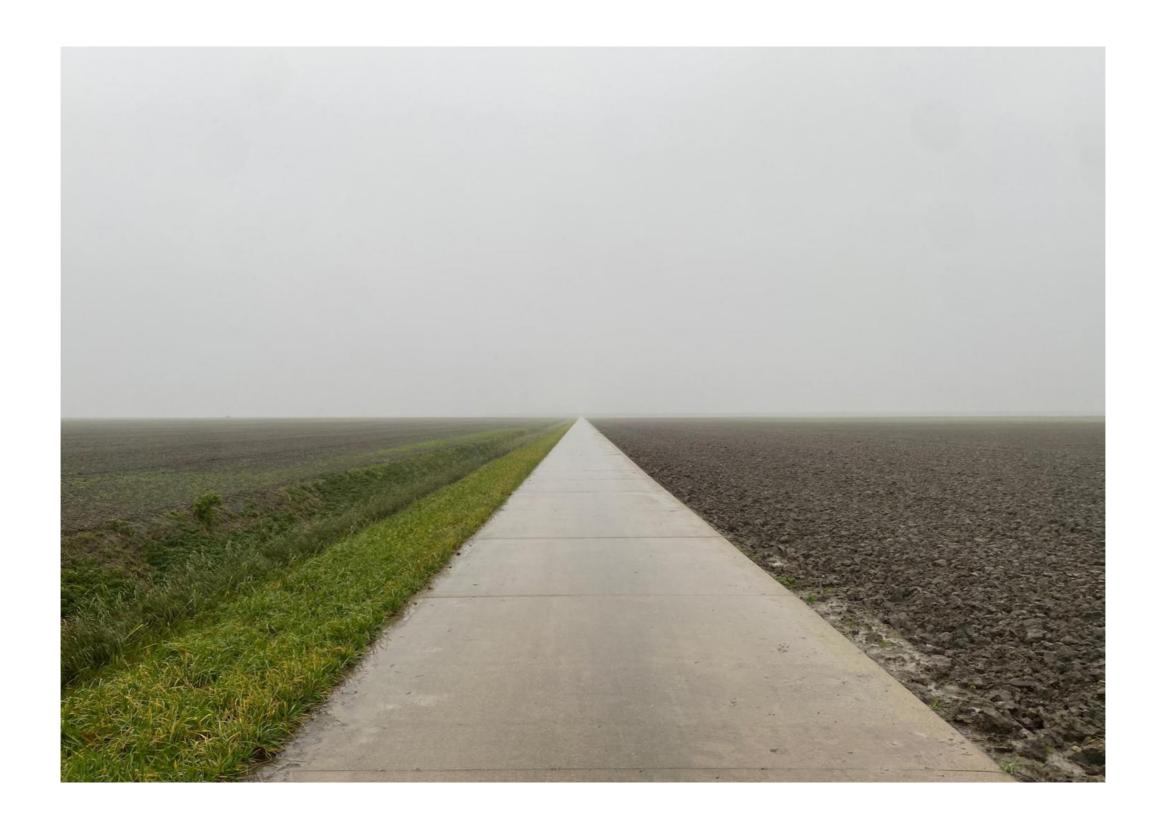


Nieuwe Borgen

towards a regenerative farmyard in the Oldambt

Sem van den Eijnde

Graduation presentation
Msc Architecture



























Nieuwe Borgen

towards a regenerative farmyard in the Oldambt

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Msc Architecture



Fascination

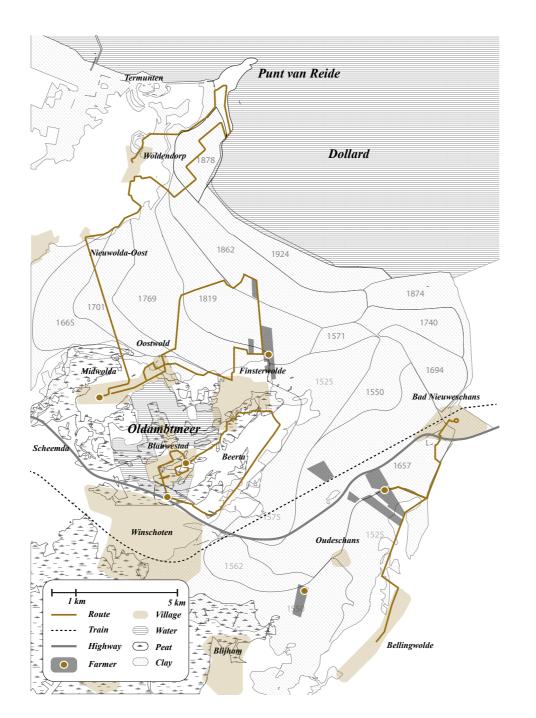
A design should emerge from the root of a place to gain a connection.

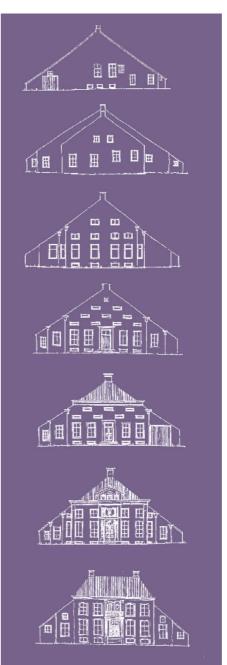


Oldambt region, Groningen

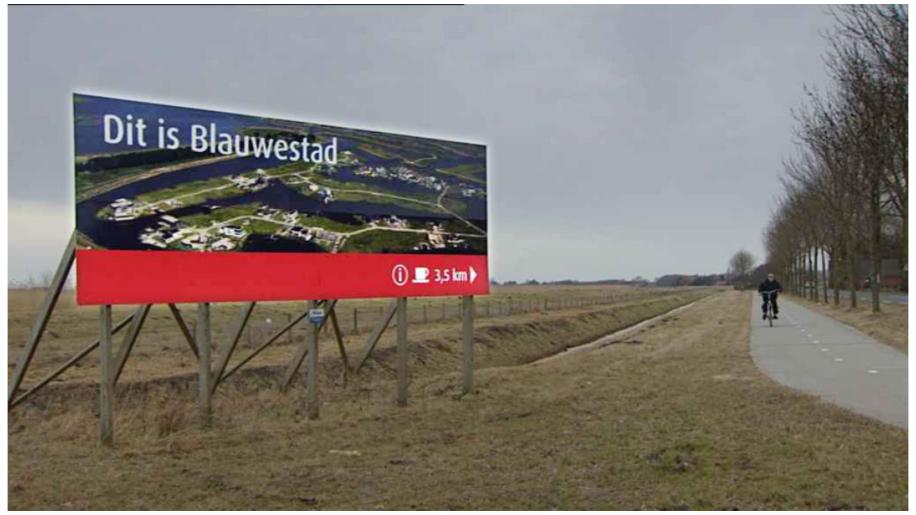








Cultuurhistorisch Centrum Oldambt (2011)



Andere tijden (2012)

Problem

Initiatives for regeneration of the Oldambt are unavailing due to lack of real connection with its region.

Question

How can landscape stewardship contribute to a regenerative farmyard with a tectonic that depends on the regional landscape?

Three elements

How can landscape stewardship contribute to a regenerative farmyard with a tectonic that depends on the regional landscape?

landscape stewardship

"the responsible interaction between people and their landscape, aimed at safeguarding its values for present and future generations." - Paul Opdam

Tectonic

"the structural principles and constructive systems that underlie a building or other architectural work."

Regional landscape

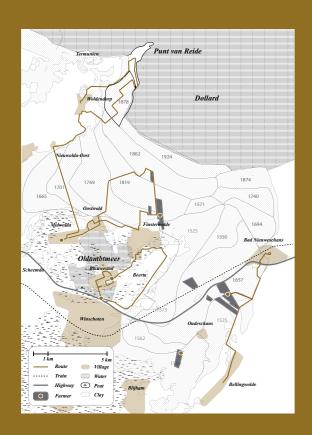
"The physical characteristics, features, and environmental elements that define a specific geographical region."



Methodology



- Essential guidebook for trekking the Oldambt
- Extensive research for the development of regenerative farmyards



In a four stage trekking route van den Eijnde embarks on a journey to discover the hidden identity of the Oldambt region. While hiking and interviewing local farmers he discovers that this area contains a rich history that is still visible in todays landscape and can form the basis for regenerative redevelopment.

STUDIOKEIJ

www.studiokeij.nl

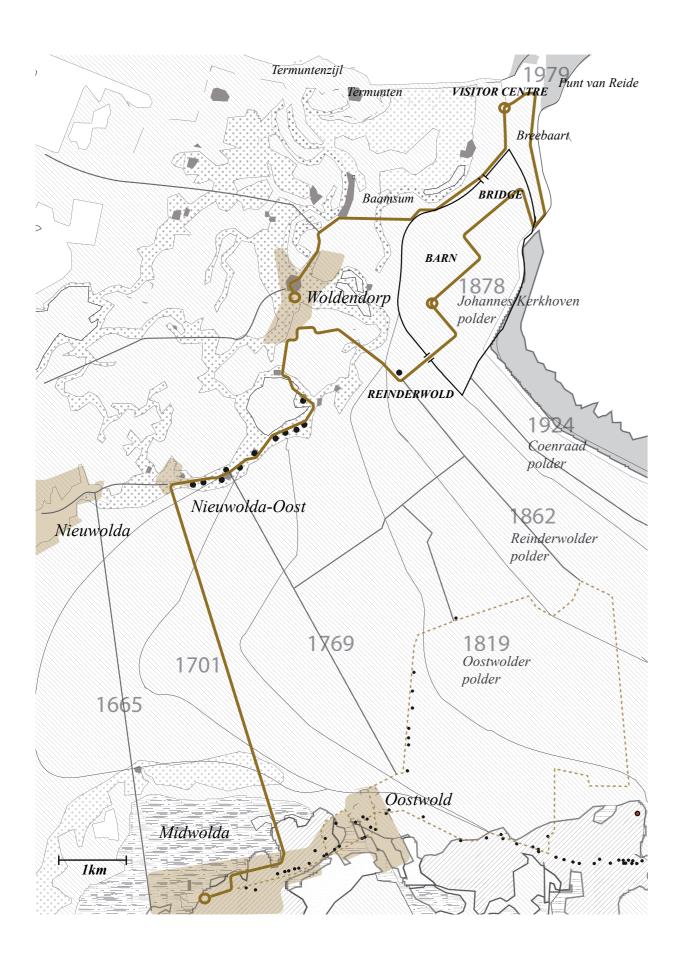


Sem van den Eijnde

TREKKING IN THE OLDAMBT

Trailing the farmyards of North-East Groningen

E OLDAMBT Sem van den Eijnde



Stage 1:

Start Woldendorp

Finish Camping de Blauwestad Hoeve

Distance 28,5 km

Time 7h

Woldendorp

We start at the bus stop of Dollard College in Woldendorp. The bus runs twice a day in winter (and is probably filled with schoolchildren). On the right, you can see the small school building. We turn left and arrive at a T junction. If you turn right at this junction there is a small village store should there be any forgotten provisions or other needs to be stocked up. The route continues to the left marked by a head-neck hull farm (kop hals romp boerderij) on the left side of the road.

Walk out of the village along this road, after about 700m a junction follows, turn right here. Just before the sign, Baamsum is an exit to the right here we walk into the polder. Here follow the concrete slab path that extends to the horizon. In the distance, the dike of the Johannes Kerkhovenpolder can be seen as a barely distinguishable line on the horizon.

The polder dyke was constructed in 1878 for the Johannes Kerkhoven Polder. Along the agricultural drainage channels, reeds often grow. Farmers often mow these reeds, but for biodiversity in the area, it would be better if the reeds were left untouched.

Sheep are used in the Oldambt region to naturally fertilize the land and maintain the grass. By keeping the grass short, they ensure a dense root system, thus strengthening the dyke.

As the process of land reclamation extended further into the Dollard, dykes lost their function. To reach a new polder, holes were made in the old dykes, creating a new path to the new polder. In the Oldambt region, these holes are often painted yellow.

(1h) We pass a fish passage along the canal and Visitor Center Dollard. From the visitors center it is possible to cross the Polder Breebaart. As you walk up the sea dike, the tip of Reide and the industry of Emden are visible. With any luck there are a few seals. From the dike a small paved path along the shore is visible. We follow the other path in the polder along the reeds.



The Visitors Center is placed next to the historical Breebaart Polder, which was never finished and is a physical manifestation of shifting views on land reclamation and its impact on the environment and ecosystems. It came to be the first inner-dike tidal area of the Netherlands. With it's characteristic biodiversity its home to a lot of animals and plants such as the avocet, black-headed gull, samphire and bristle herb. Enclosed by dikes, it looks like a gated community for birds hiding in the reeds.

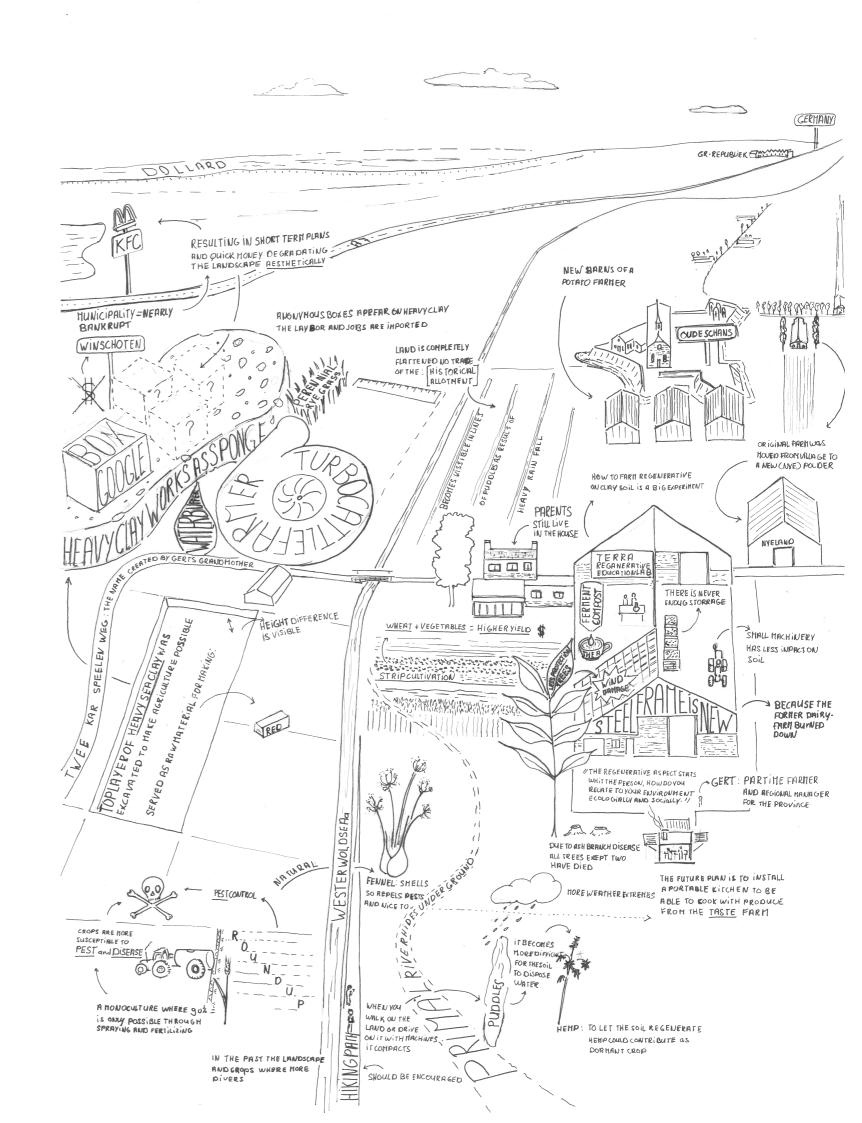
(5h)Upon entering Nieuwolda-Oost there are a number of huge mansions/farms. It is hard to tell if they are front houses that are now missing their barns. (Farmers seem to build their own palace in front of a barn.).

