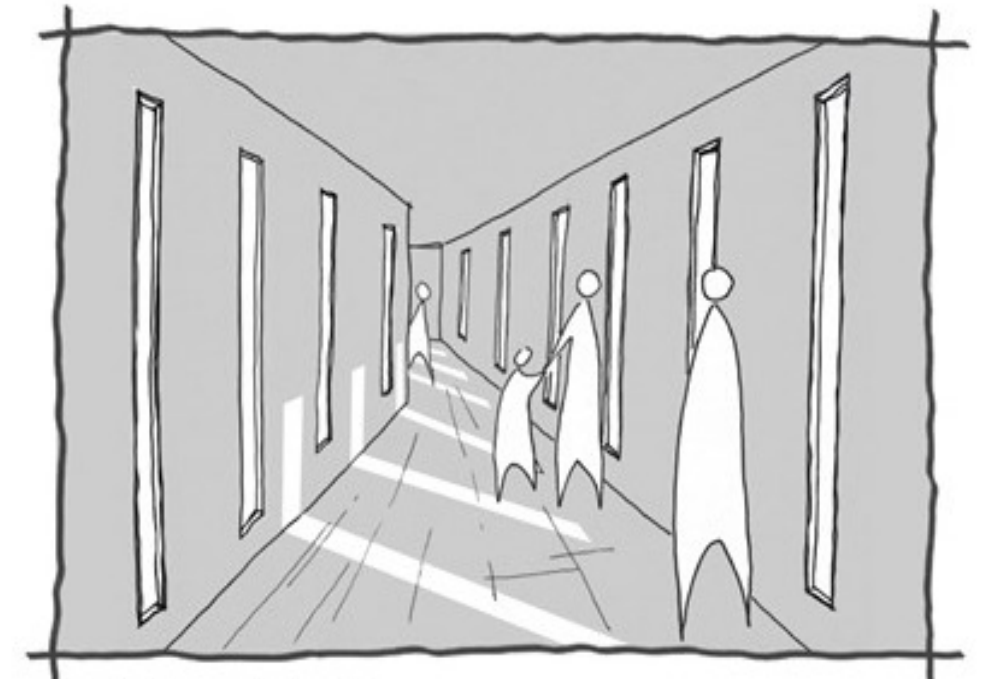
The façade is mainly a Cedar cladding, from sustainable sources which also weathers, from an orange timber to a silvery material. Having these bright materials means the other aspects of the design must be more subtle so they don't distract from the tectonic language of the spaces. Details are Black and white, and the floor is a light ash.