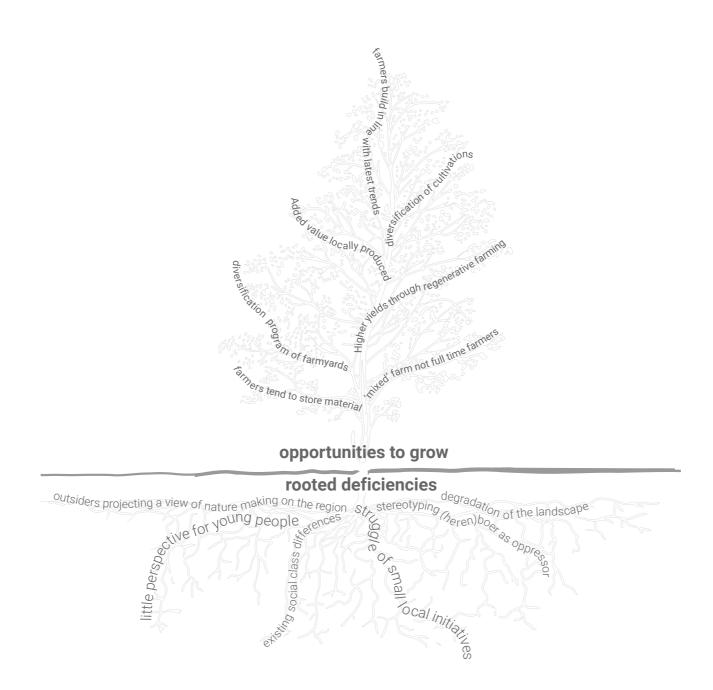
In Nieuwolda-Oost we start with a less enjoyable part of the hike a straight 6km stretch that clears through the polder, the Nieuwelandseweg. Passing along this road you have to watch out for trucks that certainly don't take into account hikers, several huge farms are passed including large livestock farms. The various dikes that have been used to reclaim this landscape over 300 years are smoothed out and barely distinguishable. In the distance, the lights of the windmills around Delfzijl are visible. The poplars of the Johannes Kerkhoven polder also stand out clearly against the horizon.

(6.5) The Nieuwlandseweg ends in a T junction where we turn right. Via a goat path along a trout pond, it is possible to sneak into Midwolda. Arriving at the Hoofdweg we turn left along the beautiful church to finally settle at our final destination the **Camping de Blauwestad Hoeve**

+31 597 55 40 55

info@blauwestadhoeve.nl

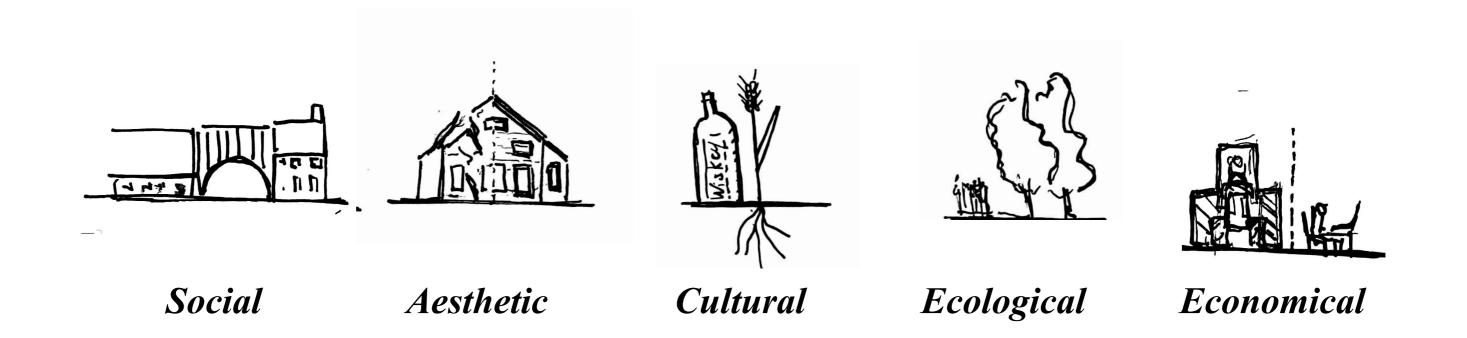




Findings



Regional Landscape



Landscape Stewardship

values



Nieuwolda Oost



Bellingwolde, Gert Noordhof



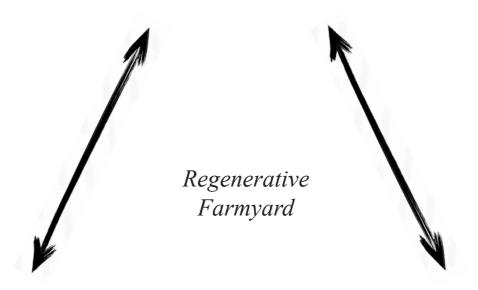
Finsterwolde



Bad Nieuweschans, Doeko van't Westeinde

Tectonic

Tectonics

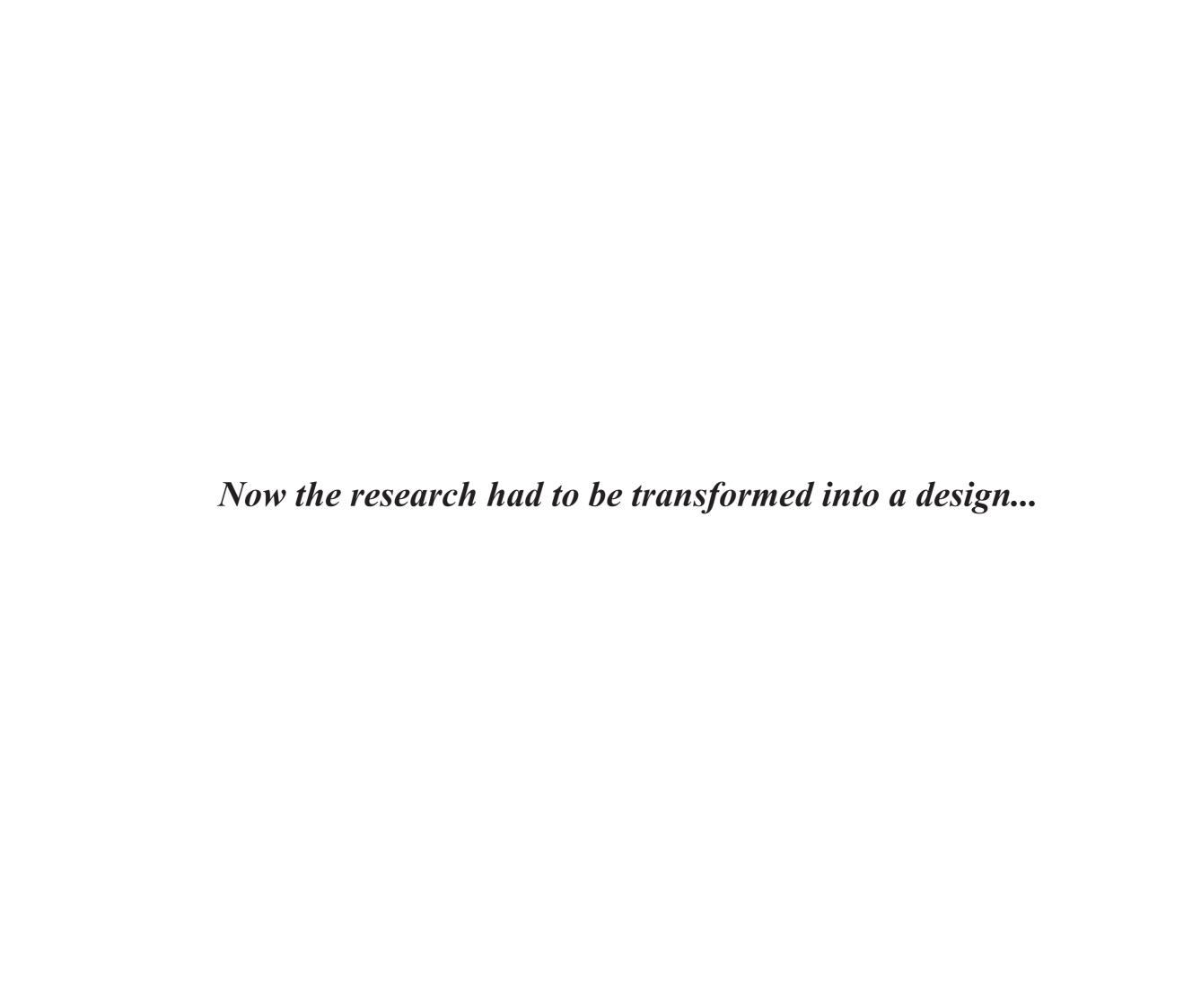


Landscape Stewardship



Regional Landscape

Conclusion

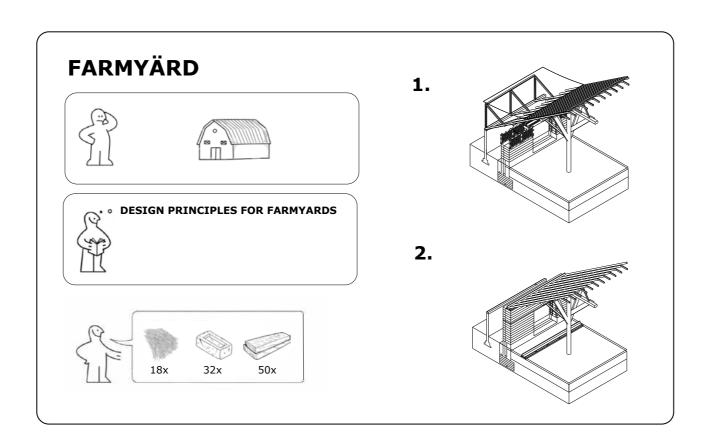


Goal

To design a strategy for regenerative redevelopments of Oldambter farmyards

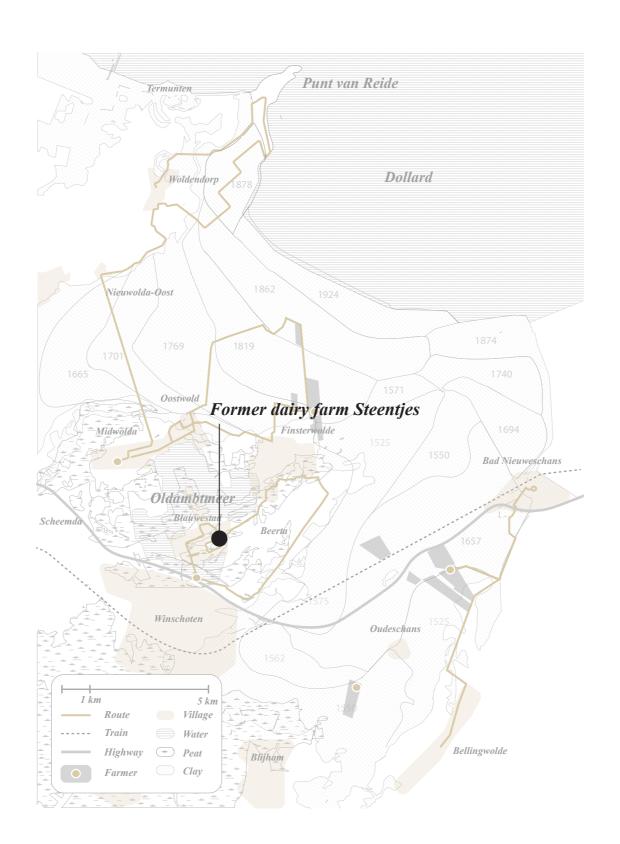
How?

A development guide with generic principles applied on a existing farmyard



Where?

Former dairy farm Steentjes



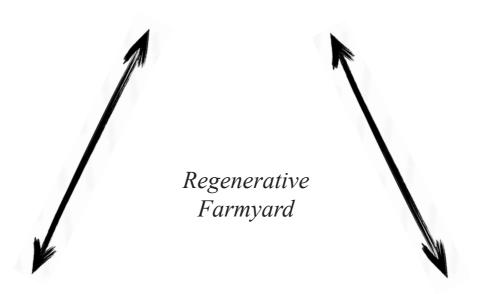








Tectonics



Landscape Stewardship



Regional Landscape

What?

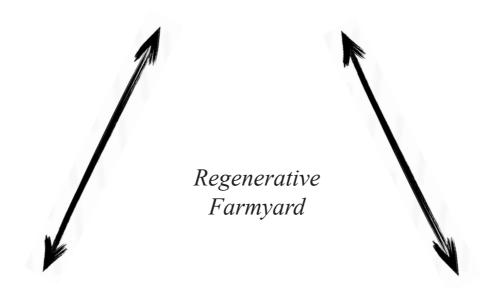
Design principles

Low tech building methods

Local materials

Adaptability in spaces

Tectonics



Landscape Stewardship



Regional Landscape

Diversification of the program

Human scale

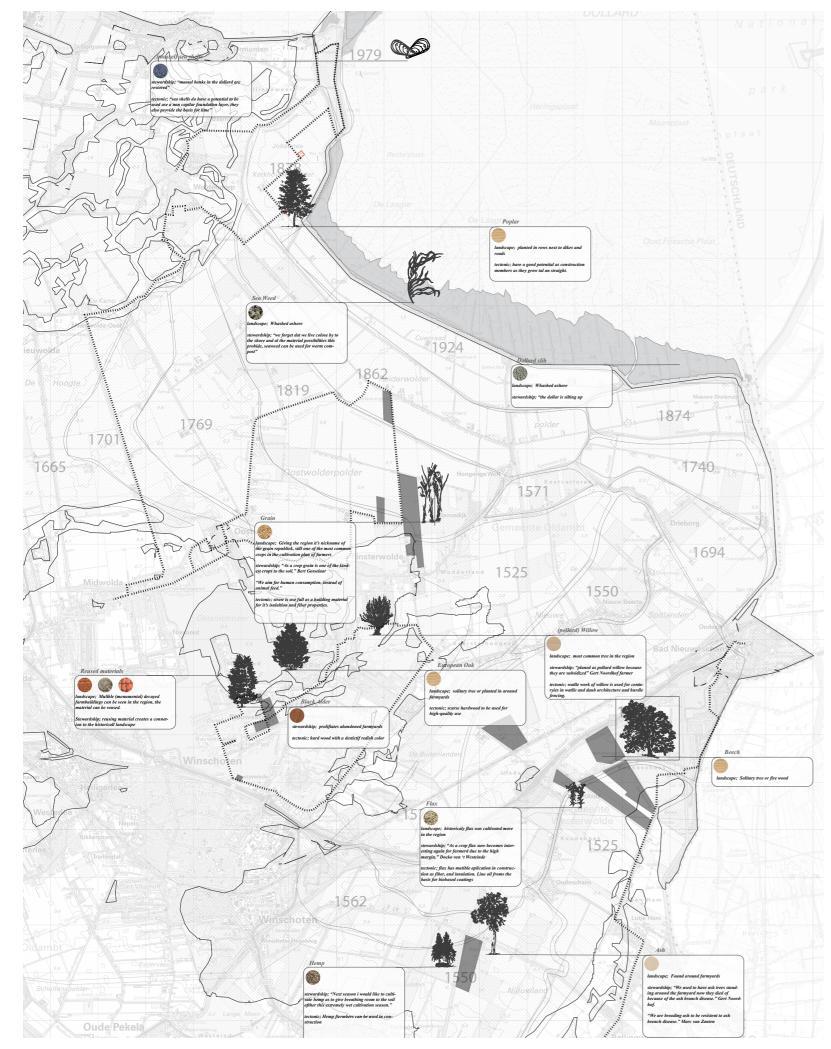
Farmer in residence

Function feeds function

Reconnecting to the soil
Test plots for further growth
Omnidirectional orientation
Materials

Regional Landscape

principles



Material Pallet 1:20 000

Regional materials

Material Pallet

(pollard) Willow

European Oak



Black Alder



Poplar



Beech



Ash

Flax



Hemp



Straw



(mussel) sea shells



Sea Weed



Dollard slib



Brick



Concrete

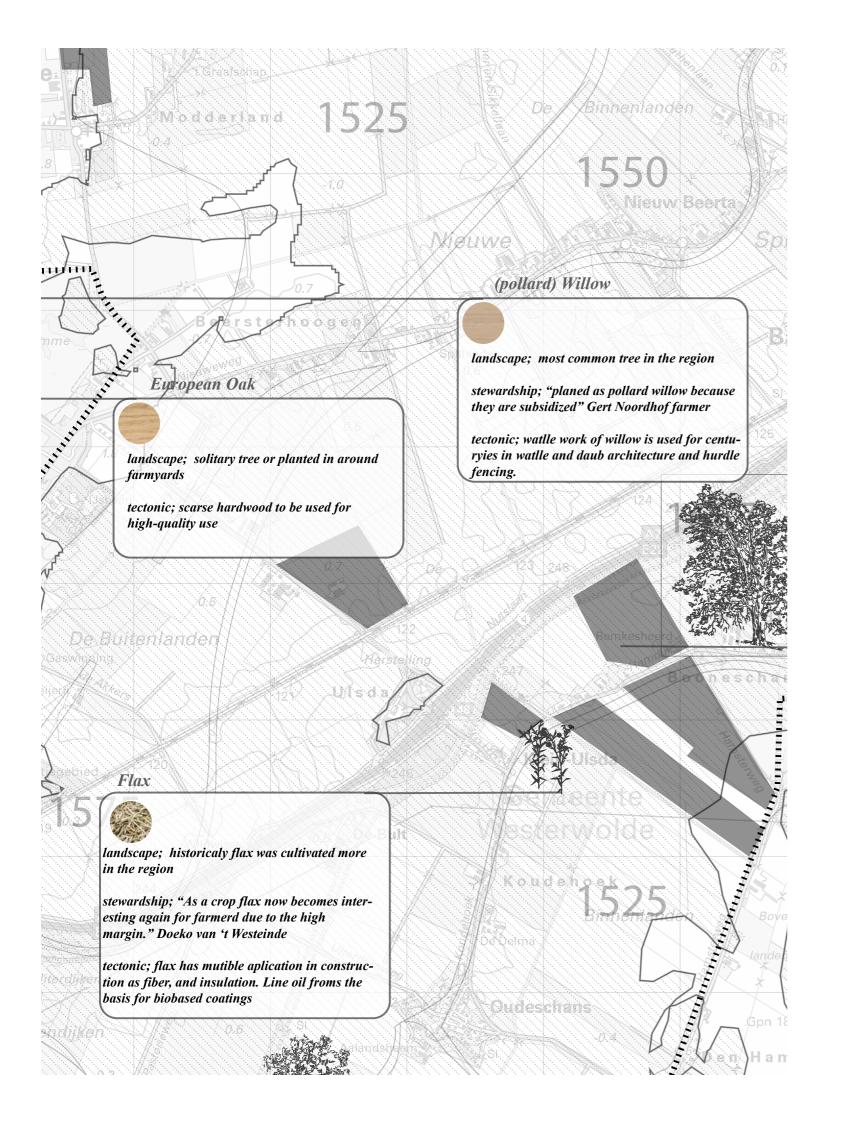


Rooftiles





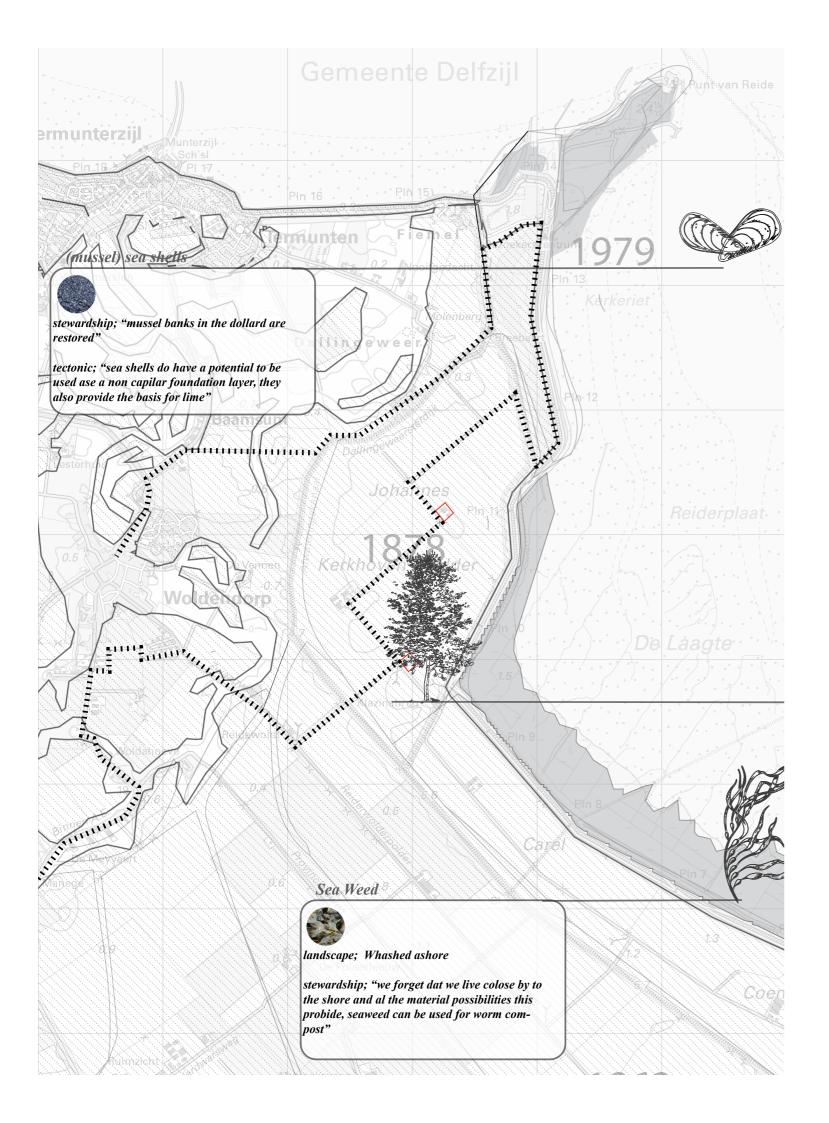






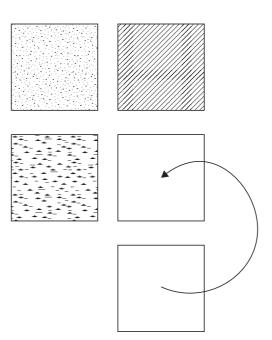


"I would like to cultivate hemp to let the soil rest after this extremely rainy season." - Gert