2 CAFÉ



3 RECEPTION AREA
THE 'ENCASED CROSS' EXHIBITED BEYOND ON A
PLINTH TO FRAME IT

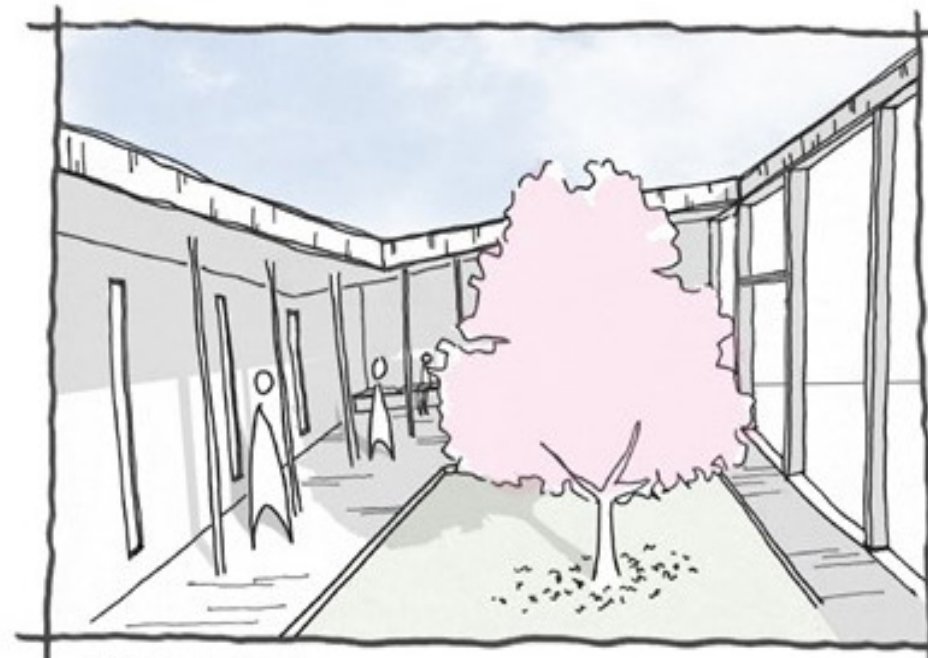


4 DARK CORRIDOR

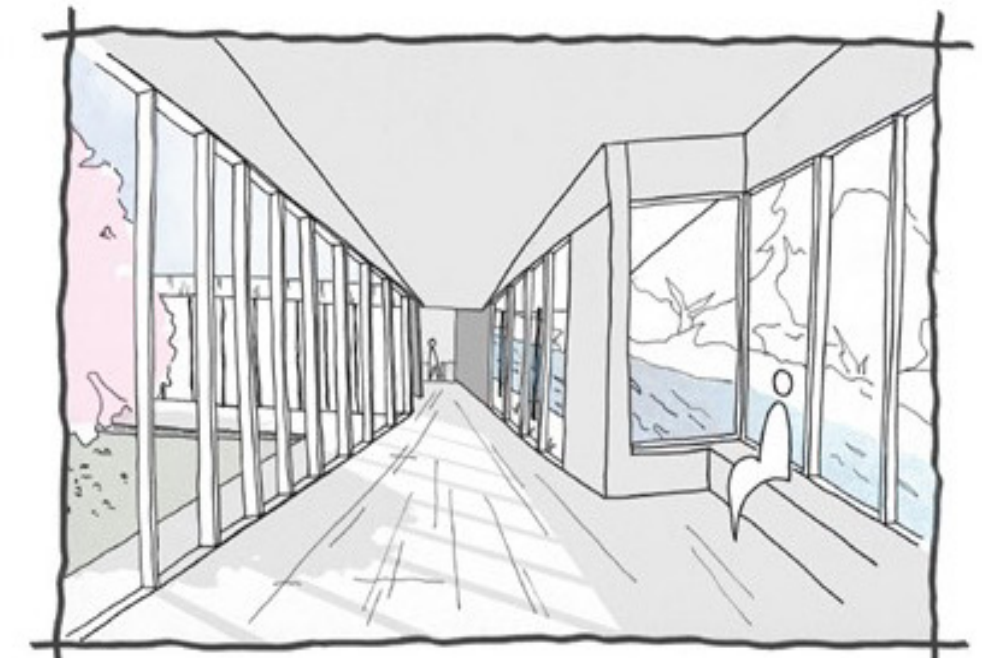


6 VIEW AND GALLERY SPACE

YEAR 2 - FINE ART GALLERY



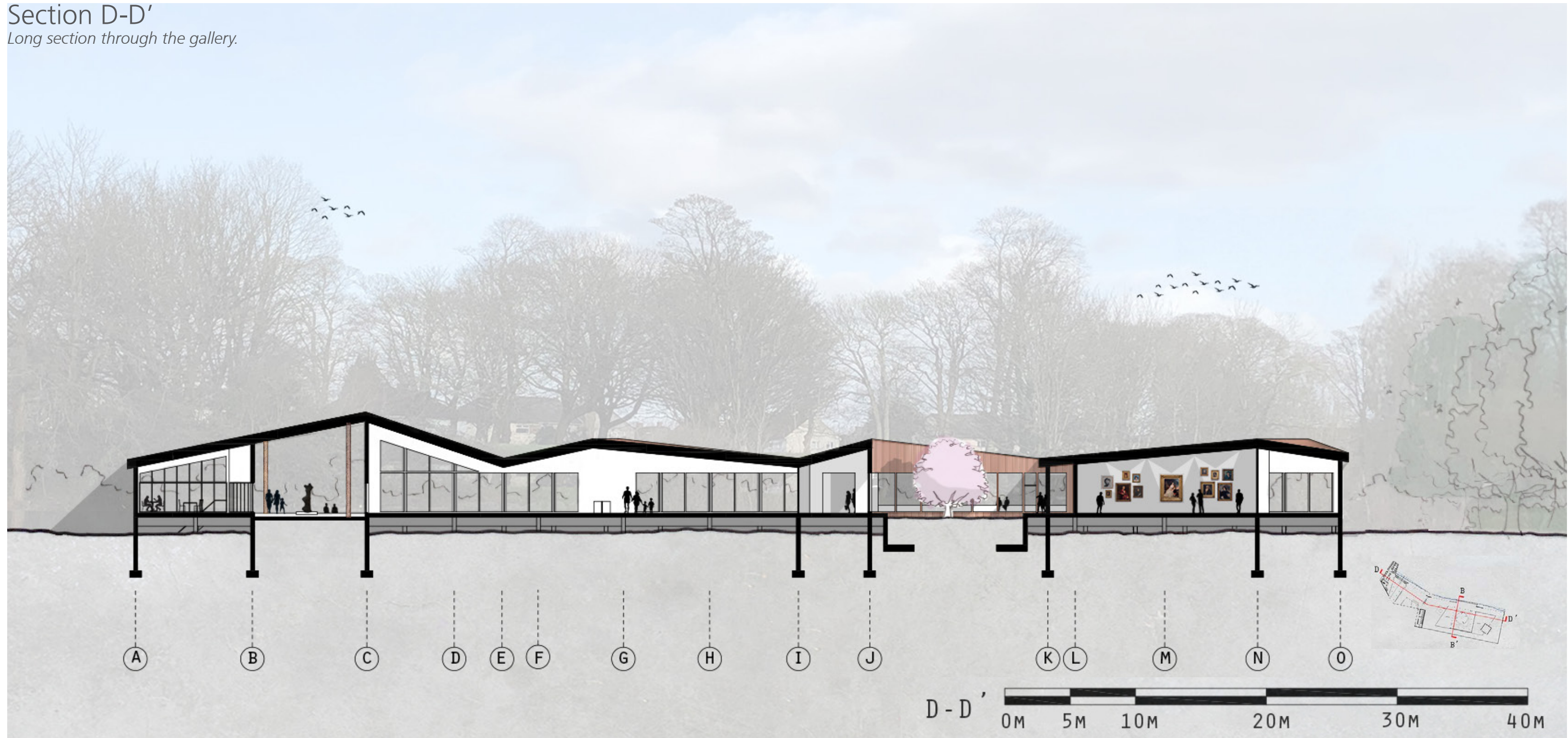
7 COURTYARD
THE FRAMING OF THE MAGNOLIA TREE AND CENTRAL
POINT OF THE GALLERY



8 LIGHT CORRIDOR
A PLACE TO PAUSE AND REFLECT WITHIN THE
GALLERY

Section D-D'

Long section through the gallery.



The gallery is lifted off the ground on supports, laid out on a 6m structural grid, using timber frame structure meant there was the flexibility of having more glazing which is important in the site to frame the views and in gaining natural light from the north, therefore avoiding direct sunlight.

The section shows the form of the roof and the use of the spaces through the gallery as the rooms get less public, away from the café and reception area towards the gallery areas within the building.

North Elevation



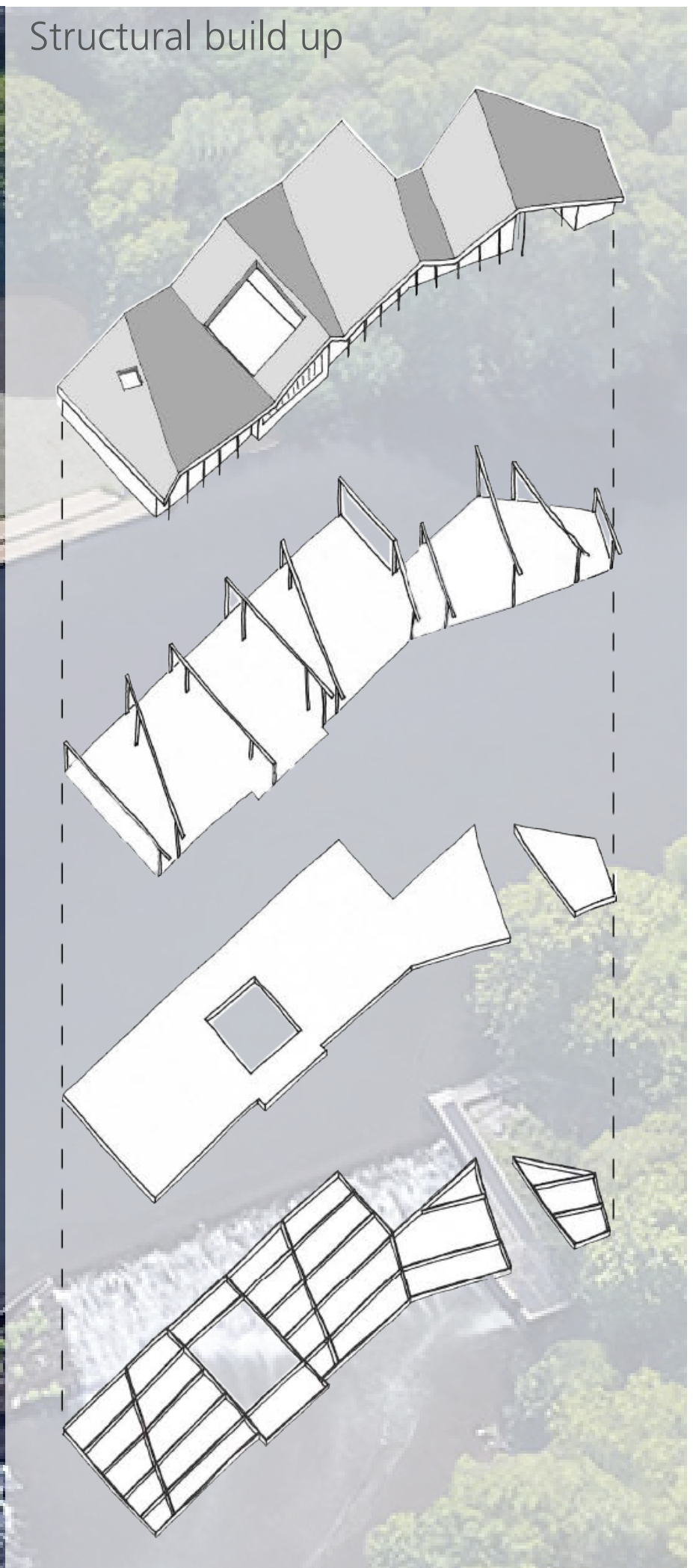
West Elevation



1:20 Section



- 1 – Roof construction: 3mm copper sheet, 5mm roof sealing layer, 20mm composite wood boarding cellulose insulation between and plaster finish
- 2 – Cedar clad boarding on protective strips 5mm vapour barrier, SIP walls with thermal insulation and composite wood boarding
- 3 – 480/200 mm glued-laminated timber frame construction visible internally
- 4 – Low E-glazing: Laminated safety glass
- 5 – Wood casement with rigid foam core
- 6 – 3mm Copper clad façade, 5mm vapour barrier, SIP walls with thermal insulation and composite wood boarding
- 7 – Floor construction: Concrete beam and block structure with cellulose insulation and floating ash floor
- 8 – Decking construction: 20mm wood slat paving on insulated concrete base
- 9 – Timber to concrete construction steel detail
- 10 – Concrete water-resistant post
- 11 – 15mm Steel sheet piling
- 12 – Concrete base foundations



Affordable Housing

Year 2 - Residential Project





Masterplan

The layout of the homes are positioned around the trees to avoid disrupting the site as much as possible and angling each home towards the river gives them a sense of space and a view of the water.

Using natural boundaries where possible to lay out the foot paths and private areas of the plan keeps the development in place and ensures it has a natural feel.