Reconnecting to the regional soil

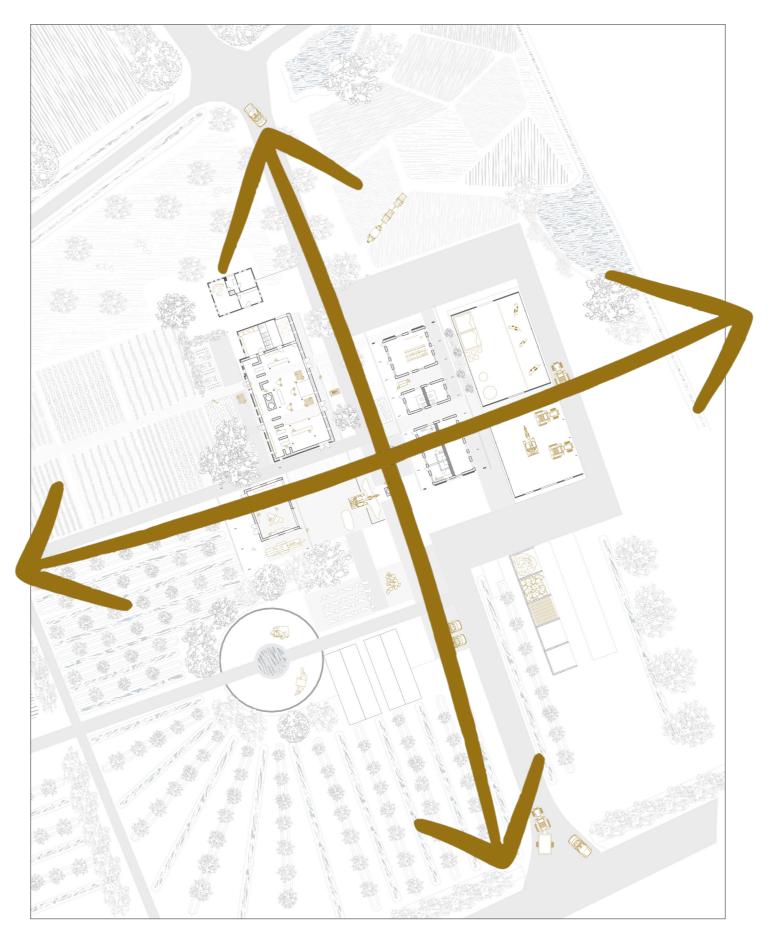








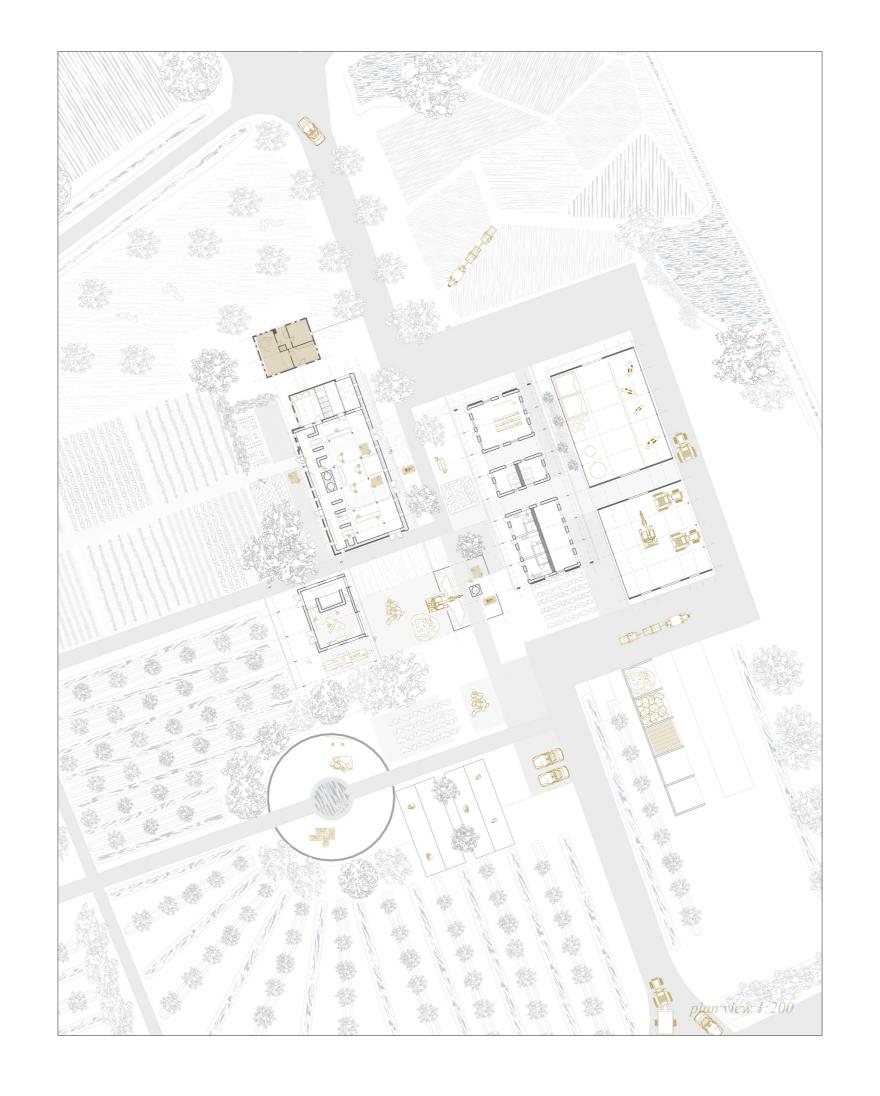


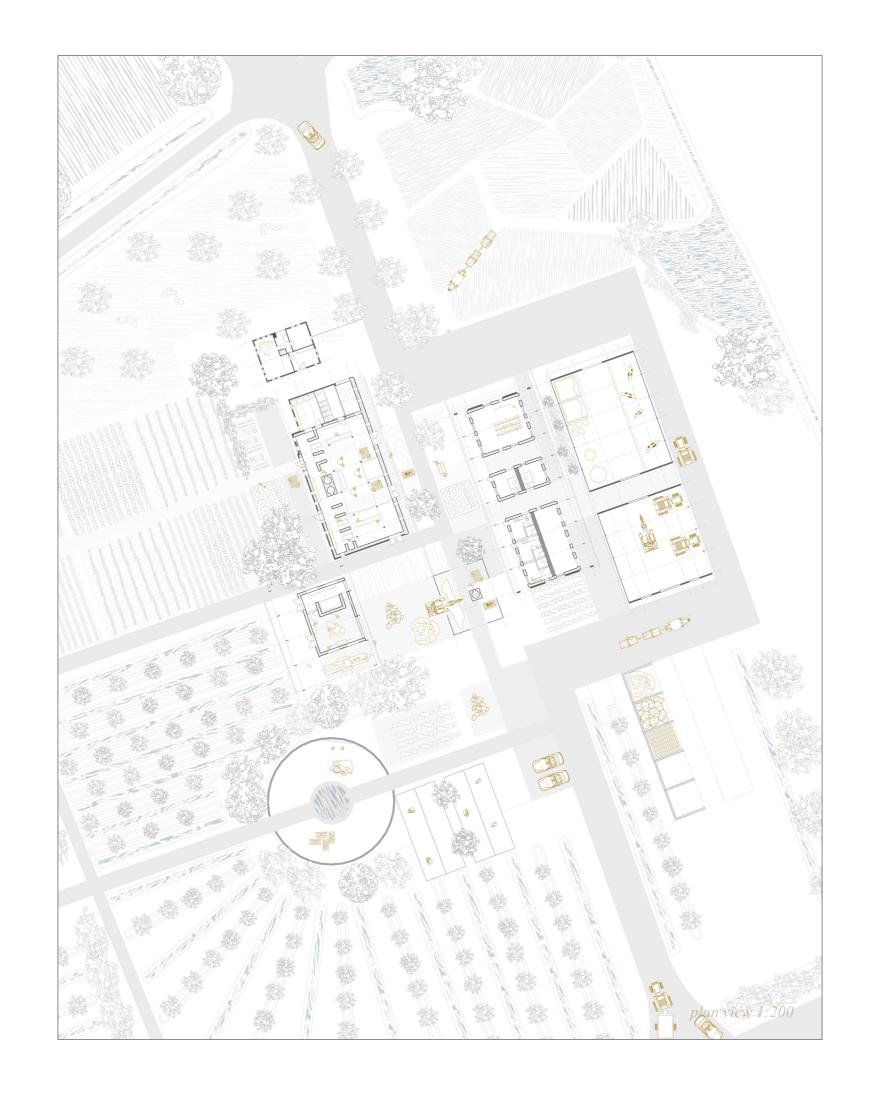


omnidirectional orientation

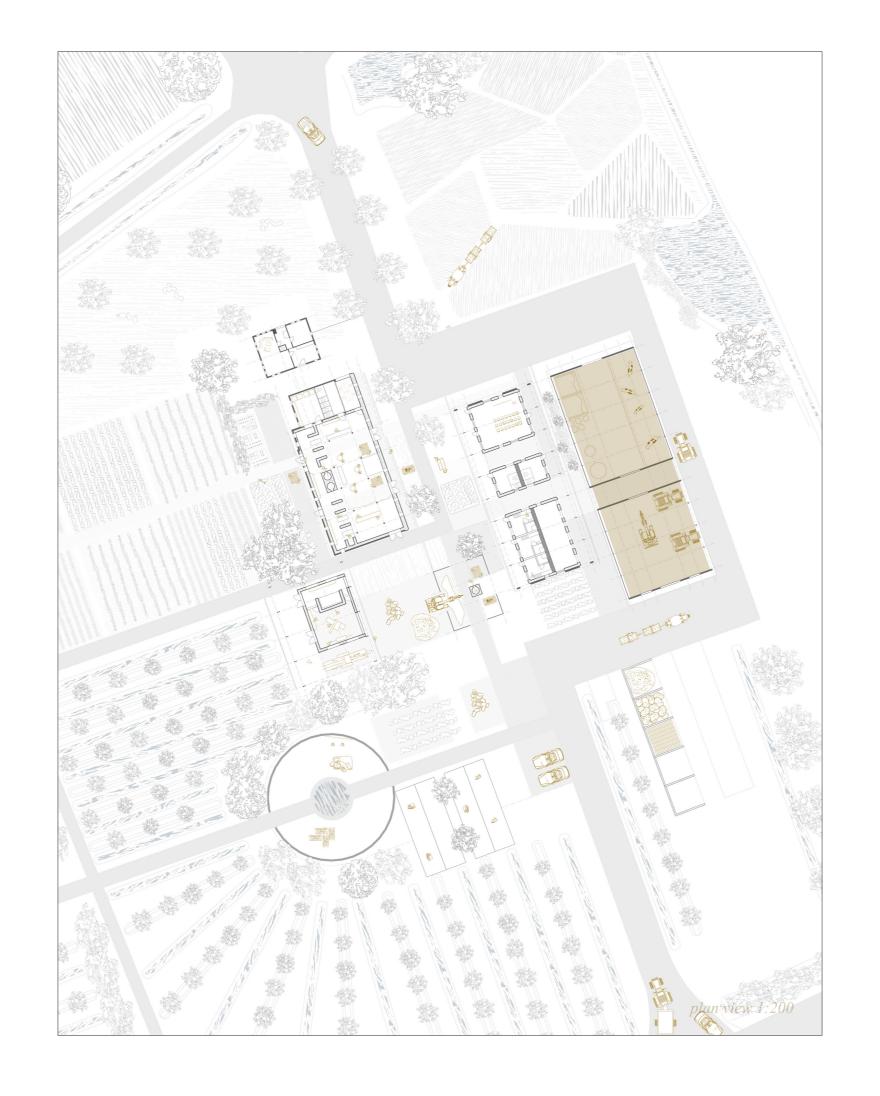
Landscape Stewardship

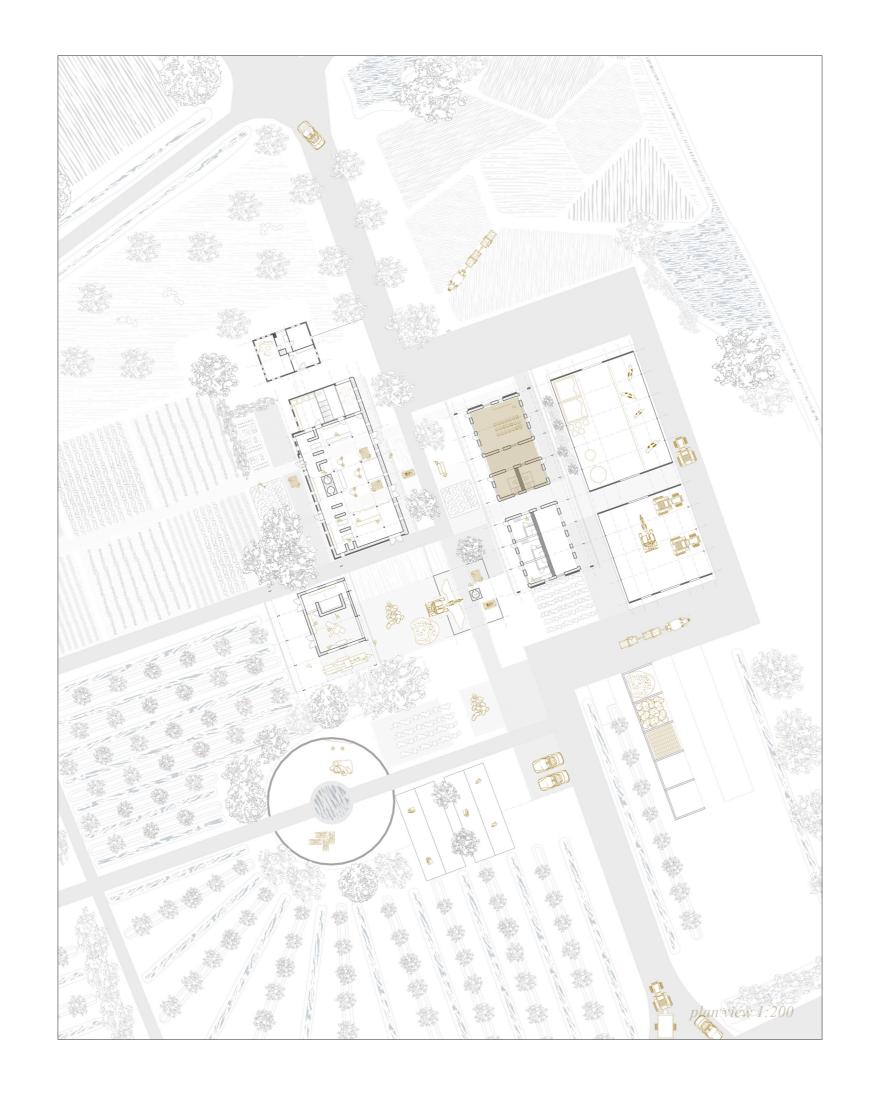
principles

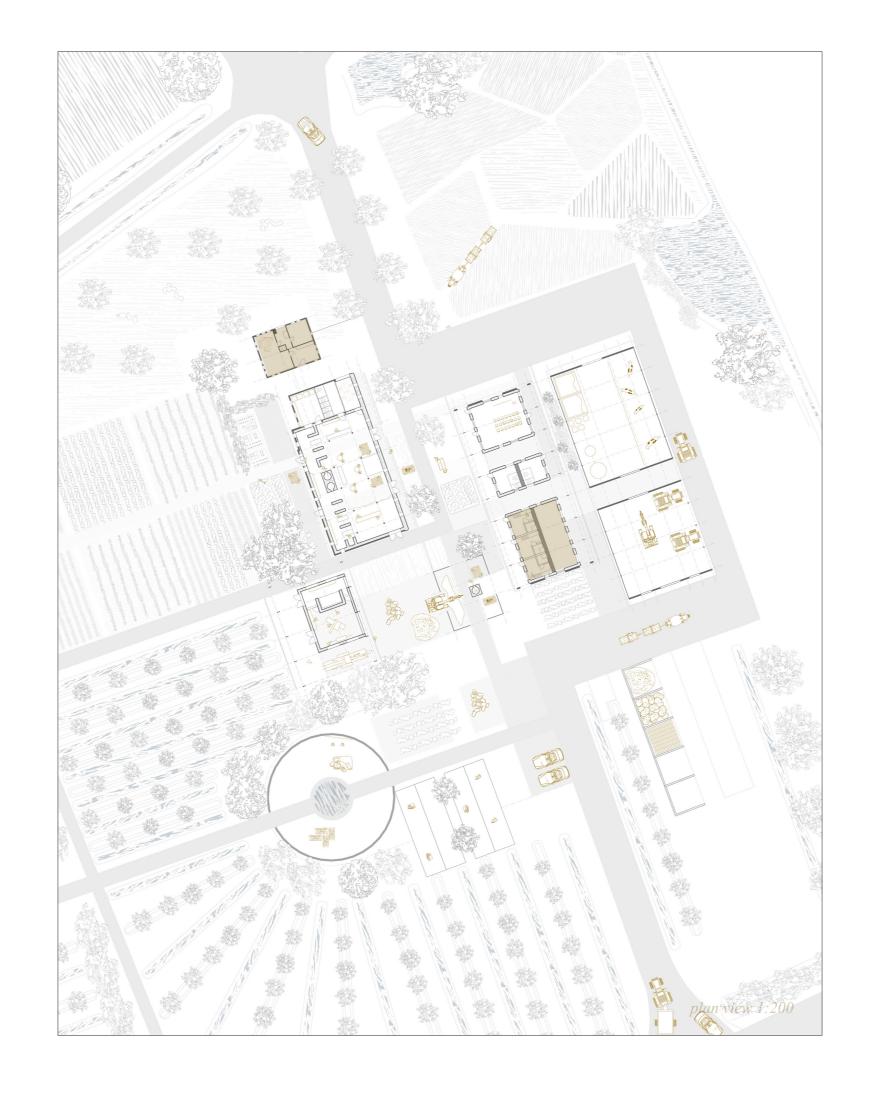




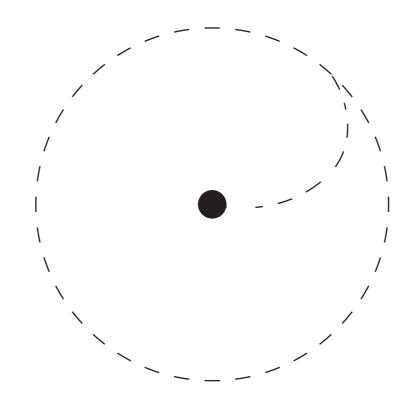




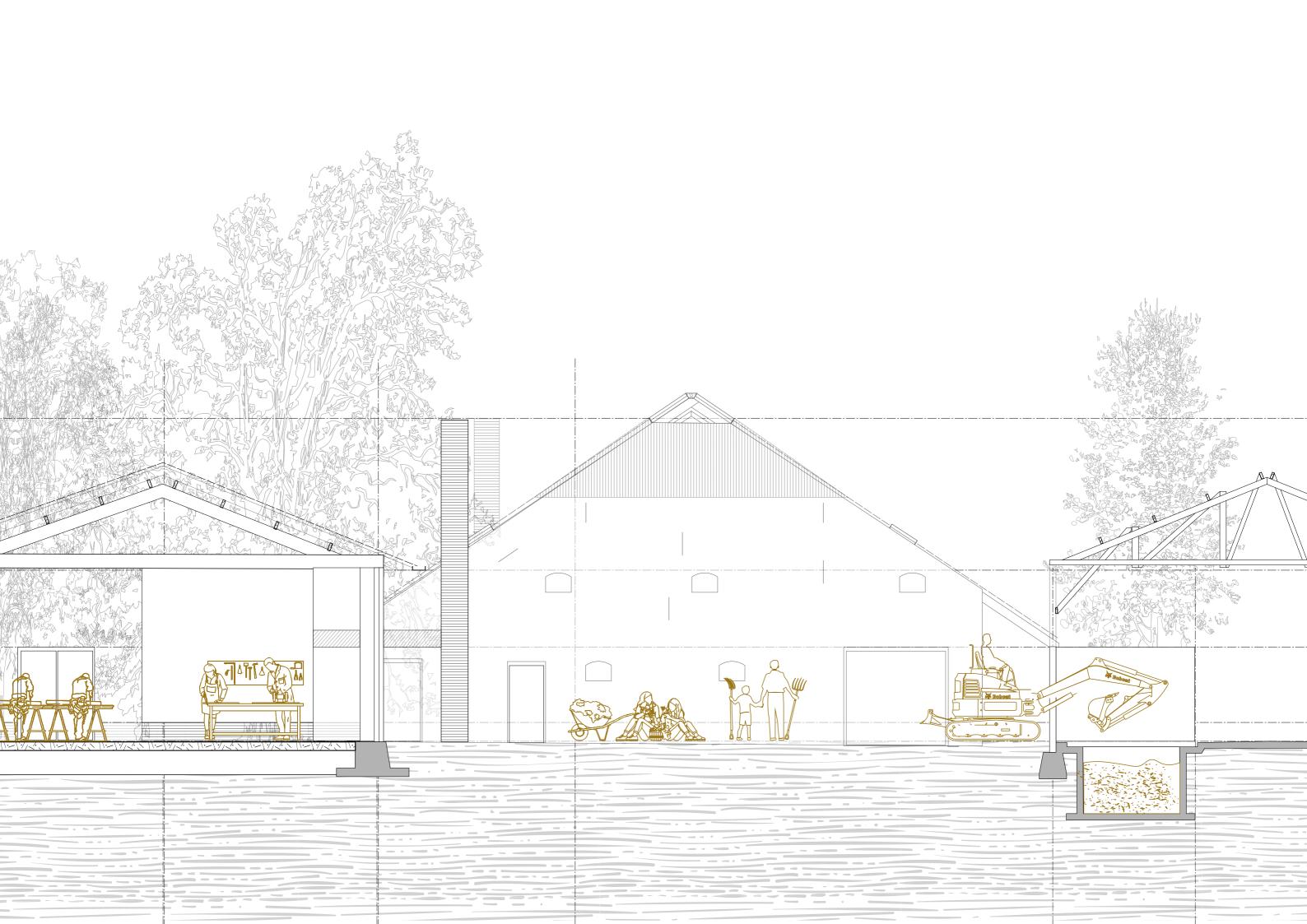


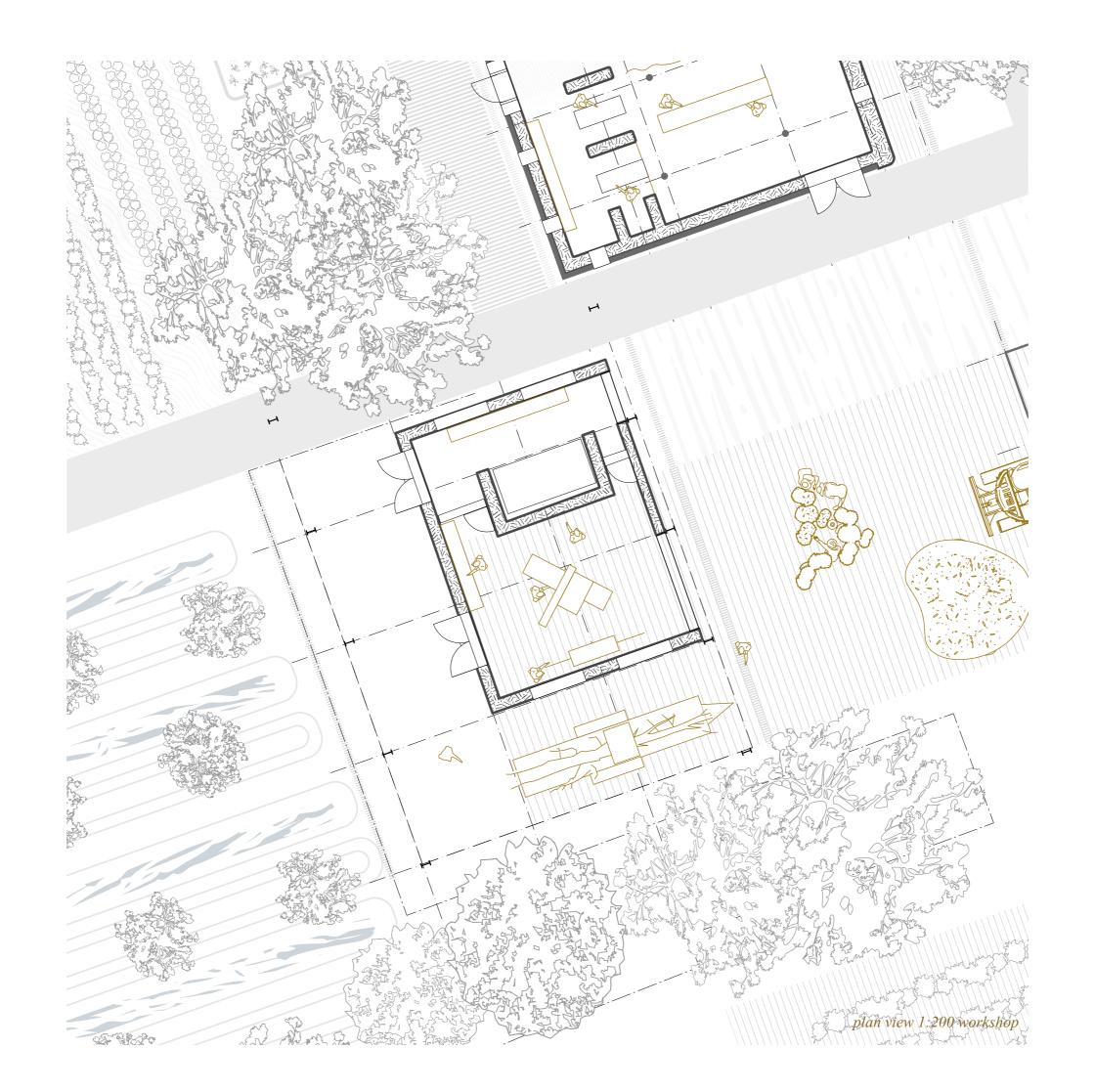