A careful balance between public and private areas had to be achieved as a busy public footpath leads through the site, but the homes require private space inside and out.

Each home has their own private garden which are south facing but are sheltered from the wind and the public eye. A cluster of 6 houses share communal gardens which can be used for socialising and relaxing in larger groups outside their homes.

Materiality Elevation



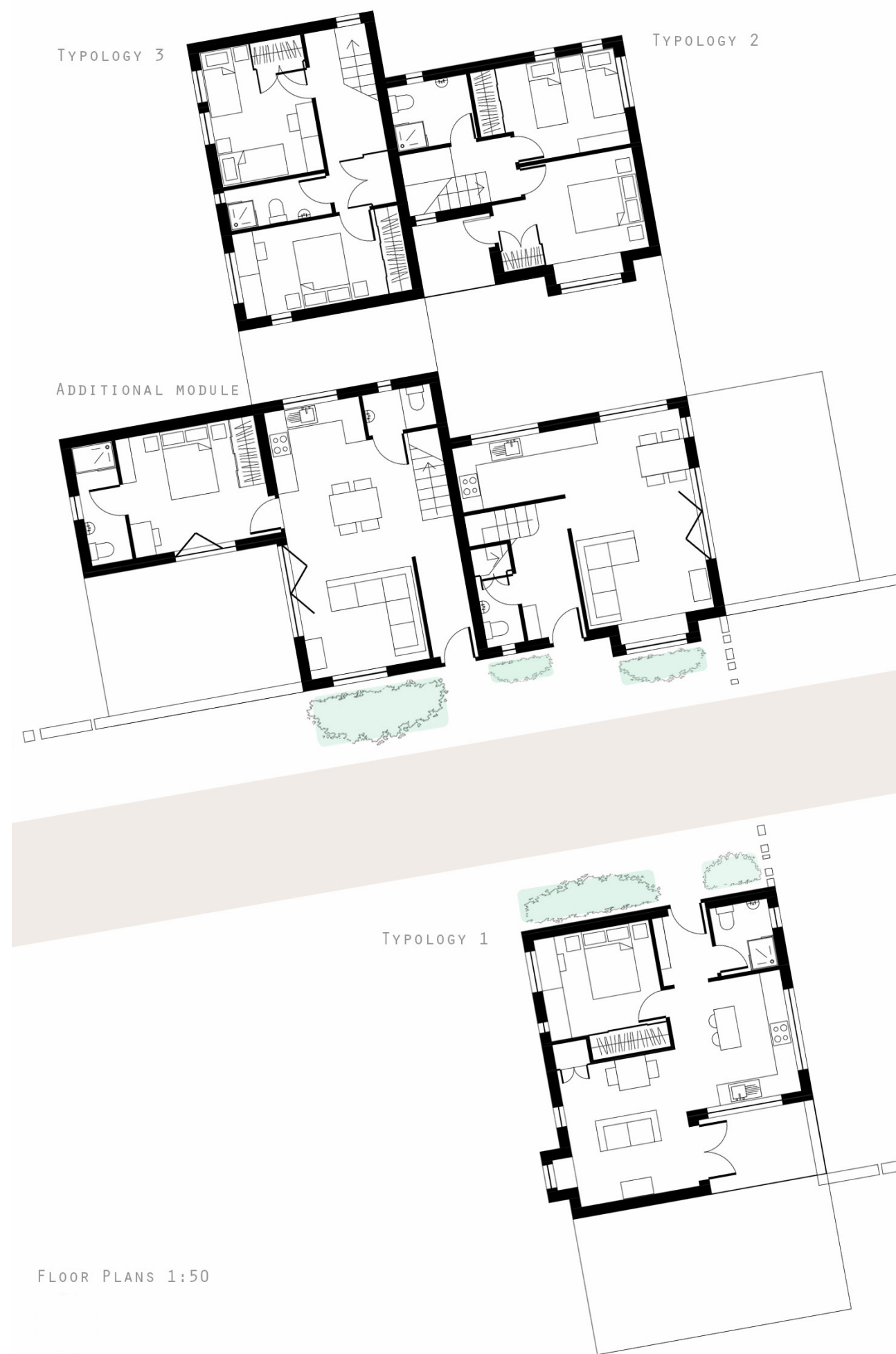
Aiming to design housing which is sustainable and affordable.