Function feeds function

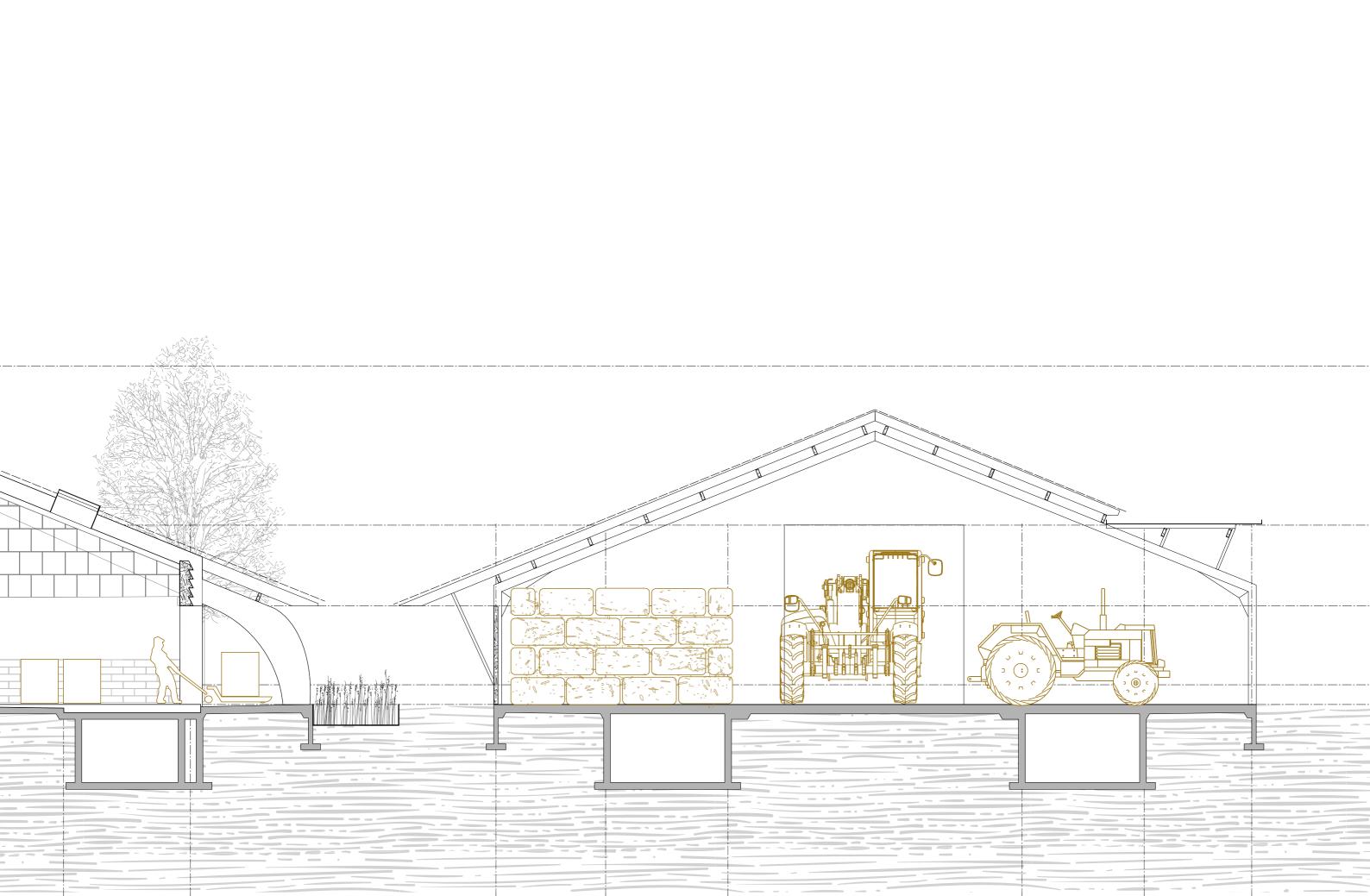


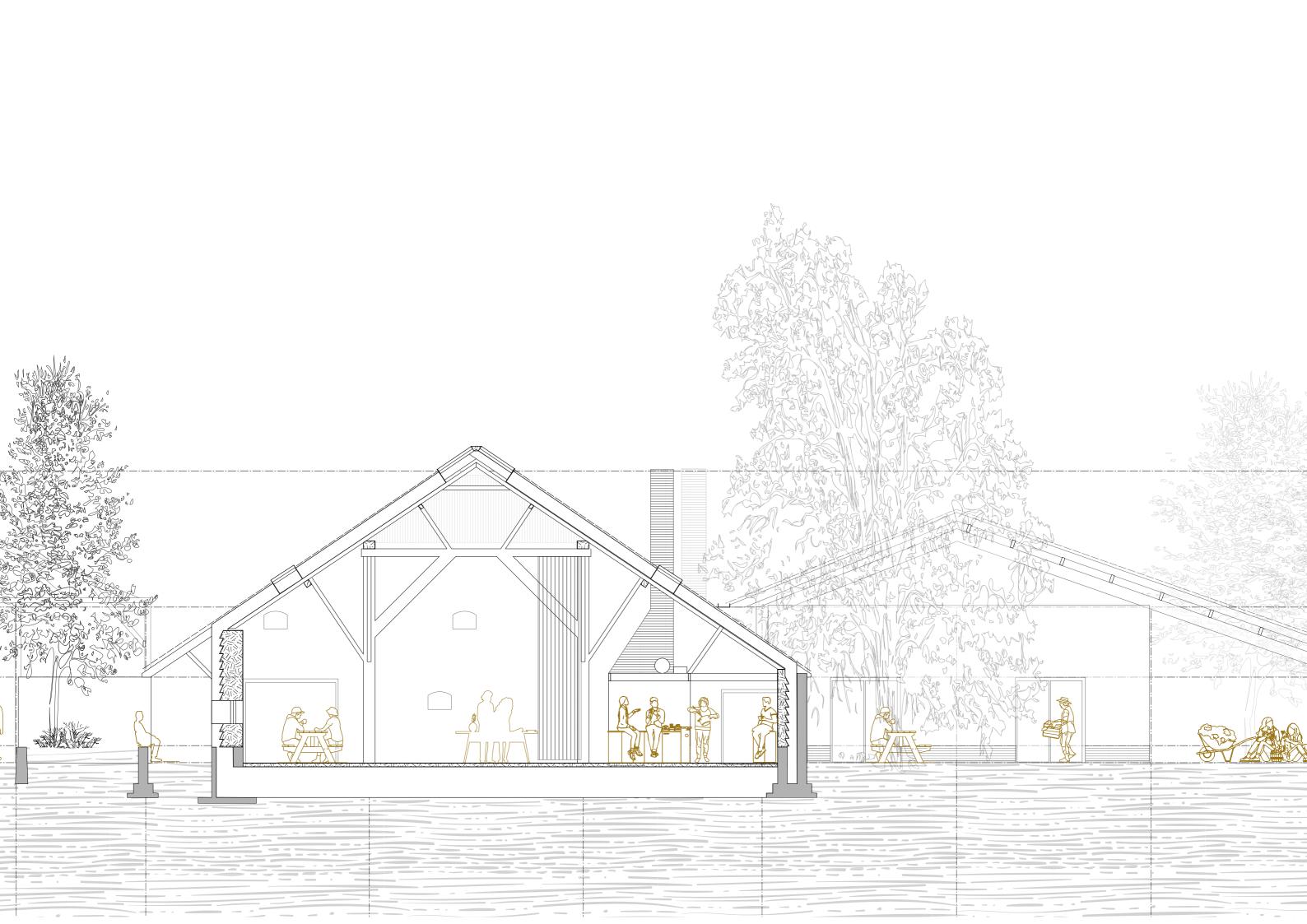


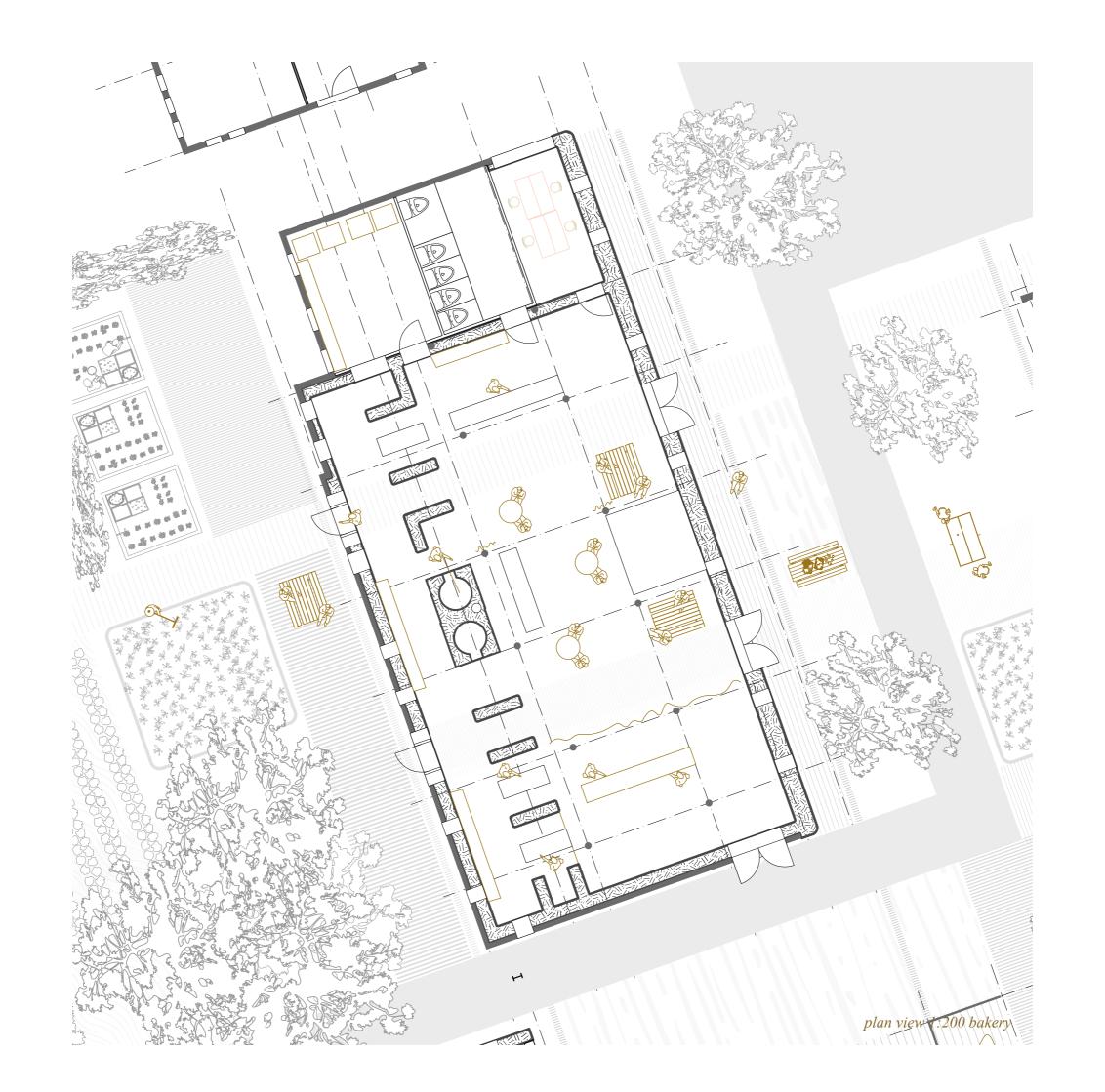


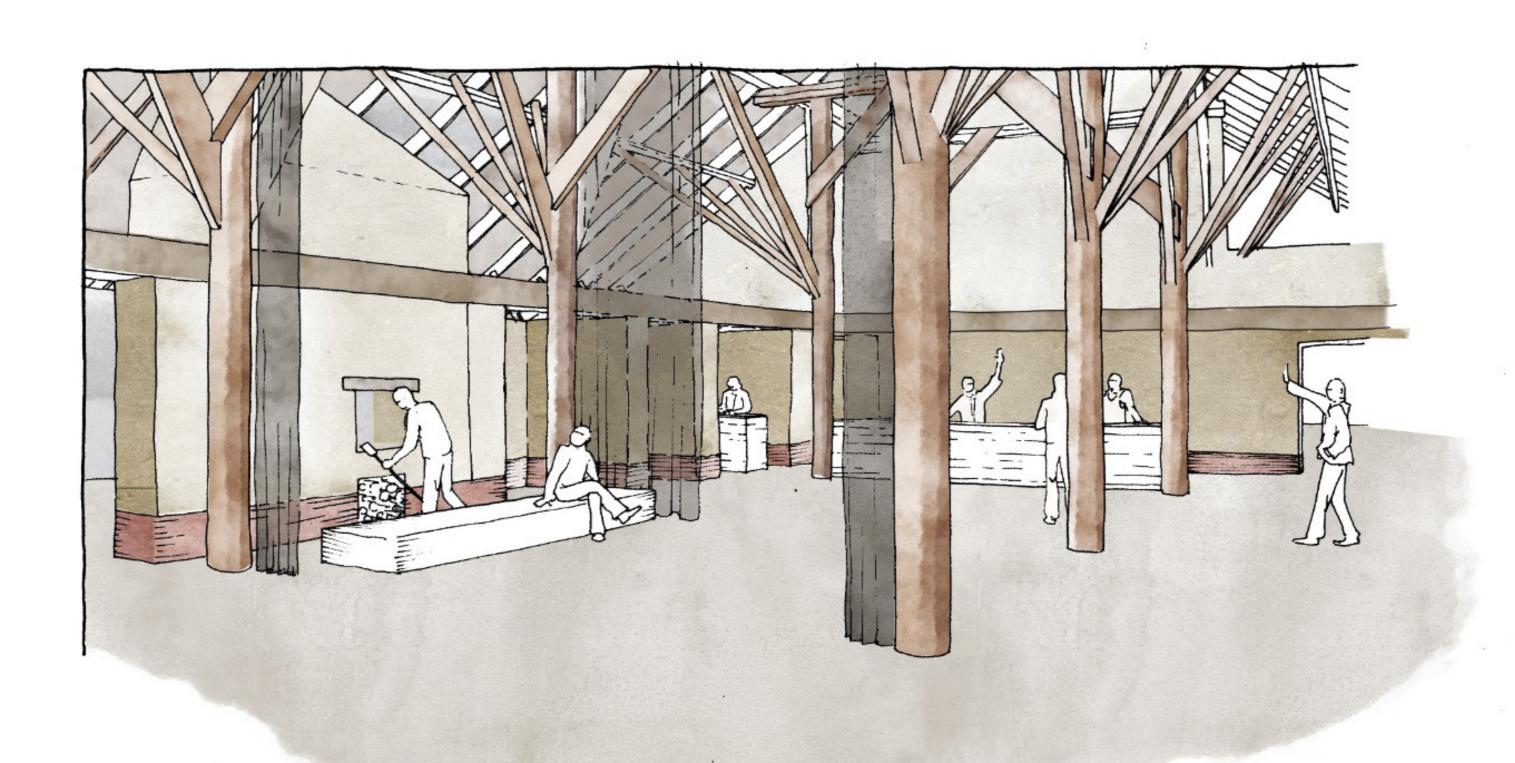
















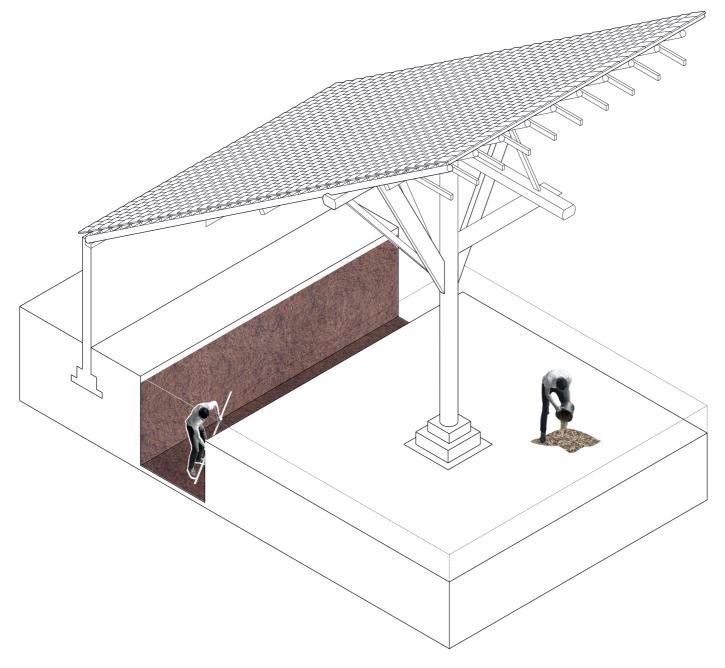


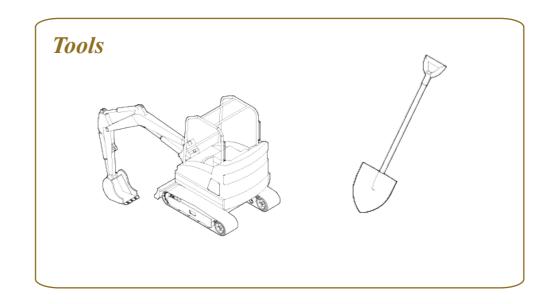
Tectonics

principles

"I take my role as a designer, and turn the materials in the region into a tectonic. With the building seen as a restructure of the landscape."

Digging





<u>Cultivated materials - seasonal</u>





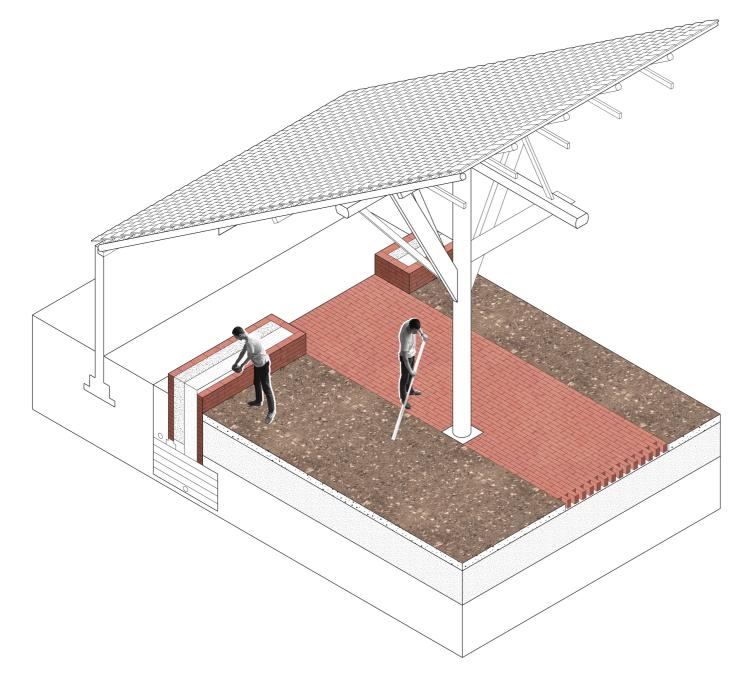


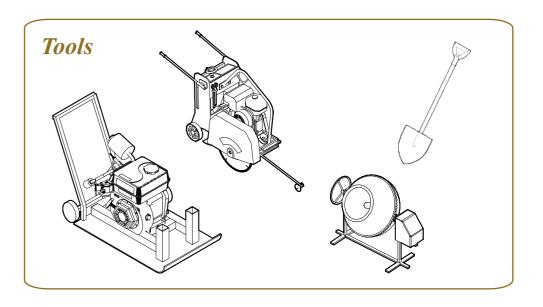
Biobased geotextile (hemp)