The site is situated on the north bank of the River Taff in Llandaff, Cardiff. An area mainly dominated by trees and other natural forms, such as flood risk, meant there were lots of aspects to work around.

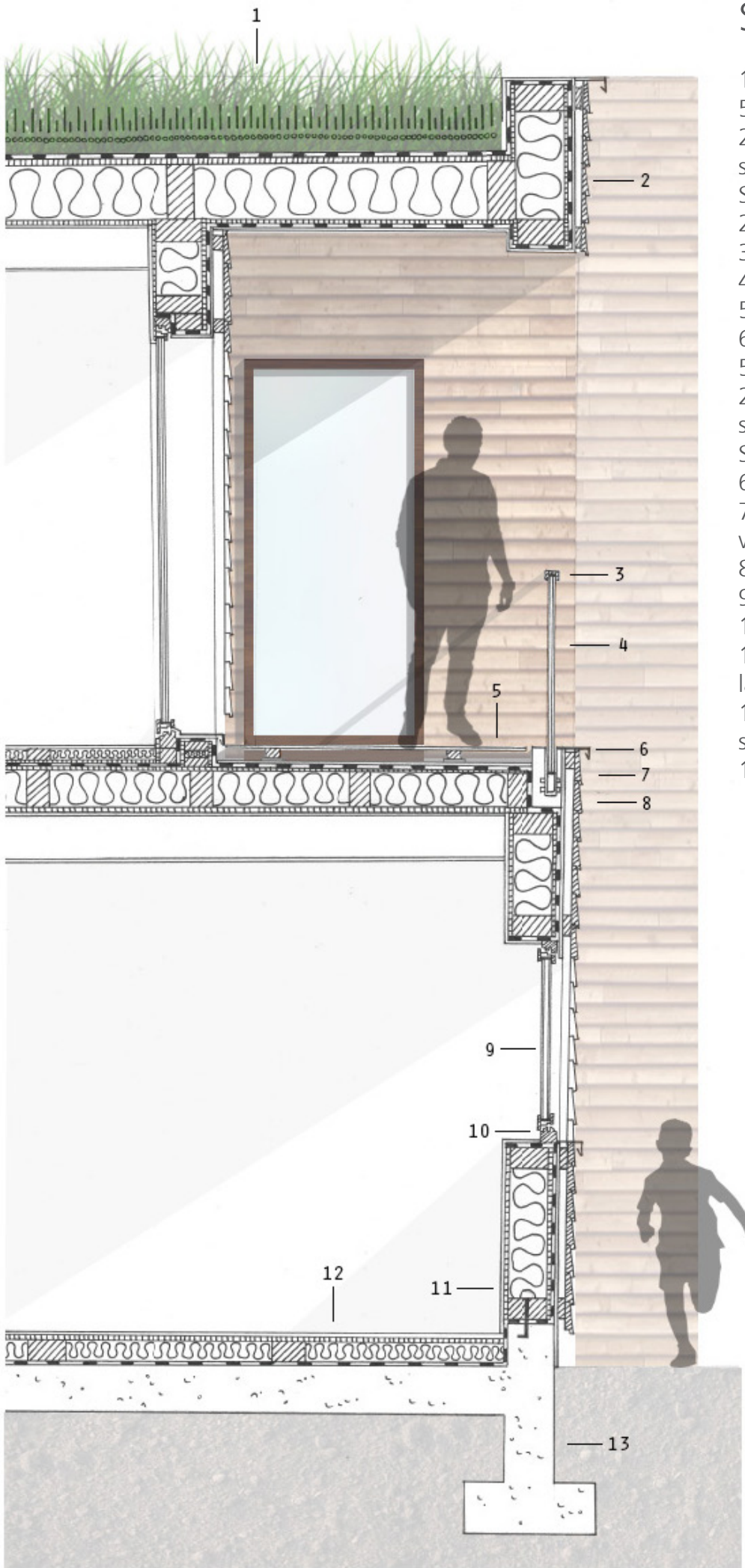
A range of different sized homes were to be placed within the site, integrating with one another and creating communal areas for socialisation.