Mussel shells

Foundations





Regional materials - non seasonal







Cockle shells





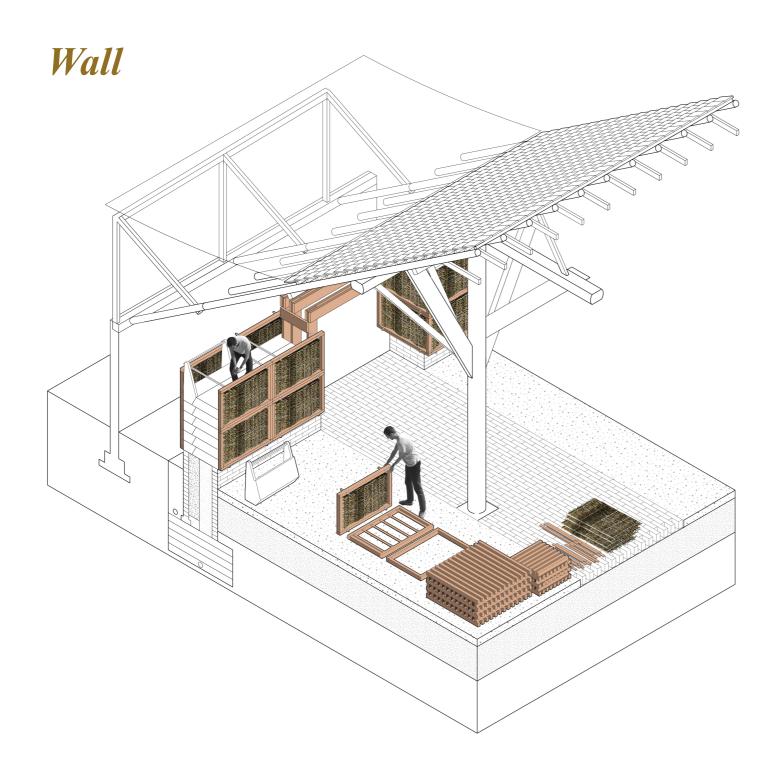


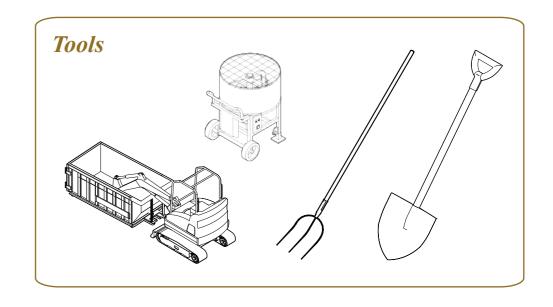
Re-used materials - non seasonal















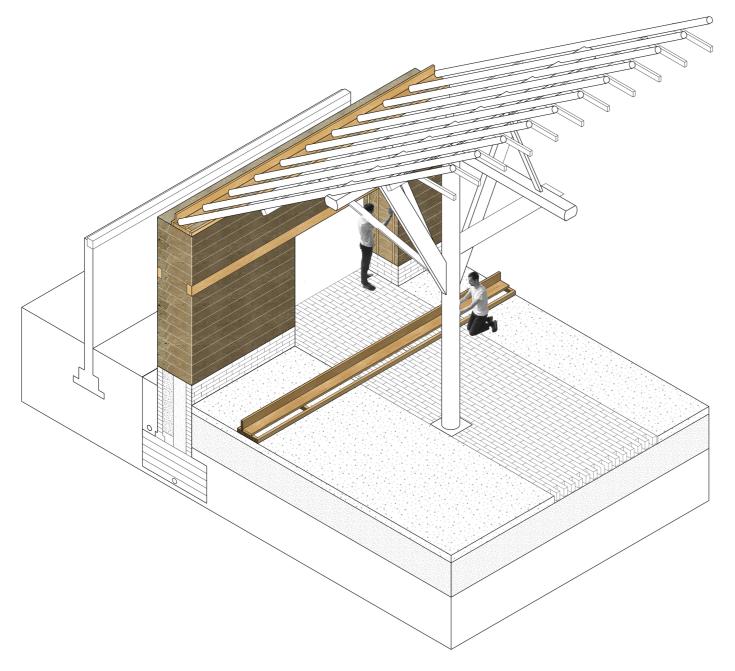


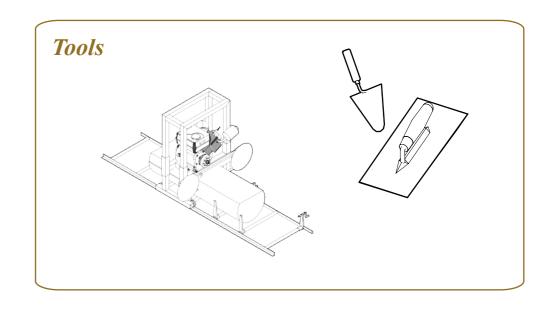
Нетр



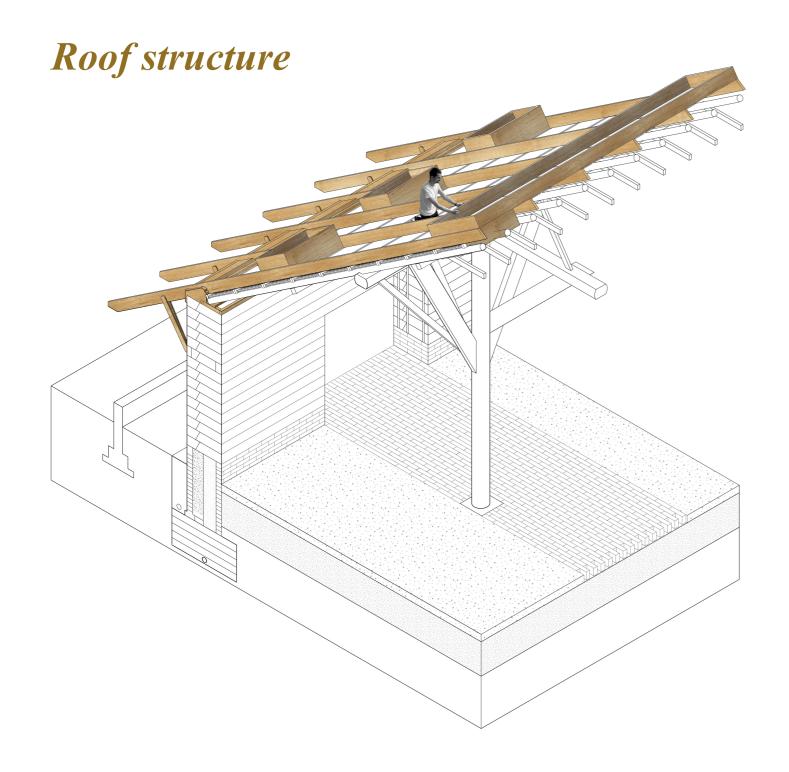
Pollard Willow

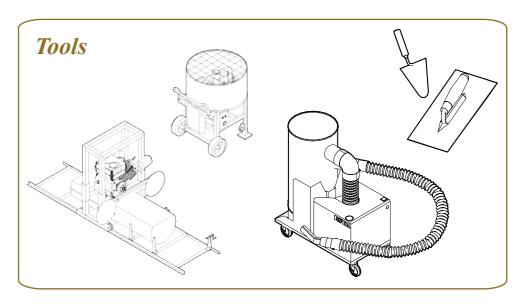
Joining wall/roof











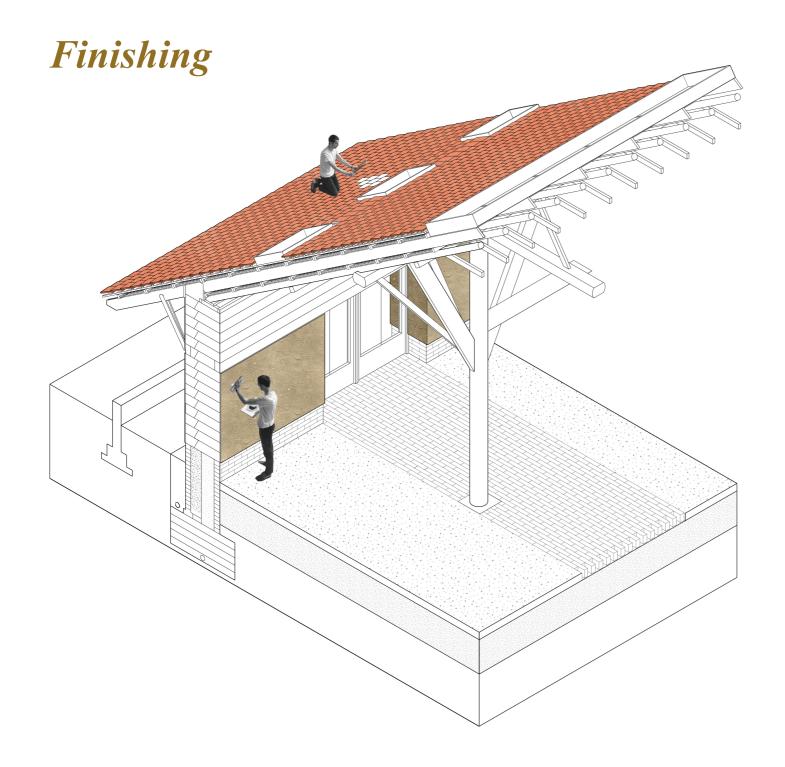


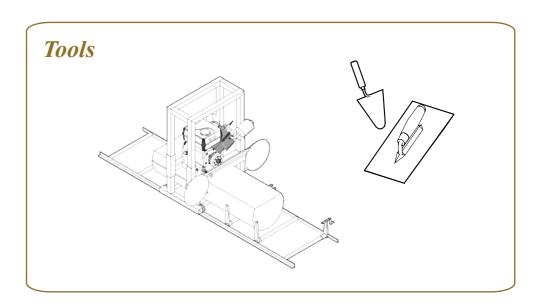




Re-used materials - non seasonal













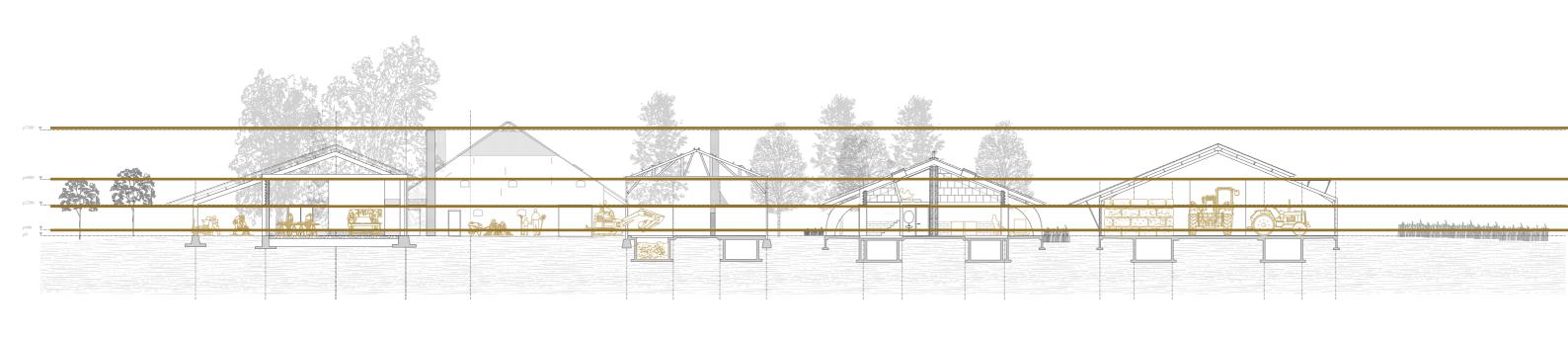
Re-used materials - non seasonal



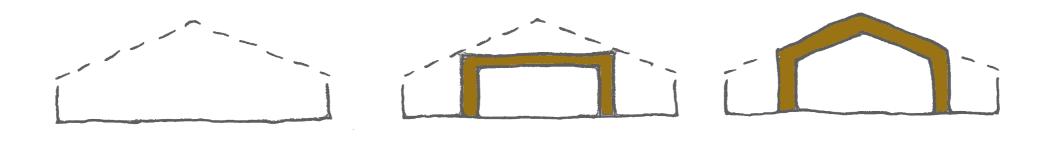
re-used roof tiles



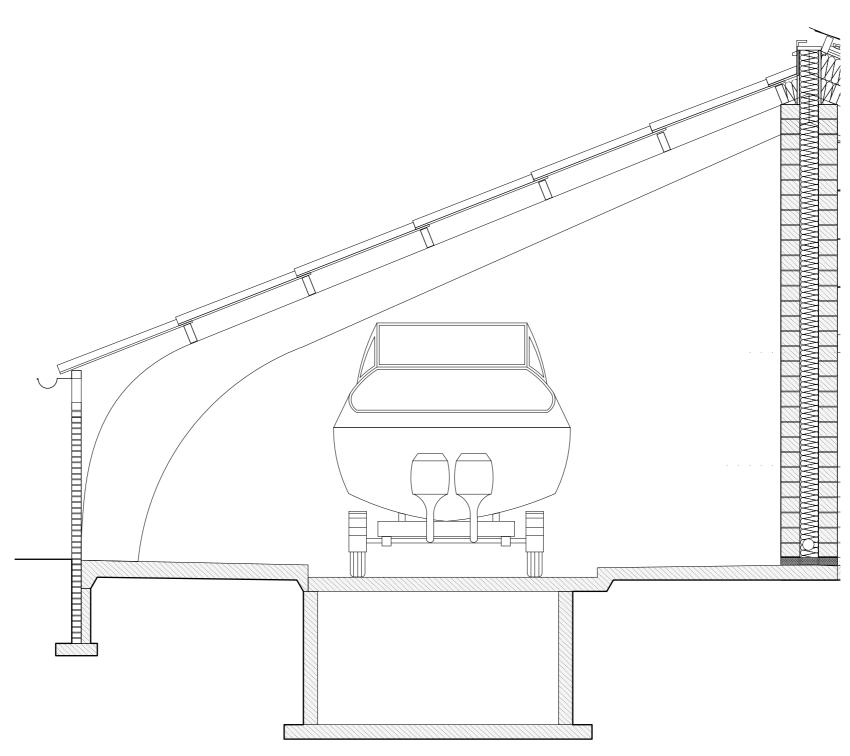




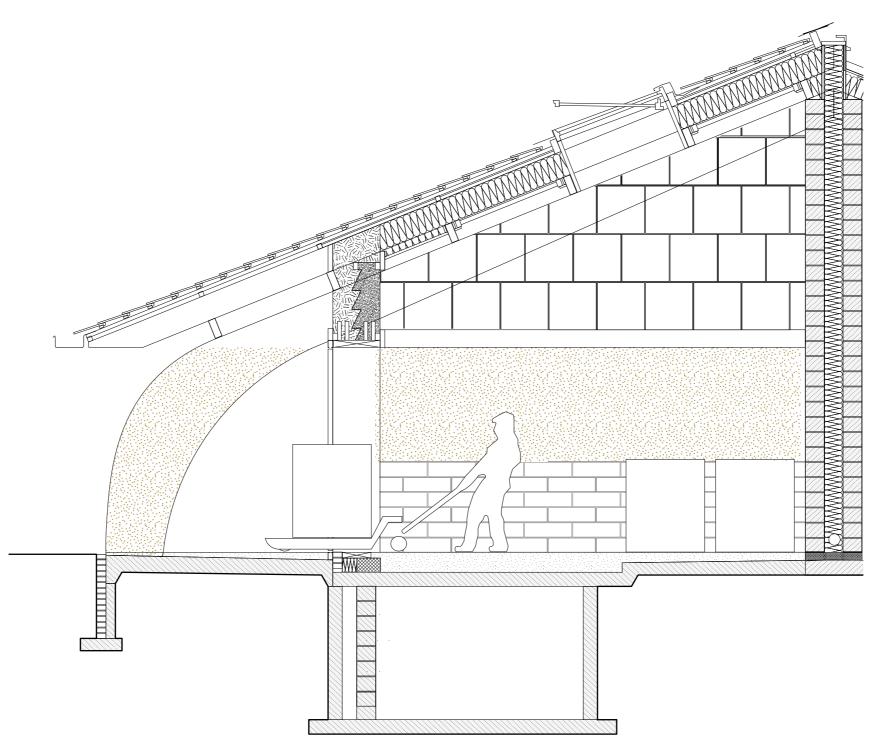
Adaptability



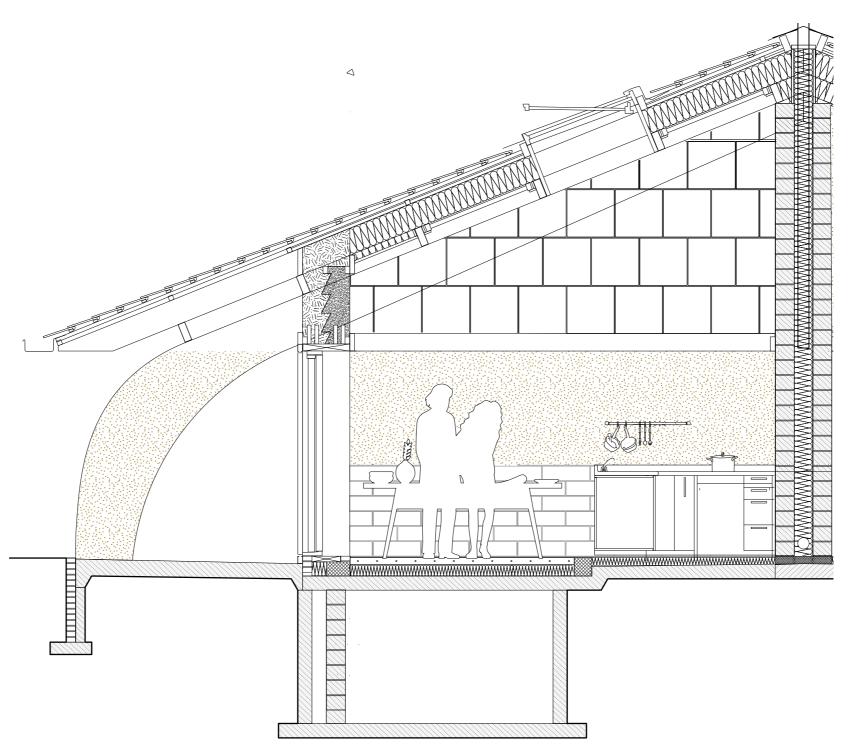
non insulated box in box adaptable



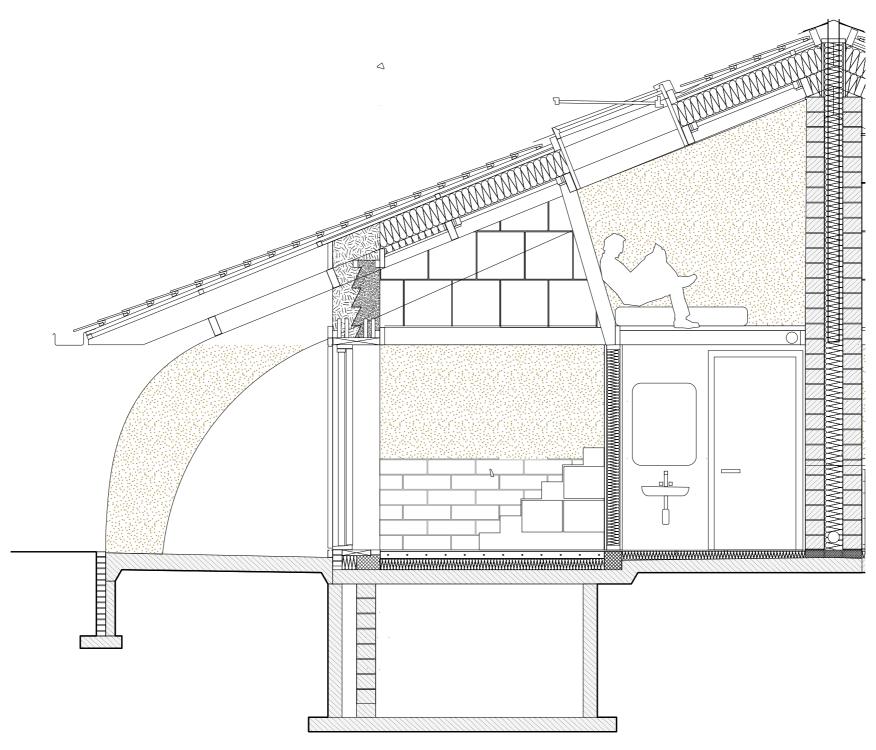
Technical section 1:50 | Current



Technical section 1:50 | Step 1



Technical section 1:50 | Step 2



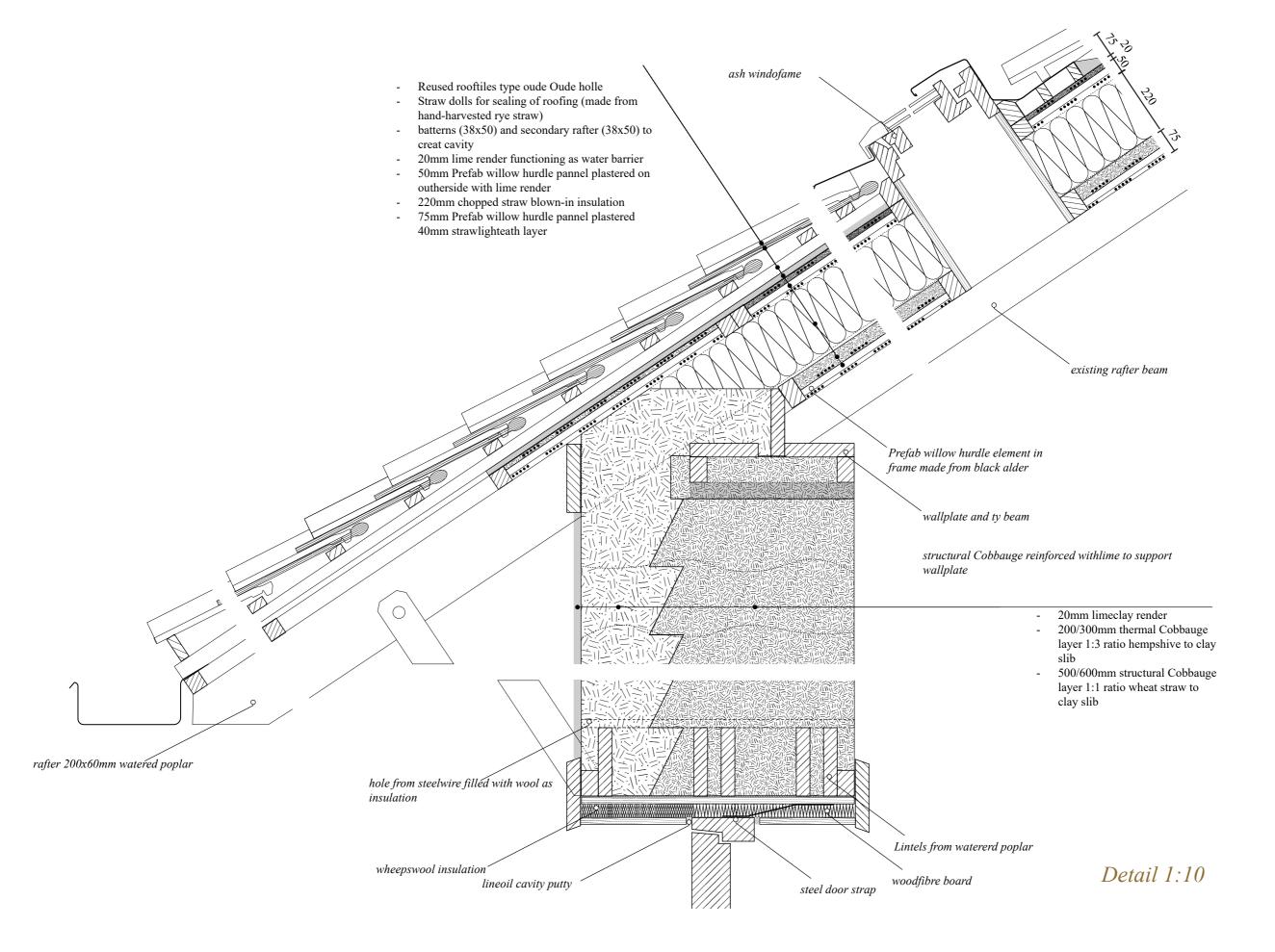
Technical section 1:50 | Step 3

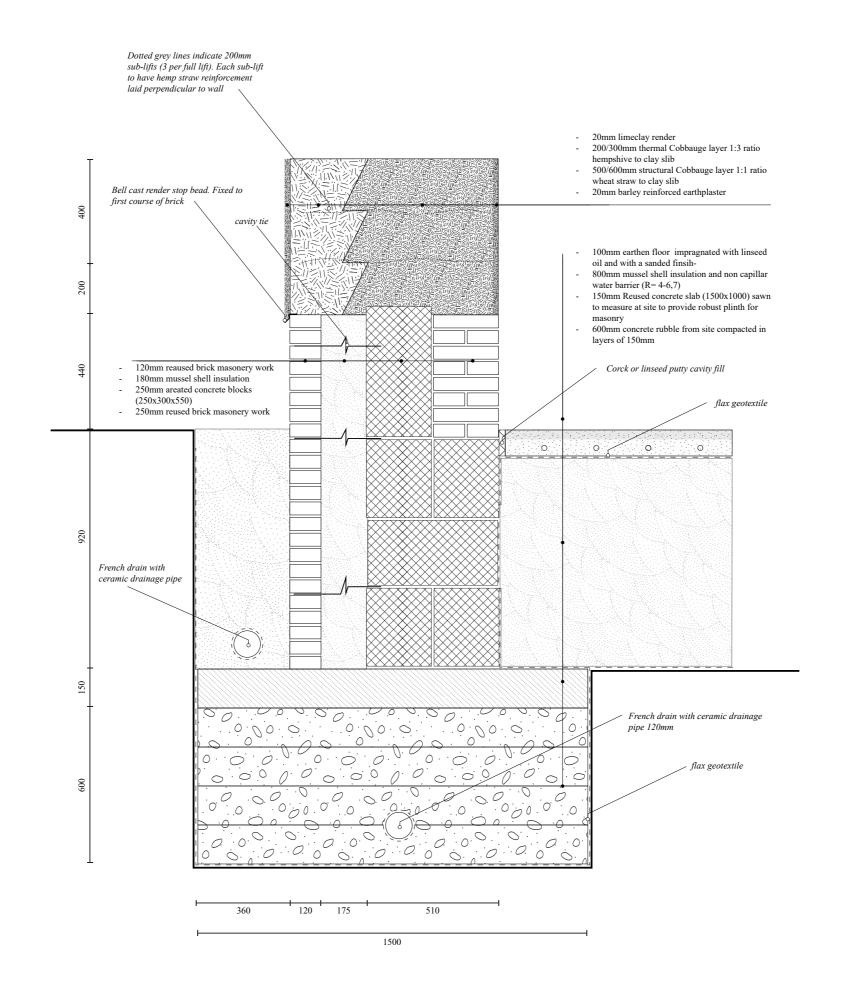


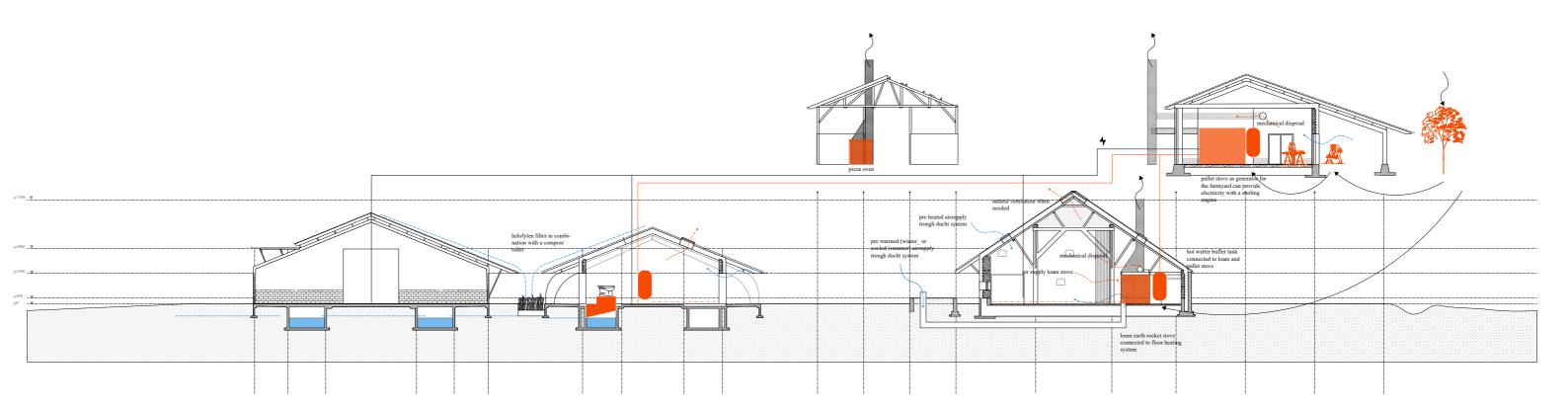
Conclusion



Thank you!