A single storey home for a couple, a double storey home for a family of up to 4 and a double storey home with space for an additional module to allow for changing circumstances to adapt a 4 person home into a 6 person home whilst limiting disruption to the existing building.

Materiality Elevation



FLOOR PLANS 1:50



Sectional Detail

- 1 – Green roof - 80mm extensive planting layer
5mm sealing layer
20mm composite wood boarding cellulose insulation between
Service space with plaster and finish
- 2 – Timber cladding
- 3 – 50/50mm cedar handrail
- 4 – 18mm laminated safety glass balustrade
- 5 – Balcony - 20mm wood slat paving
60mm battens on protective strips
5mm roof sealing layer
20mm composite wood boarding cellulose insulation between
Service space with plaster and finish
- 6 – Stainless steel cover plate
- 7 – Glass balustrade fixing: 245/45/10mm galvanised, powder coated steel channel
- 8 – Ventilated cavity with balcony drainage
- 9 – Low E-glazing: laminated safety glass
- 10 – Wood casement with rigid-foam core
- 11 – Wall construction - SIPS with 5mm sealing layer
- 12 – Suspended timber floor with cellulose insulation between
- 13 – Concrete base foundations

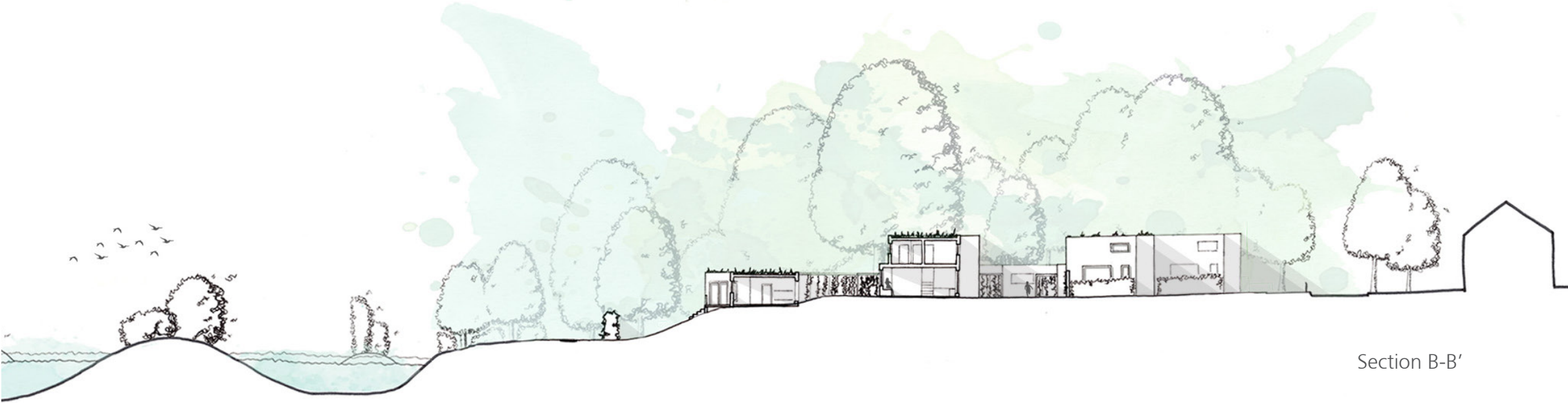
Sections in Context