Climate diagram

Presentation: Text

Introduction

- 1. My journey began on a rainy December; the clouds draped low over the polder. On the horizon there is a glance of the dike. The road paved in concrete slabs disappears in the distance.
- 2. This Dike marks the end of a 400-year struggle to reclaim fertile land from the Dollard. On the left, the Dollard deposits silt with the ground swell bringing seaweed ashore. Downstream the project Dollard 2050 aims to prevent further silting and ensure biodiversity by restoring mussel and cockle populations.
- 3. A line of **poplar trees** forms our vantage point. We continue through an artificial dike breach and reach the sea clay plains of agricultural production. In early summer, characterized by a golden-yellow glow of wheat swaying in the ever-present western wind.
- 4. The farmyards are clearly distinguishable as small islands on the horizon enclosed by clusters of ash, willow and poplar trees, protecting them against the wind. They lie slightly elevated in the landscape on natural ridges, resulting in the area's typical ribbon development.
- 5. The red of the Groninger bricks and rooftiles not only contrasts the horizon, but becomes often noticeable when looking down on the trail or in the fallow land.
- 6. "A bouquet in the window frame seems like a sign of life and often these farms appear abandoned. The enormous barns in a state of decay, even overgrown by birch or black alder trees. Later, the main house follows.
- 7. We pitch our tent behind an old barn and retreat in our sleeping bag where we contemplate today's hike and observations.

Start

Welcome to my Graduation presentation Nieuwe Borgen towards a regenerative farmyard in the Oldambt. This was a brief summary of the wanderings I made during my graduation and in the next 30 minutes I want to take you with me on my journey.

Fascination

This year started with a fascination for the distance between humans and their material surroundings. In my opinion a design should be rooted in its place. My vedute manifest unearthed showed my intention to observe and discover a deeper understanding of a region. My aim was to transform these observations into a readable design language, that reflects the identity of a place.

Oldambt

For, this search I saw potential in current challenges within the Dutch countryside. I missed a constructive conversation and engagement with farmers. This is how I ended up at the farmers of the Graanrepubliek in the Oldambt region.

Graanrepubliek

The Graanrepubliek is an initiative of local farmers and entrepreneurs exploring cultivation with a positive impact on the soil and local community.

Map Oldambt

This region in North Groningen, known for its agricultural history and fertile clay soil, pioneered wheat monocultures in the 19th century. This wealth led to a distinctive farm typology, but also a class divide between farmers and laborers. Further mechanization expanded farms but reduced the workforce. Today, farmyards are abandoned and a lack of opportunities drive people away.

Blauwestad

In recent history, multiple projects have been initiated to regenerate the area like the Blauwestad in the late 90s. As you can see here, there is not much to see, and more recently the Graanrepubliek. Despite the good intentions it fails to gain the trust of local farmers and attract the community.

Problem

So, what is going wrong here? These projects are not getting enough footing due to a lack of real connection with the regional landscape. The region is in dire need of a regenerative approach to new developments. The abandoned farmyards offer a great opportunity for this new approach.

Research question

This resulted in the following research question:

How can landscape stewardship contribute to a regenerative farmyard with a tectonic that depends on the regional landscape? This sounds quite complex, but I will take you through it.

Three elements

The question contains three elements that require some further explanation: Landscape stewardship, tectonics and the regional landscape.

Definition landscape stewardship

landscape stewardship refers to "the responsible interaction between people and the landscape, aimed at safeguarding its values." It is about how farmers treat their land and their shared values.

Definition Tectonic

Tectonic, **refers** to "the structural principles that underlie a building." It is about the architectural elements characteristic to the region and what they represent.

Definition Regional Landscape

Lastly, The regional landscape is shaped by both natural processes and human activities, resulting in the physical characteristics that define a region. It is about the material and immaterial identity of a place.

Methodology wandering

At the start of my presentation, I gave a glimpse of the method I used to conduct my research: Wandering. I chose this method because it forces you into the role of the observer: While you focus on the horizon you process every step, noise and texture. Furthermore, hiking is also a tool of encounter. You come into contact with the landscape, people, and places allowing for new revelations.

While hiking through the area, I also conducted episodic narrative interviews with four farmers connected to the Graanrepubliek focused on landscape stewardship.

Hiking Guide

I bundled this research into a hiking guide called: trekking in the Oldambt.

Stage 1

It encompasses five stages

Content Guide

with observations on the three elements: regional landscape, landscape stewardship and tectonics highlighted in colored boxes.

Rothuizen tekening

The interviews at the end of each stage are visualized in drawings inspired by Jan Rothuizen. These drawings try to capture the views that each farmer has on landscape stewardship.

Findings

So what are my findings of this research?

Monoculture

Regarding regional landscape, The Oldambt landscape is characterized by monocultures in cultivation. If it is agriculture or a massive pig farm. These monocultures make farmyards vulnerable to decay when they lose their function. When you diversify crops they become less susceptible to pests. A diversification in the activities of farmyards can make them more resilient.

Values

Concerning Landscape stewardship, During my interviews with farmers, I uncovered shared values. They aspire for more diverse cultivation, striving to balance economic and ecological interests. It turns out that farmers are pragmatic and deeply rooted in the landscape. More importantly Farmers want to address the social class disparities and aim to reconnect to consumers in the region

Front-back

Lastly the tectonic. The farmyards contrast sharply between their fronts and backs. The front facades, are maintained to romanticize and commercialize the wealthy Herenboer story which preserves social inequalities. In contrast, the back of the barns, with their intensive use and modifications over time, reflect the region's social scars. This front-back contrast symbolizes the area's social landscape.

Conclusion

So, what can be concluded from this? I think we must see the interrelatedness of these three elements and that they are inevitably intertwined. Tectonics intertwine with the social landscape, while the regional landscape is profoundly influenced by agriculture. This interrelatedness must form the basis for an approach to regenerating the farmyards

Goal

So, What is the goal? To design a strategy for a regenerative redevelopment of an Oldambter farmyard

How

How do I want to achieve this? By applying regenerative principles to an existing farmyard.

Where

So where are we going to do this? At the Former dairy farm Steentjes

The former dairy farm sits on the historic settlement of Ekamp. Most of its farmland was sacrificed for the development of the Blauwestad in the early 2000s. Three different soil types come together peat, clay, and sand. I want to give you a short impression.

Site

The back shows the succession of barns left to right stating in 1780 to 1993

Standing in between the decayed buildings you notice the plot is paved in concrete.

Artist Marc

I met Marc, through his art and his work as a landscape manager. Through art Marc tries to give people in the region ownership with a regenerative agenda. Something he would like to do at the Ekamperweg, which provided me with a relevant case.

Three elements

From the tree elements; Regional landscape, landscape stewardship and tectonics I developed a set of design principles that can be applied to farmyards in the area.

Regional landscape

To start off with the regional landscape; With the principles

- using materials from the regional landscape,
- reconnecting to the soil
- *a omni-directional orientation.*

Material map

So first, regional materials. After my hikes, I looked back on the materials I encountered.

Materiaal pallet

These encounters shaped the material palette provided by the regional landscape.

Re-use

Reusing ceramic materials like bricks and roof tiles from farmyards has the potential to serve as a historical reference.

Local materials

Initially willow and straw formed an obvious starting point due to their surplus in the region.

However, it's not just about connecting materials to the landscape but also about their contributions.

Gert

For instance, Gert plans to cultivate hemp to let the soil rest and Marc is testing resilient ash species

Dollard dike

Meanwhile, mussel and cockle shells might be used in construction to help preserve the Dollard population. So, In many ways, the use of certain materials can influence the landscape to create a symbiotic relationship.

Reconnecting to the soil

We enter the design from the surrounding landscape and see how the use enables reconnection to the soil through three activities. First, to our left experimental farming inspired by Marc's artwork to test different crops and techniques on the plot along Ekamperweg. The Leftover cornerl provided construction materials and created an artificial kolk as a micro-ecosystem

1:2000 plan

This method can potentially expand to 15ha with agroforestry, utilizing the three soil types: peat, sea clay, and pottery clay.

Impression from bike/foot entrance

Second, a community-supported farm will reconnect locals with the soil, starting with a vegetable garden seen on the left, potentially expanding to 8ha with strip cultivation.

Thirdly on the right, growing building materials will begin on a test plot next to the yard, with potential expansion. In this case, they decided for a rabatten forrest.

Lastly, we see the farmyard will feature multiple access points, merging flows of farmers, visitors, and residents.

Plan flows

This omnidirectional orientation is a clear statement in the social landscape and reaction to the back and the front facades that I explained earlier, it makes the yard also more adaptable to future changes.

Landscape stewardship:

Regarding Landscape stewardship I want to guide you through the farmyard explaining the principles of A Farmer in Residence, The Diversification of the program, and function rotation.

The activities around and on the farmyard are curated by a farmer in a residence that lives in the existing house. To provide a regenerative approach a new type of farmer educated in the region is needed.

The principle of a diverse program for this design is expressed in four different pillars:

One; Co-creation; Making and Baking

Two Community supported and experimental Farming

Tree Education supporting the Making, Baking and Farming

Four housing Farmer/Students/ Residents

Function feeds function

To make a diverse program, the aim is that it can grow and adapt over time, like a crop that is cultivated. In this cultivation plan the phasing is based on the idea that each function feeds to following function that is to be developed like a crop rotation.

Impressie bike foothpath

We will walk through the farmyard where these principles come to life and go through the phasing to show how the elements relate to each other spatially.

We return to the entrance point and walk along the path to enter a square:

Section

The cultivation plan of the yards starts with the old sheds left and right creating a square

The manure cellar in the carriage shed on the right is used as a mixing pit for the clay and as a first test an oven is constructed, to familiarize with clay straw material.

Plan workshop

As a second step, The shed on the left is developed into a proper workshop for making and maintaining.

Impression workshop square

The square is focused on making and co-creation. Note how the concrete is cut to be used as a building material and to make room for vegetation.

Section farm

With the workshop in use, the roof of the barn for farming is replaced, opening up for machinery on one side and coming down to a more human scale on the other side.

Section Bakery

The farming has started. To process the yield and create a space for the community farm the bakery will follow.

Plan Bakery

It becomes the center point of the design. Incorporating both a communal kitchen and an education kitchen that can be joined together.

Impression Bakery

The communal kitchen's centerpiece is a fireplace that spans the building's length, integrating all kitchen services. The spacious area allows for food preparation and social interaction. People come for communal cooking or to buy seasonal vegetables.

Impression square

From underneath the roof overhang, we enter the other square, acting as a social space. On the opposite side, the barn now houses an education institute. The laminated trusses are now visible, forming an arcade.

Plan education

Here we see the educational functions in plan view. At the moment there is a classroom, toilets and some studios, but they can be easily adapted into other functions.

Impression passageways

We look back to our entrance point through one of the newly created passageways. Note that the large barns have been cut up into smaller ones, making a street pattern that stimulates encounters and creates a more urban and human scale.

Tectonics:

Now that we know what we're going to build. We need to translate this into a building supporting the principles of landscape stewardship that were just discussed. The starting point is the existing farmyard in which we reused asmuch of the existing structures.

Quote

I have shown you various materials of the regional landscape. But how do these materials come together in a tectonic? Essentially, as a designer, my role is to take what the landscape provides me and restructure this into architecture where the material can fulfill its role.

The chosen building methods are low-tech and they support the idea that building can be a social act that can be taught and executed locally, initiating a regional building culture.

Construction Manual

- 1. We go back to the bakery. Together with a local youth program from Marc and the active people from the community farm we are building the new construction and I would like to take you through this process:
 - We start with the foundations by digging a trench. We can do this under the protection of the existing roof. Meanwhile, the base layer for the floor made from cockle or mussel shells is poured and tampered. The shells both act as insulation and water barrier, and are sourced in cooperation with the Dollard 2050 project.
- 2. The second step is the foundation. The base layer is made of concrete rubble compacted in layers. The material is a residue from cutting up the existing concrete pavement at the site. These slabs form the top layer of the foundation, to provide a solid base for the brick plinth. The bricks are reused from the yard. Bricks that are not suitable for construction can be used as pavement.
 - Meanwhile, the adobe floor is constructed. With 3 possible finishes. (you can see over here) Plain, with cockle shells or mussel shells. The floor is hardened with line oil and can be polished afterward.
- 3. Now we arrive at the CobBauge wall. Constructed with a formwork of willow that is made in winter. I'll describe the construction process in a short video:
 - Now a second layer of Hemp shive mix is poured in. Other fibers can also be used like, Straw, Seaweed, Lisdodde and Reedts. Which could be a great solution to give value to low-grade materials

- 4. The formwork can be taken off when the wall has dried. A bondbeam ties together the wall and roof. The formwork panels are plastered and put on top of the roof.
- 5. After which the rafters of watered poplar are put into place creating the overhang. A second layer of panels is put in place creating a cavity that can be filled with strawflakes as insulation.
- 6. Lastly The window frames of ash, and reused Rooftiles are placed on the roof.

Foto's model

The model shows how clay, straw, shells and willow come together in a tectonic that reflect the landscape.

There is the plastered wall and above the lintel the wall stays unfinished. The wall is divided by two perimeters the Brick plinth at 0,4m and the lintels at 2,2 the scale of the door.

Perimeter

When we zoom out we also notice the perimeter of the machine 4m and the oven 7,5m These perimeters in the design provide a fixed framework, with which adjustments are possible.

Adaptability

The principle of adaptability is further incorporated in the building method. The design is a family of the building system I just explained. With three tastes.

Non insulated, a box in box and an insulated adaptable structure, which I will explain in further detail.

Existing

Starting with the existing situation

Step 1

The roof is replaced and a new wall is added creating a semi-insulated room paved with a clay floor, which can be used as an atelier or storage.

Stap 2

In the next step insulates the space and replaces the clay floor with an heated floor enabling it to be used as classroom

Stap 3

Lastly, a cell is placed in , which transforms the room into a split-level studio with sleeping quarters for students, guests or residencies. And for now this is also the final stage of the development for this farmyard.

Slide: Conclusion

From my research question, I sought to explore how a regenerative building culture could emerge from farming and focused on how an ecological relationship with the landscape could contribute to this. However, my research revealed that the social components are equally significant and intricately woven into the fabric of the landscape. The three elements—Regional landscape, landscape stewardship, and tectonic —proved inseparable in the research, but also while designing. Through my design, I hope to have shown how these elements relate to each other spatially and that they can contribute to the regeneration and preservation of the Groninger landscape. (nieuwe borgen)