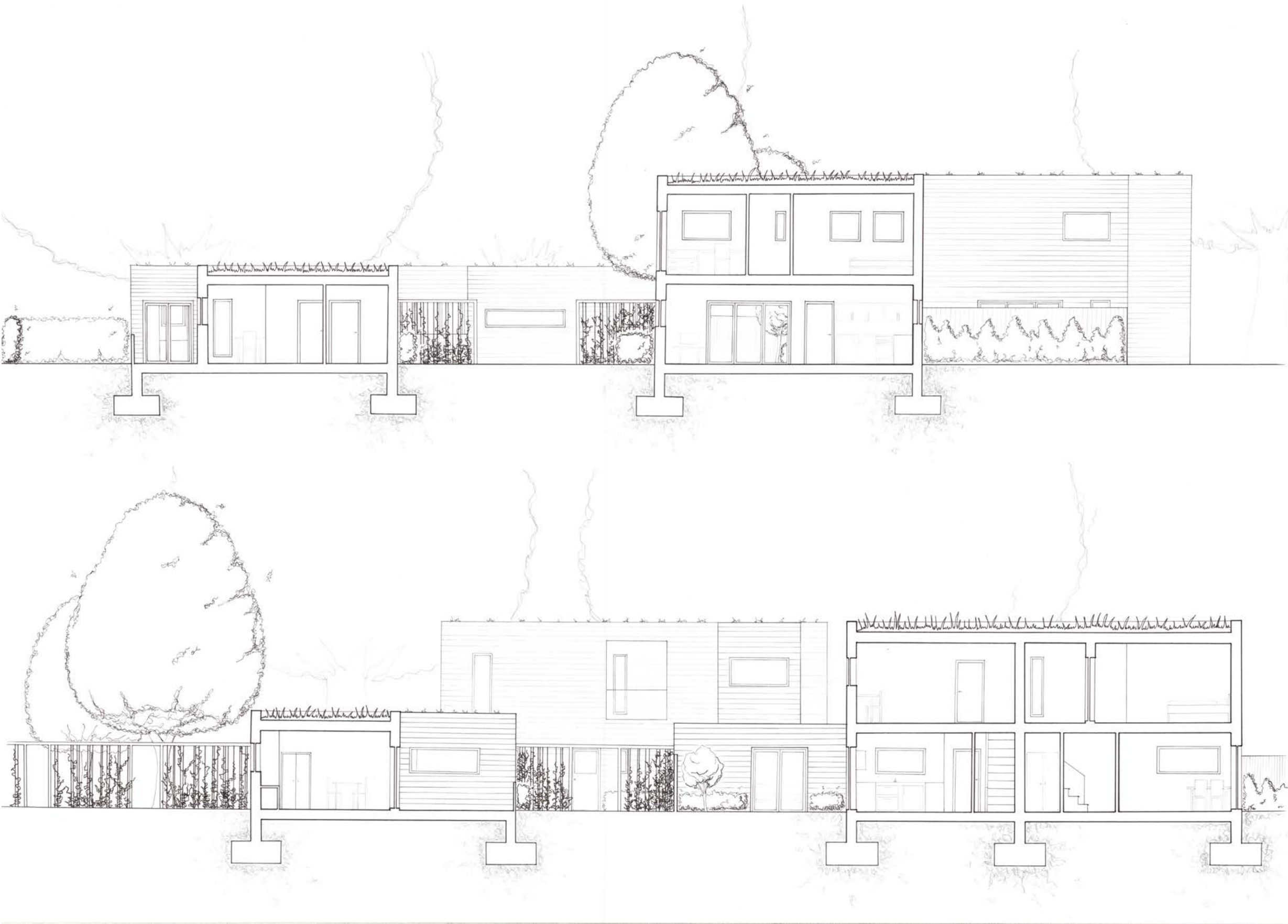
The homes drop down in levels towards the south to allow as much natural light into the rooms as possible and ensure that each house has a view across the water. The green roofing is a sustainable addition but also provides less of an eye-sore to those houses which overlook the roofs.



To set the buildings within the site, the homes were clad in timber from a local source to reduce the carbon footprint of the project and ensure a sustainable and low maintenance finish to the buildings.



Sections



Having studied the essentials of a home and the areas which are most convenient and necessary within every home, no matter what the size, I decided to create open plan homes which could be personalised and changed by the inhabitants according to their own taste and preferences as everyone is different. By offering this opportunity for change and personalisation the houses can become more homely.



There are fundamental things which cannot be changed such as the positioning of the bathrooms and kitchen areas in coordination with the other houses and floors and the pipe work throughout the buildings.

Jennifer Marett Portfolio

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THANK YOU